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| --- | --- | --- | --- |
| **Risk Assessment Title:**  Crane – General Activities  15T and 20T Franna Rough Terrain Cranes | **Date Completed: 01/08/2012**  **Revised: 01/08/2014** | **Approved Craig Bottom:**  **(signature):** | **Last Reviewed: 01/08/2014** |
| Risk Assessment conducted by:  **Craig Bottom**  **This Safe Work Method Statement has been developed in consultation with our employees and where required amended then endorsed by those employees involved with these activities.**  This SWMS should be read in conjunction with the induction and site instructions. | **Next Review Date:**  **01/08/2016** | **Client Name:**  **Project Name:**  **Project Address:** |
| **Refer to SMP**  **No:** |

**Hierarchy of Control Assessment Matrix**

***To assist in demonstrating the application of the Hierarchy of Controls associated with risks and hazards identified in this Work Method Statement, the elements of Controls have been numbered for ease of reference throughout the document.***

|  |  |
| --- | --- |
| **(1) ELIMINATION** | ***Remove the hazard from the workplace*** |
| **(2) SUBSTITUTION** | ***Use something less hazardous*** |
| **(3) ISOLATION** | ***Use barriers to shield or isolate the hazard from the person*** |
| **(4) ENGINEERING** | ***Design and install equipment to counteract the hazard*** |
| **(5) ADMINISTATIVE** | ***Implement procedures or permits to minimise risk exposure*** |
| **(6) PERSONAL PROTECTIVE EQUIPMENT (PPE)** | ***Have people trained to wear and use protective equipment*** |

**HIGH RISK CONSTRUCTION WORK**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Plant**  **Equipment** | Tower Crane  Mobile Crane  Franna | Forklift  Alimak Hoist  Elevating Work Platform | Scissor Lift Platform  Platform Ladder  Vehicle Loading Crane |  |
| **Licences**  **Permits** | Tower Crane  Mobile Crane  Franna  Dogging | Forklift  Alimak Hoist  Elevating Work Platform  Rigging | Scissor Lift Platform  Vehicle Loading Crane  Harness Permit  Scaffolding | Work At Height  Electrical Connection  Hot Work |
| **Training**  **Instruction** | Construction Induction  Site Induction  Specific Plant Training | Manual Tasks  PPE  Work At Heights | Confined Spaces  TTM |  |
| **Maintenance**  **Checks** | Tower Crane  Mobile Crane  Franna | Forklift  Alimak Hoist  Elevating Work Platform | Scissor Lift Platform  Platform Ladder  Vehicle Loading Crane | Lifting/Rigging Gear  Electrical Testing/Tagging  Safety Harness |
| **PPE** | **Safety Boots**  **Hi-Vis Clothing**  **Safety Helmut**  **Respiratory**  **Work**  **Safety Glasses**  **Safety Harness**  **Protection Gloves &/or Face Shield** | | | |
| **MSDS Required** | If YES, list hazardous substances & append MSDS | | | |
| **Other Requirements** |  | | | |

| **Item** | **Processes/ Task** | **Hazard**  **(include in the description whether the condition is Normal, Abnormal or Emergency)** | **Risk**  **Ranking** | | | **Potential Controls** | **Residual**  **Risk** | | | **Responsible**  **Person** |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **C** | **L** | **R** | **C** | **L** | **R** |  |
| **1** | Communications and Consultation | **Hazard**  Being unfamiliar with specific site requirements and hazards.  **Risk**  Incurring an injury by being exposed to unknown site hazards |  |  |  | On arrival at site for the first time you must contact the client supervisor.  Your client supervisor will make arrangements for your site specific induction and identify key personnel relevant to your site activities which may include:   * Site Manager * Site OHS Officer/HSR * Site Supervisor * First Aid person * **Emergency Evacuation**   **5 Administrative Control** |  |  |  | Crane Operator  Rigger & Dogman |
| **2** | Site registration and induction |  |  |  |  | Prior to commencing work the first time you attend a site, you must attend a site induction and at any time the client conducts another induction.  You must hold the appropriate High Risk Work Licence and hold a current Construction Industry Induction card. |  |  |  | Crane Operator  Rigger & Dogman |
| **3** | Toolbox Talks |  |  |  |  | You must attend a toolbox talk prior to carrying out the work and record your attendance in the Pre-Job Inspection and Toolbox Talk section of the B & D Crane Hire daily Tax Invoice. |  |  |  | Crane Operator  Rigger & Dogman |
| **4**  **4** | Personal Protective Equipment  (PPE)  **Cont.** | **Hazard**  Being struck/crushed by powered mobile plant  **Risk**  Potential for personal injury from mobile plant when unseen by operator or not being aware of moving plant.  **Hazard**  Excessive noise levels, impact on feet and foreign bodies in eyes  **Risk**  Personal injury from the effects of noise, foot injury, hand or eye injury. | **3** | **3** | **H** | PPE as determined by the principal contractor must be worn at all times in accordance with site instructions.  Safety helmets must be worn when working with cranes.  PPE may be safety hat, boots, glasses, hi-vis clothing and gloves.  ***Refer AS1067 Safety Glasses, AS1800 Safety Helmets, AS1891.4 Industrial Fall Arrest Devices, AS2161.1 Protective Gloves, AS2210.1 Protective Footwear, AS1270 Hearing Protectors***  **6 Personal Protective Equipment** | **2** | **1** | **L** | Crane Operator  Rigger & Dogman |
| **5** | Tools and equipment | **Hazard**  Damaged or poorly maintained tools and equipment.  **Risk**  May lead to injury or damage to plant | **4** | **3** | **E** | Ensure a visual inspection is carried out on all tools and equipment prior to use.  All slings, chains, shackles and other specialist lifting equipment must be in good working condition, undergo inspections before use by a competent person and have appropriate WLL tags attached  **5 Administrative Control** | **3** | **2** | **M** | Crane Operator  Rigger & Dogman |
| **6** | Manual Tasks | **Hazard**  Heavy lifting equipment required to be manhandled  **Risk**  Possible serious long term injuries to back or other parts of body.  ***Fatigue, stress or violence*** | **3**  **4** | **3**  **3** | **H**  **E** | Assess weights of loads to be lifted or dragged.  Ensure all employees have received Manual Tasks Training when inducted including team lifting techniques.  **5 Administrative Control**  Supervisors and employees to monitor each other for signs of fatigue or stress and where necessary have the effected person removed from the workplace.  **5 Administrative Control** | **2**  **1** | **3**  **1** | **M**  **L** | Crane Operator  Rigger & Dogman |
| **7**  **7**  **7** | Inspection of work area  **Cont.**  Inspection of work area –  **Cont.**  Inspection of work area – | **Hazard**  Hidden services such as electricity, gas, water and communication lines  **Risk**  Collapse of ground under carrier or crane stabilisers when crane in use causing damage to underground services  **Hazard**  Contact with overhead electrical services.  **Risk**  Working too close to electrical services  **Hazard**  Working too close to battered banks, constructed retaining walls or on suspended concrete slabs.  **Risk**  Potential for a collapse of ground or structure resulting in crane roll over.  **Hazard**  Unauthorised persons or other workers straying into danger area of slewing crane.  **Risk**  Crushing or impact injuries to workers and general public from unexpected movement of powered mobile plant.  **Hazard**  Road traffic passing in close proximity of work location.  **Risk**  Collision between traffic and mobile crane.  **Hazard**  ***Penetrations*** – Stepping or falling into holes or unprotected openings in ground or work decks.  **Risk**  Risk of injury by tripping on an open penetration or falling through | **4**  **4**  **4**  **4**  **4**  **3**  **4** | **3**  **3**  **3**  **3**  **3**  **3**  **3** | **E**  **E**  **E**  **E**  **E**  **H**  **E** | **General Crane Work:** At the beginning of the job enquire about hidden services with client. If necessary ring Dial Before You Dig to obtain information or contact ACTPLA.  **Contractor Sites:** Inspect area prior to setting crane up to identify hidden hazards such as **underground services**.  ***Refer: AS2550.1-2011 Cranes-General Requirements***  ***(Sec 4.2) Crane Standing***  Contact must be made with a site representative to enquire about the presence of underground services.  Look for **overhead services** and discuss with site contact or client to ensure visible protection is suitable for working in close proximity to electrical services.  **5 Administrative Control**  Obtain (where possible documented) engineering advice on structural capabilities when working near retaining walls, excavations or on concrete decks.  Do not establish crane close than a 450 angle from the base of a sloping embankment. **[ Set up 1m back from a 1m deep hole or further if ground looks suspect]**  Check operating area to ensure adequate clearances for swing arc of crane. **Rigger/Dogman** to carry out regular checks to ensure the clearance is maintained.  Ensure that an effective Temporary Traffic Control (TTM) plan has been planned by client before commencing work where concrete products are being unloaded on or near roads and footpaths  Riggers/Dogmen to escort vehicles when reversing and not place themselves at risk of being crushed.  **3 Isolation**  Where necessary make sure that appropriate measures are in place for traffic control.  Persons setting up or engaged in traffic control duties must be trained in such activities.  Make sure that crane is equipped with an effective spill kit to manage oil or fuel spills.  Inspect work area for holes and penetrations and do not work near these hazards. Stop working in area if hazards cannot be managed.  Do not lift or remove penetration covers.  **4 Engineering** | **2**  **2**  **2**  **2**  **2**  **2**  **1** | **2**  **2**  **2**  **2**  **2**  **2**  **2** | **L**  **L**  **L**  **L**  **L**  **L**  **L** | Crane Operator  Rigger & Dogman  Site contact  Client  Crane Operator  Rigger & Dogman.  Site contact  Crane Operator  Rigger & Dogman |
| **8** | Inspection of all lifting equipment | **Hazard**  Defective or worn equipment can result in failure.  **Risk**  Loss of load or part load | **4** | **3** | **E** | Make sure that all lifting equipment has been inspected annually by a certified inspection contractor who provides a documented report.  ***Refer: AS3775.1 Chain Slings***  Lifting equipment must be inspected every day prior to packing away.  A changed crane crew must inspect equipment prior to leaving the yard to ensure it is all accounted for and is in good working order.  Identified damaged or defective equipment should be  removed from service and have an “Out Of Service” tag attached to flag that it must not be used.  **5 Administrative** |  |  |  |  |
| **9** | Check the Working Load Limit (WLL) as described on a crane load chart, specific to each individual crane. | **Hazard**  Crane being overloaded  **Risk**  Crane operating outside its safety limits.  Cranes being overloaded may cause structural damage resulting in failure and/or overturning the crane.  There is also a risk to the safety of persons and potential damage to the load or other plant and equipment. | **4** | **3** | **E** | Riggers/Dogmen to determine weight of the load being lifted.  Check where the load is being lifted from and to and again refer to the load chart to make sure the lift is within the crane WLL.  Riggers/Dogmen to select the appropriate lifting equipment.  **Riggers/Dogmen must refer to the “Cranes – General” work method statement when lifting pre-cast concrete products or when a dual crane lift is being contemplated.**  **5 Administrative** | **2** | **2** | **L** | Authorised inspection contractor  Crane Operator  Rigger & Dogman |
| **10** | Communication between crane operator and Rigger/Dogger | **Hazard**  Loss of communication during a lift.  **Risk**  A potential for incorrect movement of the crane resulting in damage to load or crush injury. | **4** | **3** | **E** | Crane crew to hold a discussion prior to lifting the load to make sure all information has been shared and understood including emergency procedure for loss of radio during a lift.  Rigger/Dogman make sure clear line of sight to operator and give clear signals.  When working out of sight of operator Riggers/Dogmen must carry a whistle and make sure there is a spare charged battery available for the radios.  ***Refer: AS2550.1-2011 Cranes-General Requirements***  ***(Sec 6.13) Communication***  **5 Administrative** | **3** | **2** | **M** | Crane Operator  Rigger & Dogman |
| **12** | Unfastening loads in preparation for lift | **Hazard**  Loose parts of load becoming destabilised and falling  **Risk**  A potential for workers or others close by being struck and injured | **3** | **3** | **H** | Rigger/Dogman to assess load and discuss with truck driver before undoing restraints.  Rigger/Dogman to stand well clear of part of load being lifted. If there is a risk of load moving under foot, Rigger/Dogman to get off truck and strand on the ground.  For loads where it is difficult gain access to attach slings, Rigger/Dogman must use suitable means of access. This may include (but not limited to) using platform ladders or an elevating work platform.  **5 Administrative** | **3** | **2** | **M** | Riggers  Dogmen |
| **13** | Slinging Loads – General | **Hazard**  Lifting or dragging heavy lifting equipment.  **Risk**  Hand injuries or risk of muscular injury when attempting to lift heavy weights  **Hazard**  Being hit by free swinging chains or slings.  **Risk**  A potential for workers or others close by being struck and injured | **3**  **2**  **2**  **3** | **3**  **3**  **4**  **3** | **H**  **M**  **H**  **H** | Use crane or other lifting equipment to lift heavy chains.  Use lifting techniques as discussed in Manual Tasks training. ***Refer: Work Health and Safety(Hazardous Manual Tasks) Code of Practice 2011***  Keep hands clear of nip points and from in between parts of loads. Use appropriate gloves.  Hang excess chains on main ring or use safety latch to attach to lifting chains  Stand clear and keep hands clear of load when taking up slack in chains or slings. | **2**  **2**  **2**  **2** | **3**  **2**  **2**  **2** | **M**  **L**  **L**  **L** | Riggers  Dogmen |
| **14** | Lifting loads from truck | **Hazard**  An uncontrolled load swing  **Risk**  Being struck or crushed by load  **Hazard**  Failure of lifting gear from not being compatible  **Risk**  Risk of a load or pieces of mixed or odd loads falling.  Uneven or unbalanced loads slipping in chains or slings and dropping  Risk of riggers/doggers falling when slinging high or unusual loads | **3**  **4**  **3**  **4**  **4** | **3**  **3**  **3**  **3**  **3** | **H**  **E**  **H**  **E**  **E** | Rigger/Dogman to make sure crane hook is directly over load or balance point.  Select and use appropriate matching lifting equipment that is in good condition.  Refer to Franna **Pre-cast Panels WMS** when lifting pre-cast concrete products and make sure that appropriate specialist equipment is used.  Rigger/Dogman to assess the need to apply additional binding restraints  Rigger/Dogman to lift load clear of ground and stop crane to inspect for possible loose objects beneath the load  Rigger/Dogman to lift load clear and stop crane to assess load balance. Lower load and reposition chains or slings to balance as necessary  Rigger/Dogman must complete an assessment on the best way of gaining safe access to attach or remove lifting equipment and document in a JSA. | **1**  **1**  **1**  **1**  **2** | **3**  **3**  **2**  **2**  **2** | **L**  **L**  **L**  **L**  **L** | Riggers  Dogmen  Riggers  Dogmen  Riggers  Dogmen |
| **15** | **REVERSING A MOBILE CRANE IN TIGHT WORK LOCATIONS TO SET UP IN PREPARATION FOR WORK** | **Hazard**  Dogger/Rigger guiding mobile crane from behind becoming caught between crane and a stationary object.  **Risk**  Personal injury or death from crushing injuries. | **5** | **3** | **E** | **1.0 Check radio communication before moving crane.**  **2.0 Discuss a backup means of communication such as visual or using a whistle. Check that the whistle can be heard by operator.**  **3.0 Use additional spotters placed in locations where the operator can see them.**  **4.0 Person at rear of crane must where room permits maintain a distance of 5M from the rear of the moving crane.**  **5.0 When reversing the crane up to a load, wall or other stationary object the person in charge must stop the crane 3m from the object then place themselves at a corner of the crane in view of the operator and direct the crane backwards to the set-up position using hand signals.**  **Refer Code of Practice – Moving Plant on construction sites 2004 with particular reference to 3.1 Common hazards involving powered mobile plant.**  **5 Administrative Control** | **3** | **3** | **H** | Rigger & Dogman |
| **16** | Mobiling loads around site  **DUAL CRANE LIFTS MUST BE SUPERVISED BY A RIGGER WITH INTERMEDIATE OR ADVANCED RIGGING LICENCE** | **Risk**  Franna becoming unstable and rolling over.  Risk of overturning when doing dual crane lifting | **4**  **4** | **3**  **4** | **E**  **E** | ***Crane operator must refer to crane load chart and keep observing computer for reduction in load capacity* when exceeding 100 sidewaysarticulation.**  ***Crane operator to maintain vigilance on indicator to* ensure crane does not exceed 50 side tilt.**  ***When crane* exceeds 50 side tilt, *operator must refer to secondary load chart for guidance on loads reduction.***  **DUAL CRANE LIFTING MUST NOT BE ATTEMPTED WITHOUT A *RISK ASSESSMENT AND CRANE LIFT STUDY* BEING COMPLETED AND APPROVAL BY MANAGEMENT.**  ***Refer: AS2550.1-2011 (Sec 6.27) Multiple Hoist of Crane Operation*** | **2**  **2** | **3**  **2** | **M**  **L** | **Crane Operator** |
| **17** | **Environmental**  Fuel or oil spills  **Note:** Mobile cranes operate using a diesel engine that drives a hydraulic oil pump.  **Note:** Copies ofMaterial Safety Data Sheets that are specific to diesel and hydraulic oil must be kept in mobile crane carrier for reference | **Hazard**  Hydraulic oil or fuel leaks when travelling to/from work locations or on site.  **Risk**  Environmental damage | **3** | **3** | **H** | Crane crew to stop work and assess the need to contain leaks and use spill kit when travelling on roads.  Place environment socks in gutters where there is a potential to pollute drainage system  In the event of a leak when on site, stop and turn crane off.  Follow any site specific instructions for environmental incidents  Notify client immediately for assistance and notify B & D Crane Hire management.  ***Handle and dispose of waste in accordance with MSDS***  **3 Isolation/5 Administrative** | **2** | **2** | **L** | **Riggers**  **Dogmen**  **Crane** **operator &**  **Client** |

**This Safe Work Method Statement has been developed through consultation with our employees and has been read and signed by all employees involved with any of the activities mentioned above.**

**We the undersigned acknowledge that we were involved in the development of this Safe Work Method Statement and are consulted regularly when there is requirement for an addition of identified hazards for the operation of mobile cranes. We also acknowledge that we have been trained in the tasks identified above. Employee qualifications and job roles are defined below.**

|  |  |  |  |
| --- | --- | --- | --- |
| **Name** | **Signature** | **Qualification/Ticket Number** | **Job Role** |
| **Craig Bottom** |  |  |  |
| **Tom Wassink** |  |  |  |
| **Stefan Berner** |  |  |  |
| **Ben Hayden** |  |  |  |
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| --- | --- | --- |
| **Personnel qualifications and experience required to complete the task:** | **Specific training required to complete this task:** | **Engineering Details/Certificates/ Approvals**  **Where applicable:** |
| **Crane operator certificate of competency** | **National Certificate of Competency** |  |
| **Rigger certificate of competency** | **National Certificate of Competency** |  |
| **Dogger certificate of competency** | **National Certificate of Competency** |  |
| **Work at heights** | **Work at Heights training** |  |
| **Manual Tasks** | **Manual Tasks training** |  |
|  |  | **Engineering confirmation to set up crane on suspended concrete slabs** |
|  |  | **Design verification for special purpose lifting equipment** |
|  |  |  |

**PLANT, EQUIPMENT AND RELEVANT INSPECTIONS AS PER THE B & D CRANE HIRE SAFETY MANAGEMENT PLAN**

Plant and equipment include the following that may be used on site

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Crane = 250 hour service and inspection |  | |  |  |
| Yearly inspection as per AS2550.1- 2002 General Requirements Sec 7.3.4.1  Refer to Section 6 of the B& D Crane Hire Safety Management Plan | |  |  |  |
| Yearly inspection of lifting equipment by a qualified independent contractor | | |  |  |
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**STANDARDS APPLYING TO THE WORK**

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| --- | --- |
| AS 1319 – 1994 Safety signs for the occupational environment | AS 1418.1 – 2002 Cranes (including hoists and winches) |
| AS 1353.1-1997 Flat synthetic–webbing slings – Product specification | AS 2550.1- 2002 Cranes (safe use and general requirements) |
| AS 1418.1 – 2002 Cranes (including hoists and winches | AS 1353.1-1997 Flat synthetic–webbing slings – Product specification |
| AS 1666.1 – 2009 Wire rope slings – Product specification | AS 1353.2-1997 Flat synthetic–webbing slings – Care and use |
| AS 1742.3 – 2009 Traffic control devices for works on roads | AS 2741 – 1992 Shackles |
| AS/NZS 1891.4 – 2009 Industrial fall arrest systems and devices – Selection, use and maintenance | AS 4497.1 – 1997 Round slings – Synthetic fibre – Product specification |
| AS/NZS 2161.1:2000 Occupational protective gloves – Selection, use and maintenance | AS 4497.2 – 1997 Round slings – Synthetic fibre – Care and use |
| AS 2550.1- 2011 Cranes (safe use and general requirements) | AS/NZS 2161.1:2000 Occupational protective gloves – Selection, use and maintenance |
| AS 2741 – 2002 Shackles |  |
| AS 3000, Wiring Rules. |  |
| AS 3775.1/2 – 2004 Chain Slings |  |
| AS 4497.1 – 1997 Round slings – Synthetic fibre – Product specification |  |
| AS 4497.2 – 1997 Round slings – Synthetic fibre – Care and use |  |

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| **Legislation, Codes of Practice & Industry Guidance** |
| Work Health and Safety Act 2011 |
| Work Health and Safety Regulation 2011 |
| Work Health and Safety (Hazardous Manual Tasks) Code of Practice 2011 |
| National Standard for Plant 1010 |
| ACT Building and Construction Industry Safety Handbook |
| ACT Powered Mobile Plant – Managing Risk – Control System Examples – Warning Devices |
| Work Health and Safety (Hazardous Manual Tasks) Code of Practice 2011 |

**The implementation of the HIERACHY OF CONTROLS will be as follows: Elimination; Substitution; Engineering; Administration and PPE.**

**In the event of an incident or a departure in the steps of this WMS, work shall cease immediately. Work will only recommence when corrective action has been implemented.**

**A random safety check must be carried out by a management representative to ensure that works carried out reflect the steps outlined in the above WMS.**