

<b>SWMS number:</b> SMS-06-SW-0988	<b>SWMS Name:</b> OHW Structure Erection			<b>SWMS Team:</b> Civil Construction Review Team
<b>Custodian (Position):</b> Services Manager Civil	<b>Assumptions:</b> Site specific risks are addressed and assessed in pre- work briefing			<b>Content reviewed by Technical expert (SME) and RailCorp safety professional (position including Div/Group)</b> Services Manager Civil and Safety facilitator, Safety Support Services Division
<b>Approver (Position):</b> Civil Electrical Works Manager Infrastructure Renewals	<b>Plant/Equipment/Tools:</b> <ul style="list-style-type: none"> <li>Specific Plant for Task, Elevated Work Platform, Crane, Lifting Equipment, Straps, Ties, Chains, Slings</li> <li>Hi-Rail Toe Vehicle, Trolley, Dumper, Backhoe, Excavator, H-rail Crane Truck, Flat Top Truck.</li> <li>Red / Green Flags, Detonators, Lamps</li> <li>Construction Equipment, Barricades, Witches hats, Signage and Demarcation fencing</li> <li>Lighting Towers, Day maker Lights, Generator</li> <li>Water cart,</li> <li>No-Spill Fuel Cans, Spill Response Kit</li> <li>Appropriate hand tools,</li> <li>Rigging Tools, Podger, Acrow Props</li> </ul>	<b>Records/Reporting:</b> <ul style="list-style-type: none"> <li>Worksite Protection Plan</li> <li>Pre-work Brief</li> <li>Site Specific Management Plan</li> <li>Electrical Test Tags</li> <li>Traffic Control Plan</li> <li>Electrical Permits</li> <li>Daily Plant Inspections</li> <li>MSDS</li> </ul>	<b>Permits/licences required:</b> <ul style="list-style-type: none"> <li>Plant Operator Certificate</li> <li>Traffic Controller Certificate</li> <li>Electrical Permit Holder</li> <li>Dogman Certificate</li> <li>Elevated Work Platform Certificate</li> </ul>	<b>PPE required:</b> <ul style="list-style-type: none"> <li>Safety Boots</li> <li>High Visibility Vests</li> <li>Hardhats</li> <li>Protective Clothing</li> <li>Safety Glasses</li> </ul> And as specified below. <ul style="list-style-type: none"> <li>Hearing Protection</li> <li>Type 2 Respirator</li> <li>Fall Arrest Devices, Attached Climbing System</li> <li>Gloves</li> <li>During all Site Works a FIRST AIDER MUST be Present</li> </ul>
<b>Applicable Standards, Codes of Practice and guidance:</b> <ul style="list-style-type: none"> <li>OH&amp;S Act 2000</li> <li>OH&amp;S Regulation 2001</li> <li>Rail Safety Regulation 2003</li> <li>RailCorp Network Rules &amp; Procedures</li> <li>RailCorp Safety Management System.</li> <li>MSDS for all chemicals and hazardous Substances used on site</li> <li>Working near Overhead Power Lines</li> </ul>	<b>Inspection requirements</b> Nil	<b>Service schedule:</b> Nil	<b>Training/Qualification required:</b> <ul style="list-style-type: none"> <li>Construction Industry Induction</li> <li>RISI (Rail Industry Safety Induction)</li> </ul>	

# OHW Structure Erection

Issue date: 15/10/10  
Review date: 14/04/13

Number	Step	Hazard or human error (safety/environmental hazards identified, including physical environment, human errors, plant and equipment)	Risk ranking before controls	Control (to be implemented to eliminate or reduce the risk to the lowest practicable level)	Risk ranking after controls	Responsibility	Job step to be completed in accordance with (name associated documentation)
1	Track access	Contact with live o/h wires (high voltage )	A	Maintain regulated clearances on wires at all times. Isolate power when in side Safe approach distance (SAD).	C+	Qualified Permit Holder QEL29/MEI61 Team Leaders Work Group Leaders All Staff	Electrical equipment SMS-06-GD-0268 Electrical permits SMS-06-EN-0577
		Personnel struck by vehicles or machinery	B+	Implement exclusion zones All plant must have functional lights and alarms as per plant inspection report. Use ticketed operators. Plan work to avoid congestion Use truck pilots if appropriate	C+	Team Leader Work Group Leader All Staff Workcover ticketed operator SMS-11-GD-0243	SSMP, pre work briefing SMS-06-FM-0163 plant SMS-06-PR-0225 truck pilots SMS-11-GD-0243
		Noise from plant	C+	Implement exclusion zones. Use appropriate plant with noise control measures. Use ear protection where required.	D	Team leader Work group leader All staff	SSMP, pre work briefing SMS-06-FM-0163 PPE SMS-06-GD-0323
		Inhaling dust and fumes	B-	Implement exclusion zones. Wear type 2 respirators if required. Water down worksite at appropriate intervals.	D	Team Leader Work Group Leader All Staff	SSMP , pre work briefing SMS-06-FM-0163 hazardous substances SMS-06-GD-0199
		Fuel/oil spills	C-	Plant to be inspected daily. Use correct methods for filling machinery. Maintain spill response kits on-site.	D	Team Leader Work Group Leader All Staff	SSMP, pre work briefing SMS-06-FM-0163 environmental protection plan Plant SMS-06-PR-0225 MSDS
2	Delivery of materials (other than structures)	Manual handling injuries	B-	Use correct manual handling techniques. Rotate staff on repetitive tasks. Use gloves if required	C+	Team Leader Work Group Leader All Staff	SSMP, pre work briefing SMS-06-FM-0163 manual handling guide SMS-06-GD-0001
		Transfer of hazardous materials	B+	Read MSDS first. Use recommended PPE. Use recommended handling methods. Have spill kit available. Place in suitable secure storage.	C-	Team Leader Work Group Leader All Staff	SSMP, pre work briefing SMS-06-FM-0163 MSDS

# OHW Structure Erection

Issue date: 15/10/10  
Review date: 14/04/13

Number	Step	Hazard or human error (safety/environmental hazards identified, including physical environment, human errors, plant and equipment)	Risk ranking before controls	Control (to be implemented to eliminate or reduce the risk to the lowest practicable level)	Risk ranking after controls	Responsibility	Job step to be completed in accordance with (name associated documentation)
3	Loading and unloading of structure components (truck to ground, ground to trolley)	Personnel struck by vehicles or machinery	B+	Implement exclusion zones All plant must have functional lights and alarms as per plant inspection report. Use ticketed operators. Plan work to avoid congestion Use pilots if appropriate	C+	Team Leader Work Group Leader All Staff Workcover ticketed operator SMS-11-GD-0243	SSMP pre work briefing SMS-06-FM-0163 plant SMS-06-PR-0225 truck pilots SMS-11-GD-0243
		Contact with live o/h wires (high voltage )	A	Maintain required clearances from services at all times. Place buildings and stockpiles a safe distance from o/h wires Isolate if required	C+	Qualified Permit Holder QEL29/MEI61 Team Leaders Work Group Leaders All Staff	Electrical equipment SMS-06-GD-0268 Electrical permits SMS-06-EN-0577
		Storage non-hazardous materials	B-	Stack securely, create larger storage areas. Share activities, reduce material weight. Use mechanical means to transfer, correct lifting procedures	C+	Team Leader Work Group Leader All Staff	SSMP, pre work briefing SMS-06-FM-0163 MSDS
3	Loading and unloading of structure components (truck to ground, ground to trolley)	Personnel struck by vehicles or machinery	B+	Implement exclusion zones Use reversing beepers. Use ticketed operators. Plan work to avoid congestion	C+	Team Leader Work Group Leader All Staff Workcover ticketed operator SMS-11-GD-0243	SSMP pre work briefing SMS-06-FM-0163 plant SMS-06-PR-0225 truck pilots SMS-11-GD-0243
		Struck by crane or load	B+	Implement exclusion zones for workers not involved in loading/ unloading. Control load with tag lines Position dogman with clear escape route away from anticipated load movement. Wear head protection	C+	Team Leader Work Group Leader All Staff Workcover ticketed operator and dogman SMS-11-GD-0243	SSMP, pre work briefing SMS-06-FM-0163 PPE SMS-06-GD-0323
		Failure of lifting equipment from overloading	B+	Select appropriate equipment for task. Competent operators to assess loads prior to lifting. Equipment to be properly maintained and marked.	C+	Team leader Work group leader. Workcover ticketed operator and dogman SMS-11-GD-0243	SSMP, pre work briefing SMS-06-FM-0163 Lifting equipment inspection SMS-16-FM-0089 Plant SMS-06-PR-0225

# OHW Structure Erection

Issue date: 15/10/10  
Review date: 14/04/13

Number	Step	Hazard or human error (safety/environmental hazards identified, including physical environment, human errors, plant and equipment)	Risk ranking before controls	Control (to be implemented to eliminate or reduce the risk to the lowest practicable level)	Risk ranking after controls	Responsibility	Job step to be completed in accordance with (name associated documentation)
4	Transport of structure components to location (trolley along track)	Contact with live o/h wires (high voltage )	A	Maintain required clearances from services at all times. Place buildings and stockpiles a safe distance from o/h wires Isolate if required	C+	Qualified Permit Holder QEL29/MEI61 Team Leaders Work Group Leaders All Staff	Electrical equipment SMS-06-GD-0268 Electrical permits SMS-06-EN-0577
		Unstable loads	B+	Ensure materials are secured before transit. Don't exceed safe working load of equipment Check loads are stable before removing ties	C+	Team Leader Work Group Leader All Staff Workcover ticketed operators SMS-11-GD-0243	SSMP, pre work briefing SMS-06-FM-0163 plant SMS-06-PR-0225
		Noise from plant	C+	Implement exclusion zones. Use appropriate plant with noise control measures. Use ear protection.	D	Team leader Work group leader All staff	SSMP, pre work briefing SMS-06-FM-0163 PPE SMS-06-GD-0323
		Hit by moving or falling object	C-	Hard hats to be worn at all times. Implement exclusion zone for workers not involved in tasks. Plan work sites to avoid congestion	D	Team leader Work group leader All staff	SSMP, pre work briefing SMS-06-FM-0163 PPE SMS-06-GD-0323
4	Transport of structure components to location (trolley along track)	Unstable loads	B+	Ensure materials are secured before transit. Don't exceed safe working load of equipment Check loads are stable before removing ties	C+	Team Leader Work Group Leader All Staff Workcover ticketed operators SMS-11-GD-0243	SSMP, pre work briefing SMS-06-FM-0163 plant SMS-06-PR-0225
		Runaway trolley	C-	Trolley to be fitted with failsafe braking system/drawbar to dumper. Restrict trolley speed below 10km/h	D	Team Leader Work Group Leader All Staff Licence, competent	SSMP, pre work briefing SMS-06-FM-0163 PPE SMS-06-GD-0323
		Hit by moving or falling object	C-	Hard hats to be worn at all times. Implement exclusion zone for workers not involved in task. Plan work sites to avoid congestion Place lookouts around moving trolleys if necessary.	D	Team leader Work group leader All staff	SSMP, pre work briefing SMS-06-FM-0163 PPE SMS-06-GD-0323

# OHW Structure Erection

Issue date: 15/10/10  
Review date: 14/04/13

Number	Step	Hazard or human error (safety/environmental hazards identified, including physical environment, human errors, plant and equipment)	Risk ranking before controls	Control (to be implemented to eliminate or reduce the risk to the lowest practicable level)	Risk ranking after controls	Responsibility	Job step to be completed in accordance with (name associated documentation)
5	Building Ramp	Contact with live o/h wires (high voltage )	A	Maintain required clearances from services at all times. Place buildings and stockpiles a safe distance from o/h wires Isolate if required	C+	Qualified Permit Holder QEL29/MEI61 Team Leaders Work Group Leaders All Staff	Electrical equipment SMS-06-GD-0268 Electrical permits SMS-06-EN-0577
		Personnel struck by vehicles or machinery	B+	Implement exclusion zones All plant must have functional lights and alarms as per plant inspection report. Use ticketed operators. Plan work to avoid congestion Use pilots if appropriate	C+	All staff Team leader Work group leader Workcover ticketed operator SMS-11-GD-0243	SSMP pre work briefing SMS-06-FM-0163 plant SMS-06-PR-0225 truck pilots SMS-11-GD-0243
6	Erect Structure Legs	Struck by lifted load	B+	Vigilance when lifting structures. Keep clear.	C+	Ticketed operator, dogman SMS-11-GD-0243	SSMP, pre work briefing SMS-06-FM-0163
		Hit by moving or falling object	C-	Hard hats to be worn at all times. Implement exclusion zone for workers not involved in tasks. Plan work sites to avoid congestion	D	Team leader Work group leader All staff	SSMP, pre work briefing SMS-06-FM-0163 PPE SMS-06-GD-0323
		Contact with live o/h wires (high voltage )	A	Maintain required clearances from services at all times. Place buildings and stockpiles a safe distance from o/h wires Isolate if required	C+	Qualified Permit Holder QEL29/MEI61 Team Leaders Work Group Leaders All Staff	Electrical equipment SMS-06-GD-0268 Electrical permits SMS-06-EN-0577
		Fall from height	B+	Work from an approved attached climbing system or elevated work platform if it is possible to fall 2m or more	C+	Team leader Work group leader All staff EWP ticket if required SMS-11-GD-0243	SSMP, pre work briefing SMS-06-FM-0163 Working at heights SMS-06-GD-0240 Belts/harnesses SMS-06-SW-0258 Elev. Work platform's SMS-06-SW-0310

Number	Step	Hazard or human error (safety/environmental hazards identified, including physical environment, human errors, plant and equipment)	Risk ranking before controls	Control (to be implemented to eliminate or reduce the risk to the lowest practicable level)	Risk ranking after controls	Responsibility	Job step to be completed in accordance with (name associated documentation)
		Structure falls before properly secured	B+	Secure holding down bolts prior to removing tension from crane and rigging.	C+	Team Leader Work Group Leader All Staff Competent person	SSMP, pre work briefing SMS-06-FM-0163
		Struck by falling pp mast	B+	Secure with props prior to removing tension from crane and rigging	C+	Team Leader Work Group Leader All Staff Competent person	SSMP, pre work briefing SMS-06-FM-0163
		Struck by crane or load	B+	Implement exclusion zones for workers not involved in loading/ unloading. Control load with tag lines Position dogman with clear escape route away from anticipated load movement. Wear head protection	C+	Workcover ticketed operator and dogman SMS-11-GD-0243	SSMP, pre work briefing SMS-06-FM-0163 PPE SMS-06-GD-0323
		Failure of lifting equipment from overloading	B+	Select appropriate equipment for task. Competent operators to assess loads prior to lifting. Equipment to be properly maintained and marked.	C+	Team leader Work group leader. Workcover ticketed operator and dogman SMS-11-GD-0243	SSMP, pre work briefing SMS-06-FM-0163 Lifting equipment inspection SMS-16-FM-0089 Plant SMS-06-PR-0225
		Noise from plant	C+	Implement exclusion zones. Use appropriate plant with noise control measures. Use ear protection.	D	Team leader Work group leader All staff	SSMP, pre work briefing SMS-06-FM-0163 PPE SMS-06-GD-0323
		Crushed fingers	B+	Keep hands clear of joining steel when positioning	C+	Team Leader Work Group Leader All Staff Competent person	SSMP, pre work briefing SMS-06-FM-0163 PPE SMS-06-GD-0323

# OHW Structure Erection

Issue date: 15/10/10  
Review date: 14/04/13

Number	Step	Hazard or human error (safety/environmental hazards identified, including physical environment, human errors, plant and equipment)	Risk ranking before controls	Control (to be implemented to eliminate or reduce the risk to the lowest practicable level)	Risk ranking after controls	Responsibility	Job step to be completed in accordance with (name associated documentation)
7	Grouting structure base	Skin irritations from grout	C-	Wear gloves long sleeve shirts Wear safety glasses Have water for washing onsite Have first aid officer and kit on site.	D	Team Leader Work Group Leader All Staff	SSMP, pre work briefing SMS-06-FM-0163 MSDS PPE SMS-06-GD-0323 Hazardous substances SMS-06-GD-0199
		Manual handling injuries	B-	Use correct manual handling techniques. Rotate staff on repetitive tasks. Use gloves if required	C+	Team Leader Work Group Leader All Staff	SSMP, pre work briefing SMS-06-FM-0163 Manual handling guide SMS-06-GD-0001
		Dust mixing grout	B-	Read MSDS and follow mixing instructions. Wear type 2 respirator	D	Team Leader Work Group Leader All Staff	SSMP, pre work briefing SMS-06-FM-0163 MSDS, Hazardous substances SMS-06-GD-0199

## **OHW Structure Erection**

Issue date: 15/10/10  
Review date: 14/04/13

**NOTE: Each work group or team member must sign off on the SWMS to acknowledge they have been briefed about or instructed in the SWMS**

RailCorp Level 2 Risk Matrix - Regional & Local (Workplace)			Likelihood/Frequency							Definition for Use - Regional & Local level (Workplace)	
			Event Frequency	Less than once every 1000 years	Once every 100 to 1,000 years	Once every 10 to 100 years	Once every 1 to 10 years	More than once per year up to and including 10 times per year	More than 10 times per year		
			Historical (Likelihood)	Unheard of in the rail industry	Has occurred once or twice in the rail industry	Has occurred many times in the rail industry, but not in NSW	Has occurred once or twice in NSW	Has occurred frequently in NSW	Has occurred frequently at specific locations		
			Workplace Predictive (Likelihood)	Not expected to occur	May occur only in exceptional circumstances	Could occur at some time but not likely	You would expect it to occur at least once in the next 10 years performing similar activities	You would expect it to occur at least once this year performing similar activities	You would expect it to occur at least once this month performing similar activities		
				F1	F2	F3	F4	F5	F6		
Consequence			Incredible	Improbable	Remote	Occasional	Probable	Probable	Frequent		
>10 Fatalities	C6	Disastrous	B-	B+	A	A	A	A	A		
2-10 Fatalities	C5	Catastrophic	C+	B-	B+	A	A	A	A		
1 Fatality (2-10 Major Injuries)	C4	Critical	C-	C+	B-	B+	A	A	A		
1 Major Injury	C3	Major	D	C-	C+	B-	B+	B+	A		
1 or more Minor Injuries	C2	Minor	D	D	C-	C+	B-	B-	B+		
First aid treatment, or illness/injury not requiring treatment	C1	Negligible	D	D	D	C-	C+	C+	B-		