Australian Government

Department of Education, Employment and Workplace Relations

RIICBM306A Undertake concreting work on concrete bridges

Release: 1

RIICBM306A Undertake concreting work on concrete bridges

Modification History

Not applicable.

Unit Descriptor

This unit covers the undertaking of concreting work on concrete bridges in the civil construction industry. It includes planning and preparing, placing concrete, finishing concrete, curing concrete, and cleaning up. Licensing, legislative, regulatory and certification requirements that apply to this unit can vary between states, territories, and industry sectors. Relevant information must be sourced prior to application of the unit.

Application of the Unit

This unit is appropriate for those working in an operational role at worksites within:

- Civil construction

Licensing/Regulatory Information

Refer to Unit Descriptor.

Pre-Requisites

Not applicable.

Employability Skills Information

This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Plan and prepare	1.1. Access, interpret and apply ***compliance documentation*** relevant to the work activity 1.2. Obtain, confirm and apply work instructions, including plans, specifications, quality requirements and operational details to the allotted task 1.3. Obtain and confirm ***safety requirements*** from the ***site*** safety plan and organisational policies and procedures, and apply to the allotted task 1.4. Identify, obtain and implement ***signage requirements*** from the project ***traffic*** management plan 1.5. Select ***plant***, ***tools and equipment*** to carry out tasks consistent with the requirements of the job, check for serviceability and rectify or report any faults 1.6. Identify ***environmental protection requirements*** from the project environmental management plan, and confirm and apply to the allotted task
2. Place concrete	2.1. Identify location and design of ***concrete work*** from site drawings, engineer's design and ***placing*** specifications 2.2. Remove debris and waste from pour area 2.3. Apply release agent where specified 2.4. Pour concrete in horizontal layers into location to levels as indicated by markers, level pegs or lines 2.5. Implement ***methods to avoid segregation*** 2.6. Consolidate poured concrete during process using approved compaction or vibration methods in accordance with standards
3. Finish concrete	3.1. Screed concrete to correct levels and/or grades using appropriate straight edged tool or formwork mounted screeds 3.2. Float screeded concrete surface 3.3. Define control/structural joints and ***finish*** edges according to engineers' drawings and specifications

	3.4. Finish concrete surface to architect's design and/or engineers' specifications
4. Cure concrete	4.1. Concrete is cured to project specifications and in accordance with standards 4.2. Maintain ***curing*** agent/method on concrete surface to project specifications 4.3. Protection is provided to concrete during curing process by isolating and/or barricading the area
5. Clean up	5.1. Clear work area and dispose of or recycle ***materials*** in accordance with project environmental management plan 5.2. Clean, check, maintain and store plant, tools and equipment

Required Skills and Knowledge

This section describes the skills and knowledge required for this unit.

Required skills

Specific skills are required to achieve the Performance Criteria of this unit, particularly for its application in the various circumstances in which this unit may be used. This includes the ability to carry out the following, as required to undertake concreting work on concrete bridges:

- apply legislative, organisation and site requirements and procedures for undertaking concreting work on concrete bridges
- organise work activities
- select and use relevant tools and equipment safely
- identify and report on hazards related to the worksite and work activity
- communicate effectively to receive and clarify work instructions

Required knowledge

Specific knowledge is required to achieve the Performance Criteria of this unit, particularly for its application in the various circumstances in which this unit may be used. This includes knowledge of the following, as required to undertake concreting work on concrete bridges:

- site and equipment safety requirements
- bridge construction and sequencing
- steel reinforcement characteristics
- concrete characteristics and properties
- concreting principles
- structural technology
- working in confined spaces
- working at heights and over water
- processes for interpreting engineering drawings
- equipment types, characteristics, technical capabilities and limitations
- operational, maintenance and basic diagnostic procedures
- site isolation and traffic control responsibilities and authorities
- materials safety data sheets and materials handling methods
- project quality requirements
- civil construction terminology
- JSAs/safe work method statements

Evidence Guide

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	The evidence required to demonstrate competency in this unit must be relevant to worksite operations and satisfy all of the requirements of the performance criteria, required skills and knowledge and the range statement of this unit and include evidence of the following: • knowledge of the requirements, procedures and instructions for undertaking concreting work on concrete bridges • implementation of requirements, procedures and techniques for the safe, effective and efficient completion of concreting work on concrete bridges • working with others to undertake and complete concreting work on concrete bridges that meets all of the required outcomes • consistent timely completion of concreting work on concrete bridges that safely, effectively and efficiently meets the required outcomes • completion of concrete placing, finishing and curing for casting in situ decks, concrete footings/pile caps/abutments, piers and headstocks, to the finished form, on a concrete multi-span bridge with a minimum length of twenty metres, to design specifications
Context of and specific resources for assessment	• This unit must be assessed in the context of the work environment. Where personal safety or environmental damage are limiting factors, assessment may occur in a simulated environment provided it is realistic and sufficiently rigorous to cover all aspects of workplace performance, including task skills, task management skills, contingency management skills and job role environment skills. • Assessment of this competency requires typical resources normally used in a resources and infrastructure sector environment. Selection

	and use of resources for particular worksites may differ due to the site circumstances. • The assessment environment should not disadvantage the participant. For example, language, literacy and numeracy demands of assessment should not be greater than those required on the job. • Customisation of assessment and delivery environment to sensitively accommodate cultural diversity. • Aboriginal people and other people from a non English speaking background may have second language issues. • Where applicable, physical resources should include equipment modified for people with disabilities. Access must be provided to appropriate learning and/or assessment support when required.

Method of assessment	This unit may be assessed in a holistic way with other units of competency. The assessment strategy for this unit must verify required knowledge and skill and practical application using more than one of the following assessment methods:
	• written and/or oral assessment of the candidate's required knowledge
	• observed, documented and/or first hand testimonial evidence of the candidate's:
	  • implementation of appropriate requirement, procedures and techniques for the safe, effective and efficient achievement of required outcomes
	  • consistent achievement of required outcomes
	• first hand testimonial evidence of the candidate's:
	  • working with others to undertake and complete the concreting work on concrete bridges

Guidance information for assessment	Consult the SkillsDMC User Guide for further information on assessment including access and equity issues.

Range Statement

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.	
Relevant compliance documentation may include:	• legislative, organisational and site requirements and procedures • manufacturer's guidelines and specifications • Australian standards • Employment and workplace relations legislation • Equal Employment Opportunity and Disability Discrimination legislation
Safety requirements may include:	• OHS requirements in accordance with state or territory legislation and regulations, organisational safety policies and procedures, and project safety plan, including protective clothing and equipment, use of tools and equipment, workplace environment and safety, handling of materials, use of fire fighting equipment, use of First Aid equipment, hazard control and hazardous materials and substances • safe parking practices including ensuring access ways are clear, equipment/machinery is away from overhangs and refuelling sites, safe distance are kept from excavations, and areas secured from unauthorised access or movement • safe operating procedures including recognising and preventing hazards associated with uneven/unstable terrain, trees, pits, poles, trip hazards, dirt mounds, overhead service lines, bridges, surrounding buildings, obstructions, structures, facilities, dangerous materials, recently filled trenches, other machines, personnel, traffic control, working in proximity to others, worksite visitors and the public • recognising hazards and risks including uneven/unstable terrain, trees, fires, overhead and underground services, bridges, buildings, excavations, traffic, embankments, cuttings, structures and hazardous materials • emergency procedures related to equipment

	operation including emergency shutdown and stopping, extinguishing equipment fires, organisational First Aid requirements and evacuation
Site may include:	• any rural or urban bridge construction project
Signage requirements may include:	• escort vehicle • highway traffic signs • site safety signage • temporary signage for the benefit of motorists and pedestrians • barricades • traffic conditions signage
Traffic may include:	• congested urban environments • low traffic rural areas • off-road un-trafficked areas • buildings • parking sites • pedestrian areas
Plant, **tools and equipment** may include:	• floats • trowels • edging tools • screeds • wheelbarrows • tremmies • chutes • vibrators • rakes • short handle shovels • rods • hammers • hoses • buckets • sponges • brushes
Environmental protection requirements may include:	• organisational/project environmental management plans • waste management • water quality protection • noise • vibration • dust and clean up management

Concrete work may include:	• cast in-situ concrete decks • piers/headstocks • footings/pile caps/abutments • cast-in situ girders
Placing may include:	• wheelbarrows • pumping equipment • kibble • trammie • truck placed • shovelling • vibrating
Methods to avoid segregation may include:	• minimising the height of a vertical drop • using a tremmie or the flexible hose of a concrete pump
Finish may include:	• steel trowel • mechanical trowelling machine • broom finished • wood float • bull float • brushed
Curing may include:	• flooding • coating with a membrane or plastic sheeting
Materials may include:	• concrete • curing agents • plastic membranes • water • sand

Unit Sector(s)

Construction and Maintenance (General)

Competency field

Refer to Unit Sector(s).

Co-requisite units

Not applicable.