



Draft “Concrete Road Paving Competency” Assessment Modules

The RTA and industry people attended a “Concrete Road Paving Competency ” Workshop on 6 September, 2010. Apparently it was organised by RTA (Serge Zorino) and conducted by Skills DMC. Eleven (draft?) Skills Competency Modules were presented, which were prepared by Skills DMC.

My assumption was that the skills modules were geared to particular tasks of individuals in a paving crew, but after reading only a few pages, it was obvious that the Authors have lost the plot and produced an incomplete and naively complied text book type “guidance”, which most of the time does not relate to the stated tasks or the actual practical skills required.

The Authors:

- Do not use correct paving or concrete road terminology;
- Have little or no familiarity with actual road paving operations;
- Have provided identical repeats in sections of most of the modules, which are not necessarily applicable criteria as assessment requirements for the stated topic or for an individual’s skills;
- Seem to be oblivious to the fact that we are dealing with the skills for a construction labourer.

As a reference, attached are copies of the modules (Consultant terminology):

- Compact and place concrete
- Concrete cutting of expansion joints
- Cure concrete
- Setup, monitor and maintain concrete paving stringlines
- Handle concrete materials
- Conduct concrete paving operations
- Conduct concrete road curing and texturing operations
- Finish concrete
- Place concrete
- Use concrete tools and equipment

My assessment is that the efforts are quite useless in practice and do not address the particular field skills required. Using R11CRC305A “Conduct concrete road **curing** and **texturing** operations” as an example, amongst other, the following skills are also listed:

- Setting up of paver screeds
- Interpreting compliance documentation
- Implementation of signage for traffic
- Setting of (paver) screed controls
- Applying legislativesite requirements
- Knowledge of aggregate types and sizes
- Process of calculating material(?) uniformity
- Screeding a lot
- Longitudinal joints of required thickness(?), and so on.

This has taken six pages and there is hardly a word on curing and none on texturing!

At the other extreme of complete verbiage of irrelevance, there are four pages on "Setup, monitor and maintain stringlines". There is no mention of the spacing of hubs, tensioning, checking of temperature and all the other required activities.

Our representatives must ensure that RTA is told that an excellent idea, as it stands, is completely useless for practical application and proper terms of reference should be issued to the Consultants. The drafting team must have people who actually know how paving operations are carried out and the responsibilities of the differently tasked individuals involved.

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RIICCCxxxA	Compact and place concrete
Unit descriptor	
Employability skills	This unit contains employability skills.
Application of the unit	This unit is appropriate for those working in an operational role at worksites within: <ul style="list-style-type: none"> • Civil construction
Unit sector	Road and Pavements Construction and Maintenance (Concrete Paving)

ELEMENT	PERFORMANCE CRITERIA
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.
1. Plan and prepare	<ol style="list-style-type: none"> 1.1. Access, interpret and apply <i>compliance documentation</i> relevant to the work activity 1.2. Obtain and confirm <i>safety requirements</i> from the <i>site</i> safety plan and organisational policies and procedures, and apply to the allotted <i>task</i> 1.3. Identify, obtain and implement signage requirements from the project <i>traffic</i> management plan 1.4. Select <i>plant, tools and equipment</i> to carry out tasks consistent with the requirements of the job, check for serviceability and rectify or report any faults 1.5. Identify <i>environmental protection requirements</i> from the project environmental management plan, and confirm and apply to the allotted task
2.	2.1.
3.	3.1.

ELEMENT	PERFORMANCE CRITERIA
4.	4.1.
5.	5.1.

REQUIRED SKILLS AND KNOWLEDGE
This section describes the skills and knowledge required for this unit.
Required skills
Required skills for this unit are: <ul style="list-style-type: none"> •
Required knowledge
Required knowledge for this unit is: <ul style="list-style-type: none"> •

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.	
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RANGE STATEMENT	
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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	<p>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:</p> <ul style="list-style-type: none"> • knowledge of the requirements, procedures and instructions for compacting and placing concrete • implementation of requirements, procedures and techniques for the safe, effective and efficient completion of compacting and placing concrete • working with others to undertake and complete the compacting and placing of concrete that meets all of the required outcomes • consistent timely completion of compacting and placing of concrete that safely, effectively and efficiently meets the required outcomes • compact and place concrete on a minimum of two different material types/surface types and include the mandatory tasks of: <ul style="list-style-type: none"> ◦ XXX • one of the above tasks to include at least one mode of automatic screed levelling devices
Context of and specific resources for assessment	<ul style="list-style-type: none"> • 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 Civil Construction. 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

EVIDENCE GUIDE	
	learning and/or assessment support when required
Method of assessment	<p>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:</p> <ul style="list-style-type: none"> • written and/or oral assessment of the candidate's required knowledge • observed, documented and/or first hand testimonial evidence of the candidate's: <ul style="list-style-type: none"> ◦ 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: <ul style="list-style-type: none"> ◦ working with others to undertake and complete the compacting and placing of concrete.
Guidance information for assessment	Consult the SkillsDMC User Guide for further information on assessment including access and equity issues.

Concrete cutting expansion joints	
Unit descriptor	This unit covers the use of hand and power tools in resources and infrastructure industries. It includes planning and preparing for work, selecting and using hand tools and power tools, and cleaning up.
Employability skills	This unit contains employability skills.
Application of the unit	This unit is appropriate for those working in an operational role at worksites within: <ul style="list-style-type: none"> • Civil construction
Unit sector	Road and Pavements Construction and Maintenance (Concrete Paving)

ELEMENT	PERFORMANCE CRITERIA
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.
1. Plan and prepare	<ol style="list-style-type: none"> 1.1. Access, interpret and apply <i>compliance documentation</i> relevant to the use of hand and power tools 1.2. Obtain, confirm and apply <i>work instructions</i> for the allotted task 1.3. Obtain, confirm and apply <i>safety requirements</i> from the site safety plan and organisational policies and procedures relevant to the allotted task 1.4. Identify, confirm and apply <i>environmental protection requirements</i> for the allotted task from the project environmental management plan
2. Select and use hand tools	<ol style="list-style-type: none"> 2.1. Select <i>hand tools</i> consistent with needs of the job 2.2. <i>Check tools</i> for serviceability and safety, and report faults 2.3. Clamp or fix <i>materials</i> in position 2.4. Use <i>hand tools</i> safely and effectively according to their intended use 2.5. Safely locate <i>hand tools</i> when not in immediate use
3. Select and use power tools	<ol style="list-style-type: none"> 3.1. Select <i>power tools and equipment</i> consistent with needs of job and in accordance with standard work practice, and report any faults 3.2. Check tools for serviceability and safety, and report faults 3.3. Visually check power leads/hoses for serviceability/safety in accordance with the site safety plan 3.4. Clear route for safe placement of leads/hoses of identified hazards 3.5. Run electrical power leads to power supply so they are clear of traffic or covered where possible 3.6. Connect electric power leads to the power board or direct to power tool 3.7. Run air hoses out to the compressed air supply and covered where potential trip hazards exist 3.8. Connect hose to power tool and air supply 3.9. Clamp or fix material in position for power tool application where applicable 3.10. Use power tools safely and effectively in application processes 3.11. Locate power tools safely when not in use
4. Clean up	<ol style="list-style-type: none"> 4.1. Clear work area and dispose of or recycle materials in

ELEMENT	PERFORMANCE CRITERIA
	accordance with project environmental management plan 4.2. Clean, check, maintain and store machinery, tools and equipment in accordance with manufacturer's recommendations and standard work practices

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 in this unit, particularly for the application in the various circumstances in which this unit may be applied. This includes the ability to carry out the following as required to use hand and power tools:

- apply legislative, organisation and site requirements and procedures
- speak clearly and directly, listening carefully to instructions and information
- interpret and understand the information required for the preparation and application of hand and power tools, including work instructions, quality assurance procedures, manufacturer's instructions, materials safety data sheets and equipment
- apply teamwork to a range of situations, particularly in a safety context
- solve problems particularly in teams and in dealing practically with safety issues
- show initiative in adapting to changing work conditions or contexts particularly when working across a variety of work placements
- manage time, particularly in organising priorities and planning work including the scheduling and use of equipment, materials and tools to avoid back tracking and re work
- take responsibility for self organisation of work priorities
- show a willingness to learn and to use a range of mediums to learn
- use technology related to determining requirements, the planning and application of hand and power tools, including the use of calculations, mechanical equipment and the reporting/recording of results

Required knowledge

Specific knowledge is required to achieve the Performance Criteria of this unit, particularly its application in a variety of circumstances in which the unit may be used. This includes knowledge of the following, as required to use hand and power tools:

- site and equipment safety requirements
- hand tools and their application
- portable power tools and their application
- power sources
- materials commonly used in the industry
- equipment types, characteristics, technical capabilities and limitations
- operational, maintenance and basic diagnostic procedures
- materials safety data sheets (MSDS) and materials handling methods
- project quality requirements
- industry and worksite terminology

REQUIRED SKILLS AND KNOWLEDGE

- electrical and compressed air safety
- JSA's/safe work method statement

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.

<p>Relevant compliance documentation may include:</p>	<ul style="list-style-type: none"> • legislative, organisation and site requirements and procedures • manufacturer's guidelines and specifications • Australian standards • code of practice • Employment and workplace relations legislation • Equal Employment Opportunity and Disability Discrimination legislation
<p>Work instructions may include:</p>	<ul style="list-style-type: none"> • verbal or written and graphical instructions, signage, work schedules/plans/specifications, work bulletins, charts and hand drawings, memos, materials safety data sheets (MSDS) and diagrams or sketches • plans and specifications • quality requirements, including: dimensions and tolerances, standards of work and material standards • safe work procedures or equivalent related to using hand and power tools
<p>Safety requirements may include:</p>	<ul style="list-style-type: none"> • 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 • hazardous materials and substances • personal protective equipment • emergency procedures related to equipment operation which may include <ul style="list-style-type: none"> ◦ emergency shutdown and stopping ◦ extinguishing equipment fires ◦ organisational First Aid requirements and evacuation
<p>Environmental protection requirements may include:</p>	<ul style="list-style-type: none"> • organisational/project environmental management plan • waste management • water quality protection • noise • vibration • dust and • clean-up management
<p>Hand tools are to include but not be limited to:</p>	<ul style="list-style-type: none"> • cramps • vices • adjustable spanners

RANGE STATEMENT	
	<ul style="list-style-type: none"> • crow bars • pinch bars • bolt cutters • brooms • chisels • hacksaws • handsaws • hammers • measuring tapes • axes • rakes • hand augers • picks • mattocks • pliers • shovels • spades • sledge hammers • spanners • wrenches • spirit levels and • wire cutters
Checking tools is to include:	<ul style="list-style-type: none"> • checking of electrical safety/inspection tag for currency • equipment defect identification • assessment of conditions and hazards and determination of work requirements
Materials are:	<ul style="list-style-type: none"> • to include those associated with the use of hand and power tools
Power tools may include those powered by but not limited to:	<ul style="list-style-type: none"> • 240 volt electricity • compressed air • battery driven and • hydraulics
Power tools are to include:	<ul style="list-style-type: none"> • kanga hammers • cut off saws • drills • screwdrivers • angle grinders • pneumatic wrenches • impact hammers • tampers • rotary hammers/drills • circular saws • planers • sanders and • scalers
Equipment is to include:	<ul style="list-style-type: none"> • power leads and • safety switches and • may include air hoses

EVIDENCE GUIDE	
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Context of and specific resources for assessment	<ul style="list-style-type: none"> • 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. • 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. • Assessment of this competency requires typical resources normally used in the work environment. Selection and use of resources for particular worksites may differ due to site circumstances. • 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

EVIDENCE GUIDE	
	<p>following assessment methods:</p> <ul style="list-style-type: none"> • written and/or oral assessment of the candidate's required knowledge • observed, documented and/or first hand testimonial evidence of the candidate's: <ul style="list-style-type: none"> ◦ implementation of appropriate requirement, procedures and techniques for the safe, effective and efficient achievement of required outcomes ◦ consistently achieving the required outcomes • first hand testimonial evidence of the candidate's: <ul style="list-style-type: none"> ◦ working with others to undertake the use of hand and power tools
Guidance information for assessment	Consult the SkillsDMC User Guide for further information on assessment including access and equity issues.

RIICCCxxxA	Cure concrete
Unit descriptor	This unit of competency specifies the outcomes required to carry out the initial curing process to a nominated poured concrete section to control the moisture evaporation from finished concrete. The unit includes using curing agents and curing techniques in accordance with engineering specifications.
Employability skills	This unit contains employability skills.
Application of the unit	This unit is appropriate for those working in an operational role at worksites within: <ul style="list-style-type: none"> • Civil construction
Unit sector	Road and Pavements Construction and Maintenance (Concrete Paving)

ELEMENT	PERFORMANCE CRITERIA
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.
1. Plan and prepare	<ol style="list-style-type: none"> 1.1. Access, interpret and apply compliance documentation relevant to the work activity 1.2. Obtain and confirm safety requirements from the site safety plan and organisational policies and procedures, and apply to the allotted task 1.3. Identify, obtain and implement signage requirements from the project traffic management plan 1.4. 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 1.5. Identify environmental protection requirements from the project environmental management plan, and confirm and apply to the allotted task
2. Cure concrete	<ol style="list-style-type: none"> 2.1. Concrete is cured to project specifications. 2.2. Run-off devices are installed and maintained. 2.3. Curing compound and curing technique/method are applied and maintained on concrete surface to project specifications. 2.4. Concrete is protected during curing process by isolating and/or barricading the area.
3. Clean up	<ol style="list-style-type: none"> 3.1. Work area is cleared and materials disposed of, reused or recycled in accordance with legislation, regulations, codes of practice and job specification. 3.2. Tools and equipment are cleaned, checked, maintained and stored in accordance with manufacturer recommendations and standard work practices.

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

Required skills for this unit are:

- communication skills to:
 - determine requirements
 - enable clear and direct communication, using questioning to identify and confirm requirements, share information, listen and understand
 - follow instructions

REQUIRED SKILLS AND KNOWLEDGE

- read and interpret:
 - documentation from a variety of sources
 - drawings and specifications
- report faults
- use language and concepts appropriate to cultural differences
- use and interpret non-verbal communication, such as hand signals
- evaluating own actions and making judgments about performance and necessary improvements
- identifying and accurately reporting to appropriate personnel any faults in tools, equipment or materials
- organisational skills, including the ability to plan and set out work
- recognising procedures, following instructions, responding to change and contributing to workplace responsibilities, such as current work site environmental and sustainability frameworks or management systems
- teamwork skills to coordinate own work with others to action tasks and relate to people from a range of cultural and ethnic backgrounds and with varying physical and mental abilities
- technological skills to:
 - use a range of mobile technology, such as two-way radio and mobile phones
 - voice and hand signals to access and understand site-specific instructions.

Required knowledge

Required knowledge for this unit is:

- concrete curing materials and techniques
- curing duration and effect on ultimate strength
- general construction terminology
- job safety analysis (JSA) and safe work method statements
- material safety data sheets (MSDS)
- materials storage and environmentally friendly waste management
- plans, drawings and specifications
- processes for the calculation of material requirements
- quality requirements
- tools and equipment types, characteristics, uses and limitations
- workplace and equipment safety requirements.

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.

Information includes:

- diagrams or sketches
- instructions issued by authorised organisational or external personnel
- manufacturer specifications and instructions, where specified
- MSDS
- memos
- regulatory and legislative requirements pertaining to curing concrete
- relevant Australian standards
- safe work procedures relating to curing concrete
- signage
- verbal, written and graphical instructions
- work bulletins

RANGE STATEMENT	
	<ul style="list-style-type: none"> • work schedules, plans and specifications.
Planning and preparation include:	<ul style="list-style-type: none"> • assessment of conditions and hazards • determination of work requirements and safety plans and policies • equipment defect identification • work site inspection.
Safety (OHS) is to be in accordance with state and territory legislation and regulations and project safety plan and may include:	<ul style="list-style-type: none"> • emergency procedures, including extinguishing fires, organisational first aid requirements and evacuation • handling activities that may require the assistance of others or the use of manual or mechanical lifting devices where size, weight or other issues, such as a disability are a factor • hazard control • hazardous materials and substances • organisational first aid • PPE prescribed under legislation, regulations and workplace policies and practices • safe operating procedures, including the conduct of operational risk assessment and treatments associated with: <ul style="list-style-type: none"> ◦ earth leakage boxes ◦ lighting ◦ power cables, including overhead service trays, cables and conduits ◦ restricted access barriers ◦ surrounding structures ◦ traffic control ◦ trip hazards ◦ work site visitors and the public ◦ working at heights ◦ working in confined spaces ◦ working in proximity to others • use of firefighting equipment • use of tools and equipment • workplace environmental requirements and safety.
Tools and equipment include:	<ul style="list-style-type: none"> • hoses and sprinklers • rollers • spray applicators • tarpaulins and covers.
Quality requirements include:	<ul style="list-style-type: none"> • internal company quality policy and standards • manufacturer specifications where specified • relevant regulations, including Australian standards • workplace operations and procedures.
Materials include:	<ul style="list-style-type: none"> • curing compounds • plastic film • steam • water.
Environmental requirements include:	<ul style="list-style-type: none"> • clean-up management • dust and noise • stormwater management • vibration

RANGE STATEMENT	
	<ul style="list-style-type: none"> • waste management.
Properties of concrete are improved by:	<ul style="list-style-type: none"> • controlling moisture evaporation from finished concrete to minimise shrinkage, add to final strength and control cracking through curing process • retaining free mixing water within the concrete to ensure ongoing cement hydration to assist in minimising dry shrinkage and to improve properties, such as potential compressive strength.
Run-off devices include:	<ul style="list-style-type: none"> • preventative barriers to restrict curing agents from affecting environmental areas.
Curing compounds include:	<ul style="list-style-type: none"> • chlorinated compounds • hydrocarbon compounds • polyvinyl alcohol (PVA) compounds • silicate compounds • solvent-based acrylic compounds • water • water-based acrylic compounds • wax-based compounds.
Curing techniques/methods include:	<ul style="list-style-type: none"> • curing compounds • fogging • hessian overlays • hosing • impervious plastic membranes • misting • ponding • sprinklers • steam.
Protect concrete includes:	<ul style="list-style-type: none"> • using plastic membrane.

EVIDENCE GUIDE	
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Overview of assessment	
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Context of and specific resources for assessment	<ul style="list-style-type: none"> • 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.

EVIDENCE GUIDE	
	<ul style="list-style-type: none"> • Assessment of this competency requires typical resources normally used in Civil Construction. 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
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Guidance information for assessment	Consult the SkillsDMC User Guide for further information on assessment including access and equity issues.

RIICCCxxxA	Setup, monitor and maintain concrete paver stringlines
Unit descriptor	
Employability skills	This unit contains employability skills.
Application of the unit	This unit is appropriate for those working in an operational role at worksites within: <ul style="list-style-type: none"> • Civil construction
Unit sector	Road and Pavements Construction and Maintenance (Concrete Paving)

ELEMENT	PERFORMANCE CRITERIA
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2.	2.1.
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Context of and specific resources for assessment	<ul style="list-style-type: none"> • 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 Civil Construction. 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

EVIDENCE GUIDE	
	<p>language issues.</p> <ul style="list-style-type: none"> ◦ 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	<p>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:</p> <ul style="list-style-type: none"> • written and/or oral assessment of the candidate's required knowledge • observed, documented and/or first hand testimonial evidence of the candidate's: <ul style="list-style-type: none"> ◦ 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: <ul style="list-style-type: none"> ◦ working with others to undertake and complete the setting up, monitoring and maintaining concrete paver stringlines
Guidance information for assessment	<ul style="list-style-type: none"> • Consult the SkillsDMC User Guide for further information on assessment including access and equity issues.

RIICCCxxxA	Handle concrete materials
Unit descriptor	This unit of competency specifies the outcomes required to safely manually handle, store and apply environmental management principles associated with concreting materials and components in preparation for concreting work to commence. The unit includes the identification and safe handling of hazardous materials and waste in accordance with material safety data sheets (MSDS).
Employability skills	This unit contains employability skills.
Application of the unit	This unit is appropriate for those working in an operational role at worksites within: <ul style="list-style-type: none"> • Civil construction
Unit sector	Road and Pavements Construction and Maintenance (Concrete Paving)

ELEMENT	PERFORMANCE CRITERIA
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.
1. Plan and prepare	<ol style="list-style-type: none"> 1.1. Access, interpret and apply compliance documentation relevant to the work activity 1.2. Obtain and confirm safety requirements from the site safety plan and organisational policies and procedures, and apply to the allotted task 1.3. Identify, obtain and implement signage requirements from the project traffic management plan 1.4. 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 1.5. Identify environmental protection requirements from the project environmental management plan, and confirm and apply to the allotted task
2. Handle and sort concrete materials and components	<ol style="list-style-type: none"> 2.1. On delivery to site, concrete materials and components are identified and checked for conformity to material schedule, plans and specifications. 2.2. Concrete materials are moved to specified location applying safe manual handling procedures. 2.3. Concrete materials and components are stacked or stockpiled for ease of identification and retrieval for task sequence and job location in accordance with job specifications. 2.4. Concrete materials and components are protected against physical and water damage and stored clear of access ways, for ease of identification, retrieval and distribution. 2.5. Components are handled and positioned ready for installation in accordance with manufacturer recommendations, plans and specifications.
3. Handle and remove concrete materials and components on completion	<ol style="list-style-type: none"> 3.1. Materials are handled safely according to MSDS and requirements of regulatory authorities. 3.2. Hazardous material is identified for separate handling. 3.3. Dust suppression procedures are used to minimise health risk to work personnel and others. 3.4. Protection of materials is provided in accordance with

ELEMENT	PERFORMANCE CRITERIA
	specific material needs. 3.5. Materials are stored safely and effectively according to MSDS and requirements of statutory and regulatory authorities .
4. Clean up	4.1. Work area is cleared and materials disposed of, reused or recycled in accordance with legislation, regulations, codes of practice and job specification. 4.2. Hazardous material is identified for separate handling. 4.3. Non-toxic materials are removed using correct procedures. 4.4. Dust suppression procedures are used to minimise health risk to work personnel and others. 4.5. Tools and equipment are cleaned, checked, maintained and stored in accordance with manufacturer recommendations and standard work practices.

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

Required skills for this unit are:

- communication skills to:
- determine requirements
- enable clear and direct communication, using questioning to identify and confirm requirements, share information, listen and understand
- follow instructions
- read and interpret:
- documentation from a variety of sources
- drawings and specifications
- report faults
- use language and concepts appropriate to cultural differences
- use and interpret non-verbal communication, such as hand signals
- evaluating own actions and making judgments about performance and necessary improvements
- identifying and accurately reporting to appropriate personnel any faults in tools, equipment or materials
- organisational skills, including the ability to plan and set out work
- recognising procedures, following instructions, responding to change and contributing to workplace responsibilities, such as current work site environmental and sustainability frameworks or management systems
- teamwork skills to coordinate own work with others to action tasks and relate to people from a range of cultural and ethnic backgrounds and with varying physical and mental abilities
- technological skills to:
- use a range of mobile technology, such as two-way radio and mobile phones

REQUIRED SKILLS AND KNOWLEDGE
<ul style="list-style-type: none"> • voice and hand signals to access and understand site-specific instructions.
Required knowledge
<p>Required knowledge for this unit is:</p> <ul style="list-style-type: none"> • concrete materials handling techniques • concreting materials • general construction terminology • hazardous materials • job safety analysis (JSA) and safe work method statements • MSDS • materials storage and environmentally friendly waste management • plans, drawings and specifications • processes for the calculation of material requirements • quality requirements • types, characteristics, uses and limitations of tools and equipment • workplace and equipment safety requirements.

RANGE STATEMENT	
<p>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.</p>	
<p>Information includes:</p>	<ul style="list-style-type: none"> • diagrams or sketches • instructions issued by authorised organisational or external personnel • manufacturer specifications and instructions, where specified • MSDS • memos • regulatory and legislative requirements pertaining to handling concreting materials • relevant Australian standards • safe work procedures relating to handling concreting materials • signage • verbal, written and graphical instructions • work bulletins • work schedules, plans and specifications.
<p>Planning and preparation include:</p>	<ul style="list-style-type: none"> • assessment of conditions and hazards • determination of work requirements and safety plans and policies • equipment defect identification • work site inspection.
<p>Safety (OHS) is to be in accordance with state and territory legislation and regulations and project safety plan and may include:</p>	<ul style="list-style-type: none"> • emergency procedures, including extinguishing fires, organisational first aid requirements and evacuation • handling activities that may require the assistance of others or the use of manual or mechanical lifting devices where size, weight or other issues, such as a disability are a factor • hazard control • hazardous materials and substances, including

RANGE STATEMENT	
	cement and curing agents <ul style="list-style-type: none"> • organisational first aid • PPE prescribed under legislation, regulations and workplace policies and practices • safe operating procedures, including the conduct of operational risk assessment and treatments associated with: <ul style="list-style-type: none"> ◦ earth leakage boxes ◦ lighting ◦ power cables, including overhead service trays, cables and conduits ◦ restricted access barriers ◦ surrounding structures ◦ traffic control ◦ trip hazards ◦ work site visitors and the public ◦ working at heights ◦ working in confined spaces ◦ working in proximity to others • use of firefighting equipment • use of tools and equipment • workplace environmental requirements and safety.
Tools and equipment include:	<ul style="list-style-type: none"> • brooms • rakes • shovels • tarpaulins and covers • wheelbarrows.
Quality requirements include relevant regulations, including:	<ul style="list-style-type: none"> • Australian standards • internal company quality policy and standards • manufacturer specifications • workplace operations and procedures.
Materials :	<ul style="list-style-type: none"> • include: <ul style="list-style-type: none"> ◦ aggregates ◦ cement ◦ form release agents ◦ non-toxic materials, including general concreting materials ◦ sand ◦ water • may include: <ul style="list-style-type: none"> ◦ additives ◦ curing compound ◦ oxides.
Environmental requirements includes:	<ul style="list-style-type: none"> • clean-up management • dust and noise • dust suppression, including: <ul style="list-style-type: none"> ◦ covering ◦ keeping dust in the air to a minimum ◦ spraying with water ◦ using a vacuum cleaner • stormwater management • vibration

RANGE STATEMENT	
	<ul style="list-style-type: none"> • waste management.
Concrete materials and components:	<ul style="list-style-type: none"> • include: <ul style="list-style-type: none"> ◦ bar chairs ◦ bracing ◦ plastic membrane ◦ reinforcement mesh ◦ spacers ◦ steel and timber formwork • may include: <ul style="list-style-type: none"> ◦ bar steel ◦ decking ◦ key joints ◦ push-pull props ◦ reinforcement bars ◦ scaffolding ◦ support props ◦ tilt panels.
Handling procedures include:	<ul style="list-style-type: none"> • calculation of quantities • manual handling, including: <ul style="list-style-type: none"> ◦ carrying materials using correct lifting techniques ◦ control of waste ◦ using pallets • MSDS • protection of materials • stacking and storing of materials
Statutory and regulatory authorities include:	<ul style="list-style-type: none"> • federal, state and local authorities administering the applicable Acts, regulations and codes of practice.

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	<p>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:</p> <ul style="list-style-type: none"> • knowledge of the requirements, procedures and instructions for handling of concrete materials • implementation of requirements, procedures and techniques for the safe, effective and efficient completion of handling concrete materials • working with others to undertake and complete the handling of concrete materials that meets all of the required outcomes • consistent timely completion of handling of concrete materials that safely, effectively and efficiently meets the required outcomes • handling concrete materials on a minimum of two different material types/surface types and include the mandatory tasks of: <ul style="list-style-type: none"> ◦ three longitudinal joints (of at least 100m) constructed to required thickness, uniformity, line and level, on both matching and unsupported edge in accordance with project specifications and/or work instructions ◦ six transverse joints constructed to required thickness, uniformity, line and level, on both matching and unsupported edge in accordance with project specifications and/or work instructions ◦ five sections of straight paving (one of at least 100 linear metres) to required thickness, uniformity, line and level, on both matching and unsupported edge in accordance with project specifications and/or work instructions, and ◦ three intersections to required thickness, uniformity, line and level, on both the matching and unsupported edge in accordance with project specifications and/or work instructions • one of the above tasks to include at least one mode of automatic screed levelling devices
Context of and specific resources for assessment	<ul style="list-style-type: none"> • 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.

EVIDENCE GUIDE	
	<ul style="list-style-type: none"> • Assessment of this competency requires typical resources normally used in Civil Construction. 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	<p>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:</p> <ul style="list-style-type: none"> • written and/or oral assessment of the candidate's required knowledge • observed, documented and/or first hand testimonial evidence of the candidate's: <ul style="list-style-type: none"> ◦ 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: <ul style="list-style-type: none"> ◦ working with others to undertake and complete the handling of concrete materials
Guidance information for assessment	Consult the SkillsDMC User Guide for further information on assessment including access and equity issues.

RII09Resources and Infrastructure Industry Training Package to be reviewed by 7 July 2012. Version 1	Conduct concrete road paver operations
Unit descriptor	This unit covers the conduct of concrete road paver operations in the civil construction industry. It includes planning and preparing, setting up concrete road paver, operating concrete road paver, carrying out operator maintenance, relocating paver, 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.
Employability skills	This unit contains employability skills.
Application of the unit	This unit is appropriate for those working in an operational role at worksites within: <ul style="list-style-type: none"> • Civil construction
Competency field	Concrete Paving?

ELEMENT	PERFORMANCE CRITERIA
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.
1. Plan and prepare	<ol style="list-style-type: none"> 1.1. Access, interpret and apply compliance documentation relevant to the work activity 1.2. Obtain and confirm safety requirements from the site safety plan and organisational policies and procedures, and apply to the allotted task 1.3. Identify, obtain and implement signage requirements from the project traffic management plan 1.4. Determine material to be laid and handling procedures to be employed according to specifications 1.5. Select plant, tools and equipment to carry out concrete road paver 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. Set up concrete road paver	<ol style="list-style-type: none"> 2.1. Carry out start-up, park, and shutdown procedures in accordance with manufacturer's and/or site specific requirements 2.2. Adjust, change or inflate tyres using safe handling procedures 2.3. Set equipment to correct levels to enable the laying of materials to specifications 2.4. Set heating controls for the screed board to specifications 2.5. Install feeder bin where required 2.6. Check materials spreading controls for correct operation
3. Operate concrete road paver	<ol style="list-style-type: none"> 3.1. Engage delivery vehicles smoothly without bumping 3.2. Maintain appropriate uniform speed during spreading operations 3.3. Monitor and maintain concrete mix according to job specifications 3.4. Maintain communication with screed hand to ensure job is progressing satisfactorily and that materials are being spread to specifications 3.5. Monitor movement of the plant to ensure safety of concrete

ELEMENT	PERFORMANCE CRITERIA
	crew
4. Carry out operator maintenance	4.1. Park paver safely, prepare for maintenance and shutdown as per manufacturer's manual and organisational requirements 4.2. Conduct inspection and fault finding 4.3. Carry out routine operational servicing and lubrication tasks 4.4. Carry out minor maintenance 4.5. Record performance of machine constantly to enable timely repair of equipment
5. Relocate paver	5.1. Prepare paver for relocation 5.2. Drive paver safely on highways and construction sites, observing highway code and local safety requirements
6. Clean up	6.1. Clear work area and dispose of or recycle materials in accordance with project environmental management plan 6.2. 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 conduct concrete road paver operations:

- apply legislative, organisation and site requirements and procedures for conducting concrete road paver operations
- 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 conduct concrete road paver operations:

- site and equipment safety requirements
- concrete paving techniques
- concrete paving operations
- concrete strength and performance characteristics
- edge and joint treatments
- equipment types, characteristics, technical capabilities and limitations
- operational, maintenance and basic diagnostic procedures
- site isolation and traffic control responsibilities and authorities
- processes for the calculation of material requirements, mix, application rates, uniformity and travel speed
- materials safety data sheets and materials handling methods
- project quality requirements
- civil construction terminology
- JSAs/safe work method statements

RANGE STATEMENT	
<p>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.</p>	
<p>Relevant compliance documentation may include:</p>	<ul style="list-style-type: none"> • 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
<p>Safety requirements may include:</p>	<ul style="list-style-type: none"> • 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
<p>Site may include:</p>	<ul style="list-style-type: none"> • car parks • airport runways • container yards • hard stands • footpaths • bikeways • roadways
<p>Signage may include:</p>	<ul style="list-style-type: none"> • escort vehicle • highway traffic signs • site safety signage

RANGE STATEMENT	
	<ul style="list-style-type: none"> • temporary signage for the benefit of motorists and pedestrians • traffic conditions signage
Traffic conditions may include:	<ul style="list-style-type: none"> • congested urban environments • low traffic rural areas • off-road un-trafficked areas • buildings • parking sites • pedestrian areas
Materials may include:	<ul style="list-style-type: none"> • concrete • granular materials • bound materials
Tools and equipment may include:	<ul style="list-style-type: none"> • pavers • basic tool kits • shovels
Concrete road paver tasks may include:	<ul style="list-style-type: none"> • mixing materials • spreading concrete • spreading granular materials
Environmental protection requirements may include:	<ul style="list-style-type: none"> • organisational/project environmental management plan • waste management • water quality protection • noise • vibration • dust and clean-up management
Communication methods may include:	<ul style="list-style-type: none"> • verbal instructions • two way radio • hand signals, • mobile phone

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	<p>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:</p> <ul style="list-style-type: none"> • knowledge of the requirements, procedures and instructions for conducting concrete road paver operations • implementation of requirements, procedures and techniques for the safe, effective and efficient completion of concrete road paver operations • working with others to undertake and complete concrete road paver operations that meets all of the required outcomes • consistent timely completion of concrete road paver operations that safely, effectively and efficiently meets the required outcomes • the conduct of paver operations are to be performed in a minimum of two different concrete types/surface types and are to include the mandatory tasks from the unit scope and cover as a minimum: <ul style="list-style-type: none"> ◦ three longitudinal joints (of at least 100m) to be constructed to required thickness, uniformity, line and level, on both matching and unsupported edge in accordance with project specifications and/or work instructions ◦ six transverse joints to be constructed to required thickness, uniformity, line and level, on both matching and unsupported edge in accordance with project specifications and/or work instructions ◦ five sections of straight paving (one of at least 100 linear metres) to required thickness, uniformity, line and level, on both matching and unsupported edge in accordance with project specifications and/or work instructions ◦ three intersections to required thickness, uniformity, line and level, on both matching and unsupported edge in accordance with project specifications and/or work instructions ◦ operations to include residential, commercial and highway projects; and ◦ material delivery through the paver is to include manual and automatic control
Context of and specific resources for assessment	<ul style="list-style-type: none"> • 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

EVIDENCE GUIDE	
	<p>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.</p> <ul style="list-style-type: none"> • 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	<p>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:</p> <ul style="list-style-type: none"> • written and/or oral assessment of the candidate's required knowledge • observed, documented and/or first hand testimonial evidence of the candidate's: <ul style="list-style-type: none"> ◦ 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: <ul style="list-style-type: none"> ◦ working with others to undertake and complete concrete road paver operations
Guidance information for assessment	<p>Consult the SkillsDMC User Guide for further information on assessment including access and equity issues.</p>

RIICRC305A	Conduct concrete road curing and texturing operations
Unit descriptor	This unit covers the conduct of conduct concrete road curing and texturing operations industry. It includes planning and preparing, setting up paver screeds, operating paver screeds, 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.
Employability skills	This unit contains employability skills.
Application of the unit	This unit is appropriate for those working in an operational role at worksites within: <ul style="list-style-type: none"> • Civil construction
Competency field	Road and Pavements Construction and Maintenance (General)

ELEMENT	PERFORMANCE CRITERIA
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.
1. Plan and prepare	<ol style="list-style-type: none"> 1.1. Access, interpret and apply compliance documentation relevant to the work activity 1.2. Obtain and confirm safety requirements from the site safety plan and organisational policies and procedures, and apply to the allotted task 1.3. Identify, obtain and implement signage requirements from the project traffic management plan 1.4. 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 1.5. Identify environmental protection requirements from the project environmental management plan, and confirm and apply to the allotted task
2. Set up paver screed	<ol style="list-style-type: none"> 2.1. Set equipment to the correct levels to lay material to specifications 2.2. Set electronic equipment to check level 2.3. Set screed controls for correct operation
3. Operate paver screed	<ol style="list-style-type: none"> 3.1. Identify site hazards associated with road construction paver screeding operations and use safe operating techniques to minimise risks 3.2. Adjust screed during operation to ensure work remains within specifications 3.3. Identify faults in the mat and take correct action to rectify faults 3.4. Monitor work of paver attendants and rollers to ensure they keep up with the paver 3.5. Maintain communication with paver operator to monitor progress of the job 3.6. Notify paver operator of problems with the base 3.7. Perform operator maintenance in accordance with manufacturer's instructions or organisation requirements
4. Clean up	<ol style="list-style-type: none"> 4.1. Clean work area and dispose of or recycle materials in accordance with the project environmental management plan 4.2. Clean, check, maintain and store plant, tools and

ELEMENT	PERFORMANCE CRITERIA
	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 conduct concrete road curing and texturing operations industry:

- apply legislative, organisation and site requirements and procedures for conducting road construction paver screeding operations
- apply legislative, organisation and site requirements and procedures for laying pavers
- 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 conduct concrete road curing and texturing operations industry:

- site and equipment safety requirements
- paver screed operations
- aggregate and gravel types and sizes
- longitudinal and transverse joints
- equipment types, characteristics, technical capabilities and limitations
- operational, maintenance and basic diagnostic procedures
- site isolation and traffic control responsibilities and authorities
- processes for the calculation of material uniformity and travel speed
- materials safety data sheets and materials handling methods
- quality requirements
- civil construction terminology
- safe operating techniques in all terrain
- JSAs/safe work method statement

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,

RANGE STATEMENT	
	<p>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</p> <ul style="list-style-type: none"> • safe operating procedures including recognising and preventing hazards associated with high voltage power lines, uneven/unstable terrain, trees, overhead service lines, bridges, surrounding buildings, obstructions, structures, facilities, dangerous materials, recently filled trenches, other machines, personnel, traffic control, working at heights, working in proximity to others, worksite visitors and the public • safe parking practices including ensuring access ways are clear, equipment/machinery is away from overhangs and refuelling sites, safe distances are kept from excavations, and areas secured from unauthorised access or movement • 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:	<ul style="list-style-type: none"> • formed/prepared roads • pads • highways • freeways • car parks • airport runways • container yards • hard stands • footpaths and bikeways
Task may include:	<ul style="list-style-type: none"> • mixing and spreading granular materials • spreading concrete materials • mixing and spreading stabilised materials • spreading bituminous materials
Traffic may include:	<ul style="list-style-type: none"> • congested urban environments • low traffic rural areas • off-road un-trafficked areas • buildings • parking sites • pedestrian areas
Plant, tools and equipment may include:	<ul style="list-style-type: none"> • shovels • measuring tapes • depth gauges • standard tool kits • string lines

RANGE STATEMENT	
	<ul style="list-style-type: none"> • thermometers • straight edges <p><i>automatic screed levelling devices may include:</i></p> <ul style="list-style-type: none"> • grade sensors/averaging sensors • matching shoes • levelling beams • sonic and laser
Environmental protection requirements may include:	<ul style="list-style-type: none"> • organisational/project environmental management plan • waste management • water quality protection • noise • vibration • dust and clean-up management
Materials may include:	<ul style="list-style-type: none"> • granular materials • aggregates • gravel • stabilised materials • bituminous materials
Set screed controls may include:	<ul style="list-style-type: none"> • the use of boards to correct the height for transverse joint construction • setting up string lines and sensors to job specifications • adjusting machine attachments to string line • preparing and setting a screed to achieve a specified level and texture of base
Paver screeding operations may include:	<ul style="list-style-type: none"> • ensuring uniform flow of material • electronic/manual levelling • augering • maintaining width of the screed • adjustment of the crown • transverse and longitudinal joints • manual screed level control • automatic screed level control

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	<p>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:</p> <ul style="list-style-type: none"> • knowledge of the requirements, procedures and instructions for conducting concrete road curing and texturing operations industry • implementation of requirements, procedures and techniques for the safe, effective and efficient completion of concrete road curing and texturing operations industry • working with others to undertake and complete the concrete road curing and texturing operations industry that meets all of the required outcomes • consistent timely completion of concreting road curing and texturing operations industry that safely, effectively and efficiently meets the required outcomes • conduct concrete road curing and texturing operations industry on a minimum of two different material types/surface types and include the mandatory tasks of: <ul style="list-style-type: none"> ◦ three longitudinal joints (of at least 100m) constructed to required thickness, uniformity, line and level, on both matching and unsupported edge in accordance with project specifications and/or work instructions ◦ six transverse joints constructed to required thickness, uniformity, line and level, on both matching and unsupported edge in accordance with project specifications and/or work instructions ◦ five sections of straight paving (one of at least 100 linear metres) to required thickness, uniformity, line and level, on both matching and unsupported edge in accordance with project specifications and/or work instructions, and ◦ three intersections to required thickness, uniformity, line and level, on both the matching and unsupported edge in accordance with project specifications and/or work instructions • one of the above tasks to include at least one mode of automatic screed levelling devices
Context of and specific resources for assessment	<ul style="list-style-type: none"> • 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

EVIDENCE GUIDE	
	<p>cover all aspects of workplace performance, including task skills, task management skills, contingency management skills and job role environment skills.</p> <ul style="list-style-type: none"> • Assessment of this competency requires typical resources normally used in Civil Construction. 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	<p>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:</p> <ul style="list-style-type: none"> • written and/or oral assessment of the candidate's required knowledge • observed, documented and/or first hand testimonial evidence of the candidate's: <ul style="list-style-type: none"> ◦ 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: <ul style="list-style-type: none"> ◦ working with others to undertake and complete the conduct concrete road curing and texturing operations industry
Guidance information for assessment	<p>Consult the SkillsDMC User Guide for further information on assessment including access and equity issues.</p>

RIICCCxxxA	Finish concrete
Unit descriptor	This unit of competency specifies the outcomes required to finish concrete surfaces that have been placed and screeded in domestic, commercial and civil applications to provide a finish for designated requirements. The unit includes both manual and mechanical finishing techniques.
Employability skills	This unit contains employability skills.
Application of the unit	This unit is appropriate for those working in an operational role at worksites within: <ul style="list-style-type: none"> • Civil construction
Unit sector	Road and Pavements Construction and Maintenance (Concrete Paving)

ELEMENT	PERFORMANCE CRITERIA
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.
1. Plan and prepare	<ol style="list-style-type: none"> 1.1. Access, interpret and apply compliance documentation relevant to the work activity 1.2. Obtain and confirm safety requirements from the site safety plan and organisational policies and procedures, and apply to the allotted task 1.3. Identify, obtain and implement signage requirements from the project traffic management plan 1.4. 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 1.5. Identify environmental protection requirements from the project environmental management plan, and confirm and apply to the allotted task
2. Finish concrete	<ol style="list-style-type: none"> 2.1. Float and trowel are applied after initial screeding to assist in maintaining a level surface and to remove screeding inaccuracies. 2.2. Mechanical trowelling is applied to consolidate and densify the setting concrete surface. 2.3. Control joints are installed, edges finished and concrete trowelled to specifications. 2.4. Final trowel/ finish is applied to concrete surface to specifications.
3. Clean up	<ol style="list-style-type: none"> 3.1. Work area is cleared and materials disposed of, reused or recycled in accordance with legislation, regulations, codes of practice and job specification. 3.2. Plant, tools and equipment are cleaned, checked, maintained and stored in accordance with manufacturer recommendations and standard work practices.

ELEMENT	PERFORMANCE CRITERIA

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

Required skills for this unit are:

- communication skills to:
 - determine requirements
 - enable clear and direct communication, using questioning to identify and confirm requirements, share information, listen and understand
 - follow instructions
 - read and interpret:
 - documentation from a variety of sources
 - drawings and specifications
 - report faults
 - use language and concepts appropriate to cultural differences
 - use and interpret non-verbal communication, such as hand signals
- evaluating own actions and making judgments about performance and necessary improvements
- identifying and accurately reporting to appropriate personnel any faults in tools, equipment or materials
- organisational skills, including the ability to plan and set out work
- recognising procedures, following instructions, responding to change and contributing to workplace responsibilities, such as current work site environmental and sustainability frameworks or management systems
- teamwork skills to coordinate own work with others to action tasks and relate to people from a range of cultural and ethnic backgrounds and with varying physical and mental abilities
- technological skills to:
 - use a range of mobile technology, such as two-way radio and mobile phones
 - voice and hand signals to access and understand site-specific instructions.

Required knowledge

Required knowledge for this unit is:

- concrete finishing techniques
- concrete materials
- concrete placement
- curing times
- general construction terminology
- job safety analysis (JSA) and safe work method statements
- levelling techniques
- material safety data sheets (MSDS)
- materials storage and environmentally friendly waste management
- plans, drawings and specifications
- processes for the calculation of material requirements
- quality requirements
- types, characteristics, uses and limitations of plant, tools and equipment
- workplace and equipment safety requirements.

RANGE STATEMENT	
<p>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.</p>	
<p>Finish/texture surfaces may include</p>	<ul style="list-style-type: none"> • bridge paving • road paving • hardstands • footpaths??
<p>Information includes:</p>	<ul style="list-style-type: none"> • diagrams or sketches • instructions issued by authorised organisational or external personnel • manufacturer specifications and instructions, where specified • MSDS • memos • regulatory and legislative requirements pertaining to finishing concrete • relevant Australian standards • safe work procedures relating to finishing concrete • signage • verbal, written and graphical instructions • work bulletins • work schedules, plans and specifications.
<p>Planning and preparation include:</p>	<ul style="list-style-type: none"> • assessment of conditions and hazards • determination of work requirements and safety plans and policies • equipment defect identification • work site inspection.
<p>Safety (OHS) is to be in accordance with state and territory legislation and regulations and project safety plan and may include:</p>	<ul style="list-style-type: none"> • emergency procedures, including extinguishing fires, organisational first aid requirements and evacuation • handling activities that may require the assistance of others or the use of manual or mechanical lifting devices where size, weight or other issues, such as a disability are a factor • hazard control • hazardous materials and substances • organisational first aid • PPE prescribed under legislation, regulations and workplace policies and practices • safe operating procedures, including the conduct of operational risk assessment and treatments associated with: <ul style="list-style-type: none"> ◦ earth leakage boxes ◦ lighting ◦ power cables, including overhead service trays, cables and conduits ◦ restricted access barriers ◦ surrounding structures ◦ traffic control ◦ trip hazards ◦ work site visitors and the public ◦ working at heights

RANGE STATEMENT	
	<ul style="list-style-type: none"> ◦ working in confined spaces ◦ working in proximity to others • use of firefighting equipment • use of tools and equipment • workplace environmental requirements and safety.
Tools and equipment:	<ul style="list-style-type: none"> • include: <ul style="list-style-type: none"> ◦ bull floats ◦ magnesium trowels ◦ power trowels ◦ steel trowels ◦ wooden floats • may include: <ul style="list-style-type: none"> ◦ brooms ◦ channel trowels ◦ edging tools ◦ hoses ◦ kerb ◦ step readers ◦ stipple plates.
Quality requirements include:	<ul style="list-style-type: none"> • internal company quality policy and standards • manufacturer specifications where specified • relevant regulations, including Australian standards • workplace operations and procedures.
Materials include:	<ul style="list-style-type: none"> • concrete • water.
Environmental requirements include:	<ul style="list-style-type: none"> • clean-up management • dust and noise • stormwater management • vibration • waste management.
Level surface:	<ul style="list-style-type: none"> • is a concrete surface that has been placed and screeded to the reduced level (RL) in accordance with drawings and specifications.
Assistance in maintaining a level surface includes:	<ul style="list-style-type: none"> • assessing the curing process to allow manual and mechanical trowelling to be applied.
Control joints:	<ul style="list-style-type: none"> • are included in the concrete surface to control cracking.
Finishing techniques include:	<ul style="list-style-type: none"> • broom finished • brushed • bull float • hand float (wooden, magnesium or composition) • mechanical trowelling machine • slip resistance • spraying and brushing to expose aggregate • steel trowel • to engineer's drawings and specifications • wood float.
Edge finishing types include:	<ul style="list-style-type: none"> • fine • rounded • straight edge.

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	<p>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:</p> <ul style="list-style-type: none"> • knowledge of the requirements, procedures and instructions for finishing concrete • implementation of requirements, procedures and techniques for the safe, effective and efficient completion of finishing concrete • working with others to undertake and complete the finishing of concrete that meets all of the required outcomes • consistent timely completion of finishing concrete that safely, effectively and efficiently meets the required outcomes • finish concrete on a minimum of two different material types/surface types and include the mandatory tasks of: <ul style="list-style-type: none"> ◦ three longitudinal joints (of at least 100m) constructed to required thickness, uniformity, line and level, on both matching and unsupported edge in accordance with project specifications and/or work instructions ◦ six transverse joints constructed to required thickness, uniformity, line and level, on both matching and unsupported edge in accordance with project specifications and/or work instructions ◦ five sections of straight paving (one of at least 100 linear metres) to required thickness, uniformity, line and level, on both matching and unsupported edge in accordance with project specifications and/or work instructions, and ◦ three intersections to required thickness, uniformity, line and level, on both the matching and unsupported edge in accordance with project specifications and/or work instructions • one of the above tasks to include at least one mode of automatic screed levelling devices
Context of and specific resources for assessment	<ul style="list-style-type: none"> • 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.

EVIDENCE GUIDE	
	<ul style="list-style-type: none"> • Assessment of this competency requires typical resources normally used in a Civil Construction. 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	<p>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:</p> <ul style="list-style-type: none"> • written and/or oral assessment of the candidate's required knowledge • observed, documented and/or first hand testimonial evidence of the candidate's: <ul style="list-style-type: none"> ◦ 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: <ul style="list-style-type: none"> ◦ working with others to undertake and complete the finishing of concrete.
Guidance information for assessment	Consult the SkillsDMC User Guide for further information on assessment including access and equity issues.

RIICCCxxxA	Place concrete
Unit descriptor	This unit of competency specifies the outcomes required to transport and place concrete into prepared formwork or foundations to establish a strong base for further building work to progress from. The unit includes the moving of concrete from truck to pour location, concrete placement and screeding.
Employability skills	This unit contains employability skills.
Application of the unit	This unit is appropriate for those working in an operational role at worksites within: <ul style="list-style-type: none"> • Civil construction
Unit sector	Road and Pavements Construction and Maintenance (Concrete Paving)

ELEMENT	PERFORMANCE CRITERIA
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.
1. Plan and prepare	<ol style="list-style-type: none"> 1.1. Access, interpret and apply compliance documentation relevant to the work activity 1.2. Obtain and confirm safety requirements from the site safety plan and organisational policies and procedures, and apply to the allotted task 1.3. Identify, obtain and implement signage requirements from the project traffic management plan 1.4. 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 1.5. Identify environmental protection requirements from the project environmental management plan, and confirm and apply to the allotted task
2. Receive and dispatch concrete	<ol style="list-style-type: none"> 2.1. Delivery advice is checked for accuracy against ordered material. 2.2. Concrete delivery vehicle is directed to location of discharge. 2.3. Concrete is discharged via chute into wheelbarrow, kibble, pump or hopper.
3. Define and prepare work area.	<ol style="list-style-type: none"> 3.1. Location of concrete placement is determined from plans and specifications and location for placement is checked to be free of debris and waste. 3.2. Safe working area is maintained around pour location using barriers and signage consistent with OHS regulations. 3.3. Plant, tools and equipment are located to suit planned placement.
4. Place concrete	<ol style="list-style-type: none"> 4.1. Concrete is placed in horizontal layers into location to levels indicated by markers, level pegs or lines. 4.2. Height of vertical drop of concrete is minimised to avoid segregation of concrete materials. 4.3. Poured concrete is consolidated during process using approved compaction or vibration method. 4.4. Finished levels are checked against datum using appropriate levelling device.

ELEMENT	PERFORMANCE CRITERIA
5. Screed/level concrete	5.1. Concrete is screeded to correct levels and grades using appropriate straight edged tool/formwork mounted screed.
6. Clean up	6.1. Work area is cleared and materials disposed of, reused or recycled in accordance with legislation, regulations, codes of practice and job specification. 6.2. Plant, tools and equipment are cleaned, checked, maintained and stored in accordance with manufacturer recommendations and standard work practices.

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

Required skills for this unit are:

- communication skills to:
 - determine requirements
 - enable clear and direct communication, using questioning to identify and confirm requirements, share information, listen and understand
 - follow instructions
 - read and interpret:
 - documentation from a variety of sources
 - drawings and specifications
 - report faults
 - use language and concepts appropriate to cultural differences
 - use and interpret non-verbal communication, such as hand signals
- evaluating own actions and making judgments about performance and necessary improvements
- identifying and accurately reporting to appropriate personnel any faults in tools, equipment or materials
- organisational skills, including the ability to plan and set out work
- recognising procedures, following instructions, responding to change and contributing to workplace responsibilities, such as current work site environmental and sustainability frameworks or management systems
- teamwork skills to coordinate own work with others to action tasks and relate to people from a range of cultural and ethnic backgrounds and with varying physical and mental abilities
- technological skills to:
 - use a range of mobile technology, such as two-way radio and mobile phones
 - voice and hand signals to access and understand site-specific instructions.

Required knowledge

Required knowledge for this unit is:

- cold joints
- compaction
- concrete materials
- concrete reinforcement techniques
- concreting techniques

REQUIRED SKILLS AND KNOWLEDGE

- general construction terminology
- job safety analysis (JSA) and safe work method statements
- levelling techniques
- material safety data sheets (MSDS)
- materials storage and environmentally friendly waste management
- mix specifications
- plans, drawings and specifications
- processes for the calculation of material requirements
- quality requirements
- segregation
- slump testing
- types, characteristics, uses and limitations of plant, tools and equipment
- workplace and equipment safety requirements.

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.

Information includes:

- diagrams or sketches
- instructions issued by authorised organisational or external personnel
- manufacturer specifications and instructions, where specified
- MSDS
- memos
- regulatory and legislative requirements pertaining to placing concrete
- relevant Australian standards
- safe work procedures relating to placing concrete
- signage
- verbal, written and graphical instructions
- work bulletins
- work schedules, plans and specifications.

Planning and preparation include:

- assessment of conditions and hazards
- determination of work requirements and safety plans and policies
- equipment defect identification
- work site inspection.

Safety (OHS) is to be in accordance with state and territory legislation and regulations and project safety plan and may include:

- emergency procedures, including extinguishing fires, organisational first aid requirements and evacuation
- handling activities that may require the assistance of others or the use of manual or mechanical lifting devices where size, weight or other issues, such as a disability are a factor
- hazard control
- hazardous materials and substances
- organisational first aid
- PPE prescribed under legislation, regulations and workplace policies and practices

RANGE STATEMENT	
	<ul style="list-style-type: none"> ● safe operating procedures, including the conduct of operational risk assessment and treatments associated with: <ul style="list-style-type: none"> ○ earth leakage boxes ○ lighting ○ power cables, including overhead service trays, cables and conduits ○ restricted access barriers ○ surrounding structures ○ traffic control ○ trip hazards ○ work site visitors and the public ○ working at heights ○ working in confined spaces ○ working in proximity to others ● use of firefighting equipment ● use of tools and equipment ● workplace environmental requirements and safety.
Tools and equipment :	<ul style="list-style-type: none"> ● include: <ul style="list-style-type: none"> ○ chutes ○ measuring tapes and rules ○ screed boards ○ shovels ○ trowels ● may include: <ul style="list-style-type: none"> ○ brooms ○ compressors ○ concrete placing booms ○ kibbles ○ line pumps ○ mechanised dumpers ○ rakes ○ stipple devices ○ trowelling machines ○ vibrators ○ wheelbarrows.
Quality requirements include:	<ul style="list-style-type: none"> ● internal company quality policy and standards ● manufacturer specifications where specified ● relevant regulations, including Australian standards ● workplace operations and procedures.
Materials include:	<ul style="list-style-type: none"> ● concrete.
Environmental requirements include:	<ul style="list-style-type: none"> ● clean-up management ● dust and noise ● stormwater management ● vibration ● waste management.
Concrete delivery includes:	<ul style="list-style-type: none"> ● crane and kibble ● pre-mix truck ● wheelbarrow.
Placing of concrete includes:	<ul style="list-style-type: none"> ● kibble ● pumping equipment ● shovelling

RANGE STATEMENT	
	<ul style="list-style-type: none"> • tremmies • truck placed • vibrating • wheelbarrows.
Methods to <i>avoid segregation of concrete</i> include:	<ul style="list-style-type: none"> • using a tremmie, through minimising the height of a vertical drop (no greater than 2 metres high for 20MPA at 80 slump) • using pumps with a flexible hose.
<i>Compaction or vibration methods</i> include:	<ul style="list-style-type: none"> • mechanical vibrators.
<i>Finishing</i> techniques include:	<ul style="list-style-type: none"> • broom finished • brushed • mechanical trowelling machine • steel trowel • wood float.
<i>Screeding</i> :	<ul style="list-style-type: none"> • includes a hand screed • may include: <ul style="list-style-type: none"> ◦ a mechanical vibrating screed ◦ magic screeds.

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	<p>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:</p> <ul style="list-style-type: none"> • knowledge of the requirements, procedures and instructions for placing concrete • implementation of requirements, procedures and techniques for the safe, effective and efficient completion of placing concrete • working with others to undertake and complete the placing of concrete that meets all of the required outcomes • consistent timely completion of placing concrete that safely, effectively and efficiently meets the required outcomes • place concrete on a minimum of two different material types/surface types and include the mandatory tasks of: <ul style="list-style-type: none"> ◦ three longitudinal joints (of at least 100m) constructed to required thickness, uniformity, line and level, on both matching and unsupported edge in accordance with project specifications and/or work instructions ◦ six transverse joints constructed to required thickness, uniformity, line and level, on both matching and unsupported edge in accordance with project specifications and/or work instructions ◦ five sections of straight paving (one of at least 100 linear metres) to required thickness, uniformity, line and level, on both matching and unsupported edge in accordance with project specifications and/or work instructions, and ◦ three intersections to required thickness, uniformity, line and level, on both the matching and unsupported edge in accordance with project specifications and/or work instructions • one of the above tasks to include at least one mode of automatic screed levelling devices
Context of and specific resources for assessment	<ul style="list-style-type: none"> • 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.

EVIDENCE GUIDE	
	<ul style="list-style-type: none"> • Assessment of this competency requires typical resources normally used in Civil Construction. 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	<p>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:</p> <ul style="list-style-type: none"> • written and/or oral assessment of the candidate's required knowledge • observed, documented and/or first hand testimonial evidence of the candidate's: <ul style="list-style-type: none"> ◦ 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: <ul style="list-style-type: none"> ◦ working with others to undertake and complete the placing of concrete
Guidance information for assessment	Consult the SkillsDMC User Guide for further information on assessment including access and equity issues.

RIICCCxxxA	Use concreting tools and equipment
Unit descriptor	This unit of competency specifies the outcomes required to safely select and use concreting tools and equipment for the completion of all general concreting tasks. The unit includes hand tools, power tools, small plant and equipment.
Employability skills	This unit contains employability skills.
Application of the unit	This unit is appropriate for those working in an operational role at worksites within: <ul style="list-style-type: none"> • Civil construction
Unit sector	Road and Pavements Construction and Maintenance (Concrete Paving)

ELEMENT	PERFORMANCE CRITERIA
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.
1. Plan and prepare	<ol style="list-style-type: none"> 1.1. Access, interpret and apply compliance documentation relevant to the work activity 1.2. Obtain and confirm safety requirements from the site safety plan and organisational policies and procedures, and apply to the allotted task 1.3. Identify, obtain and implement signage requirements from the project traffic management plan 1.4. 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 1.5. Identify environmental protection requirements from the project environmental management plan, and confirm and apply to the allotted task
2. Identify and select hand and power tools	<ol style="list-style-type: none"> 2.1. Hand and power tools, their functions, operations and limitations are identified and selected. 2.2. OHS requirements for using hand and power tools are recognised and adhered to. 2.3. Lubricants, hydraulic fluid and water are checked according to manufacturer recommendations. 2.4. Tools are selected consistent with job requirements. 2.5. Tools, including leads and hoses, are checked for tags, serviceability and safety, and any faults are reported. 2.6. Power tool guards, retaining bolts, couplings, gauges and controls are checked and maintained in accordance with manufacturer recommendations. 2.7. Equipment to hold or support material during operation is selected.
3. Use tools	<ol style="list-style-type: none"> 3.1. Hand tools used are appropriate to the task and materials, and are in accordance with OHS requirements. 3.2. Power tools are safely and effectively used in accordance with manufacturer recommendations and state or territory OHS requirements. 3.3. Tools are sharpened and maintained.
4. Identify, select and use plant and equipment	<ol style="list-style-type: none"> 4.1. Plant and equipment are checked for safety and faults are reported. 4.2. Plant and equipment are selected and used consistent with

ELEMENT	PERFORMANCE CRITERIA
	<p>OHS requirements, manufacturer specifications and the needs of the job.</p> <p>4.3. Lubricants, hydraulic fluid and water are checked according to manufacturer recommendations.</p> <p>4.4. Plant and equipment are maintained in accordance with manufacturer recommendations and standard work practices.</p>
5. Clean up	<p>5.1. Work area is cleared and materials disposed of, reused or recycled in accordance with legislation, regulations, codes of practice and job specification.</p> <p>5.2. Plant, tools and equipment are cleaned, checked, maintained and stored in accordance with manufacturer recommendations and standard work practices.</p>

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

Required skills for this unit are:

- communication skills to:
 - determine requirements
 - enable clear and direct communication, using questioning to identify and confirm requirements, share information, listen and understand
 - follow instructions
 - read and interpret:
 - documentation from a variety of sources
 - drawings and specifications
 - report faults
 - use language and concepts appropriate to cultural differences
 - use and interpret non-verbal communication, such as hand signals
- evaluating own actions and making judgments about performance and necessary improvements
- identifying and accurately reporting to appropriate personnel any faults in tools, equipment or materials
- organisational skills, including the ability to plan and set out work
- recognising procedures, following instructions, responding to change and contributing to workplace responsibilities, such as current work site environmental and sustainability frameworks or management systems
- teamwork skills to coordinate own work with others to action tasks and relate to people from a range of cultural and ethnic backgrounds and with varying physical and mental abilities
- technological skills to:
 - use a range of mobile technology, such as two-way radio and mobile phones
 - voice and hand signals to access and understand site-specific instructions.

REQUIRED SKILLS AND KNOWLEDGE
<p>Required knowledge</p> <p>Required knowledge for this unit is:</p> <ul style="list-style-type: none"> • concreting materials • concreting tool use techniques • general construction terminology • job safety analysis (JSA) and safe work method statements • material safety data sheets (MSDS) • materials storage and environmentally friendly waste management • plans, drawings and specifications • processes for the calculation of material requirements • quality requirements • relevant Acts, regulations and codes of practice • tools and equipment safety manuals and instructions • types, characteristics, uses and limitations of plant, tools and equipment • workplace and equipment safety requirements.

RANGE STATEMENT	
<p>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.</p>	
<p>Information includes:</p>	<ul style="list-style-type: none"> • diagrams or sketches • instructions issued by authorised organisational or external personnel • manufacturer specifications and instructions, where specified • MSDS • memos • regulatory and legislative requirements pertaining to using concreting tools and equipment • relevant Australian standards • safe work procedures relating to using concreting tools and equipment • signage • verbal, written and graphical instructions • work bulletins • work schedules, plans and specifications.
<p>Planning and preparation include:</p>	<ul style="list-style-type: none"> • assessment of conditions and hazards • determination of work requirements and safety plans and policies • equipment defect identification • work site inspection.
<p>Safety (OHS) is to be in accordance with state and territory legislation and regulations and project safety plan and may include:</p>	<ul style="list-style-type: none"> • emergency procedures, including extinguishing fires, organisational first aid requirements and evacuation • handling activities that may require the assistance of others or the use of manual or mechanical lifting devices where size, weight or other issues, such as a disability are a factor • hazard control • hazardous materials and substances

RANGE STATEMENT	
	<ul style="list-style-type: none"> • organisational first aid • PPE prescribed under legislation, regulations and workplace policies and practices • safe operating procedures, including the conduct of operational risk assessment and treatments associated with: <ul style="list-style-type: none"> ◦ earth leakage boxes ◦ lighting ◦ power cables, including overhead service trays, cables and conduits ◦ restricted access barriers ◦ surrounding structures ◦ traffic control ◦ trip hazards ◦ work site visitors and the public ◦ working at heights ◦ working in confined spaces ◦ working in proximity to others • use of firefighting equipment • use of tools and equipment • workplace environmental requirements and safety.
Tools and equipment include:	<ul style="list-style-type: none"> • bolt cutters • crow bars • cutting knives • edging tools • floats • grinders • hammers • jointers • kneel boards • levelling equipment • long handled shovels • measuring tapes • nail bags • picks • pinch bars • pliers • rakes • screeds • sledge hammers • steel fixing reels • string lines • trowels • vibrators.
Quality requirements include:	<ul style="list-style-type: none"> • internal company quality policy and standards • manufacturer specifications where specified • relevant regulations, including Australian standards • workplace operations and procedures.
Environmental requirements include:	<ul style="list-style-type: none"> • clean-up management • dust and noise • stormwater management

RANGE STATEMENT	
	<ul style="list-style-type: none"> • vibration • waste management.
<i>Hand and power tools</i> include:	<ul style="list-style-type: none"> • digging, transporting, levering, cutting, shaping, fixing, fastening and percussion tools • electrically operated portable and static power tools and leads • material shifting, holding tools and finishing tools • setting out, marking out and levelling tools.
<i>Plant and equipment</i> include:	<ul style="list-style-type: none"> • 240v power supplied, hand held or small single person operated equipment • compressor • generator.

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	<p>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:</p> <ul style="list-style-type: none"> • knowledge of the requirements, procedures and instructions for using concreting tools and equipment • implementation of requirements, procedures and techniques for the safe, effective and efficient completion of using concreting tools and equipment • working with others to undertake and complete the use of concreting tools and equipment • that meets all of the required outcomes • consistent timely completion of using concreting tools and equipment that safely, effectively and efficiently meets the required outcomes • use concreting tools and equipment on a minimum of two different material types/surface types and include the mandatory tasks of: <ul style="list-style-type: none"> ◦ three longitudinal joints (of at least 100m) constructed to required thickness, uniformity, line and level, on both matching and unsupported edge in accordance with project specifications and/or work instructions ◦ six transverse joints constructed to required thickness, uniformity, line and level, on both matching and unsupported edge in accordance with project specifications and/or work instructions ◦ five sections of straight paving (one of at least 100 linear metres) to required thickness, uniformity, line and level, on both matching and unsupported edge in accordance with project specifications and/or work instructions, and ◦ three intersections to required thickness, uniformity, line and level, on both the matching and unsupported edge in accordance with project specifications and/or work instructions • one of the above tasks to include at least one mode of automatic screed levelling devices
Context of and specific resources for assessment	<ul style="list-style-type: none"> • 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

EVIDENCE GUIDE	
	<p>environment skills.</p> <ul style="list-style-type: none"> • Assessment of this competency requires typical resources normally used in Civil Construction. 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	<p>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:</p> <ul style="list-style-type: none"> • written and/or oral assessment of the candidate's required knowledge • observed, documented and/or first hand testimonial evidence of the candidate's: <ul style="list-style-type: none"> ◦ 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: <ul style="list-style-type: none"> ◦ working with others to undertake and complete the use of concreting tools and equipment
Guidance information for assessment	<p>Consult the SkillsDMC User Guide for further information on assessment including access and equity issues.</p>