



**SUPPLY CHAIN SAFETY
LEADERSHIP GROUP**

**Highways Safety Hub
Raising the Bar 1
Plant and Equipment**

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Plant and equipment item listing

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- 14 – Concrete pump
- 15 – Mobile crane
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- 19 – Tracked dozer
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Plant and equipment item listing

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 - 23 - Self-propelled articulated or rigid dump truck
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Objective

This Raising the Bar Guidance Document provides practical guidance on how to comply with the Supply Chain Safety Leadership Council

Common Intent Document on [Safe Working with Plant](#) as well as providing guidance to Designers and Contractors as to the standardised plant specification requirements (including the competence requirements of operators) preferred by National Highways.

This document is to be used in conjunction with specific vehicle and plant management plans and is subject to ongoing improvement as new technologies are developed.

Scope

The expectation is that this Raising the Bar Guidance Document will apply to all items of plant provided on National Highways worksites and will be implemented by all supply chain partners working with National Highways. It will be used by:

- National Highways / Principal Designers – when commissioning, designing, and planning works
- Supply Chain Partners – when working for Highways England
- National Highways and Supply Chain Partners when assuring compliance

Background

Personnel being struck by vehicles and plant attribute to on average ten fatal injuries and approximately 150 major injuries in the construction industry each year. Hence the control of risks associated with plant, passing through or working within our worksites is of paramount importance.

Governance Requirements

There is a clear expectation within the Supply Chain Safety Leadership Group Common Intent Document on Safe Working with Plant that we will adopt the highest standard of technological solutions to reduce both activity and people risk. Where the minimum plant and people requirements identified in this document cannot be met then this will be subject to approval by a manager of appropriate seniority (Managing/Sector/Operations Director or equivalent Level).

Minimum Requirements

The following elements are mandatory requirements and suppliers shall ensure these elements are applied fully on National Highways sites.

Mandatory Elements

- All National Highways Sites must use 3D Machine Control (3DMC) for all earthwork's operations unless a specific business case is provided
- Frontline Supervisors (FLS) do not operate plant and carry out their FLS role at the same time
- In the unlikely event that failsafe control measures cannot be put in place to prevent plant and persons coming into contact whilst operating. Authorisation for the task/operation must be given in writing by a Director (Managing/sector/operations director or equivalent level) for PC who is not resident upon the project

Guidance – Applying the Hierarchy of Controls

Overview

The following guidance is written with the expectation that it represents best practice and as such should normally be followed unless a better local solution has been devised to meet the overall objective.

The guidance follows the Hierarchy of Controls and assumes that we will first Eliminate the hazard posed by a plant / Person Interface by designing to avoid it. Where this is not possible, we will seek to isolate it – i.e., introduction of physical segregation and only when this is shown to not be possible will we rely on engineering controls.

1. Elimination

Planning

As part of the design and planning stage project teams should understand the correct type and size of plant and vehicles required to be used as well as the potential number of vehicle movements in order to eliminate all plant risks wherever possible. During Roads Period 2 (Apr-20 to Apr-25), we will evolve this guidance to a digital catalogue of plant which informs consideration of vehicle tracking, slewing radiuses, working space requirements and access routes when risk assessing designs. As per the requirements of Raising the Bar 26: Safety by Design, the use of 3D visualisation and virtual rehearsals allows all stakeholders to understand how the size of plant will fit and able to operate safely within the area before any commitment needs to be made. Suppliers are encouraged to consider the use of plant automation to reduce the number of people required on site through substitution with technology.

2. Isolation

When selecting the right item of plant / vehicle for the activity, great consideration needs to be given in the planning phase how the item of plant will be segregated from workers. Where an interface between plant / vehicles and persons cannot be eliminated, the Supply Chain safety Leadership Group Common Intent document on Safe working with Plant requires delivery partners to identify the risk zones around plant and introduce physical segregation such as hard barriers to isolate people from the risk zones, with the risk zone acting as an exclusion area for all persons. For further guidance on plant person interface please read [Raising the Bar 3: PPI](#)

3. Engineering Controls applied via safe working practices.

If physical segregation cannot be installed or the activity cannot take place without an individual entering the Amber or Red Risk zones, then a director of appropriate seniority (Managing/Sector/Operations Director or equivalent Level) will need to sign off a safe system of work identifying the strict controls to be followed when working around plant and vehicles that focuses heavily on robust engineering controls, in order to prevent any plant or vehicles coming into contact with a pedestrian.

4. Minimise

General Minimum Requirements

A suite of best practice standards has been produced for the most frequently used items of plant and equipment on a National Highways project which sets out both the minimum and desirable specific requirements each item as well as the Significant hazards/risks (although the use of plant on site will be subject to a full documented risk assessment).

Elements common to the safe management, operation and use of all plant and equipment, as applicable, are included in the "General Minimum Requirements" section (below).

People Requirements

Training and Competency Requirements

A listing of competence cards / schemes is included in Appendix 1 (at the end of this RtB document) for info / ref.

Competence cards / schemes to be accepted by Principal Contractors in accordance with their own standards.

Communications and briefings

Supply Chain Partners must have robust procedures for ensuring that hazards and risks identified in the plant standards are covered in their risk assessments and that they are briefed to all who are potentially at risk on site.

The Risk Zone exclusion requirements and all pedestrian and vehicle routes must also be communicated to everyone on site, including visitors through the relevant induction process.

Supervisory Requirements

All Frontline Supervisors will be assessed for their competency which will include a requirement to be qualified to SSSTS and NVQL3 (Gold Card) and are fully responsible for ensuring risks zones are adequately segregated and that operatives work in line with the approved safe system of work including those relating to management of PPI. Frontline Supervisors are not to operate plant and carry out their FLS role at the same time.

Emergency Arrangements

Site Emergency Plan

Personnel should be made aware that in the event of a major event involving plant, not to place themselves in danger when assisting others and must be clear about site first aid procedures and reporting procedures.

Reporting and Recording

All injuries, incidents or near miss events involving any plant and vehicles should be treated as a high potential event in accordance with GG128 and must be reported immediately to the National Highways Project Manager or Sponsor and investigated in accordance with their potential severity.

References

Below is a list of publications where you can find important information surrounding the legislation & guidance of plant specification:

HSE Publications & Guidance:

Lifting Equipment and Lifting operations Regulations 1998 (LOLER)

<https://www.hse.gov.uk/pubns/priced/l113.pdf>

Provision of Work Equipment Regulations 1998 (PUWER)

<https://www.hse.gov.uk/pubns/priced/l22.pdf>

HSE series code HSG150: Health and safety in construction

<https://www.hse.gov.uk/pubns/priced/hsg150.pdf>

HSE series code INDG401: The Work at height – a brief guide

<https://www.hse.gov.uk/pubns/indg401.pdf>

HSE series code INDG413: Preventing falls from vehicles.

<https://www.hse.gov.uk/pubns/indg413.pdf>

HSE Case Study 2, Reducing falls from vehicles

[MultiServ reduce the risk of slips and trips](#)

HSE Case Study 7, Reducing falls from vehicles -

[Balfour Beatty saves time and increases safety](#)

Index listing (a to z) of acronyms used

ACRONYM	Full phrase or title
3D / 3DMC	3 Dimension / 3 Dimension Machine Control
ALARP	As Low As Reasonably Practicable
ALLMI	Association of Lorry Loader Manufacturers and Importers (UK)
BS	British Standard
CCTV	Closed-Circuit Television
CE	Conformité Européene
CFA (piling)	Continuous Flight Auger
CLOCS	Construction Logistics and Community Safety
COSHH	Control Of Substances Hazardous to Health
CPC	Certificate of Professional Competence
CPCS	Construction Plant Certification Scheme
CSCS	Construction Skills Certification Scheme
DTH (piling)	Down The Hole
DPF	Diesel Particulate Filters
DVS	Direct Vision Standard
DVSA	Driver Vehicle Standards Agency
EA	Environment Agency
EC	European Commission
EU	European Union
EUSR	Energy & Utility Skills Register
FLS	Frontline Supervisors
FOPS	Falling Object Protective Structure
FORS	Fleet Operator Recognition Scheme
FTA	Freight Transport Association
GB	Great Britain
GG (as in GG128)	General Principles and Scheme Governance. General information. (GG128 - Requirements for reporting incidents, events, and undesirable circumstances: health, safety, wellbeing, structural and environmental).

ACRONYM	Full phrase or title
GMR	General Minimum Requirements (Section)
GS6	General Series 6 (Avoiding danger from overhead power lines)
GPS	Global Positioning System
GVW	Gross Vehicle Weight
HAVS	Hand Arm Vibration Syndrome
HGV	Heavy Goods Vehicle
HSE	Health and Safety Executive
IAN	Interim Advice Note
INDG	(HSE) Industry Guidance
IPAF	International Powered Access Federation
ISO	International Organisation of Standardisation
kg	Kilogramme
km	Kilometre
kVA	kilovolt-ampere (A kilovolt-ampere (kVA) is 1000 volt-amperes. Electrical power is measured in watts (W): The voltage times the current measured each instant)
LA(AP)	Lifting Appliance (Appointed Person)
LDP	Large Diameter Pile
LED	Light Emitting Diode (an electronic light source that uses a semiconductor)
LOLER	Lifting operations and lifting equipment regulations
MEWP	Mobile Elevating Work Platform
MOT	Ministry Of Transport
NPORS	National Plant Operators Registration Scheme
NRMM	Non Road Mobile Machinery Defined as any mobile machine or vehicle that is not solely intended for carrying passengers or goods on the road
NVQ L3	National Vocational Qualification, Level 3
OEM	Original Equipment Manufacturer
OND	Outdoor Noise Directive

Index listing (a to z) of acronyms used (continued...)

ACRONYM	Full phrase or title
OPS	Operator Protective System
PPE	Personal Protective Equipment
PPI	Plant Person Interface
PPM	Planned Preventative Maintenance
PUWER	Provision and Use of Work Equipment Regulations
PVPMP	Plant, Vehicle and People Management Plan
RAL	Reichs-Ausschuß für Lieferbedingungen und Gütesicherung – A European colour matching system
RAMS	Risk Assessment Method Statement
RCBO	Residual Current circuit Breaker with Overcurrent protection
RCD	Residual Current Device
RCI	Rated Capacity Indicator
RCL	Rated Capacity Limiter
RIDDOR	Reporting of Injuries, Diseases and Dangerous Occurrences Regulations
RtB	Raising the Bar
RTITB	Road Transport Industry Training Board
ROPS	Roll Over Protective Structure
SSSTS	Site Safety Supervisor Training Scheme
STGO (requirements as per CPA TIN 104)	Special Types General Order – (CPA = Construction Plant-hire Association, and TIN 104 = Requirements for In-service Performance Testing of the Chassis Brakes of Mobile Cranes Operating Under STGO)
SWL	Safe Working Load
TBT	Tool Box Talk
TM	Traffic Management
TOPS	Tip Over Protection Structure
UK	United Kingdom
UKCA	United Kingdom Conformity Assessed

ACRONYM	Full phrase or title
UNECE	United Nations Economic Commission for Europe
VED	Vehicle Excise Duty (UK road tax)
VIN	Vehicle Identification Number
VOSA	Vehicle and Operator Services Agency
WAH	Work At Height(s)

General minimum requirements (Page 1 of 2)

Introduction

Information (text) contained in this “General Minimum Requirements” section (2 pages) is relevant to the safe management, operation and use of all plant and equipment – as applicable.

This information has been removed from text of all items, numbers 1 to 33 inclusive, included in this Raising the Bar, to:

- Streamline the document
- Provide a summary listing of “common” elements relevant to all plant and equipment – as required

General

- All plant and equipment to be inspected prior to first use and the appropriate pre-start check sheet completed and daily recorded inspections thereafter
- Pre-use inspection signed off

Legal

- Compliant with current UK legislation
- Compliant with European Commission (EC) Machinery Directive 2006/42/EC, or UKCA certification, and supplied with a declaration of conformity

Plant Equipment

- Evidence of pre-hire inspection
- Operator instruction manual available with plant or equipment
- Access handrails and steps to be colour coded [RAL 1026 (luminous yellow) or RAL 6038 (luminous green)]
- All safety decals in place and legible
- Evidence of regular inspection plus ‘next service and or inspection due’ date/hours sticker
- Seat belt/belts must be fitted and operational

- Tyres labelled each side with inflation pressure
- Wheel Nut indicators on all wheel nuts unless proved impractical
- If used adjacent live lanes control measures must be put in place that in the event of operator error the machine will be prevented from striking passing traffic

Traffic Signs Manual Chapter 8, Part 2 (Chapter 8)

If plant included in this RtB1 document, is driven, or used on the public highway, requirements of Chapter 8 should be followed, including.

- Roof mounted beacons (Chapter 8, paragraph O5.3) –
 - Roof-mounted flashing amber light bar (comprising at least 2 independent light sources) or two independent roof-mounted flashing amber warning beacons, visible through 360°, must be fitted and operational, and be used
 - Roof-mounted flashing amber warning beacons must comply with the requirements of the Road Vehicle Lighting Regulations and should also comply with the United Nations Economic Commission for Europe (UNECE) Regulation 65 on Special Warning Lamps
 - If the main roof-mounted beacon is likely to be obscured from the rear by parts of the vehicle or any equipment carried on the vehicle, additional beacons should be fitted toward the rear of the vehicle where they will remain visible
- Vehicle conspicuity – All vehicles must be fitted with hi-visibility markings (in accordance with Chapter 8, paragraph O5.2)
- The “HIGHWAY MAINTENANCE” sign to diagram 7404, must be externally mounted on rear of vehicle, in accordance with Chapter 8, paragraph O5.5.2 and O5.5.3. (Chapter paragraph O5.2.8 also refers)

Operator / Driver (excluding non-working delivery vehicles)

- Attended full induction prior to starting work
- To have passed a drug and alcohol test and subject to ongoing medical screening/surveillance (RtB 12 “Occupational health”)

General minimum requirements (Page 2 of 2)

Operator / Driver (excluding non-working delivery vehicles)

continued...

- Competency assessment prior to being put to work – be familiar with plant / equipment
- Complete Pre-use check sheet/e-inspection
- Comply with pre-use and defect reporting system
- Evidence of having signed onto the appropriate Safe System of Work documentation for the task
- Be briefed on the site-specific Plant, Vehicle and People Management Plan (PVPMP) and check for overhead obstructions and hazards
- Always operate/use plant and equipment in accordance with manufacturer's instructions / recommendations
- Engine must be turned off and keys removed from ignition before leaving the vehicle unattended
- Operator to mount and dismount machine using fixed access arrangements and always facing the machine using 3 points of contact
- Operator to stop work if the event of unauthorised personnel entering working area / zone
- Report all unsafe conditions
- Where vehicle or mobile plant utilised on site has to be driven on the public highway, the driver/operator must hold a current valid driving licence with the appropriate category for that vehicle/mobile plant
- Full site-defined PPE required if outside cab - none loose fitting PPE required in all cases to avoid catching on controls
- Additional PPE to be worn as defined by risk assessment specific for the task to be undertaken

Non-working delivery drivers on site outside cab

- Full site-defined PPE

Training and Competency Requirements

- A listing of competence cards / schemes is included in Appendix 1 (at the end of this RtB document) for info / ref.
- Competence cards / schemes to be accepted by Principal Contractors in accordance with their own standards

Hazards / Risks

Significant hazards/risks identified when operating the plant item or equipment and for those adjacent to plant items or equipment:

- Access into cab/refuelling and maintenance
- Clothes can get snagged on controls prior to release of servo isolator/safety handle
- Danger of crushing in slew zone
- Effect of weather on visibility and working/traffic surfaces
- Fire
- Hazardous substances such as fuels, oils, and greases
- Limitations to all round visibility / restricting operator vision
- Overhead obstructions – cables/bridges / power lines / telephone lines
- Plant and personnel interface
- Public interface – working alongside pedestrians/vehicles / plant crossings
- Transportation including loading/unloading

Note: All persons preparing risk assessments involving plant or equipment are encouraged to visit the proposed area of work and to review previous risk assessments undertaken for similar.

1. 180° Excavator / Backhoe



General Minimum Requirements (GMR) Section

- The GMR Section (above) contains information common to all items of plant and equipment covered by this RtB guidance, as applicable, and text has been removed from the individual plant item pages to streamline the document
- Content of the GMR Section, as applicable, must be followed to promote and ensure safe operation and use, in addition to details contained below for this plant item

Minimum Requirements - Plant

- On public highway – insured, and compliant with C&U regulations (VED registered, working lights, indicators, registration plate's front & rear etc.)
- Flashing amber beacon
- Brake efficiency testing to be carried out and recorded e.g., daily user park and service brake and dynamic brake efficiency test as recommended by manufacturer

- External green light fitted to indicate when the seat belt is fastened, the exception to this being by risk assessment for plant machinery travelling on public highways
 - Note: You can use an external green light on plant machinery when they are working on-site, or at works on the road as any area closed off is no longer regarded as being part of the highway. They should not be used on the highway as this could be an offence under the Road Vehicle Lighting Regulations 1989, as amended
- 360° visibility criteria to satisfy 1m high at 1m distance, using line of sight, mirrors, cameras (270°/360°) - as applicable
- Reversing alarm to be fitted working and audible outside of the cab
- Roll over protection structure (ROPS)
- Falling objects protective structure (FOPS) to cab by risk assessment dependent upon work being undertaken
- If wheeled duties use axle locks for other duties stabilisers must be deployed
- Isolation controls by a secondary device, such as seat rotation
- Tooth guards must always be used when on public highway
- If quick hitch fitted:
 - Must be fully automatic double locking for machines over 5 tonnes (unless fixed as a direct attachment - no quick hitch)
 - Have an in-cab audible alarm to warn of detachment
 - Copy of manufacturers operating instructions
 - Pre-use Inspection signed off
- If used under overhead cables or obstructions:
 - Height restrictors with indication on machine
 - Health and Safety Executive's GS6 avoidance of danger from overhead electric power lines' must be followed

Minimum Requirements – Lifting

- Unless demonstrated that it will not be used for lifting:
 - Six-month LOLER thorough examination on lifting accessories
 - Certified lifting point required for all lifting duties

- SWL to be clearly marked on certified lifting points
- When using a lifting eye, an internal thrust bearing type swivel hook, must be used to ensure load can be manoeuvred without risk of swinging back or overloading. Short sling chain to be employed to stop side load
- Audible or visual overload warning system fitted and operational
- A machine specific, lifting duty sheet, lift plan and risk assessment
- Check valves must be fitted to excavators' boom and dipper circuits

Minimum Requirements - Operator

- Category B driving licence for road use
- Authorisation required prior to driving on public highway
- Do not break ground unless briefed on, have received and fully understood a permit to break ground
- Seat belt must be worn
- If quick hitch fitted:
 - Be briefed on safe use of quick hitches
 - Operator shall be trained in how to use specific quick hitch attachments
 - Daily inspection signed off
- If used for lifting:
 - Lift plan and/or permit to lift must be briefed and understood
 - Operator shall be trained in how to use excavator as a crane and specific lifting attachments

Desirable - Plant

- A 360° camera system that interlinks pictures from multiple cameras
- A camera system that can identify pedestrians from a maximum distance of 5m to a minimum of zero in all directions, warning operator and pedestrians of encroachment into the exclusion zone
- A list of weights of potential items to be lifted should be maintained
- Complete people exclusion area around plant and operation
- Decals detailing tyre pressures and wheel nut torque settings

- System to prevent operation in reverse at speed
- Tracker unit, isolation method independent of factory fitted locks, locking caps/covers to fuel and all other tanks
- Use of slew restrictors where appropriate

Desirable - Emissions

- Engine emissions compliant to EU Stage V

Desirable - Operator

- Operator to be competency assessed in dealing with spills and environmental protection

Hazards / Risks

Significant hazards/risks identified when operating the machine and for those adjacent to machine:

Hazards/risks included in the "General Minimum Requirements" section, plus:-

- Overturning if on uneven ground or lifting duties exceeded
- Underground services
- Use of accessories and how they are attached/inspected such as breaking hammer

2. Forward and Side Tipping Dumper



General Minimum Requirements (GMR) Section

- The GMR Section (above) contains information common to all items of plant and equipment covered by this RtB guidance, as applicable, and text has been removed from the individual plant item pages to streamline the document
- Content of the GMR Section, as applicable, must be followed to promote and ensure safe operation and use, in addition to details contained below for this plant item

General

Dumpers and dump trucks must always be operated in accordance with manufacturer's instructions and shall not be filled above the safe load line inside the skip or above the metal rim where no safe load line is indicated to avoid restricting driver's vision.

Minimum Requirements - Plant

- Selection of dumpers; one tonne and below, plus seven tonne and above must have a specific risk assessment prior to work to determine suitability for task. This must take account of the inclines and speeds at which they are to be used, as well as instability one tonne and below, and visibility seven tonne and above
- On public highway – insured, and compliant with C&U regulations (VED registered, working lights, indicators, registration plate's front & rear etc.)

- Flashing amber beacon
- Brake efficiency testing to be carried out and recorded e.g., daily user park and service brake and dynamic brake efficiency test as recommended by manufacturer
- External green light fitted to indicate when the seat belt is fastened, the exception to this being by risk assessment for plant machinery travelling on public highways
 - Note: You can use an external green light on plant machinery when they are working on-site, or at works on the road as any area closed off is no longer regarded as being part of the highway. They should not be used on the highway as this could be an offence under the Road Vehicle Lighting Regulations 1989, as amended
- 360° visibility criteria to satisfy 1m high at 1m distance, using line of sight, mirrors, cameras, radar - as applicable
- Electronic forward facing collision avoidance system capable of audible and visual warnings to the operator
- Reversing alarm to be fitted working and audible (excluding dumpers with rotating operator seat)
- Roll over protective structure (ROPS)
- If fitted with ROPS protection only, operator must dismount whilst being loaded
- Operator may remain in the cab whilst being loaded, subject to a task specific risk assessment being carried out and OEM impact testing completed and satisfactory for dumper being used
- Isolation switch with key
- Locking caps/covers
- Tipping mechanism to be in good condition
- Tow hitch (where permissible) must have correct pin with chain attached to dumper

Minimum Requirements - Operator

- Operator must hold the correct category of driving licence for the vehicle / plant being utilised. (NB: drivers of dumpers over 3.5 tonnes GVW must be 21 or over)
- Where turntable dumpers are narrow mouth, or high lift equipment, the operator must have received additional training in accordance with manufacturer recommendations
- Authorisation required prior to driving on public highway
- Do not operate if machine is, or appears to be damaged
- Do not tip whilst on the move or during high winds
- Do not travel or operate onto stock piles or soil heaps
- Ensure stop blocks used to prevent fall into excavation
- Seat belt must be worn
- If towing required:
 - Towing should only be carried out following the Original Equipment Manufacturer (OEM) guidance and complying with any regulatory requirements
 - Be trained in towing and operational risk assessed
 - Register of persons authorised to tow must be maintained
 - Operator must consider stability issues when towing
 - Special care must be taken to weight towed especially for braking activities
 - Total train weight must not exceed the rated payload of the machine

Desirable - Plant

- A 360° camera system that interlinks pictures from multiple cameras
- A camera system that can identify pedestrians from a maximum distance of 5m to a minimum of zero in all directions, warning operator and pedestrians of encroachment into the red zone
- A three-way or side-tipping dumper must be three-way complete left or right or forward only. Diagonal tipping should be avoided as non-compliance can result in loss of stability

- Complete people exclusion area around plant and operation
- Directional white noise reversing warning
- Full ROPS, FOPS and OPS (Operator Protective System) cab structure for 6T dumpers and above
- Load measurement device
- Seat belt operation interlocked with ignition switch / warning indicator

Desirable - Emissions

- Engine emissions compliant to EU Stage V

Desirable - Operator

- Operator to be competency assessed in dealing with spills and environmental protection

Hazards / Risks

Significant hazards/risks identified when operating the machine and for those adjacent to machine:

Hazards/risks included in the "General Minimum Requirements" section, plus:-

- Consider risk of towed items
- Falls/overturning into excavations
- High risk of overturning at speed and on inclines (Refer to manufacturer' recommendations)
- The buckets on side tipping dumpers can protrude significantly when turned to the side, creating a hazard to pedestrians
- Wet materials/clay are prone to stick and cause instability during tipping

3. Mini excavator <10 Tonne



General Minimum Requirements (GMR) Section

- The GMR Section (above) contains information common to all items of plant and equipment covered by this RtB guidance, as applicable, and text has been removed from the individual plant item pages to streamline the document
- Content of the GMR Section, as applicable, must be followed to promote and ensure safe operation and use, in addition to details contained below for this plant item

Minimum Requirements - Plant

- Flashing amber beacon
- External green light fitted to indicate when the seat belt is fastened, the exception to this being by risk assessment for plant machinery travelling on public highways
 - Note: You can use an external green light on plant machinery when they are working on-site, or at works on the road as any area closed off is no longer regarded as being part of the highway. They should not be used on the highway as this could be an offence under the Road Vehicle Lighting Regulations 1989, as amended

- 360° visibility criteria to satisfy 1m high at 1m distance, using line of sight, mirrors, cameras (270°/360°), radar - as applicable
- Tip over protection structure (TOPS) to cab as minimum or rollover protection structure (ROPS) and Falling object protective structure (FOPS) to cab by risk assessment
- Risk assessments to be completed to assess the largest/most stable machine possible to complete the task
- If quick hitch fitted:
 - Must be fully automatic double locking for machines over 5 tonnes (unless fixed as a direct attachment - no quick hitch)
 - For machines 5 tonnes and below, twin locking fully automatic quick hitch devices, manual quick hitch or direct mounted
 - Have an in-cab warning alarm where quick hitch fitted
 - Copy of manufacturers operating instructions
 - Pre-use Inspection signed off
- If used under overhead cables or obstructions:
 - Height restrictors with indication on machine
 - Health and Safety Executive's GS6 avoidance of danger from overhead electric power lines must be followed

Minimum Requirements – Lifting

- Current 12 month LOLER thorough examination certificate for lifting equipment
- Unless demonstrated that it will not be used for lifting:
 - Six-month LOLER thorough examination on lifting accessories
 - Certified lifting point required for all lifting duties
 - SWL to be clearly marked on all certified lifting points
 - Audible or visual overload warning system fitted and operational
 - When using a lifting eye, an internal thrust bearing type swivel hook must be used to ensure load can be manoeuvred without risk of swinging back or overloading. Short sling chain to be employed to stop side load
 - A machine specific lifting duty sheet lift plan and risk assessment

- Check valves must be fitted to excavators' boom and dipper rams for machines of five tonnes and above

Minimum Requirements - Operator

- Category B driving licence for road use
- Do not break ground unless briefed on, have received and fully understood a permit to break ground
- Operator to ensure buckets are always carried safely
- Seat belt must be worn
- If quick hitch fitted:
 - Be briefed on safe use of quick hitches
 - Operator shall be trained in how to use specific quick hitch attachments
 - Daily inspection signed off
- If used for lifting:
 - If lifting operations are required to be undertaken the operator must be trained in how to use the excavator as a crane and in any specific lifting devices
 - Lift plan and/or permit to lift must be briefed and understood

Desirable - Plant

- A 360° camera system that interlinks pictures from multiple cameras
- A camera system that can identify pedestrians from a maximum distance of 5m to a minimum of zero in all directions, warning operator and pedestrians of encroachment into the red zone
- Complete people exclusion area around plant and operation
- Extendable tracks to enhance stability
- Seat belt operation interlocked with ignition switch/warning indicator
- Tracker unit, isolation method independent of factory fitted locks, locking caps/covers to fuel and all other tanks
- Travel movement alarm to be fitted and audible in working conditions
- Use of slew restrictors where appropriate

- When used for lifting a list of weights of potential items to be lifted should be maintained
- With quick hitch, an in-cab warning alarm for detachment

Desirable - Emissions

- Engine emissions compliant to EU Stage V

Desirable - Operator

- Operator to be competency assessed in dealing with spills and environmental protection

Hazards / Risks

Significant hazards/risks identified when operating the machine and for those adjacent to machine:

Hazards/risks included in the "General Minimum Requirements" section, plus:-

- Overturning if on uneven ground or lifting duties exceeded
- Underground services
- Use of accessories and how they are attached/inspected, such as breaking hammer

4. Tracked 360° Excavator > 10 Tonnes



General Minimum Requirements (GMR) Section

- The GMR Section (above) contains information common to all items of plant and equipment covered by this RtB guidance, as applicable, and text has been removed from the individual plant item pages to streamline the document
- Content of the GMR Section, as applicable, must be followed to promote and ensure safe operation and use, in addition to details contained below for this plant item

Minimum Requirements - Plant

- Flashing amber beacon
- External green light fitted to indicate when the seat belt is fastened
- 360° visibility criteria to satisfy 1m high at 1m distance, using line of sight, mirrors, cameras (270°/360°), radar - as applicable
- Movement alarm fitted, working and audible outside the cab
- Roll over protection structure (ROPS) to cab
- Falling object protective structure (FOPS) where required by risk assessment where the working environment requires
- Handrails on body where access required

- Work at height protection to provide Safe work environment when on the machine for refuelling and maintenance etc.
- Quick hitch:
 - Must be fully automatic double locking
 - Have an in-cab warning alarm
 - Copy of manufacturers operating instructions
 - Pre-use inspection signed off
- If used under overhead cables or obstructions:
 - Height restrictors with indication on machine
 - Health and Safety Executive's GS6 avoidance of danger from overhead electric power lines must be followed

Minimum Requirements – Lifting

- Current 12 month LOLER thorough examination certificate for lifting equipment
- Unless demonstrated that it will not be used for lifting:
 - Six-month LOLER thorough examination on lifting accessories
 - Audible or visual overload warning system fitted and operational
 - Certified lifting point required for all lifting duties
 - SWL to be clearly marked on all lifting points
 - When using a lifting eye, an internal thrust bearing type swivel hook, must be used to ensure load can be manoeuvred without risk of swinging back or overloading. Short sling chain to be employed to stop side load
 - A machine specific lifting duty sheet lift plan and risk assessment
 - If lift and carry duties to be undertaken specific risk assessment to be completed considering manufacturer's instructions
 - Check valves must be fitted to excavators' boom and dipper circuits

Minimum Requirements - Operator

- All hoses to be inspected regularly

- Do not break ground unless briefed on, have received and fully understood a permit to break ground
- Operator to ensure buckets are always carried safely
- Seat belt must be worn
- Quick hitch:
 - Be briefed on 'safe use of quick hitches'
 - Operator shall be trained in how to use specific quick hitch attachments
 - Daily inspection signed off
- If used for lifting:
 - Lift plan and/or permit to lift must be briefed and understood
 - Operator shall be trained in how to use specific lifting attachments

Desirable - Plant

- A 360° camera system that interlinks pictures from multiple cameras
- A camera system that can identify pedestrians from a maximum distance of 5m to a minimum of zero in all directions, warning operator and pedestrians of encroachment into the red zone
- Complete people exclusion area around plant and operation
- Seat belt operation interlocked with ignition switch/warning indicator
- Track direction indicator note
- Tracker unit, isolation method independent of factory fitted locks, locking caps/covers to fuel and all other tanks
- Use of slew restrictors where appropriate
- When used for lifting a list of weights of potential items to be lifted should be maintained
- Zero tail swing ballast/counterweight

Desirable - Emissions

- Engine emissions compliant to EU Stage V

Desirable - Operator

- Operator to be competency assessed in dealing with spills and environmental protection

Hazards / Risks

Significant hazards/risks identified when operating the machine and for those adjacent to machine:

Hazards/risks included in the "General Minimum Requirements" section, plus:-

- Controls can be caught inadvertently if near to safety lever
- Overturning if lifting duties exceeded
- Underground services
- Use of accessories and how they are attached/inspected – such as breaking hammer

5. Wheeled 360° Excavator > 10 Tonnes



General Minimum Requirements (GMR) Section

- The GMR Section (above) contains information common to all items of plant and equipment covered by this RtB guidance, as applicable, and text has been removed from the individual plant item pages to streamline the document
- Content of the GMR Section, as applicable, must be followed to promote and ensure safe operation and use, in addition to details contained below for this plant item

Minimum Requirements - Plant

- On public highway – insured, and compliant with C&U regulations (VED registered, working lights, indicators, registration plate's front & rear etc.)
- Flashing amber beacon
- Brake efficiency testing to be carried out and recorded e.g., daily user park and service brake and dynamic brake efficiency test as recommended by manufacturer
- External green light fitted to indicate when the seat belt is fastened, the exception to this being by risk assessment for plant machinery travelling on public highways

- Note: You can use an external green light on plant machinery when they are working on-site, or at works on the road as any area closed off is no longer regarded as being part of the highway. They should not be used on the highway as this could be an offence under the Road Vehicle Lighting Regulations 1989, as amended
- 360° visibility criteria to satisfy 1m high at 1m distance, using line of sight, mirrors, cameras (270°/360°), radar - as applicable
- Movement alarm fitted, working and audible outside the cab
- Roll over protection structure (ROPS) to cab
- Falling object protective structure (FOPS) to cab where required by risk assessment where the working environment requires
- Handrails on body where access required
- When
- Work at height protection to provide Safe work environment when on the machine for refuelling and maintenance etc
- Quick hitch:
 - Must be fully automatic double locking
 - Have an in-cab warning alarm
 - Copy of manufacturers operating instructions
 - Pre-use inspection signed off
- If used under overhead cables or obstructions:
 - Height restrictors with indication on machine
 - Health and Safety Executive's GS6 avoidance of danger from overhead electric power lines must be followed

Minimum Requirements – Lifting

- Current 12 month LOLER thorough examination certificate for lifting equipment
- Unless demonstrated that it will not be used for lifting:
 - Six-month LOLER thorough examination on lifting accessories
 - Certified lifting point required for all lifting duties

- When using a lifting eye, an internal thrust bearing type swivel hook, must be used to ensure load can be manoeuvred without risk of swinging back or overloading. Short sling chain to be employed to stop side load
- SWL to be clearly marked on all certified lifting points
- A machine specific lifting duty sheet lift plan and risk assessment
- Audible or visual overload warning system fitted and operational
- Check valves must be fitted to excavators' boom and dipper circuits
- If lift and carry duties to be undertaken specific risk assessment to be completed considering manufacturer's instructions

Minimum Requirements - Operator

- Operator must hold the correct category of driving licence for the vehicle / plant being utilised
- Authorisation required prior to driving on public highway
- Do not break ground unless briefed on, have received and fully understood a permit to break ground
- If wheeled duties use axle locks, for other duties stabilisers must be deployed
- Operator to ensure buckets are carried and secured safely when being transported
- Seat belt must be worn
- Quick hitch:
 - Be briefed on safe use of quick hitches
 - Operator shall be trained in how to use specific quick hitch attachments
 - Daily inspection signed off
- If used for lifting:
 - Lift plan and/or permit to lift must be briefed and understood
 - Operator shall be trained in how to use specific lifting attachments

Desirable - Plant

- A 360° camera system that interlinks pictures from multiple cameras
- A camera system that can identify pedestrians from a maximum distance of 5m to a minimum of zero in all directions, warning operator and pedestrians of encroachment into the red zone
- Complete people exclusion area around plant and operation
- Tracker unit, isolation method independent of factory fitted locks, locking caps/covers to fuel and all other tanks
- When used for lifting a list of weights of potential items to be lifted should be maintained

Desirable - Emissions

- Engine emissions compliant to EU Stage V

Desirable - Operator

- Operator to be competency assessed in dealing with spills and environmental protection

Hazards / Risks

Significant hazards/risks identified when operating the machine and for those adjacent to machine:

Hazards/risks included in the "General Minimum Requirements" section, plus:-

- Operating in reversing mode
- Overturning if lifting duties exceeded
- Underground services
- Use of accessories and how they are attached/inspected such as breaking hammer

6. Crawler Crane



General Minimum Requirements (GMR) Section

- The GMR Section (above) contains information common to all items of plant and equipment covered by this RtB guidance, as applicable, and text has been removed from the individual plant item pages to streamline the document
- Content of the GMR Section, as applicable, must be followed to promote and ensure safe operation and use, in addition to details contained below for this plant item

General

Hydraulic cranes only permitted not mechanical.

Minimum Requirements - Plant

- Flashing amber beacon
- Fire extinguisher in cab
- External green light fitted to indicate when the seat belt is fastened
- 360° visibility criteria to satisfy 1m high at 1m distance, using line of sight, mirrors, cameras (270°/360°), radar - as applicable

- Reversing alarm to be directional and white noise, working and audible outside of the cab
- Handrails fitted to running boards and crane upper structure
- Handrails on walkways and body where access required
- If used under overhead cables or obstructions:
 - Height restrictors with indication on machine
 - Health and Safety Executive's GS6 avoidance of danger from overhead electric power lines must be followed

Minimum Requirements – Lifting

- Current 12 month LOLER thorough examination certificate for lifting equipment
- Have either a four yearly overload test certificate or a defined written scope of examination scheme supported by a declaration of compliance in line with the maintenance and thorough examination of mobile cranes best practice guide
- Current six monthly LOLER certificate for the crane
- Current six monthly LOLER thorough examination certificate for all lifting tackle carried
- Lifting accessories marked with SWL
- Aircraft warning lights fitted (if working within 6km of airports or aerodromes?)
- Boom hoist cut-out facility
- Crane fitted with anemometer or other device to monitor in service wind speeds
- Door lock keys supplied
- Fitted and operational audible or visual overload warning system
- Hook block over hoist cut-out facility
- Load bearing hydraulic cylinders fitted with check valves
- Slew alarms
- Slew, jib height and radius restrictors if working in the vicinity of overhead power lines, railways, adjacent live traffic, etc.

- Where cranes have extendable tracks and where there is a limitation on gradient for carrying out extension/retraction the crane must be fitted with a spirit level in the operator's sight line showing acceptable limits

Raising or lowering of personnel

- Ability to restrict the working speed of all crane functions to 0.5 metre per second
- Carrier hoisting and lowering ropes minimum diameter of 8 millimetres
- Control levers return to neutral automatically
- Hook fitted with safety catch
- Power lowering capacity fitted to the crane. If not, free fall capability must be locked out
- SWL of crane configuration in use is at least twice the rated capacity of the carrier

Refer to BS7121-1:2016 "Code of practice for safe use of cranes, Part 1: General" for further guidance.

Minimum Requirements - Operator

- Valid medical certificate
- Evidence of familiarisation training for type of crane to be operated
- Lifting plan and permit to lift in place as appropriate
- Seat belt must be worn

Desirable - Plant

- A 360° camera system that interlinks pictures from multiple cameras
- A camera system that can identify pedestrians from a maximum distance of 5m to a minimum of zero in all directions, warning operator and pedestrians of encroachment into the red zone
- Block stand to be provided when reeving rope into hook block whilst block is lying down
- Jib head tracker if working on sites with blind lifting issues
- Means for operator to monitor hoist rope tension such as camera or mirror

- Red, amber, and green high-level illumination to indicate crane is operating within safe limits
- Seat belt operation interlocked with ignition switch/warning indicator
- Window guards

Desirable - Emissions

- Engine emissions compliant to EU Stage V

Desirable – Operator / Supervisor

- Crane Supervisor to have handheld anemometer to measure wind speeds
- Operator to have minimum of three years relevant operating experience
- Operator to be competency assessed in dealing with spills and environmental protection

Hazards / Risks

Significant hazards/risks identified when operating the machine and for those adjacent to machine:

Hazards/risks included in the "General Minimum Requirements" section, plus:-

- Dropped loads operating in reversing mode
- Ground conditions capable of withstanding imposed track loadings
- Imposed loadings on underground services
- Jib clash with adjacent cranes/tall plant
- Load path – slewing over site personnel
- Overturning if lifting duties exceeded
- Potential excessive noise
- Use of jib walkways – falls from height

7. Lorry Loader Crane



General Minimum Requirements (GMR) Section

- The GMR Section (above) contains information common to all items of plant and equipment covered by this RtB guidance, as applicable, and text has been removed from the individual plant item pages to streamline the document
- Content of the GMR Section, as applicable, must be followed to promote and ensure safe operation and use, in addition to details contained below for this plant item

Minimum Requirements – Vehicle

- Current MOT plating certificate
- Current VED and operator 'O' licence displayed in the cab windscreen
- On public highway - insured, and compliant with C&U regulations (VED registered, working lights, indicators, registration plate's front & rear etc.)
- 360° visibility criteria to satisfy 1m high at 1m distance, using line of sight, mirrors, cameras and radar - as applicable
- Reversing alarm to be fitted, white noise and audible outside of the cab
- Audible and visual warning to be fitted in the cab to remind driver / operator including the hydraulic arm fitted, is not safety stowed prior to travelling
- Edge protection or fall arrest arrangements where access to vehicle body required
- Safe access to all areas where operator or slinger/signaller required to work

- If used under overhead cables or obstructions:
 - Height restrictors with indication on machine
 - Health and Safety Executive's GS6 avoidance of danger from overhead electric power lines must be followed

Minimum Requirements – Lifting

- Current 12 month LOLER thorough examination certificate for lifting equipment
- Have either a 4 yearly overload test certificate or thorough examination in line with ALLMI guidance note 010 and CPA-ALLMI management of lifting operations with lorry loaders best practice guide June 2010
- Current six monthly LOLER certification for all on-board lifting tackle and accessories
- Accessories to be marked with safe working loads
- Crane duties chart displayed on boom or at operator's station
- Functioning audible warning devices – safe load indicator/rated capacity indicator/device with hydraulic lock-out/warning light/alarm

Minimum requirements - Remote control

- If battery powered, remote control units must be checked to ensure sufficient power is available for the intended operations
- If the remote control is operated through an umbilical cord, this must extend to allow the operator to work from a place of safety
- Operation of the emergency stop button and any other isolating devices must be checked for operational function
- Remote control units should be clean and free from damage including the wearing harness and umbilical cable (where relevant)
- Specific Emergency Recovery / Rescue Procedures must be established and effectively communicated and practised prior to works commencing

Minimum requirements - FORS

- Fleet Operator Recognition Scheme (FORS) compliant - Bronze accreditation
- In addition, FORS silver or gold progression, to be provided to suit project risk requirements

- For further guidance, refer to – <https://www.fors-online.org.uk/cms>

Minimum requirements - Chapter 8

- Refer to “General Minimum Requirements” section (above) for details relating to amber colour beacons, vehicle conspicuity and highway maintenance signage requirements

Minimum requirements - Stabilisers

- All lorry loaders attending projects/sites must have the type of stabiliser identified:
 - The operator's manual and instructions must be strictly adhered to
 - Establish if the stabilisers are operated from fixed positions or via remote
 - The risk of crushing injuries is increased when hydraulically operated tilting / rotating stabilisers are fitted. This is increased if the tilting / rotating leg retracts towards where the operator needs to stand to operate the controls
 - The operator must observe the extension and tilting / rotating leg at all times when it is being operated
 - Simultaneous deployment/retraction of stabiliser extensions and tilting / rotating legs is not permitted under any circumstances
 - Outrigger lock-out preventing crane operation with legs in stowed position as per EN12999/A3
 - Stabiliser legs not stowed warning device
- If unsure, do not allow the activity to proceed and seek further guidance from the Lifting Appliance Appointed Person [LA(AP)], Health and Safety Team or both
- Refer to the following safety alerts for further details -
 - ALLMI Safety Alert – Swing-up Stabilisers [Oct 21] – <https://www.allmi.com/latest-news/latest-news/568-allmi-safety-alert-swing-up-stabilisers-2>
 - National Highways Safety Alert NHa/276, Lorry loader stabilisers – <https://www.highwaysafetyhub.com/uploads/5/1/2/9/51294565/nha276-national-highways-for-information-safety-alert-lorry-loader-stabilisers.pdf>

Minimum Requirements – Driver / Operator

- Operator must hold the correct category of driving licence for the vehicle / plant being utilised along with current Driver CPC qualification
- Lift plan and/or permit to lift must be briefed and understood
- Seat belt must be worn (when driving)

Desirable - Plant

- Compliant with CLOCS standard
- For driving activities, seat belt operation interlocked with ignition switch/warning indicator
- Sensor de-rate system if crane is used short-rigged
- Traffic cones or other means of maintaining safe zones and avoiding pedestrian traffic near lifting

Desirable - Emissions

- Engine emissions compliant to EURO 6

Desirable - Operator

- Operator to be competency assessed in dealing with spills and environmental protection

Hazards / Risks

Significant hazards/risks identified when operating the machine and for those adjacent to machine:

Hazards/risks included in the “General Minimum Requirements” section, plus:-

- Dropped loads/instability of load
- Ground conditions capable of withstanding imposed outrigger loadings
- Imposed loadings on underground services
- Incorrect (unsafe) deployment and retraction of stabilisers
- Jib clash with adjacent cranes/tall plant
- Load path – slewing over site personnel
- Overturning if lifting duties exceeded

8. Mobile elevating work platform



General Minimum Requirements (GMR) Section

- The GMR Section (above) contains information common to all items of plant and equipment covered by this RtB guidance, as applicable, and text has been removed from the individual plant item pages to streamline the document
- Content of the GMR Section, as applicable, must be followed to promote and ensure safe operation and use, in addition to details contained below for this plant item

Minimum Requirements – Plant (All MEWP's)

- Current 6 month LOLER thorough examination certificate for lifting equipment
- Controls must be shrouded and be fitted with anti-crush protection measures
- Direction of travel must be clearly indicated
- Door lock keys in cabs of lorry mounted booms
- Outrigger/wheel loading details
- Power failure safe lowering system
- SWL displayed in platform
- Travel alarm to be fitted, working and audible

- When boom type MEWP's are used in situations involving a risk of crushing against overhead structures or equipment, specific control measures must be implemented, and the use of anti-trapping secondary guarding devices must be used
- If used under overhead cables or obstructions:
 - Height restrictors with indication on machine
 - Health and Safety Executive's GS6 avoidance of danger from overhead electric power lines must be followed

Boom type MEWP's only

- Flashing amber beacon
- Harness anchorage points in boom platform

Minimum Requirements - Remote control

- If battery powered, remote control units must be checked to ensure sufficient power is available for the intended operations
- If the remote control is operated through an umbilical cord, this must extend to allow the operator to work from a place of safety
- Operation of the emergency stop button and any other isolating devices must be checked for operational function
- Remove control units should be clean and free from damage including the wearing harness and umbilical cable (where relevant)
- Specific Emergency Recovery / Rescue Procedures must be established and effectively communicated and practised prior to works commencing

Minimum Requirements - Chapter 8

- Refer to general minimum requirements section (above) for details relating to vehicle conspicuity and highway maintenance signage requirements

Minimum Requirements - Operator

- Category B driving licence for road use
- Evidence of familiarisation training for the particular type of MEWP to be operated, including training in emergency recovery from the ground, and provision of a second/safety person on the ground to operate emergency lowering system
- Trained in use of harness as appropriate
- Lift plan and/or permit to lift must be briefed and understood
- Use of harness – harness to be worn in boom type MEWP or in the scissor lift if travelling and to be appropriate for specific use

Desirable - Plant

- Audible alarm for lowering and for entrapment of operator
- Fire suppression in engine compartment if working in a zone of fire risk or if emergency basket to basket evacuation procedures not practical
- Fisheye mirrors for all round vision when travelling
- MEWP's to have 110V supply available in basket pre-wired
- Movement sensors-anti entrapment-secondary guarding
- Tilt alarm fitted
- Toolbox equipment storage in basket

Boom type MEWP's only

- Audible parking position of the boom in air should not be permitted

Scissor type MEWP's only

- Flashing beacon on scissor lift
- Harness anchorage point in scissor lift (mandatory if it is to be used whilst travelling)

Desirable - Emissions

- Engine emissions compliant to EU Stage V

Desirable – Operator / Supervisor

- All persons managing or supervising the works to hold a "MEWP's for Managers" qualification
- Operator to be competency assessed in dealing with spills and environmental protection

Hazards / Risks

Significant hazards/risks identified when operating the machine and for those adjacent to machine:

Hazards/risks included in the "General Minimum Requirements" section, plus:-

- Clearances between buildings/other platforms
- Falls from height/ falling objects
- Ground conditions capable of withstanding imposed track loadings
- Ground conditions/underground services – imposed wheel/outrigger loadings
- Handling materials on MEWP platforms can overload machinery or be at risk of falling
- High wind speed
- Interface with crane/load during lifting operations (e.g., if MEWP used for completing joints) with consideration
- Operating in reversing mode
- Operator recovery from an incapacitated machine
- Overturning if lifting duties exceeded
- Potential for clashes with other plant working in the vicinity
- Stability when travelling machine with platform raised
- Uneven ground conditions and driving up ramps during travelling can create a risk of crush/impact injury

9. Mixer truck



General Minimum Requirements (GMR) Section

- The GMR Section (above) contains information common to all items of plant and equipment covered by this RtB guidance, as applicable, and text has been removed from the individual plant item pages to streamline the document
- Content of the GMR Section, as applicable, must be followed to promote and ensure safe operation and use, in addition to details contained below for this plant item

Minimum Requirements - Vehicle

- Current MOT plating certificate
- Current VED and operator 'O' licence displayed in the cab windscreen
- On public highway – insured, and compliant with C&U regulations (VED registered, working lights, indicators, registration plate's front & rear etc.)
- All current certificates/service documents provided
- Reversing alarm to be fitted, working and audible outside of the cab
- Full handrail protection to platform and tank

Minimum requirements - Remote control

- If battery powered, remote control units must be checked to ensure sufficient power is available for the intended operations
- If the remote control is operated through an umbilical cord, this must extend to allow the operator to work from a place of safety
- Operation of the emergency stop button and any other isolating devices must be checked for operational function
- Remote control units should be clean and free from damage including the wearing harness and umbilical cable (where relevant)

Minimum Requirements - FORS

- Fleet Operator Recognition Scheme (FORS) compliant - Bronze accreditation
- In addition, FORS silver or gold progression, to be provided to suit project risk requirements
- For further guidance, refer to – <https://www.fors-online.org.uk/cms>

Minimum Requirements - Chapter 8

- Refer to "General Minimum Requirements" section (above) for details relating to amber colour beacons, vehicle conspicuity and highway maintenance signage requirements

Minimum Requirements - Operator

- Operator must hold the correct category of driving licence for the vehicle / plant being utilised along with current Driver CPC qualification
- Demonstrable training and experience in operation of mixer truck
- Hand and skin dermatitis protection / monitoring
- Seat belt must be worn (when driving)

Desirable - Plant

- Compliant with CLOCS standard

- For driving activities, seat belt operation interlocked with ignition switch/warning indicator
- Isolation method independent of factory fitted locks
- Locking caps/covers to fuel and all other tanks
- Reversing alarm to be directional and white noise
- Safe access to all areas where the operator is required to work including full handrail protection etc.
- Statement on hours to next service

Desirable - Emissions

- Engine emissions compliant to EURO 6

Desirable - Operator

- Operator to be competency assessed in dealing with spills and environmental protection

Hazards / Risks

Significant hazards/risks identified when operating the machine and for those adjacent to machine:

Hazards/risks included in the "General Minimum Requirements" section, plus:-

- Danger of moving parts – rotating drum
- Danger of spills when filling or discharging or driving up steep inclines
- Hazard from concrete washout discharging
- Imposed loadings on underground services
- Noise and visibility
- Number of climbing operations in to and out of the cab and when inspecting drum contents
- Proximity to concrete skips being lifted
- Tripping over hoses on ground or slipping on spills
- Work At Heights (WAH) – access on to top of tank/body

10. Telehandler



General Minimum Requirements (GMR) Section

- The GMR Section (above) contains information common to all items of plant and equipment covered by this RtB guidance, as applicable, and text has been removed from the individual plant item pages to streamline the document
- Content of the GMR Section, as applicable, must be followed to promote and ensure safe operation and use, in addition to details contained below for this plant item

Minimum Requirements - Plant

- On public highway – insured, and compliant with C&U regulations (VED registered, working lights, indicators, registration plate's front & rear etc.)
- Flashing amber beacon
- Brake efficiency testing to be carried out and recorded e.g., daily user park and service brake and dynamic brake efficiency test as recommended by manufacturer
- External green light fitted to indicate when the seat belt is fastened, the exception to this being by risk assessment for plant machinery travelling on public highways
 - Note: You can use an external green light on plant machinery when they are working on-site, or at works on the road as any area closed off is no longer regarded as being part of the highway. They should not be used on the highway as this could be an

offence under the Road Vehicle Lighting Regulations 1989, as amended

- 360° visibility criteria to satisfy 1m high at 1m distance, using line of sight, mirrors, cameras (270°/360°)
- Reversing alarm to be fitted working and audible outside of the cab
- Falling object protective structure (FOPS) and roll over protection structure (ROPS) to cab
- Forks to be folded/secured if travelling on public highway
- Protective mesh to be in place on jib side of cab if window is of opening type
- If used under overhead cables or obstructions:
 - Height restrictors with indication on machine
 - Health and Safety Executive's GS6 avoidance of danger from overhead electric power lines must be followed

Minimum Requirements – Lifting

- Current 12 month LOLER thorough examination certificate for lifting equipment (report required within previous six months if machine being used in conjunction with man-riding basket)
- Current six monthly LOLER certification for all lifting accessories and/or fork attachments
- Lifting duty chart to be displayed on boom or in cab
- Boom ram lock facility must be provided with the machine
- Fitted and operational audible or visual overload warning system (RCI/RCL)
- If lifting from forks (under slinging) attachments must be fixed with heel pins (not T screws) and have specific lift plan
- No materials including lifting tackle to be stored beneath the boom
- Only fully integrated man-riding baskets are permitted when supported by a task specific risk assessment and lift plan

Minimum Requirements - Operator

- Operator must hold the correct category of driving licence for the vehicle / plant being utilised
- Authorisation required prior to driving on public highway
- Check for ground conditions prior to lifting and must consider stabilisers where appropriate
- Competent to check rated capacity indicator (RCI) and rated capacity limiter (RCL)
- Competency assessment prior to being put to work – be familiar with machine and telehandler attachments
- Lift plan and/or permit to lift must be briefed and understood
- Machine levelling devices must be used in all cases if fitted
- Operator must ensure the boom is carried at a safe level accordance with the manufacturer's recommendations
- Seat belt must be worn

Desirable - Plant

- A 360° camera system that interlinks pictures from multiple cameras
- A camera system that can identify pedestrians from a maximum distance of 5m to a minimum of zero in all directions, warning operator and pedestrians of encroachment into the red zone
- Boom angle indicator
- Complete people exclusion area around plant and operation
- Inclinator gauge and/or decal advising of gradient limits for safe operation
- Maintain a list of weights of potential items to be lifted
- Tracker unit – immobilising method independent of factory fitted locks, locking caps/covers to fuel and all other tanks
- Tyre pressure indicators

Desirable - Emissions

- Engine emissions compliant to Stage V

Desirable - Operator

- Operator to be competency assessed in dealing with spills and environmental protection

Hazards / Risks

Significant hazards/risks identified when operating the machine and for those adjacent to machine:

Hazards/risks included in the "General Minimum Requirements" section, plus:-

- Overturning if lifting duties are exceeded or use on uneven ground

11. Compressor / Air Systems



General Minimum Requirements (GMR) Section

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- Content of the GMR Section, as applicable, must be followed to promote and ensure safe operation and use, in addition to details contained below for this plant item

Minimum Requirements - Plant

- Unique ID number to be displayed on plate including VIN
- Noise emissions label in compliance with OND 2000/14/EC
- All current pressure systems regulation certificates in place
- Integral fuel bunding for environmental protection
- Towing by eye type attachment only
- Whip checks to be provided between ALL hose connections, compressor, and tools

Chapter 8 requirements

- Refer to general minimum requirements section (above) for details relating to vehicle conspicuity and highway maintenance signage requirements

Minimum Requirements - Operator

- Demonstrable training and experience in operation of compressor/air system
- Competency assessment prior to being put to work – be familiar with machine and HAVS monitoring requirements
- All hoses should be inspected regularly (daily, pre-use checks)
- Do not tow on a public highway with a commercial vehicle as tachograph regulations will apply

Desirable - Plant

- Security hitch lock
- Tracker unit, isolation method independent of factory fitted locks, locking caps / covers to fuel and other tanks

Desirable - Emissions

- Engine emissions compliant to EU Stage V

Desirable - Operator

- Operator to be competency assessed in dealing with spills and environmental protection

Hazards / Risks

Significant hazards/risks identified when operating the machine and for those adjacent to machine:

Hazards/risks included in the "General Minimum Requirements" section, plus:-

- Damage to jockey wheel due to misuse/lack of proper maintenance
- Flying debris
- Manual handling when moving compressor and when using of heavy attachments
- Noise and vibration
- Open hoses when airline switched on
- Overturning
- Towing and lifting operations
- Trailing hoses

12. Road Sweeper / Collector



General Minimum Requirements (GMR) Section

- The GMR Section (above) contains information common to all items of plant and equipment covered by this RtB guidance, as applicable, and text has been removed from the individual plant item pages to streamline the document
- Content of the GMR Section, as applicable, must be followed to promote and ensure safe operation and use, in addition to details contained below for this plant item

Minimum Requirements – Vehicle

- All current certificates / service documents provided
- Current MOT plating certificate
- Current VED and operator 'O' licence displayed in the cab windscreen
- On public highway – insured, and compliant with C&U regulations (VED registered, working lights, indicators, registration plate's front & rear etc.)
- 360° visibility criteria to satisfy 1m high at 1m distance, using line of sight, mirrors, cameras and radar - as applicable
- Reversing alarm to be fitted, working and audible outside of the cab

- Appropriate waste permits if leaving site and exemption / consent if disposing on-site
- Dual gulley brush and wide main brush
- Gulley sucker and hand lance
- Park brake not engaged warning device
- Safe and clean access for refuelling
- Safe and clean access to cab
- If used under overhead cables or obstructions:
 - Health and Safety Executive's GS6 avoidance of danger from overhead electric power lines must be followed

Minimum Requirements - FORS

- Fleet Operator Recognition Scheme (FORS) compliant - Bronze accreditation
- In addition, FORS silver or gold progression, to be provided to suit project risk requirements
- For further guidance, refer to – <https://www.fors-online.org.uk/cms>

Minimum Requirements - Remote control

- If battery powered, remote control units must be checked to ensure sufficient power is available for the intended operations
- If the remote control is operated through an umbilical cord, this must extend to allow the operator to work from a place of safety
- Operation of the emergency stop button and any other isolating devices must be checked for operational function
- Remote control units should be clean and free from damage including the wearing harness and umbilical cable (where relevant)

Minimum Requirements - Chapter 8

- Refer to "General Minimum Requirements" section (above) for details relating to amber colour beacons, vehicle conspicuity and highway maintenance signage requirements

Minimum Requirements - Operator

- Operator must hold the correct category of driving licence for the vehicle / plant being utilised along with current Driver CPC qualification
- Demonstrable training and experience in operation of sweeper/collector
- Operator to be traffic management (TM) trained in mobile works

- Authorisation required to drive sweeper on public highway
- Seat belts must be worn

Desirable - Plant

- Base colour to be conspicuous as per chapter eight requirements
- Compliant with CLOCS standard
- Decals detailing tyre pressures and wheel nut torque settings
- For driving activities, seat belt operation interlocked with ignition switch/warning indicator
- Reversing camera
- Reversing siren to be directional and white noise
- Tracker unit, isolation method independent of factory fitted locks, locking caps/covers to fuel and all other tanks

Desirable - Emissions

- Engine emissions compliant to EURO 6

Desirable - Operator

- Calm Networks training in safe operation, use, cleaning, and storage of standpipes (training available through www.waterservices.org.uk)
- Operator to be competency assessed in dealing with spills and environmental protection

Hazards / Risks

Significant hazards/risks identified when operating the machine and for those adjacent to machine:

Hazards/risks included in the "General Minimum Requirements" section, plus:-

- Danger of crushing under un-propped body
- Danger of flying debris during wash out of bin and filters or using hand lance
- Incorrect opening of rear door or raising of body / travelling with body in raised position
- No, incomplete or incorrect documentation - Appropriate waste permits if leaving site and exemption / consent if disposing on-site
- Uncontrolled disposal/discharge of waste

13. Tipper – Rigid or Articulated



General Minimum Requirements (GMR) Section

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- Content of the GMR Section, as applicable, must be followed to promote and ensure safe operation and use, in addition to details contained below for this plant item

Minimum Requirements – Vehicle

- Current MOT plating certificate
- Current VED and operator 'O' licence displayed in the cab windscreen.
- On public highway - insured, and compliant with C&U regulations (VED registered, working lights, indicators, registration plate's front & rear etc.)
- Fire extinguisher in cab
- Flashing amber beacons
- 360° visibility criteria to satisfy 1m high at 1m distance, using line of sight, mirrors, cameras (270°/360°), radar - as applicable
- Reversing alarm to be fitted, working and audible outside of the cab

- All tippers to have automatic dust sheeting for load
- Articulated tippers not to be supplied unless prior approval granted, and additional control procedure and risk assessment applied
- Automated operation for tailgate
- Clean and safe access to cab and all areas where the operator is required to work
- Discharge – all equipment to be intact and secure
- Inclinator safety stops on articulated tipping body
- Park brake not engaged warning device
- Tipper body up alarm in cab
- Tipping mechanism to be in good condition and tipping linkage must have no excessive play
- If used under overhead cables or obstructions:
 - Height restrictors with indication on machine
 - Health and Safety Executive's GS6 avoidance of danger from overhead electric power lines must be followed

Minimum requirements - FORS

- Fleet Operator Recognition Scheme (FORS) compliant - Bronze accreditation
- In addition, FORS silver or gold progression, to be provided to suit project risk requirements
- For further guidance, refer to – <https://www.fors-online.org.uk/cms>

Minimum Requirements – Chapter 8

- Refer to "General Minimum Requirements" section (above) for details relating to amber colour beacons, vehicle conspicuity and highway maintenance signage requirements

Minimum Requirements - Operator

- Operator must hold the correct category of driving licence for the vehicle / plant being utilised along with current Driver CPC qualification
- Demonstrable training and experience in operation of tipper
- Briefing of and compliance with all site speed limits
- Do not to be tip whilst on the move or during high winds
- Ensure tipping is carried out on even and firm ground
- Loads must not be tipped downhill
- Seat belts must be worn

Desirable - Plant

- Complete people exclusion area around plant and operation
- Compliant with CLOCS standard
- Seat belt operation interlocked with ignition switch/warning indicator

Desirable - Emissions

- Engine emissions compliant to EURO 6

Desirable - Operator

- Operator to be competency assessed in dealing with spills and environmental protection

Hazards / Risks

Significant hazards/risks identified when operating the machine and for those adjacent to machine:

Hazards/risks included in the "General Minimum Requirements" section, plus:-

- Danger of crushing in articulation area under un-propped body
- De-mounting the cab in vicinity of heavy plant, particularly dozers
- High risk of overturning at speed and on inclines – refer to manufacturer's recommendations

- Overloading of tipper body – risk of material falling onto haul road/public highway
- Overturning whilst tipping; articulated tippers are particularly vulnerable
- Uneven distribution of load on tipper body
- Wet materials/clay are prone to stick and cause instability during tipping
- Coupling and uncoupling of articulated vehicle bodies FTA Guidance www.fta.co.uk/export/sites/fta/galleries/downloads/health_and_safety/safe-coupling-guide.pdf

14. Concrete Pump



General Minimum Requirements (GMR) Section

- The GMR Section (above) contains information common to all items of plant and equipment covered by this RtB guidance, as applicable, and text has been removed from the individual plant item pages to streamline the document
- Content of the GMR Section, as applicable, must be followed to promote and ensure safe operation and use, in addition to details contained below for this plant item

Minimum Requirements - Plant

If truck mounted:

- Current MOT plating certificate
- Current VED and operator 'O' licence displayed in the cab windscreen
- Current 12 month LOLER thorough examination certificate for lifting equipment
- Fire extinguisher in cab
- 360° visibility criteria to satisfy 1m high at 1m distance, using line of sight, mirrors (including Class V & VI), cameras (270°/360°), radar - as applicable
- Reversing alarm to be fitted, working and audible outside of the cab
- Ball catcher fitted to discharge end during cleaning operations

- Door lock keys supplied
- Handrails/edge protection on body where access required
- Locking caps and covers
- Park brake not engaged warning device
- Safe access for maintenance activities
- If used under overhead cables or obstructions:
 - Height restrictors with indication on machine
 - Health and Safety Executive's GS6 avoidance of danger from overhead electric power lines must be followed

Minimum requirements - FORS

- Fleet Operator Recognition Scheme (FORS) compliant - Bronze accreditation
- In addition, FORS silver or gold progression, to be provided to suit project risk requirements
- For further guidance, refer to – <https://www.fors-online.org.uk/cms>

Minimum requirements - Remote control

- If battery powered, remote control units must be checked to ensure sufficient power is available for the intended operations
- If the remote control is operated through an umbilical cord, this must extend to allow the operator to work from a place of safety
- Operation of the emergency stop button and any other isolating devices must be checked for operational function
- Remote control units should be clean and free from damage including the wearing harness and umbilical cable (where relevant)

Minimum Requirements - Chapter 8

- Refer to "General Minimum Requirements" section (above) for details relating to amber colour beacons, vehicle conspicuity and highway maintenance signage requirements

Minimum Requirements - Operator

- Operator must hold the correct category of driving licence for the vehicle / plant being utilised along with current Driver CPC qualification
- Appropriate licence for the class of vehicle to be operated (lorry mounted pumps)
- Evidence of familiarisation training for the type of pump to be operated
- Evidence that the operator is medically fit to operate the pump
- Hand and skin dermatitis protection / monitoring
- Seat belts must be worn (when driving)

Desirable - Plant

- Compliant with CLOCS standard
- For driving activities, seat belt operation interlocked with ignition switch/warning indicator
- Handrails fitted around pipe storage areas at rear of vehicle
- Hands free voice activated radio communications between pump operator and concrete team/second man
- Illuminated pump control panel
- Nylacast outrigger pads
- Spill kit

Desirable - Emissions

- Engine emissions compliant to EURO 6

Desirable - Operator

- Operator to be competency assessed in dealing with spills and environmental protection

Hazards / Risks

Significant hazards/risks identified when operating the machine and for those adjacent to machine:

Hazards/risks included in the "General Minimum Requirements" section, plus:-

- Blockages in pipework
- Boom clash with overhead obstructions, power lines, adjacent cranes
- Failure of pressurised lines and use of compressed air to clean pipes
- Hazard from concrete washout discharging
- Hazardous substances such as cement and additives
- Overturning – ground capable of withstanding imposed outrigger loadings
- Potential excessive noise
- Remote control operation
- Trapping/crushing of site operatives
- Uncontrolled discharge of waste concrete
- Vibration and manual handling when using compressed air system
- Whip from flexible hoses

For further guidance, refer to BS8476:2007 code of practice for using concrete pumps. Also, British Concrete Pumping Group Publication Safe use of Concrete pumps -

www.cpa.uk.net/british-concrete-pumping-group-bpcg-publications/

15. Mobile Crane



General Minimum Requirements (GMR) Section

- The GMR Section (above) contains information common to all items of plant and equipment covered by this RtB guidance, as applicable, and text has been removed from the individual plant item pages to streamline the document
- Content of the GMR Section, as applicable, must be followed to promote and ensure safe operation and use, in addition to details contained below for this plant item

General

Hydraulic cranes only permitted not mechanical.

Minimum Requirements - Plant

- Flashing amber beacon
- Fire extinguisher in cab
- 360° visibility criteria to satisfy 1m high at 1m distance, using line of sight, mirrors, cameras (270°/360°), radar - as applicable
- Reversing alarm to be fitted, working and audible outside of the cab
- Falling object protective structure (FOPS) to cab where identified by risk assessment
- Door lock keys supplied

- Protective mesh must be in place to side of cab on jib side if window is opening type
- Safe access for refuelling, maintenance and to any place where accessories are stored
- If used under overhead cables or obstructions:
 - Height restrictors with indication on machine
 - Health and Safety Executive's GS6 avoidance of danger from overhead electric power lines must be followed

Minimum Requirements - FORS

- Fleet Operator Recognition Scheme (FORS) compliant - Bronze accreditation
- In addition, FORS silver or gold progression, to be provided to suit project risk requirements
- For further guidance, refer to – <https://www.fors-online.org.uk/cms>

Minimum Requirements – Lifting

- Current 12 month LOLER thorough examination certificate for lifting equipment
- Have either a four yearly overload test certificate or a defined written scope of examination scheme supported by a declaration of compliance in line with the maintenance and thorough examination of mobile cranes best practice guide
- Current six monthly LOLER certification for all lifting accessories carried
- Aircraft warning lights fitted (if working within 6km of airports or aerodromes)
- All lifting accessories to be marked with SWL
- Anemometer fitted to all cranes
- Carrier hoisting and lowering ropes minimum diameter of 8 millimetres
- Chassis brakes to be tested under STGO requirements as per CPA TIN 104
- Fitted and operational audible or visual overload warning system
- Hook fitted with safety catch
- Load bearing hydraulic cylinders fitted with check valves

- Operation manual including load charts to be available with the machine on site
- Over hoist limit device installed
- Slew alarms
- Slew, jib height and radius restrictors if working in the vicinity of overhead power lines, railways, adjacent live traffic, etc.

Raising or lowering of personnel

- Current six monthly LOLER thorough examination certification for the crane (lifting/lowering persons) and for all lifting accessories
- Ability to restrict the working speed of all crane functions to 0.5 m/s
- Control levers return to neutral automatically when released
- Power lowering capacity fitted to the crane. If not, free fall capability must be locked out
- SWL of crane configuration in use is at least twice the rated capacity of the carrier

Refer to BS7121 -1:2016 "Code of practice for safe use of cranes, Part 1: General" for further guidance

Minimum Requirements - Operator

- Operator must hold the correct category of driving licence for the vehicle / plant being utilised along with current Driver CPC qualification
- Valid medical certificate [See BS7121 -1:2016 "Code of practice for safe use of cranes, Part 1: General" and RTB 12 "Occupational health"]
- Evidence of familiarisation training for type of crane to be operated
- Lifting plan and permit to lift in place as appropriate
- Seat belts must be worn

Desirable - Plant

- Block stand to be provided when reeving rope into hook block whilst block is lying down
- Camera to be fitted to cathead to give operator clear view of load when blind lifting
- Compliant with CLOCS standard
- Fall restraint system fitted to boom for rigging super-lift

- For driving activities, seat belt operation interlocked with ignition switch/warning indicator
- Means for operator to monitor hoist rope tension for example RCI display, camera, or mirror
- Red, amber, and green high-level illumination to indicate crane is operating within safe limits
- Reversing alarm to be directional and white noise
- Sectional/lightweight or circular outrigger pads if manually handled to reduce risk to personnel

Desirable - Emissions

- Engine emissions compliant to EURO 6

Desirable – Operator / Supervisor

- Crane Supervisor to have handheld anemometer to measure wind speeds
- Operator to have minimum of three years relevant operating experience
- Operator to be competency assessed in dealing with spills and environmental protection

Hazards / Risks

Significant hazards/risks identified when operating the machine and for those adjacent to machine:

Hazards/risks included in the "General Minimum Requirements" section, plus:-

- Dropped loads
- Imposed loadings on underground services
- Jib clash with adjacent cranes/tall plant
- Load path – slewing over site personnel
- Manual handling outrigger pads and lifting accessories
- Overturning due to ground failure- inadequate assessment
- Overturning if lifting duties exceeded
- Reversing manoeuvres

Also refer to Table 1 of BS 7121-3:2017 Code of practice safe use of cranes

16. Concrete Extrusion Machine



General Minimum Requirements (GMR) Section

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Minimum Requirements - Plant

- Current 12 month LOLER thorough examination certificate for lifting equipment
- Access platform with guardrail around horizontal auger to access front of auger for cleaning and maintenance
- Adequate task working lights
- Elephant ears rubber guards fitted to both sides of concrete feeder hopper
- Emergency stops
- Exclusion zone between tracks and adjacent to structures

- Fixed guards on horizontal auger incorporating isolation switches to immobilise auger when guards are removed
- Fixed hinged guard and access steps across concrete feeder hopper and fixed hinged guards to inclined auger
- Flashing amber beacons front and rear at a height not to interfere with driver visibility
- Handrail to sides of inclined auger to facilitate use of access steps
- Podium steps for access to inclined auger access steps
- Pressure washer to be available for cleaning off
- Rubber track bumper guards
- Solid guard rails around mould and driving platforms
- Steps fitted to access above guards and to mould and driving platforms
- Storage facilities for hand tools and lubricants etc.
- Towing facility to facilitate for lighting sets
- Travel / movement alarm fitted (working and audible)
- Working platforms to be kept clear from debris
- If used under overhead cables or obstructions:
 - Health and Safety Executive's GS6 avoidance of danger from overhead electric power lines must be followed

Minimum Requirements - Operator

- Evidence of appropriate training for extrusion machines
- Evidence of familiarisation training for the type of machine to be operated
- Evidence of pressure washer training
- Ensure that exclusion zone is established with cones not fewer than five metres around machine prior to movement of machine (this forms part of RAMS)
- Hand and skin dermatitis protection / monitoring

Desirable - Plant

- Adjusting compensation plate
- Guards on conveyors
- Lighting for night time working as given in raising the bar guidance document RtB15 "Task lighting"
- Training records to be developed to show course content

Desirable - Emissions

- Engine emissions compliant to EU Stage V

Desirable - Operator

- Operator to be competency assessed in dealing with spills and environmental protection

Hazards / Risks

Significant hazards / risks identified when operating the machine and for those adjacent to machine:

Hazards/risks included in the "General Minimum Requirements" section, plus:-

- Clothing snagged on chute leading into auger
- Entrapment by inserting limbs into moving machinery
- Ground conditions / imposed loadings on underground services
- Hazardous substances e.g., concrete
- Noise and vibration
- Transportation, loading / unloading and fitting of moulds

17. Mobile crushing plant



General Minimum Requirements (GMR) Section

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- Content of the GMR Section, as applicable, must be followed to promote and ensure safe operation and use, in addition to details contained below for this plant item

Minimum Requirements - Plant

- Crusher to be registered with Environment Agency / Scottish Environment Protection Agency
- Maintenance records to be available
- All control functions clearly marked on both machine and remote control
- All exposed, contactable, moving parts fully guarded
- Automatic greasing
- Conveyor fitted with trip wires (where not fully shrouded)
- Dust suppression fitted and operational
- Effective belt scrapers to prevent build-up of material on conveyor

- Emergency stop controls to be available at various locations around machine
- Flashing amber beacon
- Guards to be fitted with interlocks to prevent operation with guards removed
- If loading buckets are used, ensure that they are compatible with the capacity of the crusher
- Isolation procedure to ensure that no person enters the hopper / crusher to clear blockages. Power must be switched off if any tools are to be used to dislodge material
- Isolation procedure with multi locking main panel arrangement to facilitate safe maintenance
- Mechanical means to remove blockage, operated remotely
- Plant to be operated remotely or ensure that the ramp to loading hopper is effectively banded
- Provision of safe area where operator can view and monitor the performance of the feed hopper
- Stalled crusher procedure to ensure safe system is in place to deal with machine that has stalled under load
- Working platforms on machine in good order and edge protection secure and intact

Minimum Requirements - Operator

- Trained in isolation and stalled crusher procedures
- Ensure minimum 5m physical exclusion zone around crushing area
- No access to crusher when operational

Desirable - Plant

- CCTV fitted to breaker / pecker mounted on machine to deal with hopper blockages
- Fixed cameras to monitor machine operation
- Metal detector installed on feed belts

- Remote emergency stop controls for use by loader / loading shovel operators
- Sizing bars on hopper feeds to eliminate oversize materials
- Water mist dust suppression rather than directional jets

Desirable - Emissions

- Engine emissions compliant to EU Stage V

Desirable - Operator

- Operator to be competency assessed in dealing with spills and environmental protection

Hazards / Risks

Significant hazards / risks identified when operating the machine and for those adjacent to machine:

Hazards/risks included in the "General Minimum Requirements" section, plus:-

- Build-up of material at tail drum of machine
- Clearance of blocked / stalled crushers
- Deterioration of loading access ramp – vehicles sliding or driving off the edge
- Dust generation by crusher and from stockpiled material / access roadways
- Ejected materials - general use and when magnet ejector is in use e.g., crushing demolition waste
- Entrapment in moving parts of machine
- Falls from height whilst checking / maintaining machine
- High silica content of some crushed materials e.g., concrete / bricks
- Interface with site plant and vehicles
- Noise output – noise induced hearing loss
- Potential delays / poor access for emergency services, particularly where crushing is being undertaken in remote locations

- Slips, trips, and falls due to accumulation of waste on platforms and around machine
- Stockpile stability, machine overturn
- Stored energy from electrical, hydraulic, compressed air, mechanical sources, and gravity
- Whole body vibration when working on platform

18. Ride on compaction roller



General Minimum Requirements (GMR) Section

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- Content of the GMR Section, as applicable, must be followed to promote and ensure safe operation and use, in addition to details contained below for this plant item

Minimum Requirements - Plant

- On public highway - insured, and compliant with C&U regulations (VED registered, working lights, indicators, registration plate's front & rear etc.)
- Flashing amber beacon
- Brake efficiency testing to be carried out and recorded e.g., daily user park and service brake and dynamic brake efficiency test as recommended by manufacturer
- External green light fitted to indicate when the seat belt is fastened, the exception to this being by risk assessment for plant machinery travelling on public highways
 - Note: You can use an external green light on plant machinery when they are working on-site, or at works on the road as any

area closed off is no longer regarded as being part of the highway. They should not be used on the highway as this could be an offence under the Road Vehicle Lighting Regulations 1989, as amended

- For rollers with enclosed cabs – 360° visibility criteria to satisfy 1m high at 1m distance, using line of sight, mirrors, cameras (270°/360°)
- Reversing alarm to be fitted, working and audible outside of the cab
- Small machines – roll over protection structure (ROPS)
- Large machines – ROPS and falling object protective structure (FOPS) where there is the possibility of falling objects
- Isolation switch with key
- Locking caps and covers
- Under seat starter / isolator pressure switch

Chapter 8 requirements

- Refer to general minimum requirements section (above) for details relating to beacons, vehicle conspicuity and highway maintenance signage requirements

Minimum Requirements - Operator

- Operator must hold the correct category of driving licence for the vehicle / plant being utilised
- Authorisation required to drive roller on public highway
- Seat belt must be worn

Desirable - Plant

- A 360° camera system that interlinks pictures from multiple cameras
- A camera system that can identify pedestrians from a maximum distance of 5m to a minimum of zero in all directions, warning operator and pedestrians of encroachment into the red zone
- Base colour to be conspicuous as per Chapter 8 requirements
- Seat belt operation interlocked with ignition switch/warning indicator

- Tracker unit, isolation method independent of factory fitted locks, locking caps / covers to fuel and all other tanks

Desirable - Emissions

- Engine emissions compliant to EU Stage V

Desirable - Operator

- Operator to be competency assessed in dealing with spills and environmental protection
- Whole body vibration monitoring

Hazards / Risks

Significant hazards / risks identified when operating the machine and for those adjacent to machine:

Hazards/risks included in the "General Minimum Requirements" section, plus:-

- Effect on adjacent excavations, buried services or structures from vibration
- Noise and vibration
- Serious risk of overturning on inclines or when working on edges

19. Tracked Dozer



General Minimum Requirements (GMR) Section

- The GMR Section (above) contains information common to all items of plant and equipment covered by this RtB guidance, as applicable, and text has been removed from the individual plant item pages to streamline the document
- Content of the GMR Section, as applicable, must be followed to promote and ensure safe operation and use, in addition to details contained below for this plant item

Minimum Requirements - Plant

- Flashing amber beacon
- External green light fitted to indicate when the seat belt is fastened
- 360° visibility criteria to satisfy 1m high at 1m distance, using line of sight, mirrors, cameras (270°/360°)
- Reversing alarm to be fitted, working and audible outside of the cab
- Roll over protective structure (ROPS) to cab
- If winch fitted – associated lifting gear to have current six monthly LOLER certification
- Safe and clean access for refuelling
- Safe and clean access to cab

Minimum Requirements - Operator

- Do not break ground unless briefed on, received, and fully understood a permit to break ground
- Ensure door is closed when machine is operating
- Seat belt must be worn

Desirable - Plant

- A 360° camera system that interlinks pictures from multiple cameras
- A camera system that can identify pedestrians from a maximum distance of 5m to a minimum of zero in all directions, warning operator and pedestrians of encroachment into the red zone
- Complete exclusion zone around plant and operation
- Falling objects protective structure (FOPS) to cab where risk of falling debris
- GPS control system for blades as this will reduce the need for persons on the ground for surveying
- GPS control system to be installed at ground level to avoid working at height
- Proximity detection system
- Reversing alarm to be directional and 'white noise'
- Seat belt operation interlocked with ignition switch/warning indicator
- Track adjustment particularly slackening by competent personnel only with appropriate tools and PPE
- Tracker unit, isolation method independent of factory fitted locks, locking caps / covers to fuel and all other tanks
- Two-way radio system to communicate with operator

Desirable - Emissions

- Engine emissions compliant to EU Stage V

Desirable - Operator

- Operator to be competency assessed in dealing with spills and environmental protection

Hazards / Risks

Significant hazards / risks identified when operating the machine and for those adjacent to machine:

Hazards/risks included in the "General Minimum Requirements" section, plus:-

- Falls from height when erecting GPS masts
- Reversing movements
- Risks of towed items e.g., roller
- Serious risk of overturning on inclines or when working on edges
- Speed of machine movement – proximity of plant marshal
- Underground services

20. Wheeled loading shovel



General Minimum Requirements (GMR) Section

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- Content of the GMR Section, as applicable, must be followed to promote and ensure safe operation and use, in addition to details contained below for this plant item

Minimum Requirements - Plant

- On public highway - insured, and compliant with C&U regulations (VED registered, working lights, indicators, registration plate's front & rear etc.)
- Flashing amber beacon
- Brake efficiency testing to be carried out and recorded e.g., daily user park and service brake and dynamic brake efficiency test as recommended by manufacturer
- External green light fitted to indicate when the seat belt is fastened, the exception to this being by risk assessment for plant machinery travelling on public highways
 - Note: You can use an external green light on plant machinery when they are working on-site, or at works on the road as any area closed off is no longer regarded as being part of the highway.

They should not be used on the highway as this could be an offence under the Road Vehicle Lighting Regulations 1989, as amended

- 360° visibility criteria to satisfy 1m high at 1m distance, using line of sight, mirrors, cameras (270°/360°)
- White noise reversing alarm to be fitted, working and audible outside of the cab
- Roll over protective structure (ROPS) and falling object protective structure (FOPS) to cab where detailed by risk assessment
- Articulation lock must be fitted and operational
- Locking caps and covers
- Power isolation switch with key
- Safe and clean access for refuelling and maintenance
- Safe and clean access to cab
- If used under overhead cables or obstructions:
 - Height restrictors with indication on machine
 - Health and Safety Executive's GS6 avoidance of danger from overhead electric power lines must be followed

Minimum Requirements – Lifting

- Current 12-month LOLER thorough examination
- Current six-month LOLER examination of all on-board lifting equipment or handling attachments
- Lifting duty chart displayed in cab
- Machine lifting points/tie down points must be clearly labelled and be in good condition

Minimum Requirements - Operator

- Operator must hold the correct category of driving licence for the vehicle / plant being utilised and be a minimum of 18 years of age
- All site speed limits must be briefed and complied with

- Authorisation to take plant onto public highway
- Do not break ground unless briefed on, received, and fully understood a permit to work
- Ensure door is closed when machine is operating
- Seat belt must be worn

Desirable - Plant

- A 360° camera system that interlinks pictures from multiple cameras
- A camera system that can identify pedestrians from a maximum distance of 5m to a minimum of zero in all directions, warning operator and pedestrians of encroachment into the red zone
- Automatic braking systems which stop the machine if an obstruction is detected
- Proximity detection system

Desirable - Emissions

- Engine emissions compliant to EU Stage V

Desirable - Operator

- Operator to be competency assessed in dealing with spills and environmental protection

Hazards / Risks

Significant hazards / risks identified when operating the machine and for those adjacent to machine:

Hazards/risks included in the "General Minimum Requirements" section, plus:-

- Operator falling from machine when alighting or dismounting machine
- Restricted visibility on larger machines or if travelling with bucket raised too high
- Reversing movements
- Serious risk of overturning on inclines, soft or uneven surfaces
- Trapping fingers / hand in door due to accidental closure

21. Volumetric mixer



General Minimum Requirements (GMR) Section

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- Content of the GMR Section, as applicable, must be followed to promote and ensure safe operation and use, in addition to details contained below for this plant item

Minimum Requirements - Plant

- Current VED and operator 'O' licence displayed in the cab windscreen
- On public highway - insured, and compliant with C&U regulations (VED registered, working lights, indicators, registration plate's front & rear etc.)
- Reversing lights and reversing alarm audible outside of the cab
- Chain inspection holes must be fitted with guards / covers
- Isolator for auger, belt, chains, and drives must incorporate a lock-out device
- Park brake not engaged warning device
- Safe access for refuelling and maintenance

- Safe access to volumetric mixer controls
- The auger guard must be fitted with interlock device

Minimum Requirements - FORS

- Fleet Operator Recognition Scheme (FORS) compliant - Bronze accreditation
- In addition, FORS silver or gold progression, to be provided to suit project risk requirements
- For further guidance, refer to – <https://www.fors-online.org.uk/cms>

Minimum requirements - Remote control

- If battery powered, remote control units must be checked to ensure sufficient power is available for the intended operations
- If the remote control is operated through an umbilical cord, this must extend to allow the operator to work from a place of safety
- Operation of the emergency stop button and any other isolating devices must be checked for operational function
- Remote control units should be clean and free from damage including the wearing harness and umbilical cable (where relevant)

Minimum Requirements - Chapter 8

- Refer to "General Minimum Requirements" section (above) for details relating to amber colour beacons, vehicle conspicuity and highway maintenance signage requirements

Minimum Requirements - Operator

- Evidence of appropriate training and competence assessment for machine (either by the manufacturer or in-house by an operator previously trained by the manufacturer)
- Operator must hold the correct category of driving licence for the vehicle / plant being utilised along with current Driver CPC qualification
- Fix safety chains prior to moving off with auger in the raised (and locked) position

- Hand and skin dermatitis protection / monitoring
- Seat belts must be worn
- Working hours to be legally compliant for HGV drivers (Working time regulations 1998, EU driving rules, GB domestic driver rules)

Desirable - Plant

- Compliant with CLOCS standard
- For driving activities, seat belt operation interlocked with ignition switch/warning indicator
- Locking caps/covers to fuel and all other tanks

Desirable - Emissions

- Engine emissions compliant to EURO 6

Desirable - Operator

- Operator to be competency assessed in dealing with spills and environmental protection

Hazards / Risks

Significant hazards / risks identified when operating the machine and for those adjacent to machine:

Hazards/risks included in the "General Minimum Requirements" section, plus:-

- Clothing snagged on chute leading into auger
- Entrapment by inserting limbs into moving machinery
- Hazardous substances e.g., concrete

22. Suction Excavator



General Minimum Requirements (GMR) Section

- The GMR Section (above) contains information common to all items of plant and equipment covered by this RtB guidance, as applicable, and text has been removed from the individual plant item pages to streamline the document
- Content of the GMR Section, as applicable, must be followed to promote and ensure safe operation and use, in addition to details contained below for this plant item

General

Lorry mounted suction / vacuum excavator, 26 or 32t GVW c/w either hydraulic or counterbalanced suction arm.

Minimum Requirements - Plant

- Current MOT plating certificate
- Current VED and operator 'O' licence displayed in the cab windscreen
- On public highway - insured, and compliant with C&U regulations (VED registered, working lights, indicators, registration plate's front & rear etc.)
- Must have whole vehicle type approval if registered after Oct '14
- Mirrors (including Class V & VI)/CCTV to satisfy 1m high at 1m distance 360° visibility criteria
- Reversing camera

- White noise reversing alarm audible outside of the cab-
- All tools must be made of non-conductive material
- Appropriate warning signage including noise levels
- Emergency stops fitted front and rear
- Fall prevention and/or fall arrest arrangements where access to vehicle body required
- Fire extinguisher fitted in cab
- First aid kit and eye wash in cab
- Isolation switch with key
- Lights – Daylight running
- Lights – rear working
- Live tracking system
- Locking caps/covers to fuel and all other tanks
- Locking doors with key
- Park brake not engaged warning device
- Safe access for refuelling, maintenance and to any place where accessories stored
- Safe and clean access into cab
- Suction nozzles must be made of non-conductive material only
- If used under overhead cables or obstructions:
 - Height restrictors with indication on machine
 - Health and Safety Executive's GS6 avoidance of danger from overhead electric power lines must be followed

Minimum requirements - Remote control

- If battery powered, remote control units must be checked to ensure sufficient power is available for the intended operations
- If the remote control is operated through an umbilical cord, this must extend to allow the operator to work from a place of safety
- Operation of the emergency stop button and any other isolating devices must be checked for operational function

- Remote control units should be clean and free from damage including the wearing harness and umbilical cable (where relevant)
- If remote control is used - Specific Emergency Recovery / Rescue Procedures must be established and effectively communicated and practised prior to works commencing

Minimum Requirements – FORS

- Fleet Operator Recognition Scheme (FORS) compliant Bronze accreditation
- In addition, FORS silver or gold progression, to be provided to suit project risk requirements
- For further guidance, refer to – <https://www.fors-online.org.uk/cms>

Minimum Requirements – Chapter 8

- Refer to “General Minimum Requirements” section (above) for details relating to amber colour beacons, vehicle conspicuity and highway maintenance signage requirements

Minimum Requirements - Operator

- Competency requirements – CPCS card category A78
 - A78E: Non-KVV, Semi-powered arm
 - A78F: Non-KGV, Fully-powered arm (Senior)
- Operator must hold the correct category of driving licence for the vehicle / plant being utilised along with current Driver CPC qualification
- Operator must be suitably trained and competent in the use of this type of equipment
- All operators must be trained in Working at Heights to a recognised standard
- A safe system of work must be in place for all working at height activities, including: - hose blockage, maintenance and repairs
- Do not break ground unless briefed on, have received and fully understood a permit to break ground
- Excavator Daily inspection checklist signed off

- Vehicle Daily inspection checklist signed off
- A full exclusion zone must be established around the operation which must include the operating radius of the boom as a minimum
- A secondary person must be in the vicinity of the operation at all times who is fully trained to operate the machine in case of an emergency
- Competency requirements for Second operator – CPCS card cat. A78
 - A78G: LGV semi-powered arm, Second operator (Non-LGV driver)
 - A78H: LGV Fully-powered arm, Second operator (Non-LGV driver)
- Cease suction operations & turn off engine if exclusion zone is entered by others
- If fitted with a hydrostatic drive an operator must be present in the driving seat in addition to the operator controlling the machine externally
- Seat belt must be worn (when driving)
- Working hours to be legally compliant for HGV drivers (Working time regulations 1998, EU driving rules, GB domestic driver rules)

Desirable - Plant

- CCTV/Proximity sensor system
- Compliant with CLOCS standard
- For driving activities, seat belt operation interlocked with ignition switch/warning indicator
- Independent isolation system
- Locking caps/covers to fuel and all other tanks
- Remote hydrostatic drive
- Telematics system c/w geo fencing

Desirable - Emissions

- Engine emissions compliant to EURO 6

Desirable - Operator

- Operator to be competency assessed in dealing with spills and environmental protection

Hazards / Risks

Significant hazards / risks identified when operating the machine and for those adjacent to machine:

Hazards/risks included in the "General Minimum Requirements" section, plus:-

- At no time must anyone work or walk underneath the boom or vacuum nozzle, whether it is being operated or not
- Controls should be secured so that unauthorised operation is effectively prevented when the machine is not in use
- Danger of crushing by boom or manoeuvring vehicle
- Danger of crushing under un-propped body
- Disposing of waste products
- Do not operate if machine is, or appears to be damaged
- No entry into exclusion zone unless signalled by operator-
- No steel suction nozzles allowed
- Noise – hearing protection must be used as appropriate
- Non-invasive excavation techniques to be used only, as per manufacturer's instructions
- Operational exclusion zone
- Working adjacent to live traffic
- Working at height

23. Self-propelled Articulated or Rigid Dump Truck



General Minimum Requirements (GMR) Section

- The GMR Section (above) contains information common to all items of plant and equipment covered by this RtB guidance, as applicable, and text has been removed from the individual plant item pages to streamline the document
- Content of the GMR Section, as applicable, must be followed to promote and ensure safe operation and use, in addition to details contained below for this plant item

Minimum Requirements - Plant

- Fire extinguisher fitted in cab
- Flashing amber beacon
- Brake efficiency testing to be carried out and recorded e.g., daily user park and service brake and dynamic brake efficiency test as recommended by manufacturer
- External green light to indicate when seat belt is fastened
- 360° visibility criteria to satisfy 1m high at 1m distance, using line of sight, mirrors, cameras (270°/360°), radar - as applicable
- Reversing alarm to be fitted, audible outside of the cab
- Roll over protective structure (ROPS) and falling object protective structure (FOPS) cab structure
- Articulation lock must be fitted and operational

- Body Up warning system
- Isolation switch with key
- Live tracking system
- Locking caps/covers to fuel and all other tanks
- Locking doors with keys
- Mechanical prop fitted under body (Maintenance purposes only)
- No tailgates unless specifically requested
- Skip Inclinator in cab warning device >20 tonnes
- Tipping linkage – must have no excessive play
- Wheel nut indicators
- Where access is required at height for security & maintenance purposes, suitable system must be in place to prevent falling from height
- If used under overhead cables or obstructions:
 - Height restrictors with indication on machine
 - Health and Safety Executive's GS6 avoidance of danger from overhead electric power lines must be followed
 - Tipping prohibited / or ejector type only

Minimum Requirements - Operator

- Operator must hold the correct category of driving licence for the vehicle / plant being utilised along with current Driver CPC qualification
- Always operate/use the equipment in accordance with manufacturer's instructions / recommendations
- Do not elevate skip whilst moving
- Seat belt must be worn
- Shall stop work if any unauthorised/unsupervised personnel enter their immediate work area
- Total train weight must not exceed the rated payload of the machine

Desirable - Plant

- Coloured seat belts improve visibility
- Hydraulic rams on engine compartment covers to prevent slamming
- Load measurement device
- Telematics system c/w geo fencing

Desirable - Emissions

- Engine emissions compliant to EU Stage V

Desirable - Operator

- Operator to be competency assessed in dealing with spills and environmental protection

Hazards / Risks

Significant hazards / risks identified when operating the machine and for those adjacent to machine:

Hazards/risks included in the "General Minimum Requirements" section, plus:-

- Controls should be secured so that unauthorised operation is effectively prevented when the machine is not in use
- Do not use if equipment is, or appears to be damaged
- High risk of overturning at speed and on inclines
- Maintenance below skip hazardous and propping arrangement required
- No entry into exclusion zone unless signalled by operator
- Not to be used for towing unless an approved tow hitch is fitted
- Only to be used on gradients that are within the machine's capability (Refer to manufacturers manual)

24. Agricultural Tractor



General Minimum Requirements (GMR) Section

- The GMR Section (above) contains information common to all items of plant and equipment covered by this RtB guidance, as applicable, and text has been removed from the individual plant item pages to streamline the document
- Content of the GMR Section, as applicable, must be followed to promote and ensure safe operation and use, in addition to details contained below for this plant item

Minimum Requirements - Plant

- On public highway - insured, and compliant with C&U regulations (VED registered, working Lights, indicators, registration plate's front & rear etc.)
- Flashing amber beacon
- Brake efficiency testing to be carried out and recorded e.g., daily user park and service brake and dynamic brake efficiency test as recommended by manufacturer
- External green light fitted to indicate when seat belt is fastened, the exception to this being by risk assessment for vehicle travelling on public highways
 - Note: You can use an external green light on plant machinery when they are working on-site, or at works on the road as any area closed off is no longer regarded as being part of the highway. They should not be used on the highway as this could be an

offence under the Road Vehicle Lighting Regulations 1989, as amended

- 360° visibility criteria to satisfy 1m high at 1m distance, using line of sight and mirrors
- Audible reversing alarm audible outside of the cab
- Roll over protective structure (ROPS) and falling object protective structure (FOPS) cab structure
- If used for towing, must have hydraulic and air braking capability
- Isolation switch with key
- Live tracking system
- Locking caps/covers to fuel and all other tanks
- Locking doors with keys
- Where access is required at height for security & maintenance purposes, suitable system must be in place to prevent falling from height
- If used under overhead cables or obstructions:
 - Height restrictors with indication on machine
 - Health and Safety Executive's GS6 avoidance of danger from overhead electric power lines must be followed

Minimum Requirements - Operator

- Operator must hold the correct category of driving licence for the vehicle / plant being utilised
- Always operate/use the equipment in accordance with manufacturer's instructions / recommendations
- Controls should be secured so that unauthorised operation is effectively prevented when the machine is not in use
- Do not use if equipment is, or appears to be damaged
- Seat belt must be worn
- Shall stop work if any unauthorised/unsupervised personnel enter their immediate work area
- Total train weight must not exceed the rated payload of the machine

If towing required:

- Must have a current relevant driving licence if driving on the public highway
- Operator must consider stability when towing and the operator must refer to operator's manual prior to towing
- Special consideration must be given to weight being towed especially for braking activities

Desirable - Plant

- A 360° camera system that interlinks pictures from multiple cameras
- A camera system that can identify pedestrians from a maximum distance of 5m to a minimum of zero in all directions, warning operator and pedestrians of encroachment into the red zone
- CCTV/Proximity sensor system
- Coloured seat belts improve visibility
- Telematics system c/w geo fencing

Desirable - Emissions

- Engine emissions compliant to EU Stage V

Desirable - Operator

- Operator to be competency assessed in dealing with spills and environmental protection

Hazards / Risks

Significant hazards / risks identified when operating the machine and for those adjacent to machine:

Hazards/risks included in the "General Minimum Requirements" section, plus:-

- Only to be used on gradients that are within the machine's capability (Refer to manufacturers manual)

25. Site Tow Bowser



General Minimum Requirements (GMR) Section

- The GMR Section (above) contains information common to all items of plant and equipment covered by this RtB guidance, as applicable, and text has been removed from the individual plant item pages to streamline the document
- Content of the GMR Section, as applicable, must be followed to promote and ensure safe operation and use, in addition to details contained below for this plant item

General

Trailer mounted water / fuel bowser with a capacity of 1,000 – 13,500 litres

Minimum Requirements - Plant

- 40mm towing eye
- Automatic shut off nozzle - if powered dispensing pump fitted
- Fuel bowzers must be bunded 110% (double bunded)
- Fuel / water level gauge
- Handbrake / wheel chocks

- If fuel bowser fitted with rear platform requires steps and grab handles to ensure 3 points of contact is achievable
- Jockey leg designed to be secure in transit
- Lockable dispensing compartment c/w hand pump dispenser with minimum 6m delivery hose
- Off road tyres
- Safety chain
- Supplied with lights as required by risk assessment
- Where access is required at height for security & maintenance purposes, suitable system must be in place to prevent falling from height

Minimum Requirements - Operator

- Always operate/use the equipment in accordance with manufacturer's instructions / recommendations
- Competent to deal with spills and environmental protection
- Ensure COSHH data is available for liquids (if applicable)
- Ensure that towing vehicle and trailer does not exceed rated capacity
- Shall stop work if any unauthorised/unsupervised personnel enter their immediate work area

If towing required:

- Operator must consider stability when towing and the operator must refer to operator's manual prior to towing
- Special consideration must be given to weight being towed especially for braking activities

Desirable - Plant

- 12v Electric dispensing pump
- Automatic shut off nozzle
- Petrol / Diesel driven dispensing pump
- Security wheel clamps
- Spill kit
- Tow hitch lock

Hazards / Risks

Significant hazards / risks identified when operating the machine and for those adjacent to machine:

Hazards/risks included in the "General Minimum Requirements" section, plus:-

- Do not use if equipment is, or appears to be damaged
- Ensure that good housekeeping is applied, and trailer is kept clean and tidy
- Only to be used on gradients that are within the machine's capability (Refer to manufacturers manual)
- Refuelling – fuel spillage
- Stability during Loading and unloading
- Stability moving around site

26. Highway Tow Bowser



General Minimum Requirements (GMR) Section

- The GMR Section (above) contains information common to all items of plant and equipment covered by this RtB guidance, as applicable, and text has been removed from the individual plant item pages to streamline the document
- Content of the GMR Section, as applicable, must be followed to promote and ensure safe operation and use, in addition to details contained below for this plant item

General

Highway use trailer mounted water / fuel bowser with a capacity of 500 – 2,000 litres.

Minimum Requirements - Plant

- Type approved for use on the UK public Highway in accordance with Directive 2007/46/EC
- Supplied with lights and if used on Public Highway compliance with Construction and Use regulations – (working Lights, indicators, registration plate's rear etc.)
- 40mm towing eye
- Automatic shut off nozzle - if powered dispensing pump fitted
- Fuel bowser must be banded 110% (double banded)
- Fuel / water level gauge

- Handbrake / Wheel chocks
- If fuel bowser fitted with rear platform requires steps and grab handles to ensure 3 points of contact is achievable
- Jockey wheel designed to be secure in transit and maximise ground clearance i.e., above the bottom of the chassis frame
- Lockable dispensing compartment c/w hand pump dispenser with minimum 6m delivery hose
- Mud guards
- Off road tyres
- Overrun Braking system
- Safety chain
- Where access is required at height for security & maintenance purposes, suitable system must be in place to prevent falling from height

Minimum Requirements - Operator

- Must have correct driving licence category for towing
- For carriage of diesel or fuel oil on the public highway, in quantities greater than 1,000 litres, the driver must be trained and hold an ADR certificate
- Always operate/use the equipment in accordance with manufacturer's instructions / recommendations
- Competent to deal with spills and environmental protection
- Ensure correct registration number is displayed on the rear of the trailer
- Ensure COSHH data is available for liquids (if applicable)
- Ensure road worthiness of the trailer
- Ensure that towing vehicle and trailer does not exceed rated capacity
- Operator must consider stability when towing and the operator must refer to operator's manual prior to towing
- Shall stop work if any unauthorised/unsupervised personnel enter their immediate work area
- Special consideration must be given to weight being towed especially for braking activities

Desirable - Plant

- 12v Electric dispensing pump
- Automatic shut off nozzle
- LED lights in lieu of bulbs, should be able to work with towing vehicle without need for retro fit resistor packs
- Petrol / Diesel driven dispensing pump
- Security wheel clamps
- Spill kit
- Suitable number plate holder to facilitate quick change over and security of attachment
- Tow hitch lock

Hazards / Risks

Significant hazards / risks identified when operating the machine and for those adjacent to machine:

Hazards/risks included in the "General Minimum Requirements" section, plus:-

- Do not use if equipment is, or appears to be damaged
- Ensure that good housekeeping is applied, and trailer is kept clean and tidy
- Only to be used on gradients that are within the machine's capability (Refer to manufacturers manual)
- Refuelling – fuel spillage
- Stability during Loading and unloading
- Stability moving around site and on the public highway

27. LDP Piling Rig



General Minimum Requirements (GMR) Section

- The GMR Section (above) contains information common to all items of plant and equipment covered by this RtB guidance, as applicable, and text has been removed from the individual plant item pages to streamline the document
- Content of the GMR Section, as applicable, must be followed to promote and ensure safe operation and use, in addition to details contained below for this plant item

General

A large diameter piling rig with a width capacity up to 3m diameter to a depth of up to 70m.

Minimum Requirements - Plant

- CE Declaration of Conformity and current test certificate
- Compliant with current UK legislation
- Fire extinguisher in cab
- Flashing amber beacon
- External green light fitted to indicate when the seat belt is fastened
- 360° visibility criteria to satisfy 1m high at 1m distance, using line of sight, mirrors, cameras (270°/360°), radar - as applicable

- Reversing alarm to be fitted, working and audible outside of the cab
- Aircraft warning lights fitted (if working within 6km of airports or aerodromes)
- Cab steps and handles painted high visibility yellow ensuring 3 points of contact is achievable
- Door lock keys supplied
- Handrails must be fitted to the upper structure and running boards if access to height is required
- Motion alarms for slew and tracking must be fitted and operational
- No modification to the "Dead mans" handle
- Rig instrumentation shall be fitted to the rig to control/aid with the construction of the piles and meet the required specification
- Safe access for refuelling, maintenance and to any place where accessories are stored
- Not to be used beneath or adjacent to overhead power lines or obstructions

Minimum Requirements – Lifting

- Current 12 month LOLER thorough examination certificate for lifting equipment
- Have either a four yearly overload test certificate or a defined written scope of examination scheme supported by a declaration of compliance in line with the maintenance and thorough examination of mobile cranes best practice guide
- Current 6 month LOLER thorough examination certification for all lifting accessories and attachments
- All D/Bow shackles used above 2 metres must be the Bolt Anchor Type (i.e., bolt, nut, and pin)
- All lifting accessories to be marked with safe working load (SWL)
- Auxiliary winch hook must be fitted with a safety catch
- Load bearing hydraulic cylinders fitted with check valves
- Over-hoist cut out device must be fitted and operational

- Safe working load (SWL) to be clearly marked
- The auxiliary line must be fitted with an over-hoist limit switch
- The rig shall be within 6 months of having its thorough examination if the single line is to be used to lift people

Minimum Requirements - Operator

- Ensure machine is operated in accordance with manufacturer's instructions and in accordance with their training
- Shall be trained in lifting operations if using the auxiliary winch
- Shall be trained in line with all associated works instructions / procedures / processes which shall include but are not limited to boring under fluids, coring, obstructions, dry bores
- Operator must stop work if any unauthorised / unsupervised personnel enter their immediate work area
- Shall not track or slew the rig unless under direction from a designated rig attendant

Desirable - Plant

- Mobile elevating work platform in full time attendance to assist in rigging up, routine inspections and other maintenance operations
- Proximity detection equipment to be fitted to the rig
- Seat belt operation interlocked with ignition switch / warning indicator

Desirable - Emissions

- Engine emissions compliant to EU Stage V

Desirable – Operator / Supervisor

- A crane supervisor to be on site
- Operator to be slinger/signaller trained
- Operator to hold a current driving licence
- Operator to be competency assessed in dealing with spills and environmental protection

Hazards / Risks

Significant hazards/risks identified when operating the machine and for those adjacent to machine:

Hazards/risks included in the "General Minimum Requirements" section, plus:-

Instability: -

- By removal of obstructions
- Caused by soft spots
- Due to obstructions that have not been suitably backfilled after removal
- Due to operating on inadequately prepared piling platforms
- Due to poor definition of the edge of the piling platform
- Due to strong winds. MUST HAVE AN ANEMOMETER ON SITE
- Of mast or rig due to failure to follow the manufacturer's guidelines on mast inclination
- Underground services
- Whilst travelling on inappropriate access ramps where gradients are not within the stability constraints of the rig

Other: -

- Being struck by bore spoil while spinning off pile arising's
- Being struck by items falling from height
- Being struck by plant and vehicles or piling rig hitting plant or vehicles
- Component failure caused by rig maintenance not being carried out in line with the manufacturer's guidelines
- Entrapment between pile casings and rig ballast
- Falling into open bore because the pile casings are too low during digging, cage placement and concreting operations
- Hydraulic hose failure & spray of hydraulic oil due to hose burst
- Installing piles adjacent to the site hoarding or 3rd parties
- Operatives falling into bores that have not been suitably backfilled or suitably fenced off
- Over rotation/dig of the auger that affects the stability of the rig during pre-bore
- Over rotation of the auger resulting in undermining and subsequent damage of adjacent structures

28. Mini Rotary Piling Rig



General Minimum Requirements (GMR) Section

- The GMR Section (above) contains information common to all items of plant and equipment covered by this RtB guidance, as applicable, and text has been removed from the individual plant item pages to streamline the document
- Content of the GMR Section, as applicable, must be followed to promote and ensure safe operation and use, in addition to details contained below for this plant item

General

Diesel powered tracked mini rotary rig capable of CFA, Rock Anchor, DTH, Supa Jaw, Micro Piling, Odex Drilling, Soil Nailing Applications

Minimum Requirements - Plant

- CE Declaration of Conformity and current test certificate
- Compliant with current UK legislation
- Ability to restrict the working speed of the rotation whilst gate is open
- Dead man button
- Safety gate to be in place at all times

- Not to be used beneath or adjacent to overhead power lines or obstructions

Minimum Requirements – Lifting

- Current 12 month LOLER thorough examination certificate for lifting equipment
- Current 6 month LOLER thorough examination certification for all lifting accessories and attachments
- All lifting accessories to be marked with safe working load (SWL)
- Auxiliary winch hook must be fitted with a safety catch
- Over-hoist cut out device must be fitted and operational
- Safe working load (SWL) to be clearly marked

Minimum Requirements - Operator

- Ensure machine is operated in accordance with manufacturer's instructions and in accordance with their training
- Shall be trained in line with all associated works
- Understand and follow the specific site lift plan for the rig they are operating
- Operator must stop work if any unauthorised / unsupervised personnel enter their immediate work area

Desirable - Plant

- Computer monitored piling system to be fitted
- GPS tracker unit installed
- Locking caps/covers to fuel and all other tanks
- Remote Control Loading/Unloading
- Remote Control Operation (All Functions)
- Seat belt operation interlocked with ignition switch / warning indicator

Desirable - Emissions

- Engine emissions compliant to EU Stage V

Desirable – Operator / Supervisor

- Operator to hold a current driving licence
- Operator to be Crane lift supervisor trained
- Operator to be competency assessed in dealing with spills and environmental protection

Hazards / Risks

Significant hazards/risks identified when operating the machine and for those adjacent to machine:

Hazards/risks included in the "General Minimum Requirements" section, plus:-

- Being struck by items falling from height
- Being struck by plant and vehicles or piling rig hitting plant or vehicles
- Component failure caused by rig maintenance not being carried out in line with the manufacturer's guidelines
- Consider risk of accessories – e.g., hammer
- Entanglement – gate on rig to be closed at all times whilst rotary works are conducted
- Excessive noise and vibration from Piling Operation
- Hydraulic hose failure & spray of hydraulic oil due to hose burst
- Installing piles adjacent to the site hoarding or 3rd parties
- Overturning if lifting duties exceeded
- Precast concrete pile shearing while being driven
- Trapping of site operatives – All movements to be supervised by a plant and vehicle movement marshal at all times
- Underground services

29. CFA Piling Rig



General Minimum Requirements (GMR) Section

- The GMR Section (above) contains information common to all items of plant and equipment covered by this RtB guidance, as applicable, and text has been removed from the individual plant item pages to streamline the document
- Content of the GMR Section, as applicable, must be followed to promote and ensure safe operation and use, in addition to details contained below for this plant item

General

Continuous flight auger piling rig capable of a boring depth between 10m and 33m and up to 1.2m diameter.

Minimum Requirements - Plant

- CE Declaration of Conformity and current test certificate
- Compliant with current UK legislation
- Fire extinguisher in cab
- Flashing amber beacon
- External green light fitted to indicate when the seat belt is fastened
- 360° visibility criteria to satisfy 1m high at 1m distance, using line of sight, mirrors, cameras (270°/360°), radar - as applicable
- Reversing alarm to be fitted, working and audible outside of the cab
- Roll over protective structure (ROPS) and falling object protective structure (FOPS) cab structure
- Aircraft warning lights (if working within 6km of airports or aerodromes)
- Cab steps and handles painted high visibility yellow ensuring 3 points of contact is achievable
- Locking doors with key
- Hand rails must be fitted to the upper structure and running boards if access to height is required
- Motion alarms for slew and tracking must be fitted and operational
- Must be fitted with 'hold to run' levers
- No modifications to the machines 'Dead Man's Handle'
- Rig instrumentation shall be fitted to the rig to control / aid with the construction of the piles and meet the required specification
- Safe access for refuelling, maintenance and to any place where accessories are stored
- An auger cleaner must be fitted to prevent spoil flying up the auger string
- An external 'Emergency Stop' must be fitted
- Auger guarding shall be fitted to the mast ensuring that no one comes in contact with the rotating auger
- Blow out adaptors shall have two air exhaust valves fitted and a pressure gauge to clearly identify the pressure within the pumping lines
- Isolation switch with key
- Protective mesh/guard must be installed to the window on the jib side of the cab if window is opening type
- Rubber concrete pipes fitted at height on the rig shall have whip checks fitted to all joints
- Shall have a mechanical auger cleaner fitted

- The auger cleaner must be fitted with a secondary restraint to prevent components falling from it
- The concrete Loop hose over its entire length shall be doubled bagged
- Not to be used beneath or adjacent to overhead power lines or obstructions

Minimum Requirements – Lifting

- Current 12 month LOLER thorough examination certificate for lifting equipment
- Current 6 month LOLER thorough examination certification for all lifting accessories and attachments
- All D/Bow shackles used above 2 metres must be the Bolt Anchor Type (i.e., bolt, nut, and pin)
- All lifting accessories to be marked with safe working load (SWL)
- Auxiliary winch hook must be fitted with a safety catch
- Load bearing hydraulic cylinders fitted with check valves
- Over-hoist cut out device must be fitted and operational
- Safe working load (SWL) to be clearly marked

Minimum Requirements - Operator

- Ensure machine is operated in accordance with manufacturer's instructions and in accordance with their training
- Shall be trained in lifting operations if using the auxiliary winch
- Shall be trained in the operation of the auxiliary winch in association of all lifting operations
- Operate the rig to prevent excessive swing of the load during movement
- Operator must stop work if any unauthorised / unsupervised personnel enter their immediate work area
- The auxiliary line must be fully lowered to ground to prevent the wire rope or hook assembly fouling on the rotary table

Desirable - Plant

- Audible/visual slew alarm
- Auger gate canopy fitted to cover the rig attendant when placing the auger cap
- Computer monitored piling system to be fitted
- Hydraulic rams on engine compartment covers to prevent slamming
- Independent isolation system
- Locking caps/covers to fuel and all other tanks
- Mobile elevating work platform in full time attendance to assist in rigging up, routine inspections and other maintenance operations
- Proximity detection equipment to be fitted to the rig
- Rear facing, counterweight mounted CCTV cameras
- Seat belt operation interlocked with ignition switch / warning indicator
- Tracker unit
- Travel movement alarm

Desirable - Emissions

- Engine emissions compliant to EU Stage V

Desirable – Operator / Supervisor

- A crane supervisor to be on site
- Operator to be slinger/signaller trained
- Operator to hold a current driving licence
- Operator to be competency assessed in dealing with spills and environmental protection

Hazards / Risks

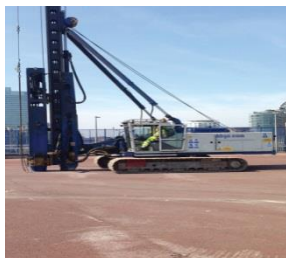
Significant hazards/risks identified when operating the machine and for those adjacent to machine:

Hazards/risks included in the "General Minimum Requirements" section, plus:-

- Instability: -

- By removal of obstructions or bores have not been suitably backfilled after removal
 - Caused by soft spots
 - Due to operating on inadequately prepared piling platforms
 - Due to poor definition of the edge of the piling platform
 - Due to strong winds. MUST HAVE AN ANEMOMETER ON SITE
 - Due to the rig being manoeuvred on its jack up legs
 - Whilst travelling on inappropriate access ramps where gradients are not within the stability constraints of the rig
 - Of the mast or rig due to failure to follow the manufacturer's guidelines on mast inclination
-
- Being struck by bore spoil while spinning off pile arisings
 - Being struck by items of plant falling from height
 - Being struck by plant and vehicles or piling rig hitting plant or vehicles
 - Component failure caused by Rig Maintenance not being carried out in line with manufacturers guidelines
 - Installing piles adjacent to the site hoarding or 3rd parties
 - Operatives falling into bores that have not been suitably backfilled/suitably fenced off.
 - Entrapment caused by coming into contact with the rotating auger
 - Flighting – over rotation of the auger resulting in affecting the stability of the rig or undermining and subsequent damage of adjacent structures or previously constructed fluid piles
 - Hydraulic hose failure & spray of hydraulic oil /Concrete due to hose burst caused by worn or damaged hoses
 - People and property being struck by concrete during the clearing of blockages from within the pumping lines
 - Piles constructed do not meet the required specification
 - Reinforcing cages/bars falling from height during the cage installation process
 - Rig malfunction
 - Slumping of piles due to inadequate pile sequencing
 - Unauthorised personnel within the piling area

30. Driven Piling Rig



General Minimum Requirements (GMR) Section

- The GMR Section (above) contains information common to all items of plant and equipment covered by this RtB guidance, as applicable, and text has been removed from the individual plant item pages to streamline the document
- Content of the GMR Section, as applicable, must be followed to promote and ensure safe operation and use, in addition to details contained below for this plant item

General

As standard driven piling rigs can be fitted with 3, 4, 5 and 6 Tonne hammers.

Minimum Requirements - Plant

- CE Declaration of Conformity and current test certificate
- Compliant with current UK legislation
- Fire extinguisher in cab of machine
- Flashing amber beacon
- External green light fitted to indicate when the seat belt is fastened
- 360° visibility criteria to satisfy 1m high at 1m distance, using line of sight, mirrors, cameras (270°/360°), radar - as applicable
- Reversing alarm to be fitted, working and audible outside of the cab

- Aircraft warning lights (if working within 6km of airports or aerodromes)
- Cab steps and handles painted high visibility yellow ensuring 3 points of contact is achievable
- Door lock keys supplied
- Handrails must be fitted to the upper structure and running boards if access to height is required
- Motion alarms for slew and tracking must be fitted and operational
- Must be fitted with 'hold to run' levers
- No modifications to the machines Dead Man's Handle
- Safe access for refuelling, maintenance and to any place where accessories are stored
- Not to be used beneath or adjacent to overhead power lines or obstructions

Minimum Requirements – Lifting

- Current 12 month LOLER thorough examination certificate for lifting equipment
- Current 6 month LOLER thorough examination certification for all lifting accessories and attachments
- All D/Bow shackles used above 2 metres must be the Bolt Anchor Type (i.e., bolt, nut, and pin)
- All lifting accessories to be marked with safe working load (SWL)
- Auxiliary winch hook must be fitted with a safety catch
- Over-hoist cut out device must be fitted and operational
- Safe working load (SWL) to be clearly marked
- The auxiliary line must be fitted with an over-hoist limit switch
- The rig shall be within 6 months of having its thorough examination if the single line is to be used to lift people

Minimum Requirements - Operator

- Ensure machine is operated in accordance with manufacturer's instructions and in accordance with their training
- Shall be trained in lifting operations

- Shall be trained in line with all associated works
- Understand and follow the specific site lift plan for the driven rig they are operating
- Instructions/procedures/processes which shall include but are not limited to: Unloading precast piles, Drawing a precast pile into the rig and jointing precast piles
- Operator must stop work if any unauthorised / unsupervised personnel enter their immediate work area
- Shall not track or slew the rig unless under direction from a designated rig attendant
- Use safe communication via two-way radio systems

Desirable - Plant

- Computer monitored piling system to be fitted
- GPS tracker unit installed
- Locking caps/covers to fuel and all other tanks
- Proximity detection equipment to be fitted to the rig
- Seat belt operation interlocked with ignition switch / warning indicator

Desirable - Emissions

- Engine emissions compliant to EU Stage V

Desirable – Operator / Supervisor

- Operator to be Crane lift supervisor trained
- Operator to hold a current driving licence
- Operator to be competency assessed in dealing with spills and environmental protection

Hazards / Risks

Significant hazards/risks identified when operating the machine and for those adjacent to machine:

Hazards/risks included in the "General Minimum Requirements" section, plus:-

- Instability: -
 - By removal of obstructions
 - Caused by soft spots
 - Due to obstructions which have not been suitably backfilled after removal
 - Due to operating on inadequately prepared piling platforms
 - Due to poor definition of the edge of the piling platform
 - Due to strong winds. MUST HAVE AN ANEMOMETER ON SITE
 - Of mast or rig due to failure to follow the manufacturer's guidelines on mast inclination
 - Underground services
 - Whilst travelling on inappropriate access ramps where gradients are not within the stability constraints of the rig

Other: -

- Being struck by items falling from height e.g., timbers packings / concrete and hammer helmet retaining bolts vibrating loose
- Being struck by plant and vehicles or piling rig hitting plant or vehicles
- Component failure caused by rig maintenance not being carried out in line with the manufacturers guidelines
- Entrapment between pile casings and rig ballast
- Excessive noise and vibration from repeated blows of the pile
- Hydraulic hose failure & spray of hydraulic oil due to hose burst
- Installing piles adjacent to the site hoarding or 3rd parties
- Precast concrete pile shearing while being driven
- A rope failure causing the hammer or pile section to runaway down the mast
- Instability of the rig due failure of non-compliance to the lift plan
- Pile section clashing with delivery wagons while being loaded or unloaded
- Sub-contractors e.g., testing and setting out engineers operating in the rig's exclusion zones

31. Piling Rigs Vibro



General Minimum Requirements (GMR) Section

- The GMR Section (above) contains information common to all items of plant and equipment covered by this RtB guidance, as applicable, and text has been removed from the individual plant item pages to streamline the document
- Content of the GMR Section, as applicable, must be followed to promote and ensure safe operation and use, in addition to details contained below for this plant item

General

Steel casing vibro piling rig up to 600mm diameter and up to 40m in length.

Minimum Requirements - Plant

- CE Declaration of Conformity and current test certificate
- Compliant with current UK legislation
- Fire extinguisher fitted in cab
- Flashing amber beacon
- External green light fitted to indicate when the seat belt is fastened

- 360° visibility criteria to satisfy 1m high at 1m distance, using line of sight, mirrors, cameras (270°/360°), radar - as applicable
- Reversing alarm to be fitted, working and audible outside of the cab
- Roll over protective structure (ROPS) and falling object protective structure (FOPS) cab structure
- Aircraft warning lights (if working within 6km of airports or aerodromes)
- Cab steps and handles painted high visibility yellow ensuring 3 points of contact is achievable
- Locking doors with key
- Hand rails must be fitted to the upper structure and running boards if access to height is required
- Motion alarms for slew and tracking must be fitted and operational
- Must be fitted with 'hold to run' levers
- No modifications to the machines 'Dead Man's Handle'
- Safe access for refuelling, maintenance and to any place where accessories are stored
- A sledge over hoist knock out system must be fitted
- An external 'Emergency Stop' must be fitted
- Isolation switch with key
- Protective mesh guard must be in place to side of cab on jib side if window is opening type
- Safe and clean access into cab
- Not to be used beneath or adjacent to overhead power lines or obstructions

Minimum Requirements – Lifting

- Current 12 month LOLER thorough examination certificate for lifting equipment
- Current 6 month LOLER thorough examination certification for all lifting accessories and attachments
- All D/Bow shackles used above 2 metres must be the Bolt Anchor Type (i.e., bolt, nut, and pin)

- All lifting accessories to be marked with safe working load (SWL)
- Load bearing hydraulic cylinders fitted with check valves
- Over-hoist cut out device must be fitted and operational
- Safe working load (SWL) must be clearly displayed
- The auxiliary line must be fitted with an over-hoist limit switch

Minimum Requirements - Operator

- Ensure machine is operated in accordance with manufacturer's instructions and in accordance with their training
- Shall be trained in lifting operations if using the auxiliary winch
- Operator must be familiar with the pile jointing method and safe systems of work
- Operate the rig to prevent excessive swing of the load during movement
- Operator must stop work if any unauthorised / unsupervised personnel enter their immediate work area

Desirable - Plant

- Complete people exclusion area around plant and operation (5m)
- Isolation method independent of factory fitted locks
- Live tracking system
- Locking caps/covers to fuel and all other tanks
- Proximity detection sensors to be fitted and operational
- Seat belt operation interlocked with ignition switch / warning indicator

Desirable - Emissions

- Engine emissions compliant to EU Stage V

Desirable – Operator / Supervisor

- Operator to hold a current driving licence
- Operator to be competency assessed in dealing with spills and environmental protection

Hazards / Risks

Significant hazards/risks identified when operating the machine and for those adjacent to machine:

Hazards/risks included in the "General Minimum Requirements" section, plus:-

Instability: -

- Due to operating on inadequately prepared piling platforms
- Of mast or rig due to failure to follow the manufacturer's guidelines on mast inclination
- Underground services

Other: -

- A rope failure causing a runaway flot sledge on the mast
- Air hose failure
- Concrete flexible hose burst at height
- Concrete or stone falling from height
- Excessive noise and vibration from repeated driving with the flot
- Exclusion zones being ignored by other operatives on site
- Installing stone columns adjacent to the site hoarding or 3rd parties
- Lorry Loader instability during flot changes
- Multiple rigs and cranes working in close proximity
- Rig Attendant not monitoring the exclusion zone effectively and keeping others clear
- Rig instability in strong winds
- Spray of hydraulic oil due to hose burst
- Zone testing engineers being trapped or crushed due to working in close proximity to piling rig

32. Diesel Generator Above 20KVA



General Minimum Requirements (GMR) Section

- The GMR Section (above) contains information common to all items of plant and equipment covered by this RtB guidance, as applicable, and text has been removed from the individual plant item pages to streamline the document
- Content of the GMR Section, as applicable, must be followed to promote and ensure safe operation and use, in addition to details contained below for this plant item

General

Diesel powered site generator with an output 20 kVA and above for large power distribution activities, either skid or trailer mounted

Minimum Requirements - Plant

- Current 6 month LOLER thorough examination certificate for central lifting eye
- 240v & 415v, with 64 & 32 amp outlet sockets mounted on distribution board protected by circuit breaker
- Automatic voltage regulator
- Electric start
- Emergency stop button
- Engine protection shutdown system with warning lights
- Fuel level gauge

- Isolation switch with key
- Must have RCD or RCBO protection
- Silencing pack
- Voltmeter with phase to phase selector switch

If trailer mounted:

- Type approved for use on the UK public Highway in accordance with Directive 2007/46/EC
- 40mm towing eye
- Automatic shut off nozzle - if powered dispensing pump fitted
- Break away cable
- Fuel / water level gauge
- Handbrake
- Jockey wheel designed to be secure in transit and maximise ground clearance i.e., above the bottom of the chassis frame
- Off road tyres
- Overrun Braking system
- Safety chain
- Towing/lifting weight to be clearly displayed

Minimum Requirements - Operator

- Must have correct driving licence category for towing
 - Do not tow on a public highway with a commercial vehicle as tachograph regulations will apply
- Must be qualified and competent to carry out electrical connection activities
- Always operate/use the equipment in accordance with manufacturer's instructions / recommendations
- Competent to deal with spills and environmental protection
- Ensure access to generator is restricted to authorised/qualified persons
- Ensure adequate space around the generator to perform maintenance activities

- Ensure correct registration number is displayed on the rear of the trailer
- Ensure COSHH data is available for liquids (if applicable)
- Ensure generator has adequate ventilation
- Ensure road worthiness of the trailer
- Ensure that towing vehicle and trailer does not exceed rated capacity
- Ground should be firm and level
- Operator must consider stability when towing and the operator must refer to operators manual prior to towing
- Report all unsafe conditions
- Shall stop work if any unauthorised/unsupervised personnel enter their immediate work area
- Special consideration must be given to weight being towed especially for braking activities

Desirable - Plant

- Automatic re-fuelling system from external fuel tank
- Auto start capability
- Bund level alert system
- Canopy to have integral fuel bunding for environmental protection
- Hybrid/Smart stored energy system
- Programmable timer
- Remote Start/Stop kit
- Smart distribution board
- Telematics system c/w geo fencing

Desirable - Emissions

- Engine emissions compliant to EU Stage V

Hazards / Risks

Significant hazards/risks identified when operating the machine and for those adjacent to machine:

Hazards/risks included in the "General Minimum Requirements" section, plus:-

- Consider risk of towed items
- Electric shock
- Exposure to hazardous substances such as fuels, oils, and greases
- Noise – hearing protection must be used as appropriate
- Refuelling – fuel spillage
- Scalding from water cooled engines if removing radiator cap
- Slips, trips & falls from trailing power leads

33. Diesel Generator Less than 20KVA



General Minimum Requirements (GMR) Section

- The GMR Section (above) contains information common to all items of plant and equipment covered by this RtB guidance, as applicable, and text has been removed from the individual plant item pages to streamline the document
- Content of the GMR Section, as applicable, must be followed to promote and ensure safe operation and use, in addition to details contained below for this plant item

General

Diesel powered site generator with a maximum output of 20 kVA for light to medium duty activities and easily manoeuvrable around site.

Minimum Requirements - Plant

- Current 6 month LOLER thorough examination certificate for central lifting eye
- 110v 64 32 & 16 amp outlet sockets only (unless unit is being utilised to power temporary accommodation) protected by 30mA residual circuit breaker
- Electric start
- Isolation switch with key

- Must have Volt meter and Hour meter
- Towing/lifting weight to be clearly displayed

If road towable:

- Type approved for use on the UK public Highway in accordance with Directive 2007/46/EC
- 40mm towing eye
- Break away cable
- Jockey wheel designed to be secure in transit and maximise ground clearance i.e., above the bottom of the chassis frame

Minimum Requirements - Operator

- Must have correct driving licence category for towing
 - Do not tow on a public highway with a commercial vehicle as tachograph regulations will apply
- Must be qualified and competent to carry out electrical connection activities
- Always operate/use the equipment in accordance with manufacturer's instructions / recommendations
- Competent to deal with spills and environmental protection
- Ensure adequate space around the generator to perform maintenance activities
- Ensure access to generator is restricted to authorised/qualified persons
- Ensure correct registration number is displayed on the rear of the trailer
- Ensure COSHH data is available for liquids (if applicable)
- Ensure generator has adequate ventilation
- Ensure road worthiness of the trailer
- Ensure that towing vehicle and trailer does not exceed rated capacity
- Ground should be firm and level
- Operator must consider stability when towing and the operator must refer to operators manual prior to towing
- Report all unsafe conditions

- Shall stop work if any unauthorised/unsupervised personnel enter their immediate work area
- Special consideration must be given to weight being towed especially for braking activities

Desirable - Plant

- Automatic re-fuelling system from external fuel tank
- Auto start capability
- Bund level alert system
- Canopy to have integral fuel bunding for environmental protection
- Hybrid/Smart stored energy system
- Programmable timer
- Remote Start/Stop kit
- Smart distribution board
- Telematics system c/w geo fencing

Desirable - Emissions

- Engine emissions compliant to EU Stage V

Desirable - Operator

- Be competency assessed in dealing with spills and environmental protection

Hazards / Risks

Significant hazards / risks identified when operating the machine and for those adjacent to machine:

Hazards/risks included in the "General Minimum Requirements" section, plus:-

- Consider risk of towed items
- Electric shock
- Exposure to hazardous substances such as fuels, oils, and greases
- Noise – hearing protection must be used as appropriate

- Refuelling – fuel spillage
- Scalding from water cooled engines if removing radiator cap
- Slips trips & falls from trailing power leads

Appendix 1 – A listing of competence cards / evidence of training, by RtB 1 PI number order

Plant Category	Competency cards / Driver CPC qualification requirements, as applicable
1 Excavator Backhoe	CPCS A10 (<5 tonnes); A12 (>5 tonnes) NPORS N201 (180° Excavator); N100 (Excavator as a crane)
2 Forward and Side Tipping Dumper	CPCS A09 > endorsements A - Forward tipping wheeled ; B – Forward tipping tracked NPORS N139 (Forward tipping mini dumper up to 1 Tonne); N204 (Forward tipping dumper)
3 Mini Excavator (<10 Tonne)	CPCS A58A (<10 tonnes); A58C (Lifting with excavator) NPORS N016 (Micro Excavator 360° up to 1 tonne); N202 (Excavator 360°); N100 (Excavator as a crane) N124 (Load and Secure Excavator up to 5T)
4 Tracked 360° Excavator	CPCS A58A (<10 tonnes); A59A (>10 tonnes) CPCS Lifting with excavator A58C (<10 tonnes); A59C (>10 tonnes) NPORS N202 (Excavator 360°); N100 (Excavator as a crane)
5 Wheeled 360° Excavator	CPCS A58B (<10 tonnes); A59B (>10 tonnes) CPCS Lifting with excavator A58C (<10 tonnes); A59C (>10 tonnes) NPORS N202 (Excavator 360°); N100 (Excavator as a crane)
6 Crawler Crane	CPCS A02 (Crawler crane over 10 tonnes); A66D (Compact Crane 360° Pick and carry) NPORS N103 (Crawler crane)
7 Lorry Mounted Crane	ALLMI (Lorry loader operator certification) CPCS A36 > endorsements A – hook; B – clamshell C – hydraulic clamp NPORS N107 (Lorry loader)
8 Mobile Elevating Work Platform	CPCS A25 – Scissor; A26 – Boom; A27 – Mast climber IPAF: 1a – static vertical; 1b – static boom; 3a – mobile vertical; 3b – mobile boom NPORS N108 (Boom); N109 (Scissor lift)
9 Mixer Truck	<ul style="list-style-type: none"> Evidence of demonstrable training and experience in operation of mixer truck
10 Telehandler	CPCS A17 (Endorsements A-E) that includes - A – Industrial Telescopic; B – Up to 9 metres; C – All sizes ex. 360° slew; D – Superseded by A77; E – Suspended load (non-rough terrain) CPCS A77 - Telescopic handler 360° slew NPORS N010 (Telescopic handler); N011 (Industrial telescopic handler); N138 (Telescopic handler suspended loads)

Plant Category	Competency cards / Driver CPC qualification requirements, as applicable
11 Compressor /Air Systems	<ul style="list-style-type: none"> Evidence of demonstrable training and experience in operation of compressor/air system
12 Road Sweeper / Collector	CSCS - Road Sweeper and Gully sucker Operator, NVQ L2 NPORS N217 (Road Sweeper)
13 Tipper – Rigid or Articulated	<ul style="list-style-type: none"> Operator must hold the correct category of driving licence for the vehicle / plant being utilised along with current Driver CPC qualification
14 Concrete Pump	CPCS A06 (Truck mounted boom – LGV required); A44 (Concrete pump trailer mounted) NPORS N211 (Concrete pump mobile)
15 Mobile Crane	CPCS A60 > endorsements A – blocked duty only; B – pick and carry duties only; C – all duties NPORS N101 (Mobile crane)
16 Concrete Extrusion Machine	<ul style="list-style-type: none"> Evidence of: (1) Appropriate training for extrusion machines; (2) Familiarisation training for the type of machine to operated; (3) Pressure washer training
17 Mobile Crushing Plant	CPCS A42 - for all persons operating the crusher NPORS N207 - Crusher
18 Ride on Compaction Roller	CPCS A31 - Ride on roller NPORS N214 - Road roller
19 Tracked Dozer	CPCS A34 - Crawler tractor / dozer NPORS N215 - Dozer
20 Wheeled Loading Shovel	CPCS A21 - Wheeled loading shovel - together with appropriate endorsement NPORS N209 - Loading shovel
21 Volumetric Mixer	<ul style="list-style-type: none"> Evidence of appropriate training and competence assessment for machine (either by the manufacturer or in-house by an operator previously trained by the manufacturer)
22 Suction Excavator (Vacuum Excavator)	<p>CPCS A78 – Vacuum excavator - (Endorsements A-H) that includes:</p> <ul style="list-style-type: none"> A: Trailer - Manual arm; B: Trailer - Semi powered arm; C: Non-KGV - Manual arm; D: Non-KGV - Semi powered arm; E: Non-KGV - Semi powered arm; F: Non-KGV - Fully powered arm (Senior); G: LGV semi-powered arm - Second Operator (Non-LGV driver); H: LGV fully powered arm - Second Operator (Non-LGV driver) <p>CSCS / EUSR skill card (TT-UK Suction Excavation category) or equivalent NPORS N021 - Suction excavator NRSWA operative competency</p>

Plant Category	Competency cards / Driver CPC qualification requirements, as applicable
23 Self Propelled Articulated or Rigid Dump truck	CPCS A56 - articulated chassis - A - Up to 15 tonnes; B - All sizes (senior) CPCS A59 - rigid chassis - A - Up to 15 tonnes; B - Up to 50 tonnes; C – All sizes wheeled (senior); D – All sizes tracked (separate) NPORS N205 - Rear dump truck
24 Agricultural Tractor	CPCS A33 – Agricultural tractor NPORS N601 - Agricultural Tractor
25 Site Towed Bowser	<ul style="list-style-type: none"> <li>Evidence of briefing in operation and safe use the equipment in accordance with manufacturer’s instructions / recommendations
26 Highway Towed Bowser	<ul style="list-style-type: none"> <li>Evidence of briefing in operation and safe use the equipment in accordance with manufacturer’s instructions / recommendations
27 LDP Piling Rig	CPCS A47 – Piling Rig [Bored below 20 tonnes]; A48 – Piling Rig [Bored above 20 tonnes]
28 Mini Rotary Piling Rig	CPCS A47 – Piling Rig [Bored below 20 tonnes]; A48 – Piling Rig [Bored above 20 tonnes]
29 CFA Piling Rig	CPCS A47 – Piling Rig [Bored below 20 tonnes]; A48 – Piling Rig [Bored above 20 tonnes]
30 Driven Piling Rig	CPCS A45 – Piling Rig [Driven below 20 tonnes]; A46 – Piling Rig [Driven above 20 tonnes]
31 Piling Rigs Vibro	CPCS A47 – Piling Rig [Bored below 20 tonnes]; A48 – Piling Rig [Bored above 20 tonnes]
32 Diesel Generator Above 20KVA	<ul style="list-style-type: none"> <li>Evidence of demonstrable training and experience in operation of diesel generators (>20kVA)
33 Diesel Generator Less than 20KVA	<ul style="list-style-type: none"> <li>Evidence of demonstrable training and experience in operation of diesel generators (<20kVA)