



Austroads

SUPERSEDED PUBLICATION

This document has been superseded.
It should only be used for reference purposes.

For current guidance please visit the Austroads website:

www.austroads.gov.au



Contents

1. Scope	2
2. Referenced Documents	2
3. Definitions	3
4. Quality System Requirements	4
5. Work Health and Safety	4
General	4
Safety Requirements	5
Non-Contractor Personnel	5
Record Keeping	5
6. Personnel	6
7. Containment and Scaffolding	6
Scaffolding	6
Containment	7
8. Site Management	8
Approvals, Licences and Permits	8
General	8
Trial of containment structures	8
Visible Emissions	8
Total Suspended Particulate (TSP)	9
9. Waste Management	9
General	9
Solid Waste	10
Liquid Waste	10
Transport and Disposal of Wastes	10
10. Cleaning and Clearance	11
Soil Remediation	11
11. Application of the Protective Coating	11
Annexure A: Summary of Hold Points, Witness Points and Records	12

1. Scope

- 1.1 Austroads Technical Specification ATS 5453 sets out the requirements for site management where a steel bridge is to be repainted. It includes requirements for:
- the design of the containment system and scaffolding;
 - safety and environmental management;
 - inspection and compliance of structures and hazardous management containment systems, and
 - management and disposal of any hazardous materials, including asbestos, lead and hexavalent chromium.
- 1.2 Refer to ATS 5450 for details of the surface preparation and application of the protective coating to the steelwork.
- 1.3 The Principal will provide all documentation and test data that it is aware of in regard to the composition of the existing coating.
- 1.4 The Contractor must assess the information provided by the Principal in accordance with the threshold concentration criteria in AS/NZS 4361.1 and manage the Works as either hazardous or non-hazardous coating work as appropriate.

2. Referenced Documents

- 2.1 The following documents are referenced in this specification:

Australian / New Zealand Standards

AS 1170.2	Wind loads
AS 576.4	Scaffolding- Part 4: Suspended scaffold
AS 1715	Selection, use and maintenance of respiratory protective devices
AS 3544	Industrial vacuum cleaners for particulates hazardous to health
AS 3640	Workplace Atmospheres – Method for sampling and gravimetric determination of inhalable dust.
AS/NZS 4361.1	Guide to hazardous paint management, Part 1: Lead and other hazardous metallic pigments in industrial applications
AS 4576	Guidelines for scaffolding
AS 4100	Steel structures
AS/NZS 5100.6	Bridge design Part 6: Steel and composite construction

Safe Work Australia

NOHSC:3003	Guidance Note on the Membrane Filter Method for Estimating Airborne Asbestos Fibres
------------	---

AustrroadsATS 5450 Protective Coating of Steelwork

Painting Contractor Certification Program

PCCP PP-D014 Accreditation requirements – Management of hazardous coatings – Industrial situations (Classes 5 to 6)

3. Definitions

3.1 In addition to the definitions in AS/NZS 2310 and AS/NZS 4361.1, the following definitions and abbreviations apply to this Specification.

Emission:	A release of material to the air, water or ground.
Environmental Management Regulations:	The relevant regulations, policies and codes of practice issued pursuant to any legislation for the protection or management of the environment which is applicable in the jurisdiction where the work is being carried out.
EPA:	The statutory body with the authority to administer the Environmental Management Regulations.
Hazardous Paint:	Existing paint containing asbestos, lead or hazardous metallic pigments in concentrations above the minimum level prescribed in AS/NZS 4361.1 or the applicable WHS Regulations.
PCCP:	Painting Contractors Certification Program
Professional Engineer:	A person who: <ul style="list-style-type: none"> a) has at least 5 years of experience which is relevant to structural design, safety, scaffolding, industrial ventilation and / or containment systems (as applicable); b) is registered on any scheme of registration of engineers prescribed by legislation in the applicable jurisdiction; c) is appropriately registered or prequalified if the Principal has implemented an applicable registration or prequalification scheme; and d) satisfies at least one of the following requirements: <ul style="list-style-type: none"> i) is a Chartered Professional Engineer; or ii) holds a 4 year civil engineering degree from a university that is accredited under the Washington Accord and is registered in a relevant area of practice on the National Engineering Register (in Australia) or the Register of Chartered Professional Engineers (in New Zealand).
Safe Work Authority:	The statutory body with the authority to administer the WHS Regulations.
TSP:	Total Suspended Particulate
WHS Management Plan:	The Contractor's Work Health and Safety Management Plan, as required under the WHS Regulations.
WHS Regulations:	The relevant regulations and codes of practice issued pursuant to any legislation for Work Health and Safety and Health that is applicable in the jurisdiction where the work is being carried out.

4. Quality System Requirements

- 4.1 In addition to specifying requirements for general site management, this Specification also covers requirements for environmental management and safety management. If the documents listed in Table 4.1 are not included in the Contractor's WHS Management Plan or Environmental Management Plan, they must be included in the Contractor's Quality Plan.

Table 4.1: Quality Plan

Clause	Description of Document
5.3	Details and procedures for isolation of the work area
5.4	Hazardous Paint Compliance Plan (where required)
6.1	Names, qualifications and experience of the supervisory personnel and training details
7.1	Details of the designer and Proof Engineer and evidence that they meet the requirements of this Specification
9.2	Details and procedures for the assessment, classification and disposal of hazardous waste

HOLD POINT 1.

Process Held	Commencement of work on the Containment Structure.
Submission Details	The Quality Plan a must be provided to the Principal at least 10 working days prior to the commencement of work on site.

- 4.2 If the work includes the removal of lead or other hazardous metallic pigments, the Contractor must be certified to PCCP Class 5 and 6 in accordance with PCCP PP-D0146.
- 4.3 Refer to Clause 6 of ATS 5450 in regard to the provision of a program of work and holding a commencement meeting.

5. Work Health and Safety

General

- 5.1 This clause is to be read in conjunction with the general requirements for the management of Work Health and Safety (alternatively referred to as Occupational Health and Safety) included elsewhere in the Contract documents.
- 5.2 Where applicable to the work under the Contract, the work must be carried out in accordance with:
- a) AS/NZS 4361.1; and
 - b) the WHS Regulations and all relevant codes of practice, which may include:
 - i) Abrasive blasting;
 - ii) Construction work;
 - iii) Hazardous manual tasks;
 - iv) How to safely remove asbestos;
 - v) Managing the risks of falls in the workplace;
 - vi) Managing the risks of hazardous chemicals in the workplace; and
 - vii) Spray painting and powder coating.

Safety Requirements

- 5.3 The WHS Management Plan or the Quality Plan must include a site layout plan and details and procedures for isolation of the work area by the establishment and maintenance of regulated areas including details of barriers, signs and entry restrictions.
- 5.4 If Hazardous Paint is present, a Hazardous Paint Compliance Plan must be prepared in accordance with AS/NZS 4361.1 which includes details and / or procedures for:
- a) Undertaking the removal of the hazardous chemical to minimise exposure (where removal is required);
 - b) Monitoring personnel for exposure to hazardous chemicals in accordance with the WHS Regulations;
 - c) Monitoring of airborne lead, hexavalent chromium, asbestos and any other hazardous chemicals; and
 - d) Management of protective equipment and clothing, including:
 - i) personal protective equipment and clothing (including respiratory protection) for personnel entering the containment;
 - ii) cleaning and storage of personal protective equipment following exiting the containment and at the end of each shift;
 - iii) ensuring only suitably trained personnel enter the containment;
 - iv) removal of dust on blast cleaning operators emerging from the containment;
 - v) housekeeping practices, including continual cleanup of debris inside the containment;
 - vi) sealing of discontinuities or openings in the containment (for make-up air) where abrasive blasting is carried out nearby;
 - vii) restrictions on eating and drinking in the work area; and
 - viii) establishment of a clean side / dirty side decontamination unit on Site.
- 5.5 If hazardous materials have not been identified by the Principal, the Contractor must undertake an investigation to confirm the existing coatings pose no risk to the health and safety of their personnel or the public. If hazardous paint is found, the Principal must be notified and no further work proceeding until appropriate control measures are in place in accordance with the provisions of this Specification.

Non-Contractor Personnel

- 5.6 For any person entering restricted areas who is not an employee or agent of the Contractor (including surveillance personnel, representatives of the Principal and persons authorised under legislation to enter the site), the Contractor must:
- a) provide adequate site induction (including specific training if necessary); and
 - b) provide, launder and maintain protective clothing and equipment and extend the use of the hygiene facilities where appropriate in accordance with the WHS Regulations.

Record Keeping

- 5.7 The Contractor must maintain records in compliance with the WHS Regulations. Where Hazardous Paint is present, this includes training, medical examinations, blood lead monitoring and lead exposure monitoring and prescribed waste transport certificates. If requested by the Principal, the Contractor must submit evidence that it has maintained these records in accordance with the WHS Regulations.

6. Personnel

- 6.1 The Quality Plan must include:
- a) the names, qualifications and experience of the supervisory personnel,
 - b) details of training of all personnel engaged in the work in respect of:
 - i) lead, chromium and asbestos hazard awareness (if Hazardous Paint is present);
 - ii) site hygiene and housekeeping procedures;
 - iii) selection, use and care of all personal protective equipment.
- 6.2 The Contractor must ensure that the personnel are suitably qualified and experienced in the work being undertaken.

7. Containment and Scaffolding

Scaffolding

- 7.1 Where scaffolding is used, the Contractor must ensure that the structural design of the scaffolding and its attachment to the bridge structure is carried out by a Professional Engineer and that the design satisfies the following requirements:
- a) The overall load and stresses imposed on the bridge structure complies with the requirements of AS 5100.6.
 - b) In the structural analysis, consideration is given to the following loads:
 - i) the containment (including dead load, live load, wind load and loads from equipment and materials, including blast waste residues);
 - ii) traffic live loads as specified below;
 - iii) pedestrian traffic; and
 - iv) the loads of any equipment, barriers, vehicles and materials to be placed on the bridge deck.
 - c) Local loads and stresses imposed by the containment attachment points on the bridge structure members comply with the requirements of AS 5100.6.
 - d) The arrangement of the containment allows for passage of traffic in accordance with the Contract and any staging requirements in the Contract documents.
 - e) Design of scaffold and individual components of the containment system complies with AS 4100 for steel members and / or any other applicable Australian Standard and Design Codes.
 - f) Scaffold roofing supporting containment material are sloping and do not provide obvious locations for water ponding.
 - g) Holes are not drilled in the bridge structure without the Principal's prior approval.
 - h) No part of the bridge is welded or cut.
 - i) If the structure is a "Bailey Truss", the top chord is not used to support any part of the containment system.

HOLD POINT 2.

Process Held	Erection of Scaffolding.
Submission Details	The scaffold design and drawings must be provided to the Principal at least 10 working days prior to the commencement of work on site.

Containment

- 7.2 If a dust extraction system is used, the design of the containment must ensure negative pressure differential inside the containment (a static pressure within the removal enclosure that is negative with respect to the outside environment) in order to prevent emissions to the environment.
- 7.3 Where a wet method of surface preparation is used, either:
 - a) a containment system which achieves Emission Control Level A of AS/NZS 4361.1 and incorporate (as a minimum) the enclosure and ventilation components described in Table E1 of that Standard for Emission Category 2 (high emissions potential) is used; or
 - b) a closed circuit water-jetting system that does not release emissions is used.
- 7.4 Where a dry method of surface preparation is used, the containment system must achieve Emission Control Level A of AS/NZS 4361.1 and incorporate the enclosure and ventilation components described in Table E1 of that Standard for Emission Category 1 (very high emissions potential).
- 7.5 The containment must contain all water that may enter the containment, such as rainwater or water from washing or water jetting.
- 7.6 Where Hazardous Paint is present, an airlock must be included in a containment system, with storage of personal protective equipment in the outermost (clean) stage permitted if in secure dust tight lockers or compartments. The airlock must include at least one compartment that is fully sealed to the containment. This can be a sealed section within or attached to the containment with twin baffle walls where each one has an airtight door to reduce air infiltration whilst one door is opened.
- 7.7 Prior to the installation of a containment system, the Contractor must:
 - a) Prepare design drawings of the containment system, which:
 - i) includes all details and instructions necessary for the fabrication, erection and operation of the containment system;
 - ii) detail the design loads of the containment system; and
 - iii) are approved and certified by the designer as conforming to this Specification.
 - b) Arrange for the containment design and drawings to be proof engineered and certified by an independent Professional Engineer with experience in structural design, safety, industrial ventilation and containment systems (as applicable) to verify the containment system's structural adequacy and its compliance with this Specification.

HOLD POINT 3.

Process Held	Commencement of work on the Containment Structure.
Submission Details	<p>The following conforming documents must be supplied to the Principal at least 10 working days before commencing work on the containment structure:</p> <ul style="list-style-type: none"> a) Containment system drawings b) Proof engineering certificate c) If requested by the Principal, copies of the proof engineering structural calculations.

8. Site Management

Approvals, Licences and Permits

- 8.1 Further to the other environmental management requirements specified elsewhere in the Contract documents, the Contractor must:
- a) obtain all necessary licences and permits relating to the management of paint removal, including licences for the storage and transport of waste generated by the removal of the existing paint; and
 - b) if required under the Environmental Regulations or WHS Regulations, submit written notice to the EPA and Safe Work Authority of the intention to commence work.

HOLD POINT 4.

Process Held	Commencement of site work.
Submission Details	Evidence of the necessary licences, permits and notifications must be submitted to the Principal at least 5 working days before commencing work on the containment structure.

General

- 8.2 The terms “should” and “are to be”, contained in AS/NZS 4361.1 are to be interpreted as “must”.
- 8.3 At a minimum, the Contractor must ensure that:
- a) Significant quantities of contaminants are not left on-site overnight.
 - b) Spent abrasive and paint particles are collected. If not removed from containments at least once per day, it must be fully sealed (double bagged) in a designated zone within the containment.
 - c) Any contaminated water is treated before recycling or discharge to comply with all environmental protection and containment requirements.
 - d) Any spills and oversprays are cleaned as soon as practical.
 - e) Screens, masking, drop-sheets or similar are used to prevent coating of surfaces not part of the Works.

Trial of containment structures

- 8.4 A trial of each containment zone must be undertaken to confirm that negative pressure is achieved. This is undertaken with all ventilation equipment in operation and surface preparation methods operational although directed to not disturb hazardous paint. Visible emissions must be monitored in accordance with AS/NZS 4361.1 and any visible emission rectified prior to CFP approving commencement of hazardous coating removal.

HOLD POINT 5.

Process Held	Commencement of coating removal.
Submission Details	Inspection and verification of containment structure under full load conditions with 0 emissions.

Visible Emissions

- 8.5 The Contractor must monitor for visible emissions in accordance with AS/NZS 4361.1. Visible emissions must not be observed during commencement startup of each shift and further monitoring must confirm Visible Emission Level 1 or less.

Total Suspended Particulate (TSP)

- 8.6 Unless specified otherwise in the Contract documents, if Hazardous Paint is present, the Contractor must monitor TSP in accordance with AS/NZS 4361.1 at selected sites around the structure. TSP monitoring must include monitoring of all hazardous chemicals potentially present, including dust, lead and hexavalent chromium.
- 8.7 Within 24 hours of obtaining the TSP values, the Contractor must submit to the Principal:
 - a) for each working day, each recorded TSP value and the average daily value (during working hours) of TSP for each monitor; and
 - b) the rolling average of daily values in the preceding working days, up to a maximum of 90 working days.
- 8.8 Daily Emissions must not exceed the levels shown in Table 8.8.

Table 8.8: Maximum Daily Emissions

Contaminant	Maximum average daily TSP concentration for each monitoring site (µg/m ³)	Maximum TSP concentration as recorded by any one monitor, on any one single day (µg/m ³)
Dust	90	180
Lead	0.5	1.0
Chromium	0.5	1.0

- 8.9 Unless specified otherwise in the Contract documents, the Contractor must carry out a soil-monitoring program in the immediate vicinity of the structure in accordance with AS/NZS 4361.1, including sampling prior to the commencement of work to provide baseline levels.
- 8.10 If visible emissions or TSP exceed the specified levels, or the level of hazardous chemicals in the soil increases while work is underway, the following Hold Point will apply.

HOLD POINT 6.	
Process Held	Paint removal, if visible emissions or TSP exceed the specified levels.
Submission Details	Details of the identification and proposed rectification of sources of the Emission must be submitted to the Principal before the recommencement of work.

9. Waste Management

General

- 9.1 The Contractor must:
 - a) Arrange for the assessment and classification of all solid and liquid waste in accordance with the applicable Environmental Regulations for the classification of waste, taking into account the possible presence of both lead and asbestos.
 - b) Provide to the Principal details of the assessment and classification of all wastes generated, quantities of all wastes, procedures to be used to treat or stabilise these wastes and proposed method(s) of disposal.
 - c) Consider all disposable overalls, respirator cartridges and consumables used on Site as hazardous waste and dispose of appropriately.

- 9.2 The Quality Plan must include details / procedures for testing, inspection assessment and classification of waste, including:
- a) Determination of the concentration (ppm) of hazardous material;
 - b) Procedures to treat or stabilise waste;
 - c) Method(s) of disposal of waste.
 - d) Contact details for waste facilities;
 - e) Proposed shipping details including:
 - i) Quantities of waste in tonnes to be transported in each shipment;
 - ii) Whether the consignments will consist of single or multiple loads;
 - iii) Type of packaging in each shipment;
 - iv) Number of packages in each shipment.

Solid Waste

- 9.3 All site handling and storage of waste must be carried out in accordance with the relevant parts of AS/NZS 4361.1. This includes storing the waste in suitable sealed containers, labelled appropriately, in a secure area.
- 9.4 Contaminated, non-liquid wastes must not be stored at the site in quantities in excess of 25 tonnes at any one time. The waste must not remain on site for a period exceeding one month.

Liquid Waste

- 9.5 The Contractor must:
- a) Collect water that enters the containment, such as rainwater, pressure wash water or water from other sources, in a tank suitable for contaminated liquid waste;
 - b) Where Hazardous Paint is present, collect wastewater from site hygiene facilities, including showers and laundry, as contaminated liquid waste;
 - c) Assess, classify and dispose of all liquid wastes in accordance with the applicable Environmental Regulations; and
 - d) Where liquid waste is assessed and determined to be suitable for discharge to a sewer or sewage treatment plant, obtain from the relevant waste facility owner, approval in writing for the disposal of the liquid waste to the sewer.

Transport and Disposal of Wastes

- 9.6 The proper transport and disposal of all contaminated wastes must be undertaken using:
- a) transporters licensed by the EPA; and
 - b) waste facilities licensed by the EPA to accept the class of waste generated from the site, and authorised to issue consignment authorisation numbers.
- 9.7 The Principal must be provided with copies of documentation that verify the proper transport and disposal of all hazardous waste according to the EPA licences.

- 9.8 The Principal must be advised of any changes to transport of waste or receipt of waste or recycling of waste.

HOLD POINT 7.	
Process Held	Removal of contaminated wastes from site for storage, treatment, disposal, or any other purpose.
Submission Details	Copies of EPA licences, or licence numbers, issued to proposed waste transporters and waste treatment, storage or disposal facilities must be submitted to the Principal at least 10 working days prior to removal of contaminated wastes from Site.

- 9.9 Within 5 working days after the end of each month following the transport of waste, the Principal must be provided with copies of documentation that verify details of:

- a) the quantities of waste held on Site;
- b) the quantities of waste transported; and
- c) the quantities of waste recycled.

10. Cleaning and Clearance

- 10.1 The Contractor must clean and inspect the containment and equipment in accordance with the procedures of AS/NZS 4361.1 prior to:

- a) each relocation along the structure; and
- b) prior to final dismantling and removal from Site.

WITNESS POINT 1.	
Process	Relocation and final dismantling of containment and equipment
Notification Period	At least 48 hours prior notice of each relocation and the final dismantling must be submitted to the Principal.

HOLD POINT 8.	
Process Held	Removal of all equipment and materials from Site.
Submission Details	Certification that the equipment and materials are properly cleaned of lead dust must be submitted to the Principal prior to removal from the Site.

Soil Remediation

- 10.2 If, on completion of the work, there has been an adverse impact on the soil as a result of the Contractor's activities (when assessed in accordance with AS4361.1), the Contractor must undertake all necessary steps to remediate the soil to the level that existed prior to the commencement of the work or any level specified in the Environmental Regulations.
- 10.3 The Contractor must liaise with the local government authority and EPA with respect to all necessary approvals to carry out this work.

11. Application of the Protective Coating

- 11.1 Surface preparation and application of the protective coating must be in accordance with ATS 5450.

Annexure A: Summary of Hold Points, Witness Points and Records

The following is a summary of the Witness Points / Hold Points that apply to this Specification and the Records that the Contractor must submit to the Principal to demonstrate compliance with this Specification.

Clause	Hold point	Witness point	Record
4.1	1. Commencement of work on the Containment Structure		Quality Plan
7.1	2. Erection of Scaffolding		Scaffold design and drawings
7.3	3. Commencement of work on the Containment Structure		Drawings and certification of the containment
8.1	4. Approvals, licences and permits		Evidence of approvals, licences and permits
8.4	5. Commencement of coating removal		Inspection and verification of containment structure under full load conditions
8.10	6. High TSP dust, lead or asbestos emissions		Details of the identification and proposed rectification of sources of the emission
9.1			Report on the assessment and classification of wastes
9.8	7. Transport and disposal of contaminated wastes		Evidence of licences or approvals for disposal of wastes
9.9			Quantities of waste removed
10.1		1. Relocation and final dismantling of containment and equipment	
10.1	8. Removal of all equipment and materials from Site		Certificate of cleaning contaminated dust

Amendment Record

Amendment no.	Clauses amended	Action	Date
-	New specification	New	October 2023

Key

Format	Change in format
Substitution	Old clause removed and replaced with new clause
New	Insertion of new clause
Removed	Old clauses removed