

Purpose: This document outlines the governance framework, procedures, and compliance requirements for the structural restoration of a 1000-tonne bin. The repair process addresses structural damage caused by continuous mining operations and ensures compliance with Australian Standards (AS/NZS 1554 for welding and AS 4100 for structural steelwork).

Scope: The repair involves the removal of damaged components, reinforcement of structural members, installation of new structural elements, post-repair inspections and protective coatings. This procedure also outlines the installation of a chute hood to modify the discharge direction of a coal conveyor.

Asset Code: 1000T Tonne bin

Reference Drawings:

- J516ADW001_REV0_1000T Bin Repair

MATERIAL RISKS, HAZARDS AND CONTROLS

Risk	Description of Risk	Critical Controls
 Manual Handling	Manual handling.	Follow the prescribed procedure and wear prescribed PPE, assess the risks and implement control measures.
 Entanglement	Entanglement and crushing.	Consider the local site conditions and assess the risk of crushing. Assess the risks of injury or harm and implement control measures.
 Trip	Uneven or loose ground.	Visually check the work area prior to commencing task and remove and trip hazards.
 Acoustic	Loud noises.	Wear (double) hearing protection as required.
 Fall from Height	Fall from height	Personnel WAH trained and competent. Harness and Lanyard Certified, Tested and Tagged. 100% hook up to be maintained when maintenance platform is not in use or where personnel are at risk of fall. e.g. Ladder access, arm guard removal. All risks to evaluated and assessed in JHA.
 Pinch Points	Pinch points.	Consider the local site conditions and assess the risk of pinch points. Assess the risks of injury or harm and implement control measures.

MATERIAL RISKS, HAZARDS AND CONTROLS

Risk	Description of Risk	Critical Controls
 Dropped Objects	Dropped objects	Secure tools and materials at heights, use toe boards and debris nets, conduct exclusion zone planning.
 Health hazard risk	Exposure to Dust	Wear appropriate respiratory protection (P2 or P3 masks). Use dust suppression methods such as water sprays or vacuum extraction.

ADDITIONAL PPE REQUIRED

						
Foot Protection	Head Protection	Protective Clothing	Eye Protection	High Visibility	Hearing Protection	Safety Harness

SPECIFIC COMPETENCIES, KNOWLEDGE AND SKILLS REQUIRED

1. Structural and Welding Personnel

- Proficiency in AS/NZS 1554 welding standards for structural repairs.
- Knowledge of oxyfuel and plasma cutting methods for steel beam removal.
- Experience in material thickness assessment and patch reinforcement.

2. Site Engineers and Inspectors

- Understanding of AS 4100 steel structure requirements for beam and platform installations.
- Competency in non-destructive testing (NDT) to assess weld integrity.
- Knowledge of load-bearing principles and steel member replacements.

3. Safety Officers and Risk Management Personnel

- Certification in WHS and risk assessment methodologies.
- Familiarity with fall protection systems, hot work permits, and site safety protocols.

TOOLING AND EQUIPMENT REQUIRED**Removal Equipment**

- **Oxy-fuel cutting torch** for welded beam removal.
- **Certified lifting slings and chain blocks** for beam handling.
- **High-capacity impact wrenches** for bolted connections.

Welding & Installation Equipment

- **MIG/TIG welders** compliant with AS/NZS 1554.
- **Steel reinforcement patches** for corroded sections.
- **Magnetic base drills** for bolted connections.

Access and Safety Equipment

- **Suspended scaffolding system** adjustable, secured at RL 256.3
- **High-intensity work lights** for visibility inside the bin.
- Fall arrest system with lifelines and harnesses.

Removal and reparation of damaged structural member

Operational Shutdown and Site Preparation

1. Cease bin operations and notify the control centre.
2. Remove coal residues to provide a clear workspace.
3. Deploy suspended scaffolding and anchor it securely at RL 256.3.
4. Install fall protection systems, verify lighting, and remove access obstructions.

Dismantling of Existing Platforms

1. The platform's exact location and removal details are specified in drawing **J516ADW001_REV0_1000T**.
2. Following fire safety protocols, oxy-fuel cutting may be used to cut welded joints.

Installation of Temporary Bracing

1. Secure PFC braces to the UB beams as per drawings.
2. Bolted connections must be torqued to specification.

Removal of Beam B1 (310 UB 40) and Beam B2 Repairs

1. Attach lifting slings before cutting/unbolting Beam B1.
2. Use controlled lifting mechanisms to lower B1 after disconnection.
3. For Beam B2, perform pad welding, ensuring compliance with AS/NZS 1554.
4. Conduct NDT to verify weld integrity before proceeding.

Positioning and Installation of New Beam

1. Secure lifting slings and maneuver the new beam into position.
2. Suspend the beam until fully aligned with existing structures.

Welding and Connection Procedures

1. Recreate all welded connections using AS/NZS 1554 welding standards.
2. Use angle connections for B1-to-B3 junctions due to corrosion damage.
3. Conduct NDT and visual inspections to confirm weld integrity.

Finalising Installation and Structural Stability

1. Remove temporary bracing after securing all new structural elements.
2. Install the new platform with bolted or welded connections per engineering drawings.
3. Ensure proper attachment of floor plates.

Corrosion Repair and Surface Treatment for Chute Walls

Surface Cleaning & Inspection

1. Remove loose debris, rust, and scale from the chute walls using grinders, wire brushes, or blasting methods.
2. Clean corroded areas with an appropriate degreaser or solvent to eliminate contaminants before welding or coating.
3. Conduct thickness measurements along chute wall panels to assess material loss and determine whether patching or full replacement is required.
4. Mark corroded and thinned areas that require reinforcement, ensuring alignment with engineering specifications.

Welding Repair

1. For small holes ($\leq 10\text{mm}$) in chute walls:

- Drill and shape holes to create a smooth edge for welding.
- Fill the openings with a weld deposit and grind smooth as needed.

For moderate corrosion (10-50mm holes or thinned sections in chute walls):

- Cut out the damaged section slightly beyond the affected area to ensure structural integrity.
- Install a reinforcement patch of matching material, ensuring that it extends beyond the corroded area to distribute stress.
- Secure the patch with continuous welds along all edges, following AS/NZS 1554 welding standards.
- Grind weld seams as necessary to achieve a smooth finish, reducing the potential for material buildup or blockages inside the chute.

Post-Repair Surface Protection

1. Smooth all repaired welds to prevent material accumulation inside the chute.
2. Apply a corrosion-resistant primer suited for abrasive conditions within the mining bin.
3. Apply a protective coating to prevent further deterioration and ensure smooth material flow.

Chute Hood Installation Procedure

Site Preparation & Safety Measures

1. Install a suspended scaffolding system outside the chute for safe maneuvering and positioning of components.
2. Ensure lifelines and fall protection systems are in place.
3. Secure the necessary lifting equipment (e.g., cranes, chain hoists) for hoisting structural elements.

Removal of the Existing Chute Top Sheet

1. Identify cutting locations on the top sheet of the chute.
2. Use oxy-fuel cutting if required.

Installation of Supporting Structure

1. Lift and position the HSS 150x6 column members using a crane or appropriate lifting equipment.
2. Weld the columns to the existing structural members as per the drawings.
3. Lift and align the transversal HSS 150x6 beam at the top of both columns.
4. Weld the beam into place according to the specifications.

Installation of Shaft Support Members

1. Lift and place the HSS 75x6 members in their designated positions.
2. Weld them to the supporting structure as per the drawing.
3. Position and fasten the bearings in their specified locations.

Installation of Shaft and Hood

1. Use lifting equipment to maneuver the shaft into place within the bearing supports.
2. Secure the shaft as per the design specifications.
3. Hoist the hood to its installation position.
4. Align it correctly and secure it as specified in the drawings.

Installation of Adjustment Mechanism

1. Identify the location as per the drawing and drill a hole in the chute walls.
2. Securely weld the threaded bushing to the chute wall.
3. Hoist the adjustment mechanism and place it inside the chute.
4. Pass the threaded bar through the welded bushing.
5. Attach the bar to the vertically slotted lug inside the chute, ensuring proper alignment.
6. Align and weld the lever to the threaded bar per the drawing specifications.

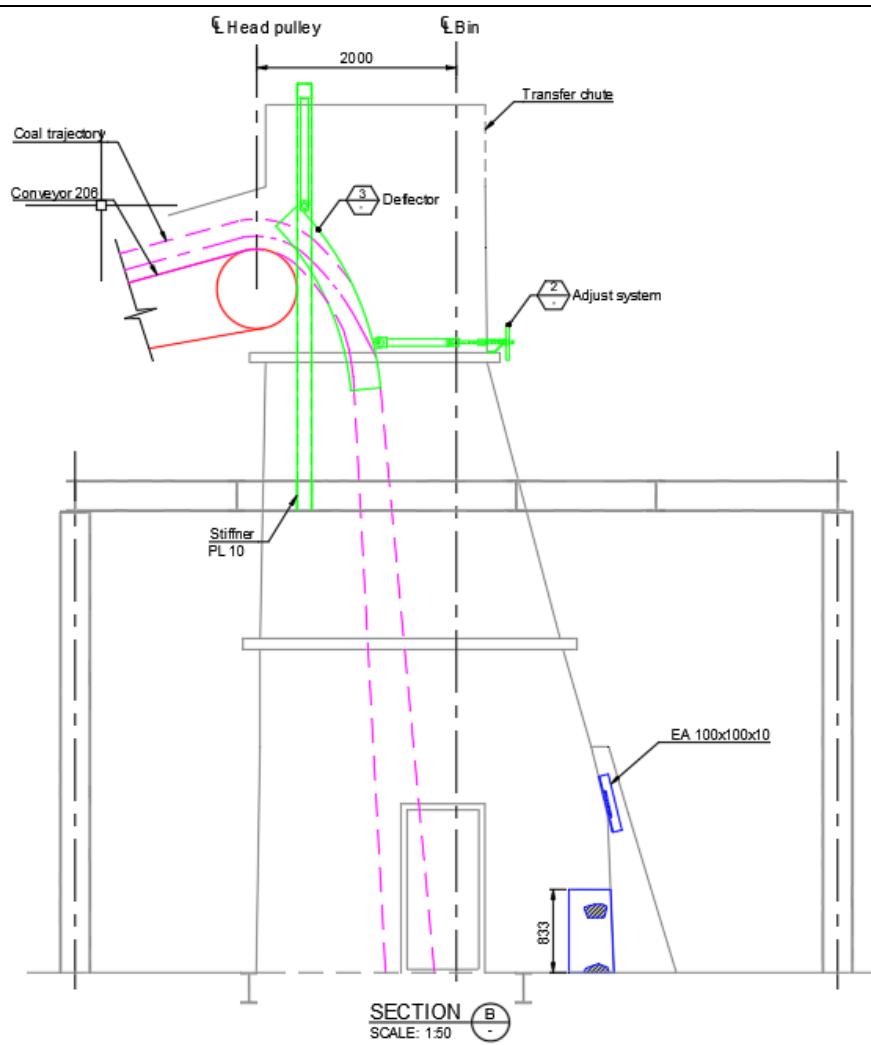
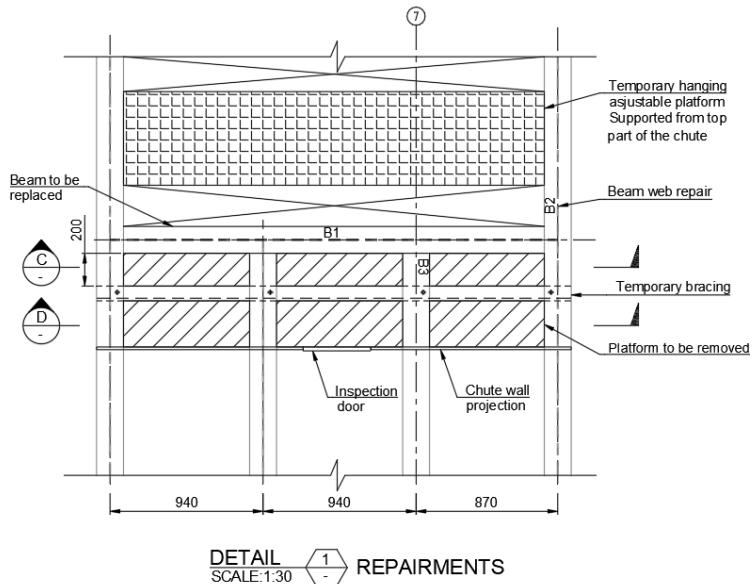
Modification & Reinstallation of the Chute Top Sheet

1. Adjust the top sheet of the chute to fit around the HSS 75x6 members
2. Cut and shape as necessary.
3. Lift and position the modified chute top sheet.
4. Weld it back into place on the top of the chute hood.

Post-Installation Tasks

1. Verify weld quality and structural integrity of all installed components.
2. Apply anti-corrosion coatings where necessary.
3. Remove debris and clear the work area.
4. Document installation details and inspection results.

ATTACHED PICTURES, DRAWINGS OR DIAGRAMS



WORK REQUEST SIGN-OFF (Person(s) Who Completed Work)**Inspection conducted by**

Name:	Initial:	Sign:	Date:
Name:	Initial:	Sign:	Date:
Name:	Initial:	Sign:	Date:

Supervisor

Name:	Initial:	Sign:	Date:
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FEEDBACK (To support content improvement)

General Feedback:

For any improvement suggestions to this template please contact the TBD maintenance improvement manager.