Excavator Lifting Operations

Risk Assessment Guidance

Sir Robert McALPINE

Hands OFF
Step AWAY
Safe SPACE

Introduction:

The following is a generic risk assessment to provide reference(s) when risk assessing lifting operations using excavators.

Text in *italicised RED* in columns 2,3 & 8 has been provided to only serve as prompts to:

- Who or what could be at risk in the activity or hazard description;
- Along with any hazards due to the local environment and load being lifted;
- The potential consequences or outcomes of the activity;
- Who is responsible for implementing and/or monitoring the control measures;

The content within this refence document can be used to form the basis of an activity risk assessment in the separately issued version of the document in WORD, but please be mindful that content should be made project specific.

The headings in the '*Contents*' page are all hyperlinked to allow ease of navigation.

Special note:

The 'control measures' in Sections 1 and 2 are intentionally general in description due to the wide range of accreditation variables that may apply to your lift teams.

Notable missing sections are listed below. These sections are high risk activities with a number of site specific variables that can only be properly addressed on a project by project basis.

The guidance materials suggested below are to aid preparation of the risk assessment.

Note:
At date of issue the below links were accurate and working.

- **Working near overhead powerlines**
  For lifting operations near overhead powerlines, the lift planner should make contact with the relevant regional power network.

  A HSE guidance note to assist is available at:

  https://www.hse.gov.uk/pubns/gs6.pdf

- **Lifting alongside railways:**

  For lifting operations, including basic and intermediate lifts, adjacent to open railways the lift planner should make contact with the relevant asset protection team for that railway route.

  Details available at:
  https://www.networkrail.co.uk/running-the-railway/looking-after-the-railway/asset-protection-and-optimisation/

- **Lifting alongside highways and other sites of exceptional hazard:**

  The use of excavators, during construction activities on or adjacent to sites of exceptional hazards, such as highways, chemical plants and nuclear installations, requires particular attention during planning, delivery set-up, use, maintenance and collection.

  If the excavator or its load falls onto high-hazard areas within the site, a catastrophic accident might result with multiple fatalities or long-lasting environmental issues. Detailed guidance is given in Annex E of BS 7121-1:2016.

Please note:
This document has been provided by Sir Robert McAlpine Limited. It has been checked to the best of our ability but may contain unintentional errors. As per BS 7121-1:2016, CDM 2015 and LOLER, it is the user's responsibility to verify that they understand and have made their own checks before using this document.

The user shall ensure that they properly risk assess and plan their own lifting operations to discharge their legal requirements.

No liability will be accepted for any incidents that result of those using this document.

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4.	Planning: Suitability of ground conditions for lifting operation and loads imposed	20.	Operations: Person Load/Appliance interface – Suspended loads
5.	Operations: Delivery of appliance to project	21.	Operations: Person Load/Appliance interface – Fork tines in use
6.	Operations: Appliance maintenance and weekly/daily checks	22.	Operations: Environmental considerations
7.	Operations: Appliance work area adjacent to excavation/cofferdam	Content note:	
8.	Operations: Appliance movement on project – without load	Included within the activities in the risk assessment are those that attend to the utilisation of fork attachments. These have been omitted from the associated lift plan template to maintain clarity within the document and will be attended to in possible further revisions or addendums. While the risk assessment is authored to be issued in conjunction with the lift plan template, we thought it prudent to include the use of fork tines etc. to, again, provide prompts for those authoring lift plans where these attachments are being used.	
9.	Operations: Appliance movement on project – Suspended load, pick and carry operations		
10.	Operations: Appliance movement on project with fork attachment without load.		
11.	Operations: Appliance movement on project with load on fork attachment.		
12.	Operations: Encroachment of operational area(s) by unauthorised person(s)		
13.	Operations: Appliance unloading and loading from/onto delivery vehicles		
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Activity Risk Assessment – A Reference for Excavator Lifting Operations

Project Details:						
Project Name & No.:			Risk Assessment No.:			
Risk Assessment Title:			Revision No.:			
Specific Location of the Works:			Anticipated Start Date of Works:			
Scope & Description of the Works:						
Associated Documents:						
Risk Assessment Completed By:	Name:		Signed:		Date:	
Risk Assessment Reviewed By:	Name:		Signed:		Date:	
Risk assessment must be reviewed every *3* months or where significant changes occur.						

Likelihood Rating Key:		Severity Rating Key:	
5	*Frequent (1 or more per week)*	5	*Multiple or Single Fatality or Collapse of Structure*
4	*Probable (1 per month)*	4	*Major Injury or Major Damage to Property*
3	*Occasional (1 per year)*	3	*Reportable Lost Time Injury or Significant Damage to Property*
2	*Remote (1 in 10 years)*	2	*Other Lost Time Injury or Damage to Property*
1	*Improbable (1 in 100 years)*	1	*Minor Injury*

		Severity Rating				
		5	4	3	2	1
Likelihood Rating	5	*25*	*20*	*15*	*10*	*5*
	4	*20*	*16*	*12*	*8*	*4*
	3	*15*	*12*	*9*	*6*	*3*
	2	*10*	*8*	*6*	*4*	*2*
	1	*5*	*4*	*3*	*2*	*1*

Residual Risk Rating Matrix Key:	
12 – 25:	*Unacceptable level of risk. Risk level **MUST** be reduced. Operations **WILL NOT** proceed until the level of risk is reduced to an acceptable level. Requirements for the work need to be reviewed and alternative methodologies investigated where risk cannot be reduced to an acceptable level.*
5 - 10:	*Risks acceptable where principles of prevention have been applied and control measures implemented to reduce risk so far as is reasonably practicable. Activity, operation or work creating hazards and risk must be managed and supervised to ensure continued effectiveness and compliance with the control measures.*
1 – 4:	*Acceptable level of risk. Continual reviews to confirm hazards and risks remain adequately controlled.*

1: Activity & Hazard Description	2: Who is at Risk	3: Potential Consequence(s)	4 – 6: Initial Risk Rating			7: Control Measure(s)	8: Person(s) Responsible for Implementation & Monitoring	9 – 11: Residual Risk Rating		
			L	S	IRR			L	S	RRR
Planning: Authoring and reviewing of method statement/lift plan	*Appliance operator* *Slinger-signaller* *Vehicle marshal* *Other operatives within vicinity of the lifting operations* *Public*	*Fatality* *Serious injury* *Minor injury* *Plant & structural damage*				Lifting plan, method statement and risk assessment to be authored by a suitably accredited appointed person Lifting operation(s) to be carried out under a lifting plan, method statement and risk assessment that has been authorised/approved by a suitably accredited appointed person. Can lifting by excavator be eliminated and use of an alternative piece of equipment that has been purposely designed for lifting operations be considered, such as a crane? (PUWER 4 or 5). *Please note:* *The person writing the lift plan should record the reasons for selecting the piece of equipment over a purposely designed crane by virtue of reduced risk rather than because an excavator is on site and available.*	*Appointed person* *Project HS&W* *Package Manager*			
Planning: Lift team and ancillary operative competences	*Appliance operator* *Slinger-signaller* *Vehicle marshal* *Other operatives*	*Fatality* *Serious injury* *Minor injury* *Plant & structural damage*				A suitably accredited slinger-signaller is to be in attendance for static and pick and carry operations. Where lifting category is classed as 'intermediate' or 'complex' then a suitably accredited lift supervisor to be	*Appointed person* *Lift supervisor* *Project HS&W* *Package Manager*			

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	within vicinity of the lifting operations *Public*					on the project with regular check ins (for intermediate category operation) or in attendance at point of lift (for complex category operation) Appliance operator to hold relevant accreditation for type and size of appliance being utilised Where required the appliance operator to hold 'lifting operations' endorsement on card. Appliance operator to be familiar with the safe operation of the appliance and any relevant safety devices used on the appliance. *Please note:* *When the appliance is not 'under load' a suitably accredited vehicle marshal to be in attendance when tracking/travelling appliance.*				
Planning: Suitability of appliance for operation	*Appliance operator* *Slinger-signaller* *Vehicle marshal* *Other operatives within vicinity of the lifting*	*Fatality* *Serious injury* *Minor injury* *Plant & structural damage* *Appliance*				The appliance supplied must be as requested and in line with the associated lift plan. *Please note:* *This is inclusive of any zoning or slewing restriction devices fitted that maybe required as per lift plan requirements.*	*Appointed person* *Lift supervisor* *Slinger-signaller* *Appliance operator* *Plant manager* *Appliance supplier* *Crane coordinator*			

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	operations *Public*	*unable to carry out lifting operation*				Substitute appliances with different specifications from those laid out in the lift plan must not be made. Ensure dimensions of appliance will allow a minimum of 600mm clearance of the counterweight/rear structure from any temporary or permanent structure when slewing. *Please note:* *Where a minimum gap of 600mm cannot be maintained then an exclusion zone should be established around the excavator by the erection of a physical barrier with suitable signage, to prevent unauthorised entry into the area.* Checks to be made to appliance duties to ensure that all loads to be lifted are within the duties of the appliance after all associated mode factors have been considered. Consider the selection of the machine to include the use of cameras to aid the operator as well as using machines that have specific lifting mode. Please note: Operator aids, such as slew restrictors, camera systems, or similar devices, must not be treated as stand-alone				

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						control measures. These aids should be used as part of a combination of controls to support safe operations. Direct line of sight and effective visual checks by the operator and/or slinger signaller must remain the primary means of control, with operator aids providing additional support where visibility or operating conditions are restricted.				
Planning: Suitability of ground conditions for lifting operation and loads imposed	*Appliance operator* *Slinger-signaller* *Vehicle marshal* *Other operatives within vicinity of the lifting operations* *Public*	*Fatality* *Serious injury* *Minor injury* *Plant & structural damage* *Overturning of appliance*				All underground services, structures, and voids to be identified and communicated to authoring appointed person prior to a lift plan being issued. As far as is reasonably practicable, level ground to be provided from unloading/delivery area of the appliance to the area of works (if applicable) As far as is reasonably practicable, level ground to be provided at work area. Where ground is sloping advice will be sought from manufacturers documentation as to the maximum safe angle of use and any '*direction of travel*' restrictions Accurate bearing pressures of the	*Appointed person* *Lift Supervisor* *Slinger-signaller* *Vehicle marshal* *Appliance operator* *Temporary works coordinator/supervisor* *Crane coordinator*			

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						appliance under maximum anticipated weight of load, must be calculated and issued by a competent person. Permissible bearing pressures of ground to be calculated and issued by a competent person. Applied bearing pressure is not to exceed the permissible bearing pressure Where calculated pressure of the appliance exceeds the permissible bearing pressure of the ground then: ▪ Support mats will be utilised to bring the bearing pressure of the appliance under the required permissible ground bearing pressure. **OR** ▪ Ground conditions will be upgraded to support the appliance loadings as per temporary works design. Where the appliance is working next to excavations or cofferdams then the excavation/cofferdam is to be shored as per the temporary works design to				

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						prevent collapse of the excavation/cofferdam from the weight of the appliance under maximum anticipated loads				
Operations: Delivery of appliance to project	*Appliance operator* *Slinger-signaller* *Vehicle marshal* *Other operatives within vicinity of the lifting operations* *Public*	*Fatality* *Serious injury* *Minor injury* *Person struck by moving plant* *Plant & structural damage* *Overturning of appliance* *Person struck by released or recoiling lashings* *Falls from height when accessing the vehicle bed* *Crush injuries between excavator, vehicle, or structures*				Project-specific requirements for the delivery and unloading of the excavator shall be communicated to the delivery logistics team in advance of the appliance arriving on site. This shall include, as a minimum, the agreed delivery route, unloading location, segregation requirements, and any site constraints that may affect safe unloading. Sufficient space shall be identified, allocated, and maintained to allow the excavator to be unloaded safely, including adequate clearance for the appliance, delivery vehicle, operatives, and any required exclusion or restricted zones. Unloading shall not proceed where adequate space, segregation, or access arrangements cannot be provided. Prior to unloading, confirmation shall be made that a suitably trained and competent operative in the loading and	*Works Supervisor / Responsible Person in attendance* *Delivery vehicle driver* *Appliance Operator* *Lift Supervisor* *Appointed Person* *Project HS&W* *Package Manager* *Logistics Manager/Supervisor* *Vehicle Marshall*			

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		Uncontrolled movement or roll-off of the excavator *Damage to the delivery vehicle or excavator* *Interface with live traffic or pedestrian routes* *Environmental damage (e.g. fuel or hydraulic oil release following impact)*				unloading of the excavator is present. All load-restraint systems (chains, straps, lashings) shall remain in place until the delivery vehicle is correctly positioned, the unloading area is fully segregated, and confirmation has been given that it is safe to proceed. Only the delivery vehicle driver shall release or undo the load-restraint systems (chains, straps, or lashings) securing the excavator on the bed of the delivery vehicle. No other operatives shall interfere with, loosen, or remove load restraints at any time. The release of restraints shall only take place once the vehicle is correctly positioned, the unloading area is fully segregated, and confirmation has been given that it is safe to proceed. The excavator shall not be moved, even for short distances, until all required lashings have been checked, released in a controlled manner, and the unloading sequence agreed. Where access onto the rear of the delivery vehicle is required, safe access				

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						and egress arrangements shall be provided, and operatives shall not access the vehicle bed unless it is safe to do so. The supplying company responsible for the excavator on project shall manage the unloading process and ensure a competent representative is in attendance throughout the operation to coordinate activities, control interfaces, and ensure compliance with the agreed method				
Operations: Appliance maintenance and weekly/daily checks	*Appliance operator* *Slinger-signaller* *Vehicle marshal* *Other operatives within vicinity of the lifting operations* *Public*	*Fatality* *Serious injury* *Minor injury* *Plant & structural damage*				Ensure the appliance is properly maintained and safe to operate. ▪ Checks to appliance certification will be carried out prior to lifting operation(s) taking place. ▪ Checks to be made to service & inspection history of the appliance to show that the appliance is being maintained in accordance with PUWER and LOLER regulations ▪ Daily and weekly checks to be carried out in accordance with PUWER and LOLER regulations Checks to be made to cameras, any zoning or slewing restriction devices	*Appointed person* *Lift Supervisor* *Appliance operator* *Crane coordinator*			

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						fitted to ensure they are working as anticipated.				
Operations: Appliance work area adjacent to excavation/cofferdam	*Appliance operator* *Slinger-signaller* *Vehicle marshal* *Other operatives within vicinity of the work area of the appliance.* *Public*	*Fatality* *Serious injury* *Minor injury* *Collison with temporary or permanent structures* *Overturning of the appliance* *Collapse of excavation/cofferdam*				Where the appliance is working next to excavations or cofferdams then… ▪ A temporary works design of the surcharge area is required detailing permissible loadings that take into consideration the weight of the appliance inclusive of AUW (all up weight) of load. Appliance to be positioned so as not to encroach on the edge of the excavation/cofferdam. *Please note:* *This distance will be calculated by a competent person and detailed in the associated RAMS/Lift plan.* Physical barriers are to be placed to prevent the appliance encroaching the zone of influence beside the edge of the excavation/cofferdam. Where physical barriers are impractical then suitably sized '*Stop-blocks'* are to be utilised to prevent encroachment by the appliance.	*Appointed person* *Lift Supervisor* *Slinger-signaller* *Vehicle marshal* *Appliance operator* *Crane coordinator* *Temporary works supervisor/coordinator*			
Operations:	*Appliance*	*Fatality*				Minimise the travel distance of the	*Appointed person*			

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Appliance movement on project – without load	*operator* *Vehicle marshal* *Other operatives within vicinity of the travelling route of the appliance.* *Public*	*Serious injury* *Minor injury* *Plant & structural damage.* *Collison between plant.* *Collison with temporary or permanent structures.* *Operatives being struck by plant in motion*				excavator with a load by having the load delivered locally to the planned activity. Appliance travel route will be segregated from other work areas and pedestrian walkways. As far as is reasonably practicable, and where the movement of the appliance is planned, enabling works will be carried out prior to movement of the appliance to ensure a safe route of travel. As far as is reasonably practicable, and where the movement of the appliance is known prior to any briefing(s), the appliance movement(s) is/are to be briefed to the work force via: ▪ Daily activity briefings ▪ Logistics meetings ▪ Lift team meetings ▪ Project specific toolbox talks Where movement(s) is/are not known prior to any briefing(s) then the appointed person/lift supervisor (if required on project) or responsible works manager/supervisor will inform work supervisors in adjacent areas to the travel route that the appliance will	*Lift Supervisor* *Vehicle marshal* *Appliance operator* *Works manager* *Logistics manager* *Crane coordinator*			

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						be moving and route to be travelled. Lift supervisor (if required on project) or responsible works manager/supervisor will brief the appliance operator, vehicle marshal on the route the appliance will take, noting any temporary/permanent structures, obstructions, pedestrian walkways etc. that could be problematic to the safe travel of the appliance. The lift team should walk the route prior to commencing the journey As far as is reasonably practicable the appliance route of travel will be via a segregated vehicle route(s). Where the route of travel crosses over an identified pedestrian walkway then the walkway will be closed and suitably marshalled until the appliance has passed. Where the planned passage of travel is not by a segregated/dedicated vehicle route, then the area of travel will be cleared of personnel and any plant that could be deemed as problematic in enabling the safe travelling of the appliance. When travelling, the appliance will be				

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						accompanied by a suitably accredited vehicle marshal. The vehicle marshal must always be in the view of the appliance operator. *Please note:* *If the vehicle marshal disappears from the view of the appliance operator, then the appliance operator must bring the appliance to a controlled stop and not proceed with the travel of the appliance until the vehicle marshal is once again in plain view* Appliance will adhere to the project speed limit of *? mph* *Please note:* *Certain activities may require the operator to restrict speeds to less than 3km/h to prevent the automatic release of axle locks. Where this is a requirement of the lifting operation, this risk assessment shall be amended to include the correct control measures.* Appliance operator to wear seat belt at all times while in the seat of the appliance. Appliance cameras and mirrors to be utilised by Appliance operator				

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						All safety beacons to be illuminated at all times when appliance is in operation				
Operations: Appliance movement on project – Suspended load, pick and carry operations	*Appliance operator* *Slinger-signaller* *Vehicle marshal* *Other operatives within vicinity of the travelling route of the appliance.* *Public*	*Fatality* *Serious injury* *Minor injury* *Plant & structural damage.* *Collison between plant.* *Collison with temporary or permanent structures.* *Collison of load with structure of appliance* *Operatives being struck by plant and/or load in motion* *Loss of load*				See all control measures in the 'Appliance movement on project – without load' section and… When travelling, the appliance will be accompanied by a suitably accredited slinger-signaller (for pick and carry operations) Slinger-signaller will always remain in full view of the appliance operator. *Please Note:* *If the slinger-signaller should disappear from the view of the appliance operator, then the appliance operator must bring the appliance to a controlled stop and not proceed with the travel of the appliance until the slinger-signaller is once again in plain view.* Where the appliance duties do not include '*Suspended load/Pick and carry*' duties then the WLL of the appliance will be derated by 50%. Where the appliance duties do include '*Suspended load/Pick and carry*' duties then the WLL of the appliance, stated in	*Appointed person* *Lift Supervisor* *Slinger-signaller* *Vehicle marshal* *Appliance operator* *Works manager* *Logistics manager* *Crane coordinator*			

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						these duties, will be adhered to. All loads to be slung as stated in the lift plan/schedule of lifts. When travelling with a suspended load the following will be adhered to: *Please note:* *When applying the following considerations, minimum radius and height must allow for clearance of the load from ground and appliance structure.* ▪ Where possible, transport the load locally to the place where it is required to minimise tracking with the load. ▪ Avoid slopes when performing '*Pick & Carry'* operations. ▪ Never track with a load '*over the side*' unless manufacturers documentation allows ▪ Particular care is to be taken when '*cornering*' with a load. ▪ Appliance speed will be kept to an absolute minimum with the revs reduced to 'tortoise' speed (if applicable).				

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						▪ The '*moving*' restriction/exclusion zones are to be monitored throughout the travelling of the appliance and load ▪ Any braking action must be done carefully and slowly to avoid any potential swing of the load. ▪ Radius of appliance boom will be kept to a minimum to minimise the potential for swing, due to appliance movement. Beware of the load striking the appliance. ▪ Accessories utilised will be of such a length so as to minimise any potential swing, due to appliance movement. ▪ Height of load point (*attachment point on the excavator*) on the appliance boom to be kept as low as possible to minimise the potential for swing, due to appliance movement. ▪ Any manual control measures utilised must be of sufficient size so as to allow the controlling operative to be positioned in a safe				

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						space that allows for any potential swing or movement of the load. *Special note:* *Do not try and control the load during 'tracking 'of the load.* *If the swing of the load is greater than anticipated, the appliance shall come to a controlled stop where the movement of the load can be best controlled.*				
Operations: Appliance movement on project with fork attachment without load.	*Appliance operator* *Vehicle marshal* *Other operatives within vicinity of the travelling route of the appliance.* *Public*	*Fatality* *Serious injury* *Minor injury* *Plant & structural damage.* *Collison between plant.* *Collison with temporary or permanent structures.*				See all control measures in the 'Appliance movement on project – without load' section and… Checks to be made that the safe install of the of the fork attachment aligns with the manufacturer's instructions *Please note:* *Appliance operator will be familiarised in the attachment procedure and the associated daily checks* Where applicable, fork tines will be '*folded back'* & placed against the fork carriage. Where fork tines can't be placed against the fork carriage, the appliance shall travel with the tines positioned so that they remain visible to the appliance operator without hindering the safe	*Appointed person* *Lift Supervisor* *Vehicle marshal* *Appliance operator* *Crane coordinator*			

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						travel of the appliance				
Operations: Appliance movement on project with load on fork attachment.	*Appliance operator* *Vehicle marshal* *Other operatives within vicinity of the travelling route of the appliance.* *Public*	*Fatality* *Serious injury* *Minor injury* *Plant & structural damage.* *Collison between plant.* *Collison with temporary or permanent structures.* *Loss of load*				See all control measures in the 'Appliance movement on project – without load' section and… Checks to be made that the safe install of the of the fork attachment aligns with the manufacturer's instructions *Please note:* *Appliance operator will be familiarised in the attachment procedure and the associated daily checks* Checks to be made that fork tines are secure to carriage correctly. Checks to be made to the fork attachment for any signs of damage i.e., cracks or deformation that could affect the safe utilisation. WLL of the fork attachment shall not be exceeded Load to be secured to fork tines/carriage utilising securing banding. *Please note:* *Loads, when carried on fork tines, need to be against the carriage/frame, with*	*Appointed person* *Lift Supervisor* *Vehicle marshal* *Appliance operator* *Crane coordinator*			

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						the carriage/frame slightly tilted back to stabilise the load. *Where this is not possible, and where permitted, then the appliance lifting radius is increased by the offset and the WLL will be reduced accordingly* Operations where the load is not required to be against the carriage/frame are for: ▪ The retrieval or final placing of loads where space for the forks or carriage/frame is limited. *Note:* *Once the load has been retrieved or extracted, it is to be placed on the ground and repositioned fully on the tines and correctly positioned so the load is against the tine carriage* ▪ Where the load or pallet is stacked closely against other loads Only loads that are secure on a pallet or designed to be lifted using forks should be lifted. *Please note:* *Particular care, and extra securing straps, is/are required where pallets do*				

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						not have/or have sufficient bottom 'deck boards'. Any loads that are 'out of balance' can easily tip off the tines if the pallet is nudged or catches an obstruction Where applicable, the boom of the appliance will be kept close to the structure of the appliance so to keep the load as close to the chassis as possible during any traveling activity When travelling, the appliance shall travel with the tines as low as possible without hindering the safe travel of the appliance under load. The tines should be spaced so that the load is equally supported and that the forks are of an equal distance on the carriage so that the centre of gravity of the load remains mid-point to the boom. Tines should be adjusted so that they are bearing against the outer ledgers of any pallets to maximise stability of the pallet. Beware of pallets without bottom deck-boards which retain the pallet on the forks from beneath. There is a risk that these can be tipped if any uplift is				

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						applied to the load during transit or they can bounce. Such pallets shall be banded to the tines/head of the carriage. All 'metal on metal' lifting, i.e. box stillages or road plates, on tines, will require additional load restraint measures to stop the sliding of the load on the tines.				
Operations: Encroachment of operational area(s) by unauthorised person(s)	*Other operatives within vicinity of the work area of the appliance.* *Public*	*Fatality* *Serious injury* *Minor injury*				Appliance working area will be segregated from other work areas by physical barriers complete with suitable signage. *Please note:* *As far as is reasonably practicable, exclusion/restricted zones will be suitably marshalled* As far as is reasonably practicable, and where work area of the appliance is known prior to any briefing(s), the appliance work area(s) and associated restricted/exclusion zone(s) is/are to be briefed to the work force via: ▪ Daily activity briefings ▪ Logistics meetings ▪ Lift team meetings ▪ Project specific toolbox talks	*Appointed person.* *Lift Supervisor* *Slinger-signaller* *Vehicle marshal* *Appliance operator* *Crane coordinator*			

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						Where the work area is/are not known prior to any briefing(s) then the lift supervisor (if required on project) or responsible works manager/supervisor will inform work supervisors in adjacent areas to the work area of the appliance of the lifting operation to take place and the positioning of all associated restricted/exclusion zones.				
Operations: Appliance unloading and loading items from/onto delivery vehicles	*Appliance operator* *Slinger-signaller* *Vehicle marshal* *Delivery vehicle driver* *Other operatives within vicinity of the work area of the appliance.* *Public*	*Fatality* *Serious injury* *Minor injury* *Collison with temporary or permanent structures* *Collision with delivery vehicle* *Falling load* *Fall of operatives working at height* *Operatives being struck by plant and/or load in motion*				As far as is reasonably practicable, and where the appliance unloading/loading area is known prior to any briefing(s), the loading/unloading are(s) is/are to be briefed to the work force via: ▪ Daily activity briefings ▪ Logistics meetings ▪ Lift team meetings ▪ Project specific toolbox talks Where the loading/unloading area(s) is/are not known prior to any briefing(s) then the lift supervisor (if required on project) or responsible works manager/supervisor will inform work supervisors in adjacent areas of the position of the unloading/loading area and subsequent exclusion/restricted zone(s) Exclusion/restricted zone(s) made up of	*Appointed person* *Lift Supervisor* *Slinger-signaller* *Vehicle marshal* *Appliance operator* *Crane coordinator*			

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						physical barriers with appropriate signage to be placed around unloading/loading area to secure against unauthorized entry. *Please note:* *If it isn't practicable to place physical barriers, then a sufficient number of marshals will be in place ensuring that pedestrians and other plant are marshalled away from any potential risks* Exclusion zone/restricted zone(s) will be placed around delivery vehicle ensuring a secured area is left on the opposite side of the trailer in case of a load falling. No unloading/loading against live walkways/carriageways. Walkways are to be diverted away from lifting operations where practicable *Please note:* *Walkways must be closed and marshalled at both ends when exclusion zone is in place.* Delivery vehicle driver to remain out of the lifting area. *Please note:*				

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						The delivery vehicle driver is not to stay in the cab. Suitably accredited slinger-signaller and/or vehicle marshal *(if appliance using fork tines)* to be present and controlling all movements. The appliance operator shall obey the directions of the slinger-signaller/vehicle marshal as they may be able to see a trapped or overhanging load that could affect the safe completion of the lifting operation.				
Operations: Access to bed of delivery vehicle and fall protection	*Slinger-signaller* *Vehicle marshal*	*Fatality* *Serious injury* *Minor injury* *Fall of operatives working at height* *Operatives being struck by plant and/or load in motion*				All delivery vehicles shall be loaded to minimise the requirement for access by personnel onto the bed of the delivery If entry to the vehicle bed is anticipated, then… ▪ Suitable access arrangements will be provided to ensure slinger-signaller/vehicle marshal can access the bed of the delivery vehicle safely and without risk of falls from height. ▪ Ensure all exposed open edges around the bed of the delivery vehicle are protected with suitably	*Appointed person* *Lift Supervisor* *Slinger-signaller* *Vehicle marshal* *Appliance operator* *Crane coordinator*			

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						sized handrails. ▪ Edge protection will be arranged in such a way so as not to impede the slinger-signaller/vehicle marshal in the safe carrying out of their duties. ▪ Slinger/vehicle marshal will only enter the bed of the wagon when the appliance used is stationery and controls isolated. Checks will be made to all load restraining straps used in securing load during transit that they have been removed from the load on the delivery vehicle prior to unloading. *Please note:* *Only the delivery vehicle driver is permitted to release any load restraining straps & vigilance is to be maintained in case of the load having shifted/moved during transit and then toppling/collapsing once restraint straps have been removed* If any fine adjustment is required to the appliance in the process of attachment of the accessories/placing tines under or through the load, direction from the slinger-signaller/ vehicle marshal will				

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						only be given when they are positioned away from the load and the appliance arm/boom. Unobstructed access/egress to/from the bed of the delivery vehicle is to be maintained during all loading/unloading activities - These activities shall be sequenced so as not to trap or hinder any operative on the bed of the delivery vehicle.				
Operations: Safe positioning of slinger-signaller and vehicle/traffic marshal during unloading/loading operation	*Slinger-signaller* *Vehicle marshal*	*Fatality* *Serious injury* *Minor injury* *Fall of operatives working at height* *Operatives being struck by plant and/or load in motion*				At all times when directing the appliance , the slinger-signaller/vehicle marshal will be positioned where access to the egress point i.e. stepped structure, is not interrupted by any obstructions that could hinder the path taken by the slinger-signaller/vehicle marshal if they need to quickly move out of the way of any unanticipated movement of load or appliance arm. Any test lift will be performed with the slinger-signaller/vehicle marshal at ground level where they are visible to the appliance operator and can observe the load. If this is not achievable, then a second slinger-signaller/vehicle marshal will be positioned to relay direction(s) to the appliance operator	*Appointed person* *Lift Supervisor* *Slinger-signaller* *Vehicle marshal* *Appliance operator* *Crane coordinator*			

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						Safe zones for the slinger-signaller/vehicle marshal will be identified in the associated lift plan If any fine adjustment is required to the appliance in the process of attachment of the accessories/placing tines under or through the load, direction from the slinger-signaller/ vehicle marshal will only be given when they are positioned away from the load and the appliance arm/boom.				
Operations: Miscommunication of hand signals	*Appliance operator* *Slinger-signaller* *Other operatives within vicinity of lifting operation*	*Fatality* *Serious injury* *Minor Injury* *Collison with temporary or permanent structures.* *Loss of load*				The appointed person/lift supervisor (if required on project) shall brief the slinger-signaller/vehicle marshal and appliance operator on the designated set of hand signals as set out in the associated RAMS/lift plan prior to any lifting operations taking place. When instructing the appliance operator the slinger-signaller/vehicle marshal will be in plain view of the appliance operator. *Please note:* *If the appliance operator is not sure of the meaning of any hand signal being given, they will not operate any controls until they have verified the command given*	*Appointed person* *Lift Supervisor* *Slinger-signaller* *Vehicle marshal* *Appliance operator*			

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Operations: Blind lifting	*Appliance operator* *Slinger-signaller* *Vehicle marshal* *Other operatives within vicinity of the work area of the appliance or lifting operations* *Public*	*Fatality* *Serious injury* *Minor Injury* *Collison with temporary or permanent structures.* *Interface with unexpected movement of loads* *Interface with unexpected appliance movement* *Loss of load*				Blind lifitng should be avoided as far as is reasonably practicable. Any obstructions hindering the view of the appliance operator are to be moved prior to lifting operation as far as is reasonably practicable Where blind lifting is unavoidable, then additional slinger- signaller(s)/vehicle marshal(s) will be positioned to relay communications to the appliance operator. The same control measures as stated in: Person Load/Appliance interface – Suspended loads & Person Load/Appliance interface – Fork tines in use …should be applied to additonal slinger-signaller(s)/vehicle marshal(s)	*Appointed person* *Lift Supervisor* *Slinger-signaller* *Vehicle marshal* *Appliance operator*			
Operations: Unplanned release of load due to failure of accessories	*Appliance operator* *Slinger-signaller* *Other operatives being near or in vicinity of collapse or*	*Fatality.* *Serious injury.* *Minor Injury* *Plant, structural damage* *Loss of load due*				All loads to be slung to an approved lift plan using the accessories stated. *Please note:* *Only the lifting methodologies stated in the lift plan will be used.* *If an alternative method is to be used, then this will need to be approved after consultation with the authoring*	*Appointed person* *Lift Supervisor* *Slinger-signaller* *Appliance operator* *Crane coordinator*			

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	detachment of load and failure of ancillary equipment. *Public*	*to inadequacies of accessories i.e. insufficient WLL or the SWL after configuration modes have been employed*				*appointed person.* A current LOLER certificate is required for all lifting accessories used. *Special note:* *Where tower/mobile/crawler cranes are in the vicinity of the lifting operations and there is chance that the accessories can be used on one of the aforementioned appliances, then good practice would be to mark the accessories to allow easy identification of the accessory to be used only in excavator lifting operations.* Appliance/lift-specific accessories should be provided. All accessories used must be of sufficient WLL for the load being lifted. WLL and suitability of the accessories to be checked prior to use. All lifting accessories to be inspected before use to ensure fit for purpose. A weekly record of inspection shall be made with all defects recorded All damaged accessories are to be removed from service, with the lift supervisor (if applicable) or responsible works manager/supervisor being				

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						informed of the damaged accessory. Ensure protection from sharp edges or corners that could damage / weaken accessories is utilised where necessary. *Please note:* *Prior to lifting any load ensure loads are free from loose equipment and/or materials that maybe resting on the load.* Ensure any loose, bundled loads are secured with banding or straps so they cannot shift or roll through the lift procedure. Ensure the load is free to be lifted and that no materials have adhered themselves to the base of the load A test lift will be performed prior to completing lift of load to ensure load is stable and balanced.				
Operations: Operative positioning while travelling the appliance	*Slinger-signaller* *Vehicle marshal*	*Fatality* *Serious injury* *Minor injury*				As far as is reasonably practicable the safe positioning of the vehicle marshal/slinger-signaller will be detailed in the associated RAMS/lift plan. *Please note:* *Positioning of personnel must allow for movement of the load and appliance,*	*Appointed person* *Lift Supervisor* *Slinger-signaller* *Vehicle marshal* *Appliance operator* *Crane coordinator*			

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						inclusive of if the load should be dropped or if the appliance operator makes an exaggerated motion with the appliance. Where the safe positioning of the vehicle marshal/slinger-signaller cannot be planned, then a POWRA will be performed, and safe positioning decided. Vehicle marshal/slinger-signaller will always remain in full view of the appliance operator. *Please note:* *If the vehicle marshal/slinger-signaller disappears from the view of the appliance operator, then the appliance operator must bring the appliance to a controlled stop and not proceed with the travel of the appliance until the vehicle marshal/Slinger-signaller is visible.* Vehicle marshal/slinger-signaller must never position themselves to the front of the appliance during transit. Any manual control measures utilised must be of sufficient size/length so as to allow the slinger-signaller to be positioned in a safe space that allows for any potential swing or movement of the load.				

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Operations: Person Load/Appliance interface – Suspended loads	*Slinger-signaller*	*Fatality* *Serious injury* *Minor Injury* *Interface with unexpected movement of loads* *Interface with unexpected appliance movement* *Person struck by load*				The slinger-signaller is to only approach the load, or the appliance area of operations, after confirmation from the appliance operator that it is safe to do so. When lowering the appliance boom i.e. to allow inspection of the accessory attachment or attach/detach load from the attachment point, the slinger-signaller will position themselves, so they do not stand directly under boom of the appliance and only approach the boom when it is stationary and at a height to allow a safe inspection or detach/attachment of accessories *Please note:* *Prior to approaching of the appliance by any operatives the operator will isolate the controls.* If ancillary accessories are being utilised around the load i.e., webbing slings around ply being attached to chain slings etc., then the boom of the appliance will be held at such a	*Appointed person* *Lift Supervisor* *Slinger-signaller* *Vehicle marshal* *Appliance operator* *Crane coordinator*			

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						position, so the primary accessories attached i.e., chain slings, do not interfere with the Slinger-signaller's safe movement around the load and the safe attachment of the ancillary accessories. Good practice would be to pre-sling the loads prior to lifting. *Behavioural note for test lift:* *The slinger is to instruct the appliance operator to isolate the controls, slinger to perform an all-round check of the load. When satisfied with the lifting arrangement the slinger will leave the immediate lifting area to a place of safety where they are in view of the appliance operator and instruct appliance operator to raise the load.* When raising any load with the appliance, the slinger-signaller will always step away to a designated safe space where they are not in danger of being struck by any movement of the load. When employing manual control measures the slinger-signaller will instruct the appliance operator to hold the load in such a position so that the				

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						equipment can be retrieved. *Please note:* *The slinger-signaller should never retrieve any taglines while the load is in motion, this should only be done when the appliance is stationary.* When retrieving taglines, the slinger-signaller will, as far as is reasonably practicable, keep an arm's length away so as not to position themselves near the load. When landing the load, the Slinger-signaller will only approach the load when at waist height. If the slinger-signaller needs to 'handle' the load at this point this should be done, if practicable, by using the flat of their hands to control the load.				
Operations: Person Load/Appliance interface – Fork tines in use	*Vehicle marshal*	*Fatality* *Serious injury* *Minor Injury* *Interface with unexpected movement of loads* *Interface with*				When the vehicle marshal is approaching the load, or the appliance area of operations, they will only do so after confirmation from the appliance operator that it is safe to do so. When directing the appliance to a load that requires lifting from the bed of a delivery vehicle, the vehicle marshal should remain at ground level and in a	*Appointed person* *Lift Supervisor* *Slinger-signaller* *Vehicle marshal* *Appliance operator* *Crane coordinator*			

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		unexpected appliance movement *Person struck by load*				position of safety where they are visible to the appliance operator. *Please note:* *If this is not achievable with a solitary marshal, then a secondary vehicle marshal will be positioned to relay signals to the appliance operator while the primary marshal will watch the fork tines into the loads* When travelling with a load the vehicle marshal is to remain visible to the appliance operator while remaining in a position of safety, paying attention to nearby structures, excavations & other plant that may become potential crush zones. If the appliance operator loses sight of the vehicle marshal, they will stop the appliance operation in a controlled manner until line of sight has been established.				
Operations: Environmental considerations		*Contamination of ground and/or water course*				Appliance to carry a spill kit or a spill kit to be in the locality of the work area where it can be quickly or easily deployed. All leaks to be contained immediately Any used spill kits to be disposed of in appropriate bins.	*Lift Supervisor* *Slinger-signaller* *Vehicle marshal* *Appliance operator* *Crane coordinator* *HS&W advisor*			

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						Appliance is to be maintained and regularly serviced as per the manufacturer's recommendations. '*Nappy*' to be used where applicable during refuelling, If a leak develops or a hose splits the appliance will be shut down and taken out of service until repairs have been carried out.				

Sir Robert McALPINE

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