

CRANES AND LIFTING OPERATIONS

PURPOSE AND SCOPE

The intent of this document is to eliminate or minimise the risks of fatalities, injuries and incidents arising from cranes and lifting operations at Gamuda Australia (GA) projects / workplaces.

CRITICAL CONTROLS

- A Crane and Lifting Operations Appointed Person is in place
- A Crane and Lifting Operations Supervisor is Appointed and in place
- Stability, ground-bearing pressure and/or slab capacity are verified and approved for crane use by a qualified engineer (temporary works, geotechnical reports, slab ratings)
- All mobile plant used for lifting activities must undergo the pre-use acceptance process
- A Crane Work Box permit is in place prior to work commencing
- A Crane Lift Plan is in place prior to work commencing (See Lift Matrix requirements)
- Crane / plant operators, dogman and riggers involved in lifting operations are trained and competent
- All load movements must be controlled by competent and qualified personnel (dogman, riggers)
- Lifting gear is certified and fit for use
- Positive communications between crane operators, other plant operators and ground crew must be maintained and backup communications available
- Barricading and exclusion zones, with clear signage, must be in place for all lifting activities undertaken by mobile cranes, earthmoving equipment
- No articulating mobile cranes to be used*
- Earthmoving equipment is only used as a crane when the plant is assessed and approved for lifting
- Tower cranes must have a plan implemented to prevent contact with other mobile plant
- A commissioning report is in place for tower, crawler, and gantry cranes prior to operation
- A tower crane anti-collision system must be operational where a radius overlap exists
- Slew radius charts to be controlled so no lifting of loads occurs over adjoining buildings, infrastructure, live traffic roads and/or powerlines

* GA Lifting and Rigging Manager Approval is required to utilise articulated mobile cranes.

Note: The above controls are to be read in conjunction with the Regulations, Standards and Codes listed below.

APPOINTED PERSONS

The **Project Director (or nominee)** is responsible for appointing trained and experienced personnel as Appointed Person/s and Crane Supervisor/s, respectively. Appointments will be documented in the Project Work Health and Safety Management Plan.

Appointed Person – Responsible for all cranes and lifting operations within the scope defined by the Project Director and for development, review, and maintenance of lifting operation documentation for the project, including but not limited to the project risk assessment, lift plans and studies. This person must

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hold the unit of competency, TLID4032 - Plan and conduct specialised lift or equivalent to perform the role of Appointed Person.

Crane Supervisor – This role is appointed by the Appointed Person to ensure lifting operations are carried out in accordance with this Critical Risk Standard, the project risk assessment and applicable lift plan or study documentation. This person must hold either, TLID0013 - Supervise mobile crane operations or the same qualification as an Appointed Person, a National High Risk Work Licences for crane operation Class C2 or above, or Intermediate Rigging (RI) or above.

MOBILE CRANE REQUIREMENTS

Mobile crane establishment and set-up must have the following requirements verified:

- Ground bearing pressure by a geotechnical engineer
- Concrete slab rating by an engineer (inclusive of propping requirements where required)
- Steel platform rating by an engineer

LIFTING EQUIPMENT INSPECTION AND MAINTENANCE

All lifting and rigging equipment must comply with the relevant Australian Standards for the specific item being purchased or used. All fabricated lifting or rigging devices should have a current engineer's and/or test certificate.

All rigging equipment shall be inspected by a rigger and/or dogman prior to use. All slinging, chains, shackles, hooks, and other lifting equipment shall have the SWL and/or WLL details clearly marked on the equipment. Any equipment with 10% or greater wear shall be condemned and physically destroyed to prevent the equipment being used.

All mechanically operated lifting and rigging equipment (i.e., chain blocks, turfers, etc.) and static lifting devices (i.e., chain sets, crane work boxes, duct cages or stillages, etc.) shall be independently inspected and recertified on a 12-monthly basis by a NATA accredited inspection and test company. Inspectors shall be NATA and/or LEEA (Lifting Equipment Engineers Association) trained and accredited.

Where lifting and rigging equipment is used at GA Project and Workplaces, formal inspections of all rigging and lifting equipment shall occur as per the relevant Australian Standard or Manufacturers specification, and in accordance with the RGBY (Rugby) Quarterly Inspection System as follows.

Red	Green	Blue	Yellow
January	April	July	October
February	May	August	November
March	June	September	December

A record of these inspections is to be maintained for perusal on the **GA-FRM-HSE-144 Lifting and Rigging Equipment Register** or equivalent.

Any damaged lifting or rigging equipment should be tagged "Out of Service", quarantined, and inspected and/or retested as required by an appropriately qualified person prior to being returned to service with an inspection recorded on **GA-FRM-HSE-144 Lifting and Rigging Equipment Register** or equivalent.

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LIFT MATRIX

The following matrix outlines the criteria for the requirement of lift plans or studies to be developed and approved prior to any lift being carried out.

LIFTING AND RIGGING MATRIX				
Lifts are to be assessed and approved by the Appointed Person/s and the GA Lifting and Rigging Manager.				
Risk Category		Low	Medium	High
Cranes and Lifting Factors	Loads	Loads under 15t and under 75% of cranes rated capacity in lifting configuration.	Loads between 15t and 50t and/or between 75% and 85% of the cranes rated capacity in lifting configuration.	Loads over 50t or between 85% to 100% of the cranes rated capacity in lifting configuration.
	Cranes	Single crane or Vehicle Loading Crane (Hiab)	Single crane using dual winches to rotate a load or dual crane lifts	Multiple crane lifts (incl. 3 or more) or Loads passed from crane to crane
	Lifting Device / Crane Configuration	<ul style="list-style-type: none"> Main boom Auxiliary jib Fixed jib 	<ul style="list-style-type: none"> Luffing fly Guyed boom 	<ul style="list-style-type: none"> Lifts involving the use of work boxes Hydraulic gantries Gin poles and guy derricks Strand jacks or climbing jacks Super lift tray / wagon in use
	Rigging	Standard rigging	<ul style="list-style-type: none"> Sheaves Chain block suspended by a crane Loads with no engineered lift points or lifting method 	<ul style="list-style-type: none"> Custom / complex rigging arrangements Hydraulic Lifting Rams
	Pre-cast	Precast components with either: <ul style="list-style-type: none"> Two or less lift points More than 2 lift points but can be supported on at least 2 points (excluding tilt-up) 	Precast component which has: <ul style="list-style-type: none"> More than 2 lift points and is reliant on load equalisation to support the load on more than 2 lift points (excluding tilt-up) 	<ul style="list-style-type: none"> Precast Panels Precast Spin-up panels Precast with 4 or more lifting point and is reliant on 4 lifting points for support
	Ground Conditions	Hardstand or firm level ground only	Set up adjacent to embankments, basements or retaining walls.	Crane(s) set up over critical ground services, embankments, basements, retaining walls or on a suspended slab.
	Lift Plan	A Low-Risk Lift Plan GA-FRM-HSE-146 is required.	Ground Bearing Pressure must be assessed by a Geotechnical Engineer. A Lift Plan GA-FRM-HSE-145 is required, accompanied by a lift study.	

REGULATIONS, STANDARDS AND CODES

- Work Health & Safety Regulation 2011 (QLD, ACT), 2012 (SA), 2017 (NSW, NT) and 2022 (WA); Part 3.1 (regs 32 – 38) Division 3.2.1 (reg 39), regs 206, 214, 215, 219, Division 6.3.2 (regs 299 – 303, & Reg 235 Major inspection of registered mobile cranes and tower cranes)
- Occupational Health and Safety Regulations 2017 (VIC); Reg 3.3.7, 3.3.8, 3.3.9, Part 3.5, Plant, Reg 3.5.40, 3.5.50, Part 6.2, Part 2 of Schedule 2, Schedule 3 Part 1.
- AS 2550 .1 'Cranes, Hoists and Winches- Safe Use- General Requirements' and the series of AS2550 as they relate to the crane type.
- AS 1418.1 'Cranes Hoists and Winches- General Requirements', and the series of Australian Standards AS 1418 as they relate to the crane type.
- AS/NZS 3775 – Chain Slings for Lifting Purposes.
- AS/NZS 1353.2 – Flat synthetic-webbing slings - Care and use.
- AS/NZS 3850 – Prefabricated concrete elements - General requirements.
- AS/NZS 4991 – Lifting Devices.
- SafeWork Australia Managing the Risks of Plant in the Workplace Code of Practice
- SafeWork Australia National Standard for Licensing Persons Performing High Risk Work Mobile Crane Code of Practice (Qld)

FORMS AND CHECKLISTS

- **GA-FRM-HSE-121** Earthmoving Equipment – Suspended Load and Lifting Approval
- **GA-FRM-HSE-136** Crane Work Box Permit
- **GA-FRM-HSE-144** Lifting and Rigging Equipment Register
- **GA-FRM-HSE-145** Crane Lift Plan (Medium / High Risk)
- **GA-FRM-HSE-146** Low Risk Lift Plan