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Conduct fluid assisted directional boring

Unit Descriptor

This unit specifies the competency required to undertake fluid assisted directional boring activities associated with horizontal directional drilling, within the trenchless technology sector of the civil construction industry.

The unit includes fluid types, drilling equipment, drilling heads, installation products and tracking and guidance systems.

Employability Skills

The required outcomes described in this Unit of Competency contain applicable facets of employability skills. The Employability Skills Qualification Summary for the qualification in which this Unit of Competency is packaged will assist in identifying employability skill requirements.

Element

Elements define the essential outcomes of a unit of competency.

Performance Criteria

Performance criteria specify the level of performance required to demonstrate achievement of the element.

1. Plan and prepare

1.1 Work instructions, including plans, specifications, quality requirements and operational details are obtained, confirmed and applied to the allotted task

1.2 Safety requirements are obtained from the site safety plan and organisational policies and procedures, confirmed and applied to the allotted task

1.3 Signage requirements are identified and obtained from the project traffic management plan and implemented

1.4 Plant, tools and equipment selected to carry out tasks are consistent with the requirements of the job, checked for serviceability and any faults are rectified or reported

1.5 Environmental protection requirements are identified from the project environmental management plan, confirmed and applied to the allotted task

2. Prepare for boring operations

2.1 Location, alignment direction, level and grade of bore is determined from drawings and specifications

2.2 Above and below ground survey instruments are used to determine the bore pathway for underground vertical and horizontal alignment

2.3 Visual geological investigation of alignment is conducted to determine the differing soil types and groundwater conditions
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<tr>
<th></th>
<th>Conduct fluid assisted directional boring</th>
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<td>2.4</td>
<td>Bore head and drilling fluid are selected for the strata</td>
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<td>Boring equipment is positioned, anchored/staked down in accordance with manufacturers’ and/or site requirements</td>
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<td>4</td>
<td>Drive bore hole</td>
</tr>
<tr>
<td>4.1</td>
<td>Launch and receiving pits are prepared for inserting and receiving bore head in accordance with site requirements</td>
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<td>4.2</td>
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<td>4.3</td>
<td>Bore head progress is continuously monitored for vertical and horizontal alignment</td>
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<tr>
<td>4.6</td>
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</tr>
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<td>4.7</td>
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<tr>
<td>4.8</td>
<td>Back reaming is conducted to dimensions in accordance with plans and specifications</td>
</tr>
<tr>
<td>4.9</td>
<td>Drums/rolls of installing product are correctly positioned to enable safe discharge of product</td>
</tr>
</tbody>
</table>
5 Clean up

5.1 Work area is cleared and materials disposed of or recycled in accordance with project environmental management plan

5.2 Plant, tools and equipment cleaned, checked, maintained and stored in accordance with manufacturers’ recommendations and standard work practices

Range Statement

The Range Statement provides advice to interpret the scope and context of this unit of competency allowing for differences between enterprises and workplaces. It relates to the unit as a whole and facilitates holistic assessment. The following variables relate to this particular unit:

Unit scope

- Trenchless technology is the science of installing, repairing or renewing underground pipes, ducts and cables using techniques which minimise or eliminate the need for excavation. Fluid assisted directional boring is classified under the category of ‘new installation’

- Fluid assisted directional boring is to include but not be limited to boring under roadways, railways, footpaths, creeks, rivers, freeways other services and may include mini, midi and maxi operations

- Traffic control signage may include but not be limited to site safety signage, temporary signage for the benefit of motorists and pedestrians, barricades, and traffic conditions signage

- Planning and preparation is to include but not be limited to worksite inspection, equipment defect identification, assessment of conditions and hazards and determination of work requirements

- Traffic conditions may include but not be limited to congested urban environments, low traffic rural areas, off-road un-trafficked areas, buildings, parking sites and pedestrian areas

- Drilling fluid may include but not be limited to bentonite and water. Often known as mud it carries the debris in suspension and is then filtered through a recirculation system

- Fluid assisted drilling may include guided boring machines using a fluid assisted drill head which is pushed through the ground on the end of a string of drill pipes
Unit scope (continued)

- Boring may be monitored using a sounder, beacon, hand wired guidance system or magnetometry

Safety (OH&S)

- OH&S requirements are to be in accordance with State or Territory legislation and regulations, organisational safety policy and procedures and project safety plan. This may include 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

- Personal protective equipment is to include that prescribed under legislation, regulations and workplace policies and practices

- Safe operating procedures are to include but not be limited to recognising and preventing hazards associated with underground and overhead services, other machines, personnel, restricted access barriers, traffic control, working in proximity to others, worksite visitors and the public

- Hazards and risks may include but not be limited to uneven/unstable terrain, trees, fires, overhead and underground services, bridges, buildings, excavations, traffic, embankments, cuttings, structures and hazardous materials

- Emergency procedures related to this unit are to include but may not be limited to emergency shutdown and stopping, organisational first aid requirements and evacuation

Environmental Requirements

- Environmental requirements are to include but not be limited to organisational/project environmental management plan, waste management, water quality protection, noise, vibration, dust and clean-up management

Quality Requirements

- Quality requirements may include but not be limited to dimensions, tolerances, standards of work and material standards as detailed in the project drawings, specifications and project documentation to meet client satisfaction

Statutory/Regulatory Authorities

- Statutory/regulatory authorities may include Federal, State and Local Authorities
Tools and equipment
- Tools and equipment are to include but not be limited to, boring equipment, pumps, compressors, hoses, tape measures, marking equipment, crow bars, spanners, adjustable wrenches, shovels, picks, hammers (sledge/hand), string lines, spirit levels, dumpy levels, theodolites, brooms, hacksaws, hand saws, and electronic tracking devices and may include slings and cranes.

Communications
- Communications are to include but not be limited to verbal instructions and fault reporting and may include two way radio, hand signals, mobile phone, site specific instructions, written instructions or instructions related to job/task.

Information
- Information sources may include but not be limited to verbal or written and graphical instructions, signage, work schedules/plans/specifications, work bulletins, charts and hand drawings, memos, material safety data sheets (MSDS) and diagrams or sketches.
- Safe work procedures or equivalent related to fluid assisted directional boring.
- Regulatory/legislative requirements pertaining to fluid assisted directional boring.
- Manufacturers’ specifications and instructions.
- Organisation work specifications and requirements.
- Instructions issued by authorised organisational or external personnel.
- Relevant Australian Standards.
 Evidence Guide

The Evidence Guide identifies the critical aspects, knowledge and skills to be demonstrated to confirm competency for this unit. This is an integral part of the assessment of competency and should be read in conjunction with the Performance Criteria, the Range Statement, and the Assessment Guidelines of the Training Package.

**Critical aspects of evidence required to demonstrate competency in this unit**

- Location, interpretation and application of relevant information, standards and specifications
- Compliance with site safety plan, OH&S regulations and State/Territory legislation applicable to workplace operations
- Compliance with organisational policies and procedures including quality requirements
- Completion of at least 50 metres of fluid assisted directional boring to specifications
- Safe and effective operational use of tools, plant and equipment
- Communication and working effectively and safely with others

**Relationship to other units**

- Pre-requisite units are:
  
  BCCCM1001C Follow OH&S policies and procedures

  Competency in this unit may be assessed in conjunction with other functional units which together form part of the holistic work role
Specific knowledge required to achieve the performance criteria

- A knowledge of
  - Site and equipment safety requirements
  - Drilling fluids
  - Categories of horizontal directional drilling
  - Laser control equipment
  - Manual handling
  - Confined space entry
  - Electronic cable locating devices
  - Strike alert systems
  - Remote units
  - Electronic equipment calibration
  - Thrust and rotation of boring equipment
  - Slinging procedures
  - Processes for interpreting engineering drawings
  - Equipment types, characteristics, technical capabilities and limitations
  - Operational, maintenance and basic diagnostic procedures
  - Site isolation and traffic control responsibilities and authorities
  - Materials Safety Data Sheets and materials handling methods
  - Project quality requirements
  - Civil construction terminology
  - JSA’s/Safe work method statement

The context of assessment

- The application of competency is to be assessed in the workplace or realistically simulated workplace
- Assessment is to occur under standard and authorised work practices, safety requirements and environmental constraints
- Assessment of essential underpinning knowledge, other than confirmatory questions, will usually be conducted in an off-site context
- Assessment is to comply with relevant regulatory or Australian Standards requirements

Methods of assessment

- Assessment must satisfy the endorsed assessment guidelines of the Building and Construction industry’s Civil Construction Training Package
- Assessment methods must confirm consistency and
accuracy of performance together with application of underpinning knowledge

- Assessment must be by direct observation of tasks, with questioning on underpinning knowledge

- Assessment methods must confirm the ability to access and correctly interpret and apply the essential underpinning knowledge

- Assessment may be applied under project related conditions (real or simulated) and require evidence of process

- Assessment must confirm a reasonable inference that competency is able not only to be satisfied under the particular circumstance, but is able to be transferred to other circumstances

- Assessment may be in conjunction with assessment of other units of competency, including those listed above

Specific resource requirements for this unit

The following resources should be made available:

- workplace location or simulated workplace
- machinery and equipment relevant to fluid assisted directional boring
- hand and power tools, small plant and equipment relevant to fluid assisted directional boring
- specifications and work instructions
- a crane and slings

… End …
### BCCTT3002B Conduct impact moling, ramming and augering

#### Unit Descriptor
This unit specifies the competency required to undertake impact moling, ramming, and augering activities associated with horizontal directional drilling, within the trenchless technology sector of the civil construction industry.

This unit includes percussive moling (pneumatic / hydraulic) and pipe ramming and horizontal augering.

#### Employability Skills
The required outcomes described in this Unit of Competency contain applicable facets of employability skills. The Employability Skills Qualification Summary for the qualification in which this Unit of Competency is packaged will assist in identifying employability skill requirements.

#### Element Performance Criteria
Performance criteria specify the level of performance required to demonstrate achievement of the element.

<table>
<thead>
<tr>
<th>Element</th>
<th>Performance Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Plan and prepare</td>
<td>1.1 Work instructions, including plans, specifications, quality requirements and operational details are obtained, confirmed and applied to the allotted task.</td>
</tr>
<tr>
<td></td>
<td>1.2 Safety requirements are obtained from the site safety plan and organisational policies and procedures, confirmed and applied to the allotted task.</td>
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<tr>
<td></td>
<td>1.3 Signage requirements are identified and obtained from the project traffic management plan and implemented.</td>
</tr>
<tr>
<td></td>
<td>1.4 Plant, tools and equipment selected to carry out tasks are consistent with the requirements of the job, checked for serviceability and any faults are rectified or reported.</td>
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<tr>
<td></td>
<td>1.5 Environmental protection requirements are identified from the project environmental management plan, confirmed and applied to the allotted task.</td>
</tr>
<tr>
<td>2 Prepare for boring operations</td>
<td>2.1 Location, alignment direction, level and grade of bore are determined from drawings and specifications.</td>
</tr>
<tr>
<td></td>
<td>2.2 Above and below ground survey instruments are used to determine the bore pathway for underground vertical and horizontal alignment.</td>
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<tr>
<td></td>
<td>2.3 Visual geological investigation of alignment is conducted to determine the differing soil types and possible groundwater conditions.</td>
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<tr>
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<td>2.4 Bore head is selected for the strata.</td>
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</table>
2.5 Boring equipment is positioned, anchored/staked down in accordance with manufacturers’ and/or site requirements

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<tr>
<td>3</td>
<td>Conduct equipment checks</td>
<td>3.1 Safety requirements are identified and applied in accordance with manufacturers’ specifications</td>
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<tr>
<td></td>
<td></td>
<td>3.2 Start-up, shut-down and communication procedures are carried out in accordance with manufacturers’ and/or site specific requirements</td>
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<td></td>
<td>3.3 Equipment controls and functions, including implements or other attachments, anchors and/or stabilizing equipment are checked for serviceability and faults reported</td>
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<td></td>
<td></td>
<td>3.4 Inspection and fault finding is conducted in accordance with manufacturers’ specifications and/or site requirements</td>
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<td></td>
<td></td>
<td>3.5 Equipment maintenance tasks are carried out regularly in accordance with manufacturers’ and/or site requirements</td>
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<tbody>
<tr>
<td>4</td>
<td>Drive bore hole</td>
<td>4.1 Launch and receiving pits are constructed to specifications to accommodate bore rig and tools</td>
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<tr>
<td></td>
<td></td>
<td>4.2 Launch and receiving pits are prepared for inserting and receiving bore head in accordance with site requirements</td>
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<td></td>
<td></td>
<td>4.3 Traverse line of bore head to receiving pit is established prior to launching mole</td>
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<tr>
<td></td>
<td></td>
<td>4.4 Machine is monitored for continuity of production in varied site conditions in accordance with standard work practices</td>
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<tbody>
<tr>
<td>6</td>
<td>Clean up</td>
<td>5.1 Work area is cleared and materials disposed of or recycled in accordance with project environmental management plan</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5.2 Plant, tools and equipment cleaned, checked, maintained and stored in accordance with manufacturers’ recommendations and standard work practices</td>
</tr>
</tbody>
</table>
Range Statement

The Range Statement provides advice to interpret the scope and context of this unit of competency allowing for differences between enterprises and workplaces. It relates to the unit as a whole and facilitates holistic assessment. The following variables relate to this particular unit:

Unit scope

- Trenchless Technology is the science of installing, repairing or renewing underground pipes, ducts and cables using techniques which minimise or eliminate the need for excavation. Impact moling, ramming, and augering is classified under the category of ‘new installation’

- Moling, ramming and augering may include use for short house connections or for short crossings of obstacles

- Impact moling, ramming, and augering are to include but not limited to boring under roadways, railways, footpaths, other services and for up to a distance of 100m

- Traffic control signage may include but not be limited, site safety signage, temporary signage for the benefit of motorists and pedestrians, barricades, and traffic conditions signage

- Planning and preparation is to include but not be limited to worksite inspection, equipment defect identification, assessment of conditions and hazards and determination of work requirements

- Traffic conditions may include but not be limited to congested urban environments, low traffic rural areas, off-road un-trafficked areas, buildings, parking sites and pedestrian areas

Safety (OH&S)

- OH&S requirements are to be in accordance with State or Territory legislation and regulations, organisational safety policy and procedures and project safety plan. This may include 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

- Personal protective equipment is to include that prescribed under legislation, regulation and workplace policies and practices
Safety (OH&S) continued

- Safe operating procedures are to include but not be limited to recognising and preventing hazards associated with overhead services, other machines, personnel, restricted access barriers, traffic control, working in proximity to others, worksite visitors and the public.

- Hazards and risks may include but not be limited to uneven/unstable terrain, trees, fires, overhead and underground services, bridges, buildings, excavations, traffic, embankments, cuttings, structures and hazardous materials.

- Emergency procedures related to this unit are to include but may not be limited to emergency shutdown and stopping, organisational first aid requirements and evacuation.

Environmental Requirements

- Environmental requirements are to include but not be limited to organisational/project environmental management plan, waste management, water quality protection, noise, vibration, dust and clean-up management.

Quality Requirements

- Quality requirements may include but not be limited to dimensions, tolerances, standards of work and material standards as detailed in the project drawings, specifications and project documentation to meet client satisfaction.

Statutory/Regulatory Authorities

- Statutory/regulatory authorities may include Federal, State and Local Authorities.

Tools and equipment

- Tools and equipment are to include but not be limited to, impact boring equipment, pumps, compressors, hoses, tape measures, marking equipment, crow bars, spanners, adjustable wrenches, shovels, picks, hammers (sledge/hand), string lines, spirit levels, dumpy levels, theodolites, brooms, hacksaws, hand saws, and electronic tracking devices and may include slings and cranes.

Communications

- Communications are to include but not be limited to verbal instructions and fault reporting and may include two way radio, hand signals, mobile phone, site specific instructions, written instructions or instructions related to job/task.
Information

- Information sources may include but not be limited to verbal or written and graphical instructions, signage, work schedules/plans/specifications, work bulletins, charts and hand drawings, memos, material safety data sheets (MSDS) and diagrams or sketches
- Safe work procedures or equivalent related to impact moling, ramming and augering
- Regulatory/legislative requirements pertaining to impact moling, ramming and augering
- Manufacturers’ specifications and instructions
- Organisation work specifications and requirements
- Instructions issued by authorised organisational or external personnel
- Relevant Australian Standards

Evidence Guide

The Evidence Guide identifies the critical aspects, knowledge and skills to be demonstrated to confirm competency for this unit. This is an integral part of the assessment of competency and should be read in conjunction with the Performance Criteria, the Range Statement, and the Assessment Guidelines of the Training Package.

Critical aspects of evidence required to demonstrate competency in this unit

- Location, interpretation and application of relevant information, standards and specifications
- Compliance with site safety plan, OH&S regulations and State/Territory legislation applicable to workplace operations
- Compliance with organisational policies and procedures including quality requirements
- Completion of at least 50 metres of impact moling, ramming and augering work to specifications
- Safe and effective operational use of tools, plant and equipment
- Communication and working effectively and safely with others

Relationship to other units

- Pre-requisite units are:
  
  BCCCM1001C Follow OH&S policies and procedures

  Competency in this unit may be assessed in conjunction with other functional units which together form part of the holistic work role
Specific knowledge required to achieve the performance criteria

• A knowledge of
  - Site and equipment safety requirements
  - Drilling fluids
  - Categories of horizontal directional drilling
  - Laser control equipment
  - Manual handling
  - Confined space entry
  - Electronic cable locating devices
  - Slinging procedures
  - Processes for interpreting engineering drawings
  - Equipment types, characteristics, technical capabilities and limitations
  - Operational, maintenance and basic diagnostic procedures
  - Site isolation and traffic control responsibilities and authorities
  - Materials Safety Data Sheets and materials handling methods
  - Project quality-requirements
  - Civil construction terminology
  - Impact moling, ramming and augering
  - JSA’s/Safe work method statement

The context of assessment

• The application of competency is to be assessed in the workplace or realistically simulated workplace

• Assessment is to occur under standard and authorised work practices, safety requirements and environmental constraints

• Assessment of essential underpinning knowledge, other than confirmatory questions, will usually be conducted in an off-site context

• Assessment is to comply with relevant regulatory or Australian Standards requirements

Methods of assessment

• Assessment must satisfy the endorsed assessment guidelines of the Building and Construction industry’s Civil Construction Training Package

• Assessment methods must confirm consistency and accuracy of performance together with application of underpinning knowledge

• Assessment must be by direct observation of tasks,
Assessment methods must confirm the ability to access and correctly interpret and apply the essential underpinning knowledge.

Assessment may be applied under project related conditions (real or simulated) and require evidence of process.

Assessment must confirm a reasonable inference that competency is able not only to be satisfied under the particular circumstance, but is able to be transferred to other circumstances.

Assessment may be in conjunction with assessment of other units of competency, including those listed above.

Specific resource requirements for this unit:

- The following resources should be made available:
  - workplace location or simulated workplace
  - machinery and equipment relevant to impact moling, ramming and augering
  - hand and power tools, small plant and equipment relevant to impact moling, ramming and augering
  - specifications and work instructions
  - a crane and slings

... End ...
BCCTT3003B Conduct microtunnelling and pipejacking

Unit Descriptor
This unit specifies the competency required to undertake microtunnelling and pipejacking activities associated with horizontal directional drilling, within the trenchless technology sector of the civil construction industry.

This unit includes pipejacking systems, microtunnelling systems, jacking frames, pipes, lubrication and shafts.

Employability Skills
The required outcomes described in this Unit of Competency contain applicable facets of employability skills. The Employability Skills Qualification Summary for the qualification in which this Unit of Competency is packaged will assist in identifying employability skill requirements.

Element
Elements define the essential outcomes of a unit of competency.

Performance Criteria
Performance criteria specify the level of performance required to demonstrate achievement of the element.

1 Plan and prepare
1.1 Work instructions, including plans, specifications, quality requirements and operational details are obtained, confirmed and applied to the allotted task
1.2 Safety requirements are obtained from the site safety plan and organisational policies and procedures, confirmed and applied to the allotted task
1.3 Signage requirements are identified and obtained from the project traffic management plan and implemented
1.4 Plant, tools and equipment selected to carry out tasks are consistent with the requirements of the job, checked for serviceability and any faults are rectified or reported
1.5 Environmental protection requirements are identified from the project environmental management plan, confirmed and applied to the allotted task

2 Prepare for boring operations
2.1 Location, alignment direction, level and grade of bore is determined from drawings and specifications
2.2 Above and below ground survey instruments are used to determine the bore pathway for underground vertical and horizontal alignment
2.3 Visual geological investigation of alignment is conducted to determine the differing soil types and groundwater conditions
2.4 Bore head and drilling fluid is selected for the strata
2.5 Boring equipment is positioned, anchored/staked down
3 Conduct equipment checks

3.1 Safety requirements are identified and applied in accordance with manufacturers’ specifications

3.2 Start-up, shut-down and communications procedures are carried out in accordance with manufacturers’ and/or site specific requirements

3.3 Equipment controls and functions, including implements or other attachments, anchors and/or stabilizing equipment are checked for serviceability, and faults reported

3.4 Inspection and fault finding is conducted in accordance with manufacturers’ specifications and/or site requirements

3.5 Equipment maintenance tasks are carried out regularly in accordance with manufacturers’ and/or site requirements

4 Drive bore hole

4.1 Launch and receiving pits are constructed to specifications to accommodate bore rig and tools

4.2 Trench collapse prevention for launch and receiving pits are identified and implemented.

4.3 Thrust wall is established to specific design in accordance with pipe size and soil characteristics

4.4 Traverse line of pilot hole to receiving pit is determined in accordance with plans and specifications

4.5 Traverse line of pilot hole to receiving pit is confirmed at specified distances

4.6 Spoil is collected and disposed of in accordance with job specifications

4.7 Augers are selected and attached to drilling machine in accordance with design specifications

4.8 Casings/pipes are jacked through to receiving pit in compliance with design specifications

4.9 Equipment is monitored for continuity of production in varied site conditions in accordance with standard work practices
5 Clean up

5.1 Work area is cleared and materials disposed of or recycled in accordance with project environmental management plan

5.2 Plant, tools and equipment are cleaned, checked, maintained and stored in accordance with manufacturers’ recommendations and standard work practices

Range Statement

The Range Statement provides advice to interpret the scope and context of this unit of competency allowing for differences between enterprises and workplaces. It relates to the unit as a whole and facilitates holistic assessment. The following variables relate to this particular unit:

Unit scope

- Trenchless technology is the science of installing, repairing or renewing underground pipes, ducts and cables using techniques which minimise or eliminate the need for excavation. Microtunnelling and pipejacking is classified under the category of ‘new installation’

- Microtunnelling may include but not be limited to laser guidance, remote controlled, steerable, controlled evacuation tunnelling methods for pipelines of one metre diameter or less and up to lengths of two hundred metres

- Microtunnelling and pipejacking is to include but not be limited to boring under roadways, railways, and footpaths

- Pipejacking is used to aid spoil removal and may include removal by auger, slurry conversion or vacuum extraction

- Pipejacking pipes may include but not be limited to steel, hobar, clay and concrete pipes

- Traffic control signage may include but not be limited, site safety signage, temporary signage for the benefit of motorists and pedestrians, barricades, and traffic conditions signage

- Planning and preparation is to include, but not be limited to, worksite inspection, utility defect identification, assessment of conditions and hazards and determination of work requirements

- Traffic conditions may include, but not be limited to, congested urban environments, low traffic rural areas, off-road un-trafficked areas, buildings, parking sites and pedestrian areas
<table>
<thead>
<tr>
<th>Safety (OH&amp;S)</th>
<th>OH&amp;S requirements are to be in accordance with State or Territory legislation and regulations, organisational safety policy and procedures and project safety plan. This may include 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.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Personal protective equipment is to include that prescribed under legislation, regulation and workplace policies and practices.</td>
</tr>
<tr>
<td></td>
<td>Safe operating procedures are to include but not be limited to recognising and preventing hazards associated with overhead services, other machines, personnel, restricted access barriers, traffic control, working in proximity to others, worksite visitors and the public.</td>
</tr>
<tr>
<td></td>
<td>Hazards and risks may include but not be limited to uneven/unstable terrain, trees, fires, overhead and underground services, bridges, buildings, excavations, traffic, embankments, cuttings, structures and hazardous materials.</td>
</tr>
<tr>
<td></td>
<td>Emergency procedures related to this unit are to include but may not be limited to emergency shutdown and stopping, organisational first aid requirements and evacuation.</td>
</tr>
<tr>
<td>Environmental Requirements</td>
<td>Environmental requirements are to include but not be limited to organisational/project environmental management plan, waste management, water quality protection, noise, vibration, dust and clean-up management.</td>
</tr>
<tr>
<td>Quality Requirements</td>
<td>Quality requirements may include but not be limited to dimensions, tolerances, standards of work and material standards as detailed in the project drawings, specifications and project documentation to meet client satisfaction.</td>
</tr>
<tr>
<td>Statutory/Regulatory Authorities</td>
<td>Statutory/regulatory authorities may include Federal, State and Local Authorities.</td>
</tr>
</tbody>
</table>
Tools and equipment

- Tools and equipment are to include but not be limited to microtunnelling and pipejacking equipment, pumps, compressors, hoses, tape measures, marking equipment, crow bars, spanners, adjustable wrenches, shovels, picks, hammers (sledge/hand), string lines, spirit levels, dumpy levels, theodolites, brooms, hacksaws, hand saws, and electronic tracking devices and may include slings and cranes.

Communications

- Communications are to include but not be limited to verbal instructions and fault reporting and may include two way radio, hand signals, mobile phone, site specific instructions, written instructions or instructions related to job/task.

Information

- Information sources may include but not be limited to verbal or written and graphical instructions, signage, work schedules/plans/specifications, work bulletins, charts and hand drawings, memos, material safety data sheets (MSDS) and diagrams or sketches.

  - Safe work procedures or equivalent related to microtunnelling and pipejacking.

  - Regulatory/legislative requirements pertaining to microtunnelling and pipejacking.

  - Manufacturers’ specifications and instructions.

  - Organisation work specifications and requirements.

  - Instructions issued by authorised organisational or external personnel.

  - Relevant Australian Standards.
Evidence Guide

The Evidence Guide identifies the critical aspects, knowledge and skills to be demonstrated to confirm competency for this unit. This is an integral part of the assessment of competency and should be read in conjunction with the Performance Criteria, the Range Statement, and the Assessment Guidelines of the Training Package.

Critical aspects of evidence required to demonstrate competency in this unit

- Location, interpretation and application of relevant information, standards and specifications
- Compliance with site safety plan, OH&S regulations and State/Territory legislation applicable to workplace operations
- Compliance with organisational policies and procedures including quality requirements
- Completion of at least 50 metres of microtunnelling and pipejacking to specifications
- Safe and effective operational use of tools, plant and equipment
- Communication and working effectively and safely with others

Relationship to other units

- Pre-requisite units are:
  BCCCM1001C Follow OH&S policies and procedures

Competency in this unit may be assessed in conjunction with other functional units which together form part of the holistic work role
Specific knowledge required to achieve the performance criteria

- A knowledge of
  - Site and equipment safety requirements
  - Drilling fluids
  - Categories of horizontal directional drilling
  - Laser control equipment
  - Manual handling
  - Confined space entry
  - Electronic cable locating devices
  - Slinging procedures
  - Processes for interpreting engineering drawings
  - Equipment types, characteristics, technical capabilities and limitations
  - Operational, maintenance and basic diagnostic procedures
  - Site isolation and traffic control responsibilities and authorities
  - Materials Safety Data Sheets and materials handling methods
  - Project quality requirements
  - Civil construction terminology
  - Microtunnelling and pipejacking
  - JSA’s/Safe work method statement

The context of assessment

- The application of competency is to be assessed in the workplace or realistically simulated workplace

- Assessment is to occur under standard and authorised work practices, safety requirements and environmental constraints

- Assessment of essential underpinning knowledge, other than confirmatory questions, will usually be conducted in an off-site context

- Assessment is to comply with relevant regulatory or Australian Standards requirements
Methods of assessment

- Assessment must satisfy the endorsed assessment guidelines of the Building and Construction industry’s Civil Construction Training Package
- Assessment methods must confirm consistency and accuracy of performance together with application of underpinning knowledge
- Assessment must be by direct observation of tasks, with questioning on underpinning knowledge
- Assessment methods must confirm the ability to access and correctly interpret and apply the essential underpinning knowledge
- Assessment may be applied under project related conditions (real or simulated) and require evidence of process
- Assessment must confirm a reasonable inference that competency is able not only to be satisfied under the particular circumstance, but is able to be transferred to other circumstances
- Assessment may be in conjunction with assessment of other units of competency, including those listed above

Specific resource requirements for this unit

- The following resources should be made available:
  - workplace location or simulated workplace
  - machinery and equipment relevant to microtunnelling and pipejacking
  - hand and power tools, small plant and equipment relevant to microtunnelling and pipejacking
  - specifications and work instructions
  - a crane and slings

... End ...
BCCTT3004B Undertake on-line replacement for existing pipeline systems

Unit Descriptor
This unit specifies the competency required to undertake the on-line replacement of pipes or pipe sections for the rehabilitation of existing services pipeline system associated with the trenchless technology sector of the civil construction industry.

This unit includes percussive pipebursting, hydraulic pipebursting, pipe splitting, pipe eating, pipe reaming and lead service pipe replacement.

Employability Skills
The required outcomes described in this Unit of Competency contain applicable facets of employability skills. The Employability Skills Qualification Summary for the qualification in which this Unit of Competency is packaged will assist in identifying employability skill requirements.

Element Performance Criteria
Performance criteria specify the level of performance required to demonstrate achievement of the element.

1 Plan and prepare
1.1 Work instructions, including plans, specifications, quality requirements and operational details are obtained, confirmed and applied to the allotted task
1.2 Safety requirements are obtained from the site safety plan and organisational policies and procedures, confirmed and applied to the allotted task
1.3 Signage requirements are identified and obtained from the project traffic management plan and implemented
1.4 Plant, tools and equipment selected to carry out tasks are consistent with the requirements of the job, checked for serviceability and any faults are rectified or reported
1.5 Environmental protection requirements are identified from the project environmental management plan, confirmed and applied to the allotted task

2 Perform site survey
2.1 Property owners and occupiers are notified and approval for entry onto their property obtained
2.2 Site conditions are determined by visual inspection, plans, discussion with land owners and information from service utilities
2.3 Underground utilities are located
2.4 System serviceability is maintained during
rehabilitation works in accordance with asset owners’ policies, allowable duration of service interruption, and project specifications

2.5 Existing site conditions are surveyed and recorded

3 Initiate rehabilitation work

3.1 Entry and exit pits where specified are prepared in accordance with site and OH&S requirements

3.2 Confined space entry procedures are followed

3.3 Installation process and finished product are monitored to ensure conformity to the design requirements in accordance with manufacturers’ specifications and project specifications

4 Undertake on-line replacement

4.1 Fault is determined with the aid of plans, drawings, CCTV recordings or other mechanisms

4.2 On-line replacement method is selected appropriate to the fault

4.3 Existing pipeline structure designated for replacement is removed using tool selected

4.4 New pipe structure is pulled into place

4.5 Replacement components are installed to comply with design requirements and manufacturers’ specifications

4.6 Curing process is conducted to comply with manufacturers’ specifications where specified

4.7 Termination at ends of process are correctly secured and sealed in accordance with manufacturers’ specifications

4.8 Junctions are opened for inspection and operation

4.9 Installation process and finished product are monitored to ensure conformity to the design requirements in accordance with manufacturers’ specifications

5 Clean up

5.1 Work area is cleared and materials disposed of or recycled in accordance with project environmental management plan

5.2 Plant, tools and equipment are cleaned, checked, maintained and stored in accordance with manufacturers’ recommendations and standard work practices
Range Statement

The Range Statement provides advice to interpret the scope and context of this unit of competency allowing for differences between enterprises and workplaces. It relates to the unit as a whole and facilitates holistic assessment. The following variables relate to this particular unit:

Unit scope

- Trenchless technology is the science of installing, repairing or renewing underground pipes, ducts and cables using techniques which minimise or eliminate the need for excavation
- On-line replacement method of repair technique is classified under the category of ‘repair and renovation’
- On-line replacement may include but not be limited to replacing existing pipes with the same size pipe or upsizing without trenching. The operations may be conducted while the pipeline remains operational
- Pipe characteristics may include but not be limited to size, shape, material, joint type, depth, grade, rake condition, service off takes and on-line structures
- Traffic control signage may include but not be limited to site safety signage, temporary signage for the benefit of motorists and pedestrians, barricades, and traffic conditions signage
- Planning and preparation is to include but not be limited to worksite inspection, equipment defect identification, assessment of conditions and hazards and determination of work requirements
- Traffic conditions may include but not be limited to congested urban environments, low traffic rural areas, off-road un-trafficked areas, buildings, parking sites and pedestrian areas.
Safety (OH&S)

- OH&S requirements are to be in accordance with State or Territory legislation and regulations, organisational safety policy and procedures and project safety plan. This may include 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.

- Personal protective equipment is to include that prescribed under legislation, regulation and workplace policies and practices.

- Safe operating procedures are to include but not be limited to recognising and preventing hazards associated with overhead services, other machines, personnel, restricted access barriers, traffic control, working in proximity to others, worksite visitors and the public.

- Hazards and risks may include but not be limited to uneven/unstable terrain, trees, fires, overhead and underground services, bridges, buildings, excavations, traffic, embankments, cuttings, structures and hazardous materials.

- Emergency procedures related to this unit are to include but may not be limited to emergency shutdown and stopping, organisational first aid requirements and evacuation.

Environmental Requirements

- Environmental requirements are to include but not be limited to organisational/project environmental management plan, waste management, water quality protection, noise, vibration, dust and clean-up management.

Quality Requirements

- Quality requirements may include but not be limited to dimensions, tolerances, standards of work and material standards as detailed in the project drawings, specifications and project documentation to meet client satisfaction.

Statutory/Regulatory Authorities

- Statutory/regulatory authorities may include Federal, State and Local Authorities.
Tools and equipment

- Tools and equipment are to include but not be limited to, pumps, compressor, hoses, tape measure, marking equipment, crow bars, spanners, adjustable wrenches, shovels, picks, hammers (sledge/hand), string lines spirit levels, dumpy levels, theodolite, brooms, hacksaw, hand saw, and electronic tracking devices and may include slings and a crane

Communications

- Communications are to include but not be limited to verbal instructions and fault reporting and may include two way radio, hand signals, mobile phone, site specific instructions, written instructions or instructions related to job/task.

Information

- Information sources may include but not be limited to verbal or written and graphical instructions, signage, work schedules / plans / specifications, work bulletins, charts and hand drawings, memos, material safety data sheets (MSDS) and diagrams or sketches
- Safe work procedures or equivalent related to on line replacement processes
- Regulatory / legislative requirements pertaining to on line replacement
- Manufacturers’’ specifications and instructions
- Organisation work specifications and requirements
- Instructions issued by authorised organisational or external personnel
- Relevant Australian Standards
Evidence Guide

The Evidence Guide identifies the critical aspects, knowledge and skills to be demonstrated to confirm competency for this unit. This is an integral part of the assessment of competency and should be read in conjunction with the Performance Criteria, the Range Statement, and the Assessment Guidelines of the Training Package.

Critical aspects of evidence required to demonstrate competency in this unit

- Location, interpretation and application of relevant information, standards and specifications
- Compliance with site safety plan, OH&S regulations and State/Territory legislation applicable to workplace operations
- Compliance with organisational policies and procedures including quality requirements
- Completion of at least two different on-line replacement projects to specification
- Safe and effective operational use of tools, plant and equipment
- Communication and working effectively and safely with others

Relationship to other units

- Pre-requisite units are: BCCCM1001C Follow OH&S policies and procedures

Competency in this unit may be assessed in conjunction with other functional units which together form part of the holistic work role
Specific knowledge required to achieve the performance criteria

- A knowledge of
  - Site and equipment safety requirements
  - Laser control equipment
  - Manual handling
  - Confined space entry
  - Processes for interpreting engineering drawings
  - Equipment types, characteristics, technical capabilities and limitations
  - Operational, maintenance and basic diagnostic procedures
  - Site isolation and traffic control responsibilities and authorities
  - Materials Safety Data Sheets and materials handling methods
  - Project quality requirements
  - Civil construction terminology
  - On-line replacement for existing pipeline systems
  - Pipeline systems
  - JSA’s/Safe work method statement

The context of assessment

- The application of competency is to be assessed in the workplace or realistically simulated workplace
- Assessment is to occur under standard and authorised work practices, safety requirements and environmental constraints
- Assessment of essential underpinning knowledge, other than confirmatory questions, will usually be conducted in an off-site context
- Assessment is to comply with relevant regulatory or Australian Standards requirements
Methods of assessment

- Assessment must satisfy the endorsed assessment guidelines of the Building and Construction industry’s Civil Construction Training Package
- Assessment methods must confirm consistency and accuracy of performance together with application of underpinning knowledge
- Assessment must be by direct observation of tasks, with questioning on underpinning knowledge
- Assessment methods must confirm the ability to access and correctly interpret and apply the essential underpinning knowledge
- Assessment may be applied under project related conditions (real or simulated) and require evidence of process
- Assessment must confirm a reasonable inference that competency is able not only to be satisfied under the particular circumstance, but is able to be transferred to other circumstances
- Assessment may be in conjunction with assessment of other units of competency, including those listed above

Specific resource requirements for this unit

- The following resources should be made available:
  - workplace location or simulated workplace
  - machinery and equipment relevant to on-line replacement for existing pipeline systems
  - hand and power tools, small plant and equipment relevant to on-line replacement for existing pipeline systems
  - specifications and work instructions
BCCTT3005B  Undertake localised repair and sealing of existing pipeline systems

Unit Descriptor
This unit specifies the competency required to undertake the localised repair and sealing process for the rehabilitation of existing services pipeline system associated with, the trenchless technology sector of the civil construction industry.

The unit includes sleeve repairs, resin injection, fill and drain systems, robotic repairs, mechanical sealing, pipe re-rounding.

Employability Skills
The required outcomes described in this Unit of Competency contain applicable facets of employability skills. The Employability Skills Qualification Summary for the qualification in which this Unit of Competency is packaged will assist in identifying employability skill requirements.

Element
Elements define the essential outcomes of a unit of competency.

Performance Criteria
Performance criteria specify the level of performance required to demonstrate achievement of the element.

1  Plan and prepare
1.1 Work instructions, including plans, specifications, quality requirements and operational details are obtained, confirmed and applied to the allotted task
1.2 Safety requirements are obtained from the site safety plan and organisational policies and procedures, confirmed and applied to the allotted task
1.3 Signage requirements are identified and obtained from the project traffic management plan and implemented
1.4 Plant, tools and equipment selected to carry out tasks are consistent with the requirements of the job, checked for serviceability and any faults are rectified or reported
1.5 Environmental protection requirements are identified from the project environmental management plan, confirmed and applied to the allotted task

2  Perform site survey
2.1 Property owners and occupiers are notified and approval for entry onto their property obtained
2.2 Site conditions are determined by visual inspection, plans, discussion with land owners and information from service utilities
2.3 Underground utilities are located
2.4 System serviceability is maintained during
2.5 Existing site conditions are surveyed and recorded

3. Initiate rehabilitation works

3.1 Entry and exit pits where specified are prepared in accordance with site and OH&S requirements

3.2 Confined space entry procedures are followed

3.3 Installation process and finished product are monitored to ensure conformity to the design requirements in accordance with manufacturers’ specifications and project specifications

4 Undertake localised repair and sealing

4.1 Fault is determined with the aid of plans, drawings, CCTV recording or other mechanisms

4.2 Repair or sealing method is selected appropriate to the fault

4.3 Pressure cleaning is applied to the designated location

4.4 Repair or sealing material is installed to comply with design requirements and manufacturers’ specifications

4.5 Curing process is conducted to comply with manufacturers’ specifications

4.6 Termination at ends of process are correctly secured and sealed in accordance with manufacturers’ specifications

4.7 Junctions are opened for inspection and operation

4.8 Installation process and finished product are monitored to ensure conformity to the design requirements in accordance with manufacturers’ specifications

5 Clean up

5.1 Work area is cleared and materials disposed of or recycled in accordance with project environmental management plan

5.2 Plant, tools and equipment are cleaned, checked, maintained and stored in accordance with manufacturers’ recommendations and standard work practices
Range Statement

The Range Statement provides advice to interpret the scope and context of this unit of competency allowing for differences between enterprises and workplaces. It relates to the unit as a whole and facilitates holistic assessment. The following variables relate to this particular unit:

Unit scope

• Trenchless technology is the science of installing, repairing or renewing underground pipes, ducts and cables using techniques which minimise or eliminate the need for excavation

• Localised repair and sealing is classified under the category of ‘repair and renovation’

• Localised repair and sealing is used to fix minor structural defects in pipes, these may include joint sealing, sleeve or patch repairs, resin injection systems, robotic repairs and pipe re-rounding

• Localised repair and sealing is to include but not be limited to repairing or renovating non-man-entry pits, including sewer, gas and water

• Traffic control signage may include but not be limited to site safety signage, temporary signage for the benefit of motorists and pedestrians, barricades, and traffic conditions signage

• Planning and preparation is to include but not be limited to worksite inspection, equipment defect identification, assessment of conditions and hazards and determination of work requirements

• Traffic conditions may include but not be limited to congested urban environments, low traffic rural areas, off-road un-trafficked areas, buildings, parking sites and pedestrian areas
Safety (OH&S) • OH&S requirements are to be in accordance with State or Territory legislation and regulations, organisational safety policy and procedures and project safety plan. This may include 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.

• Personal protective equipment is to include that prescribed under legislation, regulation and workplace policies and practices.

• Safe operating procedures are to include but not be limited to recognising and preventing hazards associated with overhead services, other machines, personnel, restricted access barriers, traffic control, working in proximity to others, worksite visitors and the public.

• Hazards and risks may include but not be limited to uneven/unstable terrain, trees, fires, overhead and underground services, bridges, buildings, excavations, traffic, embankments, cuttings, structures and hazardous materials.

• Emergency procedures related to this unit are to include but may not be limited to emergency shutdown and stopping, organisational first aid requirements and evacuation.

Environmental Requirements • Environmental requirements are to include but not be limited to organisational/project environmental management plan, waste management, water quality protection, noise, vibration, dust and clean-up management.

Quality Requirements • Quality requirements may include but not be limited to dimensions, tolerances, standards of work and material standards as detailed in the project drawings, specifications and project documentation to meet client satisfaction.

Statutory/Regulatory Authorities • Statutory/regulatory authorities may include Federal, State and Local Authorities.
Tools and equipment

- Tools and equipment are to include but not be limited to repair and sealing equipment, pumps, compressors, hoses, tape measures, marking equipment, crow bars, spanners, adjustable wrenches, shovels, picks, hammers (sledge/hand), string lines, spirit levels, dumpy levels, theodolites, brooms, hacksaws, hand saws, and electronic tracking devices and may include slings and cranes.

Communications

- Communications are to include but not be limited to verbal instructions and fault reporting and may include two way radio, hand signals, mobile phone, site specific instructions, written instructions or instructions related to job/task.

Information

- Information sources may include but not be limited to verbal or written and graphical instructions, signage, work schedules/plans/specifications, work bulletins, charts and hand drawings, memos, material safety data sheets (MSDS) and diagrams or sketches.
- Safe work procedures or equivalent related to the Localised repair & sealing processes.
- Regulatory/legislative requirements pertaining to Localised repair & sealing.
- Manufacturers’ specifications and instructions.
- Organisation work specifications and requirements.
- Instructions issued by authorised organisational or external personnel.
- Relevant Australian Standards.
## Evidence Guide

The Evidence Guide identifies the critical aspects, knowledge and skills to be demonstrated to confirm competency for this unit. This is an integral part of the assessment of competency and should be read in conjunction with the Performance Criteria, the Range Statement, and the Assessment Guidelines of the Training Package.

### Critical aspects of evidence required to demonstrate competency in this unit

- Location, interpretation and application of relevant information, standards and specifications
- Compliance with site safety plan, OH&S regulations and State/Territory legislation applicable to workplace operations
- Compliance with organisational policies and procedures including quality requirements
- Completion of at least two localised repair and sealing projects to specifications
- Safe and effective operational use of tools, plant and equipment
- Communication and working effectively and safely with others

### Relationship to other units

- Pre-requisite units are:
  - BCCCM1001C Follow OH&S policies and procedures

  Competency in this unit may be assessed in conjunction with other functional units which together form part of the holistic work role.
Specific knowledge required to achieve the performance criteria

- A knowledge of
  - Site and equipment safety requirements
  - Laser control equipment
  - Manual handling
  - Confined space entry
  - Processes for interpreting engineering drawings
  - Equipment types, characteristics, technical capabilities and limitations
  - Operational, maintenance and basic diagnostic procedures
  - Site isolation and traffic control responsibilities and authorities
  - Materials Safety Data Sheets and materials handling methods
  - Project quality-requirements
  - Civil construction terminology
  - Localised repair and sealing methods
  - Pipeline systems
  - JSA’s/Safe work method statement

The context of assessment

- The application of competency is to be assessed in the workplace or realistically simulated workplace
- Assessment is to occur under standard and authorised work practices, safety requirements and environmental constraints
- Assessment of essential underpinning knowledge, other than confirmatory questions, will usually be conducted in an off-site context
- Assessment is to comply with relevant regulatory or Australian Standards requirements
Methods of assessment

- Assessment must satisfy the endorsed assessment guidelines of the Building and Construction industry’s Civil Construction Training Package
- Assessment methods must confirm consistency and accuracy of performance together with application of underpinning knowledge
- Assessment must be by direct observation of tasks, with questioning on underpinning knowledge
- Assessment methods must confirm the ability to access and correctly interpret and apply the essential underpinning knowledge
- Assessment may be applied under project related conditions (real or simulated) and require evidence of process
- Assessment must confirm a reasonable inference that competency is able not only to be satisfied under the particular circumstance, but is able to be transferred to other circumstances
- Assessment may be in conjunction with assessment of other units of competency, including those listed above

Specific resource requirements for this unit

The following resources should be made available:

- workplace location or simulated workplace
- machinery and equipment relevant to localised repair and sealing of existing pipeline systems
- hand and power tools, small plant and equipment relevant to localised repair and sealing of existing pipeline systems
- specifications and work instructions
- a crane and slings

… End …
Install cure in-place linings for existing pipeline systems

Unit Descriptor

This unit specifies the competency required to undertake the cure in-place lining process for the rehabilitation of existing services pipeline system associated with the trenchless technology sector of the civil construction industry.

The unit includes thermal cure, UV cure and ambient cure liners for gas and water main renovation.

Employability Skills

The required outcomes described in this Unit of Competency contain applicable facets of employability skills. The Employability Skills Qualification Summary for the qualification in which this Unit of Competency is packaged will assist in identifying employability skill requirements.

Element Performance Criteria

Performance criteria specify the level of performance required to demonstrate achievement of the element.

1. Plan and prepare

   1.1 Work instructions, including plans, specifications, quality requirements and operational details are obtained, confirmed and applied to the allotted task

   1.2 Safety requirements are obtained from the site safety plan and organisational policies and procedures, confirmed and applied to the allotted task

   1.3 Signage requirements are identified and obtained from the project traffic management plan and implemented

   1.4 Plant, tools and equipment selected to carry out tasks are consistent with the requirements of the job, checked for serviceability and any faults are rectified or reported

   1.5 Environmental protection requirements are identified from the project environmental management plan, confirmed and applied to the allotted task

2. Perform site survey

   2.1 Property owners and occupiers are notified and approval for entry onto their property obtained

   2.2 Site conditions are determined by visual inspection, plans, discussion with land owners and information from service utilities

   2.3 Underground utilities are located

   2.4 System serviceability is maintained during rehabilitation works in accordance with asset owners’ policies, allowable duration of service interruption, and
## Install cure-in-place linings for existing pipeline systems

**Project Specifications**

### 2.5 Existing site conditions are surveyed and recorded

### 3 Initiate rehabilitation work

<table>
<thead>
<tr>
<th>Step</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.1</td>
<td>Entry and exit pits where specified are prepared in accordance with site and OH&amp;S requirements</td>
</tr>
<tr>
<td>3.2</td>
<td>Confined space entry procedures are followed</td>
</tr>
<tr>
<td>3.3</td>
<td>Installation process and finished product are monitored to ensure conformity to the design requirements in accordance with manufacturers specifications and project specifications</td>
</tr>
</tbody>
</table>

### 4 Complete cure in-place lining

<table>
<thead>
<tr>
<th>Step</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.1</td>
<td>Fault is determined with the aid of plans, drawings, CCTV recordings or other mechanisms</td>
</tr>
<tr>
<td>4.2</td>
<td>Resin impregnated liners are selected appropriate to the fault</td>
</tr>
<tr>
<td>4.3</td>
<td>Pressure cleaning is applied to the designated location</td>
</tr>
<tr>
<td>4.4</td>
<td>Cure in-place lining material is installed to comply with design requirements and manufacturers specifications</td>
</tr>
<tr>
<td>4.5</td>
<td>Curing process is conducted to comply with manufacturers specifications</td>
</tr>
<tr>
<td>4.6</td>
<td>Termination at ends of process is correctly secure and sealed in accordance with manufacturers specifications</td>
</tr>
<tr>
<td>4.7</td>
<td>Junctions are opened for inspection and operation</td>
</tr>
<tr>
<td>4.8</td>
<td>Installation process and finished product are monitored to ensure conformity to the design requirements in accordance with manufacturers’ specifications and project specifications</td>
</tr>
</tbody>
</table>

### 5 Clean up

<table>
<thead>
<tr>
<th>Step</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.1</td>
<td>Work area is cleared and materials disposed of or recycled in accordance with project environmental management plan</td>
</tr>
<tr>
<td>5.2</td>
<td>Tools and equipment cleaned, checked, maintained and stored in accordance with manufacturers’ recommendations and standard work practices</td>
</tr>
</tbody>
</table>
Range Statement

The Range Statement provides advice to interpret the scope and context of this unit of competency allowing for differences between enterprises and workplaces. It relates to the unit as a whole and facilitates holistic assessment. The following variables relate to this particular unit:

Unit scope

- Trenchless technology is the science of installing, repairing or renewing underground pipes, ducts and cables using techniques which minimise or eliminate the need for excavation
- Cure in-place lining is classified under the category of ‘repair and renovation’
- Cure in-place lining is to include but not be limited to repairing or renovating non-man-entry pits, including gas, sewer and water
- Cure in-place linings may include but not be limited to a resin impregnated sock inserted in the pipe and subsequently forced against the wall using water or air. Curing occurs by heat or ultra violet light
- Cure in-place linings may be used for pipes between 50 mm and 750 mm and may also be used for pipes which are not round
- Traffic control signage may include but not be limited to site safety signage, temporary signage for the benefit of motorists and pedestrians, barricades, and traffic conditions signage
- Planning and preparation is to include but not be limited to worksite inspection, equipment defect identification, assessment of conditions and hazards and determination of work requirements
- Traffic conditions may include but not be limited to congested urban environments, low traffic rural areas, off-road un-trafficked areas, buildings, parking sites and pedestrian areas
Safety (OH&S)

- OH&S requirements are to be in accordance with State or Territory legislation and regulations, organisational safety policy and procedures and project safety plan. This may include 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

- Personal protective equipment is to include that prescribed under legislation, regulation and workplace policies and practices

- Safe operating procedures are to include but not be limited to recognising and preventing hazards associated with underground and overhead services, other machines, personnel, restricted access barriers, traffic control, working in proximity to others, worksite visitors and the public

- Hazards and risks may include but not be limited to uneven/unstable terrain, trees, fires, overhead and underground services, bridges, buildings, excavations, traffic, embankments, cuttings, structures and hazardous materials

- Emergency procedures related to this unit are to include but may not be limited to emergency shutdown and stopping, organisational first aid requirements and evacuation

Environmental Requirements

- Environmental requirements are to include but not be limited to organisational/project environmental management plan, waste management, water quality protection, noise, vibration, dust and clean-up management

Quality Requirements

- Quality requirements may include but not be limited to dimensions, tolerances, standards of work and material standards as detailed in the project drawings, specifications and project documentation to meet client satisfaction

Statutory/Regulatory Authorities

- Statutory/regulatory authorities may include Federal, State and Local Authorities

Tools and equipment

- Tools and equipment are to include but not be limited to pumps, compressors, hoses, tape measures, marking equipment, crow bars, spanners, adjustable wrenches, shovels, picks, hammers (sledge/hand), string lines, spirit levels, dumpy levels, theodolites, brooms, hacksaws, hand saws, and electronic tracking devices and may include slings and cranes
Communications
• Communications are to include but not be limited to verbal instructions and fault reporting and may include two way radio, hand signals, mobile phone, site specific instructions, written instructions or instructions related to job/task

Information
• Information sources may include but not be limited to verbal or written and graphical instructions, signage, work schedules/plans/specifications, work bulletins, charts and hand drawings, memos, material safety data sheets (MSDS) and diagrams or sketches
• Safe work procedures or equivalent related to cure in-place lining
• Regulatory/legislative requirements pertaining to cure in-place lining
• Manufacturer’s specifications and instructions
• Organisation work specifications and requirements
• Instructions issued by authorised organisational or external personnel
• Relevant Australian Standards

Evidence Guide
The Evidence Guide identifies the critical aspects, knowledge and skills to be demonstrated to confirm competency for this unit. This is an integral part of the assessment of competency and should be read in conjunction with the Performance Criteria, the Range Statement, and the Assessment Guidelines of the Training Package.

Critical aspects of evidence required to demonstrate competency in this unit
• Location, interpretation and application of relevant information, standards and specifications
• Compliance with site safety plan, OH&S regulations and State/Territory legislation applicable to workplace operations
• Compliance with organisational policies and procedures including quality requirements
• Completion of at least two different cure in-place lining projects to specifications
• Safe and effective operational use of tools, plant and equipment
• Communication and working effectively and safely with others
Relationship to other units

• Pre-requisite units are:
  BCCCM1001C Follow OH&S policies and procedures

Competency in this unit may be assessed in conjunction with other functional units which together form part of the holistic work role

Specific knowledge required to achieve the performance criteria

• A knowledge of
  - Site and equipment safety requirements
  - Laser control equipment
  - Manual handling
  - Confined space entry
  - Use of remote unit
  - Processes for interpreting engineering drawings
  - Equipment types, characteristics, technical capabilities and limitations
  - Operational, maintenance and basic diagnostic procedures
  - Site isolation and traffic control responsibilities and authorities
  - Materials Safety Data Sheets and materials handling methods
  - Project quality-requirements
  - Civil construction terminology
  - Cure in-place linings
  - Pipeline systems
  - JSA’s/Safe work method statement
The context of assessment

- The application of competency is to be assessed in the workplace or realistically simulated workplace
- Assessment is to occur under standard and authorised work practices, safety requirements and environmental constraints
- Assessment of essential underpinning knowledge, other than confirmatory questions, will usually be conducted in an off-site context
- Assessment is to comply with relevant regulatory or Australian Standards requirements

Methods of assessment

- Assessment must satisfy the endorsed assessment guidelines of the Building and Construction industry’s Civil Construction Training Package
- Assessment methods must confirm consistency and accuracy of performance together with application of underpinning knowledge
- Assessment must be by direct observation of tasks, with questioning on underpinning knowledge
- Assessment methods must confirm the ability to access and correctly interpret and apply the essential underpinning knowledge
- Assessment may be applied under project related conditions (real or simulated) and require evidence of process
- Assessment must confirm a reasonable inference that competency is able not only to be satisfied under the particular circumstance, but is able to be transferred to other circumstances
- Assessment may be in conjunction with assessment of other units of competency, including those listed above
Specific resource requirements for this unit

- The following resources should be made available:
  - workplace location or simulated workplace
  - machinery and equipment relevant to cure in-place linings for existing pipeline systems
  - hand and power tools, small plant and equipment relevant to cure in-place linings for existing pipeline systems
  - specifications and work instructions
  - a crane and slings

… End …
## BCCTT3007B Spray linings for existing pipeline systems

### Unit Descriptor

This unit specifies the competency required to undertake the spray lining process for the rehabilitation of existing services pipeline system associated with the trenchless technology sector of the civil construction industry.

The unit includes cement mortar lining and epoxy lining.

### Employability Skills

The required outcomes described in this Unit of Competency contain applicable facets of employability skills. The Employability Skills Qualification Summary for the qualification in which this Unit of Competency is packaged will assist in identifying employability skill requirements.

### Element Performance Criteria

<table>
<thead>
<tr>
<th>Element</th>
<th>Performance Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Plan and prepare</td>
<td>1.1 Work instructions, including plans, specifications, quality requirements and operational details are obtained, confirmed and applied to the allotted task</td>
</tr>
<tr>
<td></td>
<td>1.2 Safety requirements are obtained from the site safety plan and organisational policies and procedures, confirmed and applied to the allotted task</td>
</tr>
<tr>
<td></td>
<td>1.3 Signage requirements are identified and obtained from the project traffic management plan and implemented</td>
</tr>
<tr>
<td></td>
<td>1.4 Plant, tools and equipment selected to carry out tasks are consistent with the requirements of the job, checked for serviceability and any faults are rectified or reported</td>
</tr>
<tr>
<td></td>
<td>1.5 Environmental protection requirements are identified from the project environmental management plan, confirmed and applied to the allotted task</td>
</tr>
<tr>
<td>2 Perform site survey</td>
<td>2.1 Property owners and occupiers are notified and approval for entry onto their property obtained</td>
</tr>
<tr>
<td></td>
<td>2.2 Site conditions are determined by visual inspection, plans, discussion with land owners and information from service utilities</td>
</tr>
<tr>
<td></td>
<td>2.3 Underground utilities are located</td>
</tr>
<tr>
<td></td>
<td>2.4 System serviceability is maintained during rehabilitation works in accordance with asset owners’ policies, allowable duration of service interruption, and project specifications</td>
</tr>
<tr>
<td></td>
<td>2.5 Existing site conditions are surveyed and recorded</td>
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<tr>
<td>3</td>
<td>Initiate rehabilitation work</td>
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<tr>
<td>4</td>
<td>Undertake spray lining</td>
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<tr>
<td>5</td>
<td>Clean up</td>
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</tbody>
</table>
Range Statement

The Range Statement provides advice to interpret the scope and context of this unit of competency allowing for differences between enterprises and workplaces. It relates to the unit as a whole and facilitates holistic assessment. The following variables relate to this particular unit:

**Unit scope**

- Trenchless technology is the science of installing, repairing or renewing underground pipes, ducts and cables using techniques which minimise or eliminate the need for excavation

- Spray lining is classified under the category of ‘repair and renovation’

- Spray lining is to include but not be limited to repairing or renovating non-man-entry pits, including water

- Spray lining is to include cement mortar or epoxy resin lining methods and is usually applied with a robotic spraying machine. This process is normally applied to small diameter pipelines

- Traffic control signage may include but not be limited to site safety signage, temporary signage for the benefit of motorists and pedestrians, barricades, and traffic conditions signage

- Planning and preparation is to include but not be limited to worksite inspection, equipment defect identification, assessment of conditions and hazards and determination of work requirements

- Traffic conditions may include but not be limited to congested urban environments, low traffic rural areas, off-road un-trafficked areas, buildings, parking sites and pedestrian areas
Safety (OH&S)

- OH&S requirements are to be in accordance with State or Territory legislation and regulations, organisational safety policy and procedures and project safety plan. This may include 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.

- Personal protective equipment is to include that prescribed under legislation, regulation and workplace policies and practices.

- Safe operating procedures are to include but not be limited to recognising and preventing hazards associated with underground and overhead services, other machines, personnel, restricted access barriers, traffic control, working in proximity to others, worksite visitors and the public.

- Hazards and risks may include but not be limited to uneven/unstable terrain, trees, fires, overhead and underground services, bridges, buildings, excavations, traffic, embankments, cuttings, structures and hazardous materials.

- Emergency procedures related to this unit are to include but may not be limited to emergency shutdown and stopping, organisational first aid requirements and evacuation.

Environmental Requirements

- Environmental requirements are to include but not be limited to organisational/project environmental management plan, waste management, water quality protection, noise, vibration, dust and clean-up management.

Quality Requirements

- Quality requirements may include but not be limited to dimensions, tolerances, standards of work and material standards as detailed in the project drawings, specifications and project documentation to meet client satisfaction.

Statutory/Regulatory Authorities

- Statutory/regulatory authorities may include Federal, State and Local Authorities.

Tools and equipment

- Tools and equipment are to include but not be limited to pumps, compressors, hoses, tape measures, marking equipment, crow bars, spanners, adjustable wrenches, shovels, picks, hammers (sledge/hand), string lines, spirit levels, dumpy levels, theodolites, brooms, hacksaws, hand saws, and electronic tracking devices and may include slings and cranes.
Communications

- Communications are to include but not be limited to verbal instructions and fault reporting and may include two way radio, hand signals, mobile phone, site specific instructions, written instructions or instructions related to job/task

Information

- Information sources may include but not be limited to verbal or written and graphical instructions, signage, work schedules/plans/specifications, work bulletins, charts and hand drawings, memos, material safety data sheets (MSDS) and diagrams or sketches
- Safe work procedures or equivalent related to spray lining
- Regulatory/legislative requirements pertaining to spray lining
- Manufacturers’ specifications and instructions
- Organisation work specifications and requirements
- Instructions issued by authorised organisational or external personnel
- Relevant Australian Standards
Evidence Guide

The Evidence Guide identifies the critical aspects, knowledge and skills to be demonstrated to confirm competency for this unit. This is an integral part of the assessment of competency and should be read in conjunction with the Performance Criteria, the Range Statement, and the Assessment Guidelines of the Training Package.

Critical aspects of evidence required to demonstrate competency in this unit

- Location, interpretation and application of relevant information, standards and specifications
- Compliance with site safety plan, OH&S regulations and State/Territory legislation applicable to workplace operations
- Compliance with organisational policies and procedures including quality requirements
- Completion of at least two different spray lining projects to specification
- Safe and effective operational use of tools, plant and equipment
- Communication and working effectively and safely with others
- Pre-requisite units are:
  BCCCM1001C Follow OH&S policies and procedures

Relationship to other units

Competency in this unit may be assessed in conjunction with other functional units which together form part of the holistic work role.
Specific knowledge required to achieve the performance criteria

- A knowledge of
  - Site and equipment safety requirements
  - Laser control equipment
  - Manual handling
  - Confined space entry
  - Application of thrust and rotation
  - Processes for interpreting engineering drawings
  - Equipment types, characteristics, technical capabilities and limitations
  - Operational, maintenance and basic diagnostic procedures
  - Site isolation and traffic control responsibilities and authorities
  - Materials Safety Data Sheets and materials handling methods
  - Project quality-requirements
  - Civil construction terminology
  - Spray linings
  - Pipeline systems
  - JSA’s/Safe work method statement

The context of assessment

- The application of competency is to be assessed in the workplace or realistically simulated workplace

- Assessment is to occur under standard and authorised work practices, safety requirements and environmental constraints

- Assessment of essential underpinning knowledge, other than confirmatory questions, will usually be conducted in an off-site context

- Assessment is to comply with relevant regulatory or Australian Standards requirements
Methods of assessment

- Assessment must satisfy the endorsed assessment guidelines of the Building and Construction industry’s Civil Construction Training Package
- Assessment methods must confirm consistency and accuracy of performance together with application of underpinning knowledge
- Assessment must be by direct observation of tasks, with questioning on underpinning knowledge
- Assessment methods must confirm the ability to access and correctly interpret and apply the essential underpinning knowledge
- Assessment may be applied under project related conditions (real or simulated) and require evidence of process
- Assessment must confirm a reasonable inference that competency is able not only to be satisfied under the particular circumstance, but is able to be transferred to other circumstances
- Assessment may be in conjunction with assessment of other units of competency, including those listed above

Specific resource requirements for this unit

- The following resources should be made available:
  - workplace location or simulated workplace
  - machinery and equipment relevant to sprayed linings for existing pipeline systems
  - hand and power tools, small plant and equipment relevant to sprayed linings for existing pipeline systems
  - specifications and work instructions
  - a crane and slings

... End ...
Install close-fit linings for existing pipeline systems

Unit Descriptor
This unit specifies the competency required to undertake the close-fit lining process for the rehabilitation of existing services pipeline system associated with the trenchless technology sector of the civil construction industry.

The unit includes swaged liners, folded liners and expanded spiral liners.

Employability Skills
The required outcomes described in this Unit of Competency contain applicable facets of employability skills. The Employability Skills Qualification Summary for the qualification in which this Unit of Competency is packaged will assist in identifying employability skill requirements.

Element
Elements define the essential outcomes of a unit of competency.

Performance Criteria
Performance criteria specify the level of performance required to demonstrate achievement of the element.

1 Plan and prepare

1.1 Work instructions, including plans, specifications, quality requirements and operational details are obtained, confirmed and applied to the allotted task

1.2 Safety requirements are obtained from the site safety plan and organisational policies and procedures, confirmed and applied to the allotted task

1.3 Signage requirements are identified and obtained from the project traffic management plan and implemented

1.4 Plant, tools and equipment selected to carry out tasks are consistent with the requirements of the job, checked for serviceability and any faults are rectified or reported

1.5 Environmental protection requirements are identified from the project environmental management plan, confirmed and applied to the allotted task

2 Perform site survey

2.1 Property owners and occupiers are notified and approval for entry onto their property obtained

2.2 Site conditions are determined by visual inspection, plans, discussion with land owners and information from service utilities

2.3 Underground utilities are located

2.4 System serviceability is maintained during rehabilitation works in accordance with asset owners’ policies, allowable duration of service interruption, and
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<tbody>
<tr>
<td>2.5</td>
<td>Existing site conditions are surveyed and recorded.</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Initiate rehabilitation works</td>
<td>3.1 Entry and exit pits where specified are prepared in accordance with site and OH&amp;S requirements.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3.2 Confined space entry procedures are followed.</td>
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<tr>
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<td>3.3 Installation process and finished product are monitored to ensure conformity to the design requirements in accordance with manufacturers’ specifications and project specifications.</td>
</tr>
<tr>
<td>4</td>
<td>Undertake close-fit lining</td>
<td>4.1 Fault is determined with the aid of plans, drawings, CCTV recording or other mechanisms.</td>
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<td>4.2 Close fit lining method is selected appropriate to the fault.</td>
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<td>4.3 Pressure cleaning is applied to the designated location.</td>
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<td>4.4 Lining is pulled through the pipe and set in position.</td>
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<td>4.5 Close fit lining material is installed to comply with design requirements and manufacturers’ specifications.</td>
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<td>4.6 Curing process is conducted to comply with manufacturers’ specifications.</td>
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<td>4.7 Termination at ends of process is correctly secured and sealed in accordance with manufacturers’ specifications.</td>
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<td>4.8 Junctions are opened for inspection and operation.</td>
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<tr>
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<td>4.9 Installation process and finished product are monitored to ensure conformity to the design requirements in accordance with manufacturers’ specifications.</td>
</tr>
<tr>
<td>5</td>
<td>Clean up</td>
<td>5.1 Work area is cleared and materials disposed of or recycled in accordance with project environmental management plan.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5.2 Plant, tools and equipment are cleaned, checked, maintained and stored in accordance with manufacturers’ recommendations and standard work practices.</td>
</tr>
</tbody>
</table>
Range Statement

The Range Statement provides advice to interpret the scope and context of this unit of competency allowing for differences between enterprises and workplaces. It relates to the unit as a whole and facilitates holistic assessment. The following variables relate to this particular unit:

Unit scope

- Trenchless technology is the science of installing, repairing or renewing underground pipes, ducts and cables using techniques which minimise or eliminate the need for excavation
- Close-fit lining is classified under the category of ‘repair and renovation’
- Close-fit lining is to include but not be limited to repairing or renovating non-man-entry pits, including sewer, gas and water
- Close-fit linings are used in circumstances where maintaining bore diameter is essential and annulus grouting can be avoided. It may include heat or pressure to apply the lining to the existing pipe
- Traffic control signage may include but not be limited, site safety signage, temporary signage for the benefit of motorists and pedestrians, barricades, and traffic conditions signage
- Planning and preparation is to include but not be limited to worksite inspection, equipment defect identification, assessment of conditions and hazards and determination of work requirements
- Traffic conditions may include but not be limited to congested urban environments, low traffic rural areas, off-road un-trafficked areas, buildings, parking sites and pedestrian areas
**Safety (OH&S)**

- OH&S requirements are to be in accordance with State or Territory legislation and regulations, organisational safety policies and procedures, and project safety plan. This may include 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.

- Personal protective equipment is to include that prescribed under legislation, regulation and workplace policies and practices.

- Safe operating procedures are to include but not be limited to recognising and preventing hazards associated with underground and overhead services, other machines, personnel, restricted access barriers, traffic control, working in proximity to others, worksite visitors and the public.

- Hazards and risks may include but not be limited to 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 are to include but may not be limited to emergency shutdown and stopping, extinguishing equipment fires, organisational first aid requirements and evacuation.

**Environmental Requirements**

- Environmental requirements are to include but not be limited to organisational/project environmental management plan, waste management, water quality protection, noise, vibration, dust and clean-up management.

**Quality Requirement**

- Quality requirements may include but not be limited to dimensions, tolerances, standards of work and material standards as detailed in the project drawings, specifications and project documentation to meet client satisfaction.

**Statutory/Regulatory Authorities**

- Statutory/regulatory authorities may include Federal, State and Local Authorities.
Tools and equipment

- Tools and equipment are to include but not be limited to close fit lining application equipment, pumps, compressors, hoses, tape measures, marking equipment, crow bars, spanners, adjustable wrenches, shovels, picks, hammers (sledge/hand), string lines, spirit levels, dumpy levels, theodolites, brooms, hacksaws, hand saws, and electronic tracking devices and may include slings and cranes.

Communications

- Communications are to include but not be limited to verbal instructions and fault reporting and may include two way radio, hand signals, mobile phone, site specific instructions, written instructions or instructions related to job/task.

Information

- Information sources may include but not be limited to verbal or written and graphical instructions, signage, work schedules/plans/specifications, work bulletins, charts and hand drawings, memos, material safety data sheets (MSDS) and diagrams or sketches.

- Safe work procedures or equivalent related to close fit lining.

- Regulatory/legislative requirements pertaining to close fit lining.

- Manufacturers’ specifications and instructions.

- Organisation work specifications and requirements.

- Instructions issued by authorised organisational or external personnel.

- Relevant Australian Standards.
Evidence Guide
The Evidence Guide identifies the critical aspects, knowledge and skills to be demonstrated to confirm competency for this unit. This is an integral part of the assessment of competency and should be read in conjunction with the Performance Criteria, the Range Statement, and the Assessment Guidelines of the Training Package.

Critical aspects of evidence required to demonstrate competency in this unit

• Location, interpretation and application of relevant information, standards and specifications
• Compliance with site safety plan, OH&S regulations and State/Territory legislation applicable to workplace operations
• Compliance with organisational policies and procedures including quality requirements
• Completion of at least two different close fit lining projects to specifications
• Safe and effective operational use of tools, plant and equipment
• Communication and working effectively and safely with others
• Pre-requisite units are:
  BCCCM1001C Follow OH&S policies and procedures
  Competency in this unit may be assessed in conjunction with other functional units which together form part of the holistic work role

Relationship to other units
Specific knowledge required to achieve the performance criteria

- A knowledge of
  - Site and equipment safety requirements
  - Laser control equipment
  - Manual handling
  - Confined space entry
  - Application of thrust and rotation
  - Processes for interpreting engineering drawings
  - Equipment types, characteristics, technical capabilities and limitations
  - Operational, maintenance and basic diagnostic procedures
  - Site isolation and traffic control responsibilities and authorities
  - Materials Safety Data Sheets and materials handling methods
  - Project quality-requirements
  - Civil construction terminology
  - Close fit lining
  - Pipeline systems
  - JSA’s/Safe work method statement

The context of assessment

- The application of competency is to be assessed in the workplace or realistically simulated workplace
- Assessment is to occur under standard and authorised work practices, safety requirements and environmental constraints
- Assessment of essential underpinning knowledge, other than confirmatory questions, will usually be conducted in an off-site context
- Assessment is to comply with relevant regulatory or Australian Standards requirements
**Methods of assessment**

- Assessment must satisfy the endorsed assessment guidelines of the Building and Construction industry’s Civil Construction Training Package
- Assessment methods must confirm consistency and accuracy of performance together with application of underpinning knowledge
- Assessment must be by direct observation of tasks, with questioning on underpinning knowledge
- Assessment methods must confirm the ability to access and correctly interpret and apply the essential underpinning knowledge
- Assessment may be applied under project related conditions (real or simulated) and require evidence of process
- Assessment must confirm a reasonable inference that competency is able not only to be satisfied under the particular circumstance, but is able to be transferred to other circumstances.
- Assessment may be in conjunction with assessment of other units of competency, including those listed above.

**Specific resource requirements for this unit**

- The following resources should be made available:
  - workplace location or simulated workplace
  - machinery and equipment relevant to close fit lining of existing pipeline systems
  - hand and power tools, small plant and equipment relevant to close fit lining of existing pipeline systems
  - specifications and work instructions
  - a crane and slings

... End ...
**BCCTT3009B Install sliplining in existing pipeline systems**

### Unit Descriptor

This unit specifies the competency required to undertake the sliplining process for the rehabilitation of existing services pipeline system associated with, the trenchless technology sector of the civil construction industry.

This unit includes basic sliplining, spirally wound liners and live insertion.

### Employability Skills

The required outcomes described in this Unit of Competency contain applicable facets of employability skills. The Employability Skills Qualification Summary for the qualification in which this Unit of Competency is packaged will assist in identifying employability skill requirements.

### Element Performance Criteria

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<tr>
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</tr>
<tr>
<td></td>
<td>1.2 Safety requirements are obtained from the site safety plan and organisational policies and procedures, confirmed and applied to the allotted task</td>
</tr>
<tr>
<td></td>
<td>1.3 Signage requirements are identified and obtained from the project traffic management plan and implemented</td>
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<tr>
<td></td>
<td>1.4 Plant, tools and equipment selected to carry out tasks are consistent with the requirements of the job, checked for serviceability and any faults are rectified or reported</td>
</tr>
<tr>
<td></td>
<td>1.5 Environmental protection requirements are identified from the project environmental management plan, confirmed and applied to the allotted task</td>
</tr>
<tr>
<td>2 Perform site survey</td>
<td>2.1 Property owners and occupiers are notified and approval for entry onto their property obtained</td>
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<tr>
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<td>2.2 Site conditions are determined by visual inspection, plans, discussion with land owners and information from service utilities</td>
</tr>
<tr>
<td></td>
<td>2.3 Underground utilities are located</td>
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<tr>
<td></td>
<td>2.4 System serviceability is maintained during rehabilitation works in accordance with asset owners’ policies, allowable duration of service interruption, and</td>
</tr>
</tbody>
</table>
2.5 Existing site conditions are surveyed and recorded

3 Initiate rehabilitation works

3.1 Entry and exit pits where specified are prepared in accordance with site and OH&S requirements

3.2 Confined space entry procedures are followed

3.3 Installation process and finished product are monitored to ensure conformity to the design requirements in accordance with manufacturers’ specifications and project specifications

4 Undertake sliplining

4.1 Fault is determined with the aid of plans, drawings, CCTV recordings or other mechanisms

4.2 Sliplining method is selected appropriate to the fault

4.3 Pressure cleaning is applied to the designated location

4.4 Liner is spiralled/pushed into the existing pipe

4.5 Sliplining material is installed to comply with design requirements and manufacturers’ specifications

4.6 Termination at ends of process are correctly secured and sealed in accordance with manufacturers’ specifications

4.7 Junctions are opened for inspection and operation

4.8 Installation process and finished product are monitored to ensure conformity to the design requirements in accordance with manufacturers’ specifications and project specifications

5 Clean up

5.1 Work area is cleared and materials disposed of or recycled in accordance with project environmental management plan

5.2 Plant, tools and equipment are cleaned, checked, maintained and stored in accordance with manufacturers’ recommendations and standard work practices
Range Statement

The Range Statement provides advice to interpret the scope and context of this unit of competency allowing for differences between enterprises and workplaces. It relates to the unit as a whole and facilitates holistic assessment. The following variables relate to this particular unit:

**Unit scope**

- Trenchless technology is the science of installing, repairing or renewing underground pipes, ducts and cables using techniques which minimise or eliminate the need for excavation
- Sliplining is classified under the category of ‘repair and renovation’
- Sliplining includes the insertion of a new pipeline of smaller diameter into the defective pipe and the annulus being grouted
- Sliplining is to include but not be limited to repairing or renovating non-man-entry pits, including water and gas mains
- Traffic control signage may include but not be limited, site safety signage, temporary signage for the benefit of motorists and pedestrians, barricades, and traffic conditions signage
- Planning and preparation is to include but not be limited to worksite inspection, equipment defect identification, assessment of conditions and hazards and determination of work requirements
- Traffic conditions may include but not be limited to congested urban environments, low traffic rural areas, off-road un-trafficked areas, buildings, parking sites and pedestrian areas

**Safety (OH&S)**

- OH&S requirements are to be in accordance with State or Territory legislation and regulations, organisational safety policies and procedures, and project safety plan. This may include 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
- Personal protective equipment is to include that prescribed under legislation, regulation and workplace policies and practices
Safety (OH&S) continued

- Safe operating procedures are to include but not be limited to recognising and preventing hazards associated with underground and overhead services, other machines, personnel, restricted access barriers, traffic control, working in proximity to others, worksite visitors and the public.

- Hazards and risks may include but not be limited to uneven/unstable terrain, trees, fires, overhead and underground services, bridges, buildings, excavations, traffic, embankments, cuttings, structures and hazardous materials.

- Emergency procedures related to this unit are to include but may not be limited to emergency shutdown and stopping, organisational first aid requirements and evacuation.

Environmental Requirements

- Environmental requirements are to include but not be limited to organisational/project environmental management plan, waste management, water quality protection, noise, vibration, dust and clean-up management.

Quality Requirements

- Quality requirements may include but not be limited to dimensions, tolerances, standards of work and material standards as detailed in the project drawings, specifications and project documentation to meet client satisfaction.

Statutory/Regulatory Authorities

- Statutory/regulatory authorities may include Federal, State and Local Authorities.

Tools and equipment

- Tools and equipment are to include but not be limited to pumps, compressors, hoses, tape measure, marking equipment, crow bars, spanners, adjustable wrenches, shovels, picks, hammers (sledge/hand), string lines, spirit levels, dumpy levels, theodolites, brooms, hacksaws, hand saws, and electronic tracking devices and may include slings and cranes.
### Communications
- Communications are to include but not be limited to verbal instructions and fault reporting and may include two way radio, hand signals, mobile phone, site specific instructions, written instructions or instructions related to job/task

### Information
- Information sources may include but not be limited to verbal or written and graphical instructions, signage, work schedules/plans/specifications, work bulletins, charts and hand drawings, memos, material safety data sheets (MSDS) and diagrams or sketches
- Safe work procedures or equivalent related to sliplining
- Regulatory/legislative requirements pertaining to sliplining
- Manufacturers’ specifications and instructions
- Organisation work specifications and requirements
- Instructions issued by authorised organisational or external personnel
- Relevant Australian Standards
Evidence Guide
The Evidence Guide identifies the critical aspects, knowledge and skills to be demonstrated to confirm competency for this unit. This is an integral part of the assessment of competency and should be read in conjunction with the Performance Criteria, the Range Statement, and the Assessment Guidelines of the Training Package.

Critical aspects of evidence required to demonstrate competency in this unit

- Location, interpretation and application of relevant information, standards and specifications
- Compliance with site safety plan, OH&S regulations and State/Territory legislation applicable to workplace operations
- Compliance with organisational policies and procedures including quality requirements
- Completion of at least two different sliplining projects to specification
- Safe and effective operational use of tools, plant and equipment
- Communication and working effectively and safely with others

Relationship to other units

- Pre-requisite units are:
  BCCCM1001C Follow OH&S policies and procedures

Competency in this unit may be assessed in conjunction with other functional units which together form part of the holistic work role.
Specific knowledge required to achieve the performance criteria

- A knowledge of
  - Site and equipment safety requirements
  - Laser control equipment
  - Manual handling
  - Confined space entry
  - Processes for interpreting engineering drawings
  - Equipment types, characteristics, technical capabilities and limitations
  - Operational, maintenance and basic diagnostic procedures
  - Site isolation and traffic control responsibilities and authorities
  - Materials Safety Data Sheets and materials handling methods
  - Project quality requirements
  - Civil construction terminology
  - Sliplining
  - Pipeline systems
  - JSA’s/Safe work method statement

The context of assessment

- The application of competency is to be assessed in the workplace or realistically simulated workplace

- Assessment is to occur under standard and authorised work practices, safety requirements and environmental constraints

- Assessment of essential underpinning knowledge, other than confirmatory questions, will usually be conducted in an off-site context

- Assessment is to comply with relevant regulatory or Australian Standards requirements
Methods of assessment

- Assessment must satisfy the endorsed assessment guidelines of the Building and Construction industry’s Civil Construction Training Package

- Assessment methods must confirm consistency and accuracy of performance together with application of underpinning knowledge

- Assessment must be by direct observation of tasks, with questioning on underpinning knowledge

- Assessment methods must confirm the ability to access and correctly interpret and apply the essential underpinning knowledge

- Assessment may be applied under project related conditions (real or simulated) and require evidence of process

- Assessment must confirm a reasonable inference that competency is able not only to be satisfied under the particular circumstance, but is able to be transferred to other circumstances

- Assessment may be in conjunction with assessment of other units of competency, including those listed above

Specific resource requirements for this unit

- The following resources should be made available:
  - workplace location or simulated workplace
  - machinery and equipment relevant to sliplining in existing pipeline systems
  - hand and power tools, small plant and equipment relevant to sliplining in existing pipeline systems
  - specifications and work instructions
  - a crane and slings

… End …
**BCCTT3010B Renovate large diameter pipes and chambers**

**Unit Descriptor**

This unit specifies the competency required to undertake the renovation of large diameter pipes and chambers process for the rehabilitation of existing services pipeline system associated with, the trenchless technology sector of the civil construction industry.

This unit includes preformed liners in-situ renovation, access chamber (manhole) renovation.

**Employability Skills**

The required outcomes described in this Unit of Competency contain applicable facets of employability skills. The Employability Skills Qualification Summary for the qualification in which this Unit of Competency is packaged will assist in identifying employability skill requirements.

**Element**

Elements define the essential outcomes of a unit of competency.

**Performance Criteria**

Performance criteria specify the level of performance required to demonstrate achievement of the element.

1 **Plan and prepare**

   1.1 Work instructions, including plans, specifications, quality requirements and operational details are obtained, confirmed and applied to the allotted task

   1.2 Safety requirements are obtained from the site safety plan and organisational policies and procedures, confirmed and applied to the allotted task

   1.3 Signage requirements are identified and obtained from the project traffic management plan and implemented

   1.4 Plant, tools and equipment selected to carry out tasks are consistent with the requirements of the job, checked for serviceability and any faults are rectified or reported

   1.5 Environmental protection requirements are identified from the project environmental management plan, confirmed and applied to the allotted task

2 **Perform site survey**

   2.1 Property owners and occupiers are notified and approval for entry onto their property obtained

   2.2 Site conditions are determined by visual inspection, plans, discussion with land owners and information from service utilities

   2.3 Underground utilities are located

   2.4 System serviceability is maintained during
rehabilitation works in accordance with asset owners’ policies, allowable duration of service interruption, and project specifications

2.5 Existing site conditions are surveyed and recorded

2.1 Initiate rehabilitation work

3.1 Entry and exit pits where specified are prepared in accordance with site and OH&S requirements

3.2 Confined space entry procedures are followed

3.3 Installation process and finished product are monitored to ensure conformity to the design requirements in accordance with manufacturers’ specifications and project specifications

4 Undertake renovation of large diameter pipes and chambers

4.1 Fault is determined by physical inspection

4.2 Renovation method is selected appropriate to the fault

4.3 Fractured or ruptured section is pieced together or patched

4.4 Renovation is completed to comply with design requirements and manufacturers’ specifications

4.5 Curing process is conducted to comply with manufacturers’ specifications where specified

4.6 Termination at ends of process is correctly secured and sealed in accordance with manufacturers’ specifications

4.7 Junctions are opened for inspection and operation

4.8 Installation process and finished product are monitored to ensure conformity to the design requirements in accordance with manufacturers’ specifications and project specifications

5 Clean up

5.1 Work area is cleared and materials disposed of or recycled in accordance with project environmental management plan

5.2 Plant, tools and equipment are cleaned, checked, maintained and stored in accordance with manufacturers’ recommendations and standard work practices
Range Statement

The Range Statement provides advice to interpret the scope and context of this unit of competency allowing for differences between enterprises and workplaces. It relates to the unit as a whole and facilitates holistic assessment. The following variables relate to this particular unit:

Unit scope

- Trenchless technology is the science of installing, repairing or renewing underground pipes, ducts and cables using techniques which minimise or eliminate the need for excavation
- Renovation of large diameter pipes and chambers is classified under the category of ‘repair and renovation’
- Renovation of large diameter pipes and chambers is to include but not be limited to repairing or renovating man-entry pits, and pipelines
- Techniques for renovation of large diameter pipes and chambers may include but not be limited to pre-formed or in-situ
- Pre-formed liners may include but not be limited to glass reinforced plastic, glass reinforced concrete or ferro cement. These are fixed with spacers and grouted in position with an injection method
- In-situ renovation may include but not be limited to sprayed concrete, reinforced concreting, spirally wound liners, epoxy coatings or repointing
- Traffic control signage may include but not be limited, site safety signage, temporary signage for the benefit of motorists and pedestrians, barricades, and traffic conditions signage
- Planning and preparation is to include but not be limited to worksite inspection, equipment defect identification, assessment of conditions and hazards and determination of work requirements
- Traffic conditions may include but not be limited to congested urban environments, low traffic rural areas, off-road un-trafficked areas, buildings, parking sites and pedestrian areas
Safety (OH&S)

- OH&S requirements are to be in accordance with State or Territory legislation and regulations, organisational safety policies and procedures, and project safety plan. This may include 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.

- Personal protective equipment is to include that prescribed under legislation, regulation and workplace policies and practices.

- Safe operating procedures are to include but not be limited to recognising and preventing hazards associated with underground and overhead services, other machines, personnel, restricted access barriers, traffic control, working in proximity to others, worksite visitors and the public.

- Hazards and risks may include but not be limited to uneven/unstable terrain, trees, fires, overhead and underground services, bridges, buildings, excavations, traffic, embankments, cuttings, structures and hazardous materials.

- Emergency procedures related to this unit are to include but may not be limited to emergency shutdown and stopping, organisational first aid requirements and evacuation.

Environmental Requirements

- Environmental requirements are to include but not be limited to organisational/project environmental management plan, waste management, water quality protection, noise, vibration, dust and clean-up management.

Quality Requirements

- Quality requirements may include but not be limited to dimensions, tolerances, standards of work and material standards as detailed in the project drawings, specifications and project documentation to meet client satisfaction.

Statutory/Regulatory Authorities

- Statutory/regulatory authorities may include Federal, State and Local Authorities.

Tools and equipment

- Tools and equipment are to include but not be limited to pumps, compressors, hoses, tape measures, marking equipment, crow bars, spanners, adjustable wrenches, shovels, picks, hammers (sledge/hand), string lines, spirit levels, dumpy levels, theodolites, brooms, hacksaws, hand saws, and electronic tracking devices and may include slings and cranes.
Communications
- Communications are to include but not be limited to verbal instructions and fault reporting and may include two way radio, hand signals, mobile phone, site specific instructions, written instructions or instructions related to job/task

Information
- Information sources may include but not be limited to verbal or written and graphical instructions, signage, work schedules/plans/specifications, work bulletins, charts and hand drawings, memos, maps, material safety data sheets (MSDS) and diagrams or sketches
  - Safe work procedures or equivalent related to renovation of large diameter pipes and chambers
  - Regulatory/legislative requirements pertaining to renovation of large diameter pipes and chambers
  - Manufacturers’ specifications and instructions
  - Organisation work specifications and requirements
  - Instructions issued by authorised organisational or external personnel
  - Relevant Australian Standards
Evidence Guide

The Evidence Guide identifies the critical aspects, knowledge and skills to be demonstrated to confirm competency for this unit. This is an integral part of the assessment of competency and should be read in conjunction with the Performance Criteria, the Range Statement, and the Assessment Guidelines of the Training Package.

Critical aspects of evidence required to demonstrate competency in this unit

- Location, interpretation and application of relevant information, standards and specifications
- Compliance with site safety plan, OH&S regulations and State/Territory legislation applicable to workplace operations
- Compliance with organisational policies and procedures including quality requirements
- Completion of at least two different renovation of large diameter pipes and chambers projects to specification
- Safe and effective operational use of tools, plant and equipment
- Communication and working effectively and safely with others

Relationship to other units

- Pre-requisite units are:
  BCCCM1001C Follow OH&S policies and procedures

  Competency in this unit may be assessed in conjunction with other functional units which together form part of the holistic work role
Specific knowledge required to achieve the performance criteria

- A knowledge of
  - Site and equipment safety requirements
  - Laser control equipment
  - Manual handling
  - Confined space entry
  - Processes for interpreting engineering drawings
  - Equipment types, characteristics, technical capabilities and limitations
  - Operational, maintenance and basic diagnostic procedures
  - Site isolation and traffic control responsibilities and authorities
  - Materials Safety Data Sheets and materials handling methods
  - Project quality-requisites
  - Civil construction terminology
  - Renovation of large diameter pipes and chambers
  - Pipeline systems
  - JSA’s/Safe work method statement

The context of assessment

- The application of competency is to be assessed in the workplace or realistically simulated workplace

- Assessment is to occur under standard and authorised work practices, safety requirements and environmental constraints

- Assessment of essential underpinning knowledge, other than confirmatory questions, will usually be conducted in an off-site context

- Assessment is to comply with relevant regulatory or Australian Standards requirements
Methods of assessment

- Assessment must satisfy the endorsed assessment guidelines of the Building and Construction industry’s Civil Construction Training Package
- Assessment methods must confirm consistency and accuracy of performance together with application of underpinning knowledge
- Assessment must be by direct observation of tasks, with questioning on underpinning knowledge
- Assessment methods must confirm the ability to access and correctly interpret and apply the essential underpinning knowledge
- Assessment may be applied under project related conditions (real or simulated) and require evidence of process
- Assessment must confirm a reasonable inference that competency is able not only to be satisfied under the particular circumstance, but is able to be transferred to other circumstances
- Assessment may be in conjunction with assessment of other units of competency, including those listed above

Specific resource requirements for this unit

- The following resources should be made available:
  - workplace location or simulated workplace
  - machinery and equipment relevant to renovation of large diameter pipes and chambers
  - hand and power tools, small plant and equipment relevant to renovation of large diameter pipes and chambers
  - specifications and work instructions
  - a crane and slings

... End
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Hand spread asphalt

Unit Descriptor
This unit specifies the competency required to hand spread asphalt to the required line and level for a finished surface. It relates to hand asphalt spreading and levelling conducted before and after compaction. It includes the minimum criteria for competency assessment.

This unit includes joint construction and working in conjunction with an asphalt paver.

Employability Skills
The required outcomes described in this Unit of Competency contain applicable facets of employability skills. The Employability Skills Qualification Summary for the qualification in which this Unit of Competency is packaged will assist in identifying employability skill requirements.

Element
Elements define the essential outcomes of a unit of competency.

Performance Criteria
Performance criteria specify the level of performance required to demonstrate achievement of the element.

1 Plan and prepare
1.1 Work instructions, including plans, specifications, quality requirements and operational details are obtained, confirmed and applied to the allotted task

1.2 Safety requirements are obtained from the site safety plan and organisational policies and procedures, confirmed and applied to the allotted task

1.3 Signage requirements are identified and obtained from the project traffic management plan and implemented

1.4 Tools and equipment selected to carry out tasks are consistent with the requirements of the job, checked for serviceability and any faults are rectified or reported

1.5 Environmental protection requirements are identified from the project environmental management plan, confirmed and applied to the allotted task
2 Spread asphalt

2.1 Hand spreading is conducted in safe proximity to the paver
2.2 Asphalt is hand placed to required level and line
2.3 Even finish is achieved when raking and joints are constructed to correct level
2.4 Low spots, high spots and defects are identified and repaired in the mat
2.5 Faults in the mat detected prior to or during operations are identified and reported

3 Clean up

3.1 Work area is cleared and materials disposed of or recycled in accordance with project environmental management plan
3.2 Tools and equipment are cleaned, checked, maintained and stored in accordance with manufacturers’ recommendations and standard work practices

Range Statement

The Range Statement provides advice to interpret the scope and context of this unit of competency allowing for differences between enterprises and workplaces. It relates to the unit as a whole and facilitates holistic assessment. The following variables relate to this particular unit:
**Unit scope**

- Asphalt spreading is to include but not be limited to constructing new work, repairing surfaces, repair of defects, paver runs and joints
- Asphalt is to include but not be limited to dense graded, open graded and may include stone mastic
- Defects to be rectified in the paver run may include but not be limited to bumps, segregation, blemishes, bony materials and voids
- Joints are to include but not be limited to longitudinal, transverse, hot to hot and cold to hot
- Planning and preparation is to include but not be limited to worksite inspection, equipment defect identification, assessment of conditions and hazards and determination of work requirements
- Traffic conditions may include but not be limited to congested urban environments, low traffic rural areas, off-road un-trafficked areas, buildings, parking sites and pedestrian areas
- Site locations may include but not be limited to car parks, airport runways, container yards, hard stands, footpaths, bikeways and roadways
- Areas adjacent to the work area may include but not be limited to nature strips, driveways, footpaths, shoulders, drains, kerb and channel

**Safety (OH&S)**

- OH&S requirements are to be in accordance with State or Territory legislation and regulations, organisational safety policies and procedures, and project safety plan. This may include 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 spreading may include but not be limited to procedures minimising strain and fatigue, adherence to site traffic plans, precautions taken when working close to traffic, awareness of rollers and other vehicles working in the area
- Safe operating procedures are to include but not be limited to recognising and preventing hazards associated with uneven/unstable terrain, trees, 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
• Hazards and risks may include but not be limited to 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 are to include but may not be limited to extinguishing equipment fires, organisational first aid requirements and evacuation

• Personal protective equipment is to include that prescribed under legislation, regulation and workplace policies and practices
Environmental Requirements • Environmental requirements are to include but are not limited to organisational/project environmental management plan, waste management, water quality protection, noise, vibration, dust and clean-up management

Quality Requirements • Quality requirements may include but not be limited to dimensions, tolerances, standards of work and material standards as detailed in the project drawings, specifications and project documentation to meet client satisfaction

Statutory/Regulatory Authorities • State/Regulatory Authorities may include Federal, State and Local Authorities

Tools and equipment • Tools and equipment are to include but not limited to rakes, brooms, shovels and depth gauges and may include straight edges, shovel baths, smart levels and string lines

Materials • Materials are to include but not limited to asphalt and release agents and may include emulsion, slurry and Styrene Butadiene Styrene modified binders (SBS) handled and used in accordance with the Australian Asphalt Paving Association (AAPA) code of practice for SBS modified binders

Communications • Communications are to include but not limited to verbal instructions and fault reporting and may include two way radio, hand signals, mobile phone, site specific instructions, written instructions or instructions related to job/task

Information • Information sources may include but not be limited to verbal or written and graphical instructions, signage, work schedules/plans/specifications, work bulletins, charts and hand drawings, memos, maps, material safety data sheets (MSDS) and diagrams or sketches

• Safe work procedures or equivalent related to the hand spreading of asphalt

• Regulatory/legislative requirements pertaining to the hand spreading of asphalt

• Manufacturers’ specifications and instructions

• Organisation work specifications and requirements.

• Instructions issued by authorised organisational or external personnel

• Relevant Australian Standards and Austroads

• AAPA advisory notes and codes of practice
Evidence Guide

The Evidence Guide identifies the critical aspects, knowledge and skills to be demonstrated to confirm competency for this unit. This is an integral part of the assessment of competency and should be read in conjunction with the Performance Criteria, the Range Statement, and the Assessment Guidelines of the Training Package.

Critical aspects of evidence required to demonstrate competency in this unit

- Location, interpretation and application of relevant information, standards and specifications
- Compliance with site safety plan, OH&S regulations and State/Territory legislation applicable to workplace operations
- Compliance with organisational policies and procedures including quality requirements
- A minimum of 5m² of asphalt (per patch) to line and level is to be hand spread without segregation:
  - two patches over 50mm thick, each with a different type of asphalt
  - two patches under 50mm thick, each with a different type of asphalt
- Work with a paver to lay a minimum of 100 lineal metres of longitudinal joint and two transverse joints
- Safe and effective operational use of tools and equipment
- Communication and working effectively and safely with others

Relationship to other units

- Pre-requisite units are:
  BCCCM1001C Follow OH&S policies and procedures

Competency in this unit may be assessed in conjunction with other functional units which together form part of the holistic work role.
Specific knowledge required to achieve the performance criteria

- A knowledge of
  - Site and equipment safety requirements
  - Equipment types, characteristics and limitations
  - Operational and maintenance procedures
  - Hand spreading asphalt
  - Site isolation and traffic control responsibilities and authorities
  - The properties of asphalt
  - The AAPA code of practice for working with SBS modified binders
  - Processes for the calculation of material requirements
  - Materials Safety Data Sheets and materials handling methods
  - Project quality requirements
  - Civil construction terminology
  - JSA’s/Safe work method statements

The context of assessment

- The application of competency is to be assessed in the workplace or realistically simulated workplace

- Assessment is to occur under standard and authorised work practices, safety requirements and environmental constraints

- Assessment of essential underpinning knowledge, other than confirmatory questions, will usually be conducted in an off-site context

- Assessment is to comply with relevant regulatory or Australian Standards requirements
Methods of assessment

- Assessment must satisfy the endorsed assessment guidelines of the Building and Construction industry’s Civil Construction Training Package
- Assessment methods must confirm consistency and accuracy of performance together with application of underpinning knowledge
- Assessment must be by direct observation of tasks, with questioning on underpinning knowledge
- Assessment methods must confirm the ability to access and correctly interpret and apply the essential underpinning knowledge
- Assessment may be applied under project related conditions (real or simulated) and require evidence of process
- Assessment must confirm a reasonable inference that competency is able not only to be satisfied under the particular circumstance, but is able to be transferred to other circumstances
- Assessment may be in conjunction with assessment of other units of competency, including those listed above

Specific resource requirements for this unit

- The following resources should be made available:
  - workplace location or simulated workplace
  - materials relevant to hand spreading asphalt
  - hand and power tools and equipment appropriate to hand spreading asphalt
  - specifications and work instructions

… End …
BCCBS2003B Safely handle bituminous materials

Unit Descriptor
This unit specifies the competency required to safely handle bituminous materials for the construction and maintenance of pavements. It includes the minimum criteria for competency assessment.

This unit includes safety and handling requirements for the heating and blending application of bituminous materials.

Employability Skills
The required outcomes described in this Unit of Competency contain applicable facets of employability skills. The Employability Skills Qualification Summary for the qualification in which this Unit of Competency is packaged will assist in identifying employability skill requirements.

Element Performance Criteria
Elements define the essential outcomes of a unit of competency.

1 Plan and prepare

1.1 Work instructions, including plans, specifications, quality requirements and operational details are obtained, confirmed and applied to the allotted task

1.2 Safety requirements are obtained from the site safety plan and organisational policies and procedures, confirmed and applied to the allotted task

1.3 Tools and equipment selected to carry out tasks are consistent with the requirements of the job, checked for serviceability and any faults are rectified or reported

1.4 Environmental protection requirements are identified from the project environmental management plan, confirmed and applied to the allotted task
1.5 Work safely with bituminous materials

2.1 Characteristics and uses of bituminous materials and additives used in surfacing are identified

2.2 Hazards associated with working with hot bitumen are identified and minimisation strategies are implemented

2.3 Australian Asphalt Paving Association (AAPA) code of practice for working with Styrene Butadiene Styrene (SBS) modified binders is adhered to

2.4 Fire precautions associated with hot bitumen as detailed in Austroads Bitumen Sealing Safety Guide are adhered to

2.5 Information including OH&S is extracted from material safety data sheet associated with bituminous materials and applied

2.6 Work is performed to the requirements of the organisation’s environmental policy and EPA standards

3 Demonstrate first aid for bitumen burns

a. First aid is performed in the case of a bitumen burn in accordance with Austroads Bitumen Sealing Safety Guide

b. ‘Bitumen Burn Tag’ is attached to victims of burns who are to be treated off site in accordance with Austroads Bitumen Sealing Safety Guide

4 Clean up

4.1 Work area is cleared and materials disposed of or recycled in accordance with project environmental management plan

4.2 Tools and equipment are cleaned, checked, maintained and stored in accordance with manufacturers’ recommendations and standard work practices

Range Statement

The Range Statement provides advice to interpret the scope and context of this unit of competency allowing for differences between enterprises and workplaces. It relates to the unit as a whole and facilitates holistic assessment. The following variables relate to this particular unit:
Unit scope

- Minimising the risk of hazards are to include but not be limited to temperature control, correct product changeover procedures, correct mixing/blending procedures, avoiding the presence of water in hot bitumen, avoiding fumes, exposure to heat, static electricity, fires, burns and the safe handling of flammable substances

- Planning and preparation is to include but not be limited to worksite inspection, equipment defect identification, assessment of conditions and hazards and determination of work requirements

- Traffic conditions may include but not be limited to congested urban environments, low traffic rural areas, off-road un-trafficked areas, buildings, parking sites and pedestrian areas

- Site locations may include but not be limited to car parks, airport runways, container yards, hard stands, footpaths, bikeways and roadways
Safety (OH&S)  
- OH&S requirements are to be in accordance with State or Territory legislation and regulations, organisational safety policies and procedures, and project safety plan. This may include 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 operating procedures are to include but not be limited to recognising and preventing hazards associated with uneven/unstable terrain, trees, 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

- Hazards and risks may include but not be limited to uneven/unstable terrain, trees, fires, overhead and underground services, bridges, buildings, excavations, traffic, embankments, cuttings, structures and hazardous materials

- Emergency procedures are to include but may not be limited to extinguishing fires, organisational first aid requirements and evacuation

- Personal protective equipment is to include that prescribed under legislation, regulation and workplace policies and practices

Environmental Requirements  
- Environmental requirements are to include but are not limited to organisational/project environmental management plan, waste management, water quality protection, noise, vibration, dust and clean-up management

Quality Requirements  
- Quality requirements may include but not be limited to dimensions, tolerances, standards of work and material standards as detailed in the project drawings, specifications and project documentation to meet client satisfaction

Statutory/Regulatory Authorities  
- State/Regulatory Authorities may include Federal, State and Local Authorities
<table>
<thead>
<tr>
<th><strong>Tools and equipment</strong></th>
<th>Tools and equipment are to include but not be limited to infrared thermometers, hazchem signs and water finding paste</th>
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<tr>
<td><strong>Materials</strong></td>
<td>Materials are to include but not be limited to bituminous materials (bitumen, cutback bitumen products, emulsions, asphalt, slurries, additives, fluxes, cutters) and may include aggregates, SBS modified binders, polymers and geo-synthetic products</td>
</tr>
<tr>
<td><strong>Communications</strong></td>
<td>Communications are to include but not limited to verbal instructions and fault reporting and may include two way radio, hand signals, mobile phone, site specific instructions, written instructions or instructions related to job/task</td>
</tr>
<tr>
<td><strong>Information</strong></td>
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</tr>
</tbody>
</table>

- Burns card
- Safe work procedures or equivalent related to the safe handling of bituminous materials
- Regulatory/legislative requirements pertaining to the safe handling of bituminous materials
- Manufacturers’ specifications and instructions
- Organisation work specifications and requirements.
- Instructions issued by authorised organisational or external personnel
- Relevant Australian Standards and Austroads
- AAPA advisory notes and codes of practice
Evidence Guide

The Evidence Guide identifies the critical aspects, knowledge and skills to be demonstrated to confirm competency for this unit. This is an integral part of the assessment of competency and should be read in conjunction with the Performance Criteria, the Range Statement, and the Assessment Guidelines of the Training Package.

Critical aspects of evidence required to demonstrate competency in this unit

- Location, interpretation and application of relevant information, standards and specifications
- Compliance with site safety plan, OH&S regulations and State/Territory legislation applicable to workplace operations
- Compliance with organisational policies and procedures including quality requirements
- A minimum of five major hazards associated with handling bituminous materials are reported
- A minimum of four bituminous materials are stored and used together
- Burn first aid is applied to a minimum of one simulated burn and tagged accordingly
- A minimum of one simulated fire involving a bituminous substance is extinguished
- Communication and working effectively and safely with others

Relationship to other units

- Pre-requisite units are:
  BCCCM1001C Follow OH&S policies and procedures

Competency in this unit may be assessed in conjunction with other functional units which together form part of the holistic work role
Specific knowledge required to achieve the performance criteria

- A knowledge of
  - Site and equipment safety requirements
  - Bituminous materials
  - SBS modified binders
  - Material safety data sheet requirements
  - Equipment types, characteristics, capabilities and limitations
  - Operational and maintenance procedures
  - Site isolation responsibilities and authorities
  - Processes for the calculation of material requirements
  - Materials handling methods
  - Project quality requirements
  - Civil construction terminology
  - JSA’s/Safe work method statements

The context of assessment

- The application of competency is to be assessed in the workplace or realistically simulated workplace.

- Assessment is to occur under standard and authorised work practices, safety requirements and environmental constraints.

- Assessment of essential underpinning knowledge, other than confirmatory questions, will usually be conducted in an off-site context.

- Assessment is to comply with relevant regulatory or Australian Standards requirements.
Methods of assessment

- Assessment must satisfy the endorsed assessment guidelines of the Building and Construction industry’s Civil Construction Training Package
- Assessment methods must confirm consistency and accuracy of performance together with application of underpinning knowledge
- Assessment must be by direct observation of tasks, with questioning on underpinning knowledge
- Assessment methods must confirm the ability to access and correctly interpret and apply the essential underpinning knowledge
- Assessment may be applied under project related conditions (real or simulated) and require evidence of process
- Assessment must confirm a reasonable inference that competency is able not only to be satisfied under the particular circumstance, but is able to be transferred to other circumstances
- Assessment may be in conjunction with assessment of other units of competency, including those listed above

Specific resource requirements for this unit

- The following resources should be made available:
  - workplace location or simulated workplace for the safe handling of bituminous materials
  - bituminous materials
  - personal protective equipment, fire fighting and first aid equipment appropriate for handling bituminous materials
  - specifications and work instructions

… End …
Conduct profile planer operations

**Unit Descriptor**

This unit specifies the competency required to plane and remove layers of material from a surface. It includes the minimum criteria for competency assessment.

The unit covers planning and preparation for work, the conduct of operational checks, the safe and effective operation of the profile planer for a range of mandatory tasks, the fitting and removal of attachment parts, use and removal of attachments, operator maintenance activities and the loading/unloading of the profile planer onto a trailer or float.

**Employability Skills**

The required outcomes described in this Unit of Competency contain applicable facets of employability skills. The Employability Skills Qualification Summary for the qualification in which this Unit of Competency is packaged will assist in identifying employability skill requirements.

**Element**

Elements define the essential outcomes of a unit of competency.

**Performance Criteria**

Performance criteria specify the level of performance required to demonstrate achievement of the element.

1. **Plan and prepare**

   1.1 Work instructions, including plans, specifications, quality requirements and operational details are obtained, confirmed and applied to the allotted task

   1.2 Safety requirements are obtained from the site safety plan and organisational policies and procedures, confirmed and applied to the allotted task

   1.3 Signage requirements are identified and obtained from the project traffic management plan and implemented

   1.4 Plant, tools and equipment selected to carry out tasks are consistent with the requirements of the job, checked for serviceability and any faults are rectified or reported

   1.5 Environmental protection requirements are identified from the project environmental management plan, confirmed and applied to the allotted task

2. **Conduct profile planer pre-operational checks**

   2.1 Pre-start, start up, park and shut down procedures are carried out in accordance with manufacturers’ and/or site specific requirements

   2.2 Profile planer controls and functions, including implements or other attachments, brakes and manoeuvrability are checked for serviceability and any faults are rectified or reported
<table>
<thead>
<tr>
<th>Section</th>
<th>Task Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>3</td>
<td>Operate profile planer</td>
</tr>
<tr>
<td>3.1</td>
<td>Site hazards associated with profile planer operations are identified and safe operating techniques are used to minimise risk</td>
</tr>
<tr>
<td>3.2</td>
<td>Operating techniques for profile planer are identified and applied to achieve optimum output in accordance with manufacturers’ design specifications while achieving specified tolerances</td>
</tr>
<tr>
<td>3.3</td>
<td>Profile planer is operated to work instructions in accordance with company operating procedures</td>
</tr>
<tr>
<td>3.4</td>
<td>Profile planer is operated to remove material to an agreed line and level within specified tolerances</td>
</tr>
<tr>
<td>4</td>
<td>Select, remove and fit attachments</td>
</tr>
<tr>
<td>4.1</td>
<td>Attachment for the task is selected</td>
</tr>
<tr>
<td>4.2</td>
<td>Attachment is removed and fitted according to manufacturers’ manual and site requirements</td>
</tr>
<tr>
<td>4.3</td>
<td>Attachment is tested to ensure correct fitting and operation as specified in manufacturers’ manual</td>
</tr>
<tr>
<td>4.4</td>
<td>Attachment is used in accordance with manufacturers’ recommendations and design limits</td>
</tr>
<tr>
<td>4.5</td>
<td>Removed attachments are cleaned and stored in designated location</td>
</tr>
<tr>
<td>5</td>
<td>Relocate the profile planer</td>
</tr>
<tr>
<td>5.1</td>
<td>Profile planer is moved safely between work sites, observing relevant codes and traffic management requirements</td>
</tr>
<tr>
<td>5.2</td>
<td>Profile planer is prepared for relocation in accordance with the manufacturers’ specifications</td>
</tr>
<tr>
<td></td>
<td>Carry out profile planer operator maintenance</td>
</tr>
<tr>
<td>---</td>
<td>---------------------------------------------</td>
</tr>
<tr>
<td>2.7</td>
<td></td>
</tr>
<tr>
<td>6.1</td>
<td>Profile planer is safely parked, prepared for maintenance and shut down as per manufacturers’ manual and organisational requirements</td>
</tr>
<tr>
<td>6.2</td>
<td>Inspection and fault finding are conducted in accordance with manufacturers’ specifications and/or organisational requirements</td>
</tr>
<tr>
<td>6.3</td>
<td>Defective parts are removed and replaced safely and effectively according to manufacturers’ manual and organisational requirements</td>
</tr>
<tr>
<td>6.4</td>
<td>Regular programmed maintenances tasks are carried out in accordance with manufacturers’ and/or organisational requirements</td>
</tr>
</tbody>
</table>
2.8 Clean up

7.1 Work area is cleared and materials disposed of or recycled in accordance with project environmental management plan

7.2 Profile planer, tools and equipment are cleaned, checked, maintained and stored in accordance with manufacturers’ recommendations and standard work practices

Range Statement

The Range Statement provides advice to interpret the scope and context of this unit of competency allowing for differences between enterprises and workplaces. It relates to the unit as a whole and facilitates holistic assessment. The following variables relate to this particular unit:

Unit scope

- A profile planer is a self propelled wheeled or tracked machine designed for the purpose of in-situ milling of construction materials. The profile planer also transfers the milled materials via conveyor to storage or tip trucks
- Profile planer tasks are to include the removal/excavation of materials to a thickness and a line/level, loading of trucks and stockpiling
- Profile planer tasks may include mixing materials, levelling and pulverising
- Attachments are to include additional or interchangeable conveyor systems
- Operations may include asphalt pavement milling, edge planing, straight work and confined work (such as intersection, carpark etc)
- Operator maintenance is to include cleaning, authorised servicing and the monitoring, recording and reporting of faults. It may also include the conduct of authorised minor replacements and the provision of assistance to maintenance personnel during maintenance and repair activities
Safety (OH&S)

- OH&S requirements are to be in accordance with State or Territory legislation and regulations, organisational safety policies and procedures, and project safety plan. This may include 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

- Personal protective equipment is to include that prescribed under legislation, regulation and workplace policies and practices

- Safe operating procedures are to include but not be limited to recognising and preventing hazards associated with underground and overhead services, other machines, personnel, traffic control, working in proximity to others, worksite visitors and the public

- Safe parking practices are to include but not be limited to ensuring access ways are clear, equipment/profile planer is away from overhangs and refuelling sites, safe distance from excavations, and secured from unauthorised access or movement

- Hazards and risks may include but not be limited to uneven/unstable terrain, trees, fires, overhead and underground services, bridges, buildings, structures and hazardous materials

- Emergency procedures related to equipment operation are to include but may not be limited to emergency stop, fire fighting, medical and first aid and evacuation

Environmental Requirements

- Environmental requirements are to include but are not limited to organisational/project environmental management plan, waste management, water quality protection, noise, vibration, dust and clean-up management

Quality Requirements

- Quality requirements may include but not be limited to dimensions, tolerances, standards of work and material standards as detailed in the project drawings, specifications and project documentation to meet client satisfaction
| **Statutory/Regulatory Authorities** | - State/Regulatory Authorities may include Federal, State and Local Authorities |
| **Materials** | - Materials may include but are not limited to soil, granular materials, asphalt, concrete and rock |
|  | - Rock types may include metamorphic, igneous and sedimentary |
| **Tools and equipment** | - Tools and equipment are to include hand tools and maintenance equipment relevant to the particular profile planer |
| **Communications** | - Communications are to include but not be limited to verbal instructions and fault reporting and may include two way radio, hand signals, mobile phone, site specific instructions, written instructions or instructions related to job/task |
|  | - On site meeting processes may include notification/scheduling (time, place, purpose), task discussions and local coordination of procedural and operational issues |
| **Information** | - Information sources may include but not be limited to verbal or written and graphical instructions, signage, work schedules/plans/specifications, work bulletins, charts and hand drawings, memos, maps, material safety data sheets (MSDS), diagrams or sketches and graphics |
|  | - Safe work procedures related to the operation of profile planers on construction sites |
|  | - Regulatory/legislative requirements pertaining to profile planer operations and the environment |
|  | - Manufacturers’ specifications and instructions |
|  | - Organisation work specifications and requirements. |
|  | - Instructions issued by authorised organisational or external personnel |
|  | - Relevant Australian Standards |
|  | - AAPA advisory notes and codes of practice |
Evidence Guide

The Evidence Guide identifies the critical aspects, knowledge and skills to be demonstrated to confirm competency for this unit. This is an integral part of the assessment of competency and should be read in conjunction with the Performance Criteria, the Range Statement, and the Assessment Guidelines of the Training Package.

Critical aspects of evidence required to demonstrate competency in this unit

- Location, interpretation and application of relevant information, standards and specifications
- Compliance with site safety plan, OH&S regulations and State/Territory legislation applicable to workplace operations
- Compliance with organisational policies and procedures including quality requirements
- The conduct of profile planer operations are to be performed in a minimum of two different material types/surfaces types and are to include the mandatory tasks of removal/excavation of materials to a thickness and a line/level, loading of trucks and stockpiling
- Operations including asphalt pavement, milling, edge planing, straight work and confined work (such as intersection, car park etc)
- The application of emergency procedures
- The conduct of authorised operator maintenance
- Communication and working effectively and safely with others

Relationship to other units

- Pre-requisite units are:
  
  BCCCM1001C Follow OH&S policies and procedures

  Competency in this unit may be assessed in conjunction with other functional units which together form part of the holistic work role
Specific knowledge required to achieve the performance criteria

- A knowledge of
  - Profile planer types, characteristics, technical capabilities and limitations
  - Basic soil types and characteristics
  - Basic principles of soil compaction
  - Site and equipment safety requirements
  - Profile planer techniques related to essential tasks
  - Processes for interpreting engineering drawings and sketches
  - Operational, maintenance and basic diagnostic procedures
  - Site isolation and traffic control responsibilities and authorities
  - Materials Safety Data Sheets and materials handling methods
  - Project quality requirements
  - Civil construction terminology
  - Methods of changing machine attachments
  - Safe operating techniques in all terrain
  - Basic earthworks calculations
  - JSA’s/Safe work method statements

The context of assessment

- The application of competency is to be assessed in the workplace or realistically simulated construction site
- Assessment is to occur under standard and authorised work practices, safety requirements and environmental constraints
- Assessment of essential underpinning knowledge, other than confirmatory questions, will usually be conducted in an off-site context
- Assessment is to comply with relevant regulatory or Australian Standards requirements

Methods of assessment

- Assessment must satisfy the endorsed assessment guidelines of the Building and Construction industry’s Civil Construction Training Package
- Assessment methods must confirm consistency and accuracy of performance together with application of underpinning knowledge
- Assessment must be by direct observation of tasks, with questioning on underpinning knowledge
• Assessment methods must confirm the ability to access and correctly interpret and apply the essential underpinning knowledge

• Assessment may be applied under project related conditions (real or simulated) and require evidence of process

• Assessment must confirm a reasonable inference that competency is able not only to be satisfied under the particular circumstance, but is able to be transferred to other circumstances

• Assessment may be in conjunction with assessment of other units of competency, including those listed above

**Specific resource requirements for this unit**

• The following resources should be made available:
  - workplace location or simulated workplace
  - an operational profile planer with appropriate attachment/parts
  - realistic tasks covering the mandatory task requirements
  - a trailer or float appropriate to the profile planer
  - maintenance materials appropriate to the profile planer equipment
  - specifications and work instructions

... End ...
### BCCFW3002B Install temporary and permanent rock anchors

#### Unit Descriptor
This unit specifies the competency required to prepare and install temporary and permanent rock anchors to prevent wall and roof collapse. It includes the minimum criteria for competency assessment.

This unit includes the stabilisation of rock, clay and other unstable materials where a designed loading is imposed on the anchor.

#### Employability Skills
The required outcomes described in this Unit of Competency contain applicable facets of employability skills. The Employability Skills Qualification Summary for the qualification in which this Unit of Competency is packaged will assist in identifying employability skill requirements.

#### Element Performance Criteria
Performance criteria specify the level of performance required to demonstrate achievement of the element.

<table>
<thead>
<tr>
<th>Element</th>
<th>Performance Criteria</th>
</tr>
</thead>
</table>
| **1 Plan and prepare** | 1.0 Work instructions, including plans, specifications, quality requirements and operational details are obtained, confirmed and applied to the allotted task  
1.1 Safety requirements are obtained from the site safety plan and organisational policies and procedures, confirmed and applied to the allotted task  
1.2 Signage requirements are identified and obtained from the project traffic management plan and implemented  
1.3 Plant, tools and equipment selected to carry out tasks are consistent with the requirements of the job, checked for serviceability and any faults are rectified or reported  
1.4 Environmental protection requirements are identified from the project environmental management plan, confirmed and applied to the allotted task |
| **2 Set up and prepare anchor holes** | 2.1 Location, type and installation requirements of anchors are identified from site structural design drawings or visually  
2.2 Work area is isolated from other site operations  
2.3 Location of anchor holes are determined from surveyor’s set out  
2.4 Drill rig is established in position and set to correct angle |
| 2 | Set up and prepare anchor holes (continued) | 2.1 | Holes are drilled to specified diameter and depth |
|   |                                           | 2.2 | Holes are cleaned through the water flushing process |
|   |                                           | 2.3 | Bond length of holes for permanent anchors are water tested for leakage to specified rate and grouted, re-drilled and retested |
|   |                                           | 2.4 | Holes are temporarily covered to prevent entry of foreign material |
| 3 | Install anchors to anchor holes           | 3.1 | Components are checked to verify conformity with job requirements |
|   |                                           | 3.2 | Anchors are greased, sheathed and assembled to specifications |
|   |                                           | 3.3 | Temporary anchors are prepared to specifications with spacers and grout tubes fitted |
|   |                                           | 3.4 | Permanent anchors are prepared to specifications with spacers and grout tubes fitted and external polyethylene sheath prepared |
|   |                                           | 3.5 | Anchors and sheaths are carefully installed to full depth, without damage to specifications |
|   |                                           | 3.6 | Grouting plant and flow monitoring apparatus is set up to design requirements |
|   |                                           | 3.7 | Grout is mixed and pumped into hole to specifications |
| 4 | Set up anchorage assembly and stress anchors | 4.1 | Anchorage is placed correctly using packing materials as specified |
|   |                                           | 4.2 | Anchors are stressed to nominated loads |
|   |                                           | 4.3 | Anchors are locked off to nominated loads as designed |
|   |                                           | 4.4 | Mesh is installed to job specification |
|   |                                           | 4.5 | Shotcrete is applied to design depth and tolerance and job specification |
|   |                                           | 4.6 | Permanent anchors are monitored at scheduled intervals to determine and record anchor’s residual load |
|   |                                           | 4.7 | Anchors are cut where required and sealed to specification requirements |
| 5 | Clean up                                 | 5.1 | Work area is cleared and materials disposed of or recycled in accordance with project environmental management plan |
|   |                                           | 5.2 | Plant, tools and equipment are cleaned, checked, maintained and stored in accordance with manufacturers’ recommendations and standard work practices |
Range Statement

The Range Statement provides advice to interpret the scope and context of this unit of competency allowing for differences between enterprises and workplaces. It relates to the unit as a whole and facilitates holistic assessment. The following variables relate to this particular unit:

Unit scope

- Types of anchors are to include but not be limited to anchor bolts, cable anchoring, spiling bars and may include grouted anchors and bolts, mechanically anchored bolts and dowels
- Anchoring requirements are to include but not be limited to ground stabilisation, roof and wall support and may include stressing
- Temporary anchorages are to include but not be limited to construction processes, stability for temporary structures and stability to operating plant
- Soil types may include but not be limited to sand, rock, clay, shale, gravel and silt
- Traffic control signage may include but not be limited to escort vehicle, highway traffic signs, site safety signage, temporary signage for the benefit of motorists and pedestrians, barricades, and traffic conditions signage
- Planning and preparation is to include but not be limited to worksite inspection, equipment defect identification, assessment of conditions and hazards and determination of work requirements
- Traffic conditions may include but not be limited to congested urban environments, low traffic rural areas, off-road un-trafficked areas, buildings, parking sites and pedestrian areas
- Site locations may include but not be limited to cuttings, tunnels and embankments
Safety (OH&S)  
- OH&S requirements are to be in accordance with State or Territory legislation and regulations, organisational safety policies and procedures, and project safety plan. This may include 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.
- Personal protective equipment is to include that prescribed under legislation, regulation and workplace policies and practices.
- Safe operating procedures are to include but not be limited to recognising and preventing hazards associated with overhead and underground services, other machines, personnel, traffic control, working in proximity to others, worksite visitors and the public.
- Hazards and risks may include but not be limited to 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 are to include but may not be limited to emergency shutdown and stopping, extinguishing fires, organisational first aid requirements and evacuation.

Environmental Requirements  
- Environmental requirements are to include but not be limited to organisational/project environmental management plan, waste management, water quality protection, noise, vibration, dust and clean-up management.

Quality Requirements  
- Quality requirements may include but not limited to dimensions, tolerances, standards of work and material standards as detailed in the project drawings, specifications and project documentation to meet client satisfaction.

Statutory/Regulatory Authorities  
- Statutory/Regulatory Authorities may include Federal, State and Local Authorities.

Tools and equipment  
- Tools and equipment are to include but not limited to compressors, pneumatic tools, spanners, drilling rigs and attachments and grouting rigs.
Materials

- Materials may include but not limited to anchor bolts, spiling bars, steel cables and ribbed steel bards

Communications

- Communications are to include but not limited to verbal instructions and fault reporting and may include two way radio, hand signals, mobile phone, site specific instructions, written instructions or instructions related to job/task

Information

- Information sources may include but not be limited to verbal or written and graphical instructions, signage, work schedules/plans/specifications, work bulletins, charts and hand drawings, memos, maps, material safety data sheets (MSDS) and diagrams or sketches
- Safe work procedures or equivalent related to the installation of temporary and permanent rock anchors
- Regulatory/legislative requirements pertaining to the installation of temporary and permanent rock anchors
- Manufacturers’ specifications and instructions
- Organisation work specifications and requirements.
- Instructions issued by authorised organisational or external personnel
- Relevant Australian Standards
Evidence Guide

The Evidence Guide identifies the critical aspects, knowledge and skills to be demonstrated to confirm competency for this unit. This is an integral part of the assessment of competency and should be read in conjunction with the Performance Criteria, the Range Statement, and the Assessment Guidelines of the Training Package.

Critical aspects of evidence required to demonstrate competency in this unit

- Location, interpretation and application of relevant information, standards and specifications
- Compliance with site safety plan, OH&S regulations and State/Territory legislation applicable to workplace operations
- Compliance with organisational policies and procedures including quality requirements
- Installation of a minimum of ten permanent anchor bolts, finished with mesh and shotcrete
- Installation of a minimum of ten temporary anchor bolts
- Safe and effective operational use of tools, plant and equipment
- Communication and working effectively and safely with others

Relationship to other units

- Pre-requisite units are:
  - BCCC1001C Follow OH&S policies and procedures

  Competency in this unit may be assessed in conjunction with other functional units which together form part of the holistic work role.
**Specific knowledge required to achieve the performance criteria**

• A knowledge of
  - Site and equipment safety requirements
  - Foundation work
  - Temporary and permanent rock anchors and their installation techniques
  - Scaffolding and work platform installation
  - Construction principles
  - Processes for interpreting engineering drawings
  - Soil, sand, rock, clay, shale, gravel and silt types and characteristics
  - Water erosion
  - Equipment types, characteristics, technical capabilities and limitations
  - Operational, maintenance and basic diagnostic procedures
  - Site isolation and traffic control responsibilities and authorities
  - Materials Safety Data Sheets and materials handling methods
  - Project quality requirements
  - Civil construction terminology
  - JSA’s/Safe work method statements

**The context of assessment**

• The application of competency is to be assessed in the workplace or realistically simulated workplace

• Assessment is to occur under standard and authorised work practices, safety requirements and environmental constraints

• Assessment of essential underpinning knowledge, other than confirmatory questions, will usually be conducted in an off-site context

• Assessment is to comply with relevant regulatory or Australian Standards requirements
Methods of assessment

- Assessment must satisfy the endorsed assessment guidelines of the Building and Construction industry’s Civil Construction Training Package
- Assessment methods must confirm consistency and accuracy of performance together with application of underpinning knowledge
- Assessment must be by direct observation of tasks, with questioning on underpinning knowledge
- Assessment methods must confirm the ability to access and correctly interpret and apply the essential underpinning knowledge
- Assessment may be applied under project related conditions (real or simulated) and require evidence of process
- Assessment must confirm a reasonable inference that competency is able not only to be satisfied under the particular circumstance, but is able to be transferred to other circumstances
- Assessment may be in conjunction with assessment of other units of competency, including those listed above

Specific resource requirements for this unit

- The following resources should be made available:
  - workplace location or simulated workplace
  - materials relevant to temporary and permanent rock anchor installation
  - hand and power tools, plant and equipment appropriate to temporary and permanent rock anchor installation
  - specifications and work instructions

... End ...
# BCCFW3003B Install primary ground support

## Unit Descriptor

This unit specifies the competency required to prepare, set out, install and maintain primary ground support for the purpose of ground stabilisation. It includes the minimum criteria for competency assessment.

This unit includes the stabilisation of embankments, tunnels, access shafts and general ground environments.

## Employability Skills

The required outcomes described in this Unit of Competency contain applicable facets of employability skills. The Employability Skills Qualification Summary for the qualification in which this Unit of Competency is packaged will assist in identifying employability skill requirements.

## Element

Elements define the essential outcomes of a unit of competency.

## Performance Criteria

Performance criteria specify the level of performance required to demonstrate achievement of the element.

### 1 Plan and prepare

1.1 Work instructions, including plans, specifications, quality requirements and operational details are obtained, confirmed and applied to the allotted task

1.2 Safety requirements are obtained from the site safety plan and organisational policies and procedures, confirmed and applied to the allotted task

1.3 Signage requirements are identified and obtained from the project traffic management plan and implemented

1.4 Tools and equipment selected to carry out tasks are consistent with the requirements of the job, checked for serviceability and any faults are rectified or reported

1.5 Environmental protection requirements are identified from the project environmental management plan, confirmed and applied to the allotted task

### 2 Set out and prepare for primary ground support

2.1 Requirements for ground support construction are determined from ground conditions and engineer’s directions

2.2 Method of installing ground support is identified and implemented in accordance with the excavation process

2.3 Material requirements for primary ground support is obtained

2.4 Primary ground support is installed in accordance with progressive development of the excavation process
2 Set out and prepare for primary ground support (continued)

2.5 Position of sets/rings and points of support are set out to engineer’s specifications

2.6 Component parts of ground support are prepared to designed requirements

3 Install primary ground support

3.1 Relevant primary ground support system is selected

3.2 Primary ground support system is installed in accordance with job specifications

4 Maintain primary ground support

4.1 Daily inspection of primary ground support is carried out to ensure system is secure in accordance to specifications, particularly where explosives are in use

4.2 Faults are identified and adjustments made to ensure ground support maintained

4.3 Ground faults are identified and support rectifications determined and carried out to engineer’s design and specifications

5 Clean up

5.1 Work area is cleared and materials disposed of or recycled in accordance with project environmental management plan

5.2 Tools and equipment are cleaned, checked, maintained and stored in accordance with manufacturers’ recommendations and standard work practices
Range Statement

The Range Statement provides advice to interpret the scope and context of this unit of competency allowing for differences between enterprises and workplaces. It relates to the unit as a whole and facilitates holistic assessment. The following variables relate to this particular unit:

Unit scope

- Types of primary ground support are to include but not be limited to steel sets/rings, timber sets, pre-cast concrete segmental sections, timber lagging sections, steel spilings, steel sheeting, dry mix concrete pads and reinforced concrete beams
- Installing primary ground support may include but not be limited to ground stabilisation to access shafts and tunnels and embankment stabilisation
- Soil types may include but not be limited to sand, rock, clay, shale, gravel and silt
- Traffic control signage may include but not be limited to escort vehicle, highway traffic signs, site safety signage, temporary signage for the benefit of motorists and pedestrians, barricades, and traffic conditions signage
- Planning and preparation is to include but not be limited to worksite inspection, equipment defect identification, assessment of conditions and hazards and determination of work requirements
- Traffic conditions may include but not be limited to congested urban environments, low traffic rural areas, off-road un-trafficked areas, buildings, parking sites and pedestrian areas
- Site locations may include but not be limited to cuttings, tunnels and embankments

Safety (OH&S)

- OH&S requirements are to be in accordance with State or Territory legislation and regulations, organisational safety policies and procedures, and project safety plan. This may include 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
- Personal protective equipment is to include that prescribed under legislation, regulation and workplace policies and practices
### Safety (OH&S) (continued)
* Safe operating procedures are to include but not be limited to recognising and preventing hazards associated with overhead and underground services, other machines, personnel, traffic control, working in proximity to others, worksite visitors and the public
* Hazards and risks may include but not be limited to uneven/unstable terrain, fires, overhead and underground services, excavations, traffic, embankments, cuttings, structures and hazardous materials
* Emergency procedures are to include but may not be limited to extinguishing fires, organisational first aid requirements and evacuation

### Environmental Requirements
* Environmental requirements are to include but not be limited to organisational/project environmental management plan, waste management, water quality protection, noise, vibration, dust and clean-up management

### Quality Requirements
* Quality requirements may include but not limited to dimensions, tolerances, standards of work and material standards as detailed in the project drawings, specifications and project documentation to meet client satisfaction

### Statutory/Regulatory Authorities
* Statutory/Regulatory Authorities may include Federal, State and Local Authorities

### Tools and equipment
* Tools and equipment are to include but not limited to shovels, crow bars, spanners, measuring tapes, picks, mattocks, sledgehammers, spirit levels and may include angle grinders, kanga hammers, tampers and oxy-acetylene equipment

### Materials
* Materials are to include but not limited to: Sets and rings – sole plates, posts/legs, headers/crowns, liner blocks and prefabricated lattice girders; Sheet pilings – lagging, sheeting, pile caps and wailers; Panel or box sets – longitudinal ties, sets and braces

### Communications
* Communications are to include but not limited to verbal instructions and fault reporting and may include two way radio, hand signals, mobile phone, site specific instructions, written instructions or instructions related to job/task
Information

- Information sources may include but not be limited to verbal or written and graphical instructions, signage, work schedules/plans/specifications, work bulletins, charts and hand drawings, memos, maps, material safety data sheets (MSDS) and diagrams or sketches
- Safe work procedures or equivalent related to the installation of primary ground support
- Regulatory/legislative requirements pertaining to the installation of primary ground support
- Manufacturers’ specifications and instructions
- Organisation work specifications and requirements.
- Instructions issued by authorised organisational or external personnel
- Relevant Australian Standards
Evidence Guide

The Evidence Guide identifies the critical aspects, knowledge and skills to be demonstrated to confirm competency for this unit. This is an integral part of the assessment of competency and should be read in conjunction with the Performance Criteria, the Range Statement, and the Assessment Guidelines of the Training Package.

Critical aspects of evidence required to demonstrate competency in this unit

- Location, interpretation and application of relevant information, standards and specifications
- Compliance with site safety plan, OH&S regulations and State/Territory legislation applicable to workplace operations
- Compliance with organisational policies and procedures including quality requirements
- Installation of at least one of the following primary ground support systems to specifications:
  - Sets and rings for two projects;
  - Sheet piling for one project; or
  - Panel and box sets for two projects
- Safe and effective operational use of tools and equipment
- Communication and working effectively and safely with others

Relationship to other units

- Pre-requisite units are:
  BCCC1001C Follow OH&S policies and procedures

Competency in this unit may be assessed in conjunction with other functional units which together form part of the holistic work role.
Specific knowledge required to achieve the performance criteria

- A knowledge of
  - Site and equipment safety requirements
  - Foundation work
  - Primary ground support systems and their installation techniques
  - Scaffolding and work platform installation
  - Construction principles
  - Processes for interpreting engineering drawings
  - Soil, sand, rock, clay, shale, gravel and silt types and characteristics
  - Water erosion
  - Equipment types, characteristics, technical capabilities and limitations
  - Operational, maintenance and basic diagnostic procedures
  - Site isolation and traffic control responsibilities and authorities
  - Materials Safety Data Sheets and materials handling methods
  - Project quality requirements
  - Civil construction terminology
  - JSA’s/Safe work method statements

The context of assessment

- The application of competency is to be assessed in the workplace or realistically simulated workplace

- Assessment is to occur under standard and authorised work practices, safety requirements and environmental constraints

- Assessment of essential underpinning knowledge, other than confirmatory questions, will usually be conducted in an off-site context

- Assessment is to comply with relevant regulatory or Australian Standards requirements
Methods of assessment

- Assessment must satisfy the endorsed assessment guidelines of the Building and Construction industry’s Civil Construction Training Package
- Assessment methods must confirm consistency and accuracy of performance together with application of underpinning knowledge
- Assessment must be by direct observation of tasks, with questioning on underpinning knowledge
- Assessment methods must confirm the ability to access and correctly interpret and apply the essential underpinning knowledge
- Assessment may be applied under project related conditions (real or simulated) and require evidence of process
- Assessment must confirm a reasonable inference that competency is able not only to be satisfied under the particular circumstance, but is able to be transferred to other circumstances
- Assessment may be in conjunction with assessment of other units of competency, including those listed above

Specific resource requirements for this unit

- The following resources should be made available:
  - workplace location or simulated workplace
  - materials relevant to primary ground support installation
  - hand and power tools, plant and equipment appropriate to primary ground support installation
  - specifications and work instructions
Install stormwater systems

This unit specifies the competency required to install stormwater systems to service urban and rural community storm water requirements. It includes the minimum criteria for competency assessment.

This unit includes testing of stormwater systems.

Employability Skills

The required outcomes described in this Unit of Competency contain applicable facets of employability skills. The Employability Skills Qualification Summary for the qualification in which this Unit of Competency is packaged will assist in identifying employability skill requirements.

Element

Elements define the essential outcomes of a unit of competency.

Performance Criteria

Performance criteria specify the level of performance required to demonstrate achievement of the element.

1 Plan and prepare

1.1 Work instructions, including plans, specifications, quality requirements and operational details relevant to the tasks are obtained, confirmed and applied to the allotted task

1.2 Safety requirements are obtained from the site safety plan and organisational policies and procedures, confirmed and applied to the allotted task

1.3 Signage requirements are identified and obtained from the project traffic management plan and implemented

1.4 Plant, tools and equipment selected to carry out tasks are consistent with the requirements of the job, checked for serviceability and any faults are rectified or reported

1.5 Environmental protection requirements are identified from the project environmental management plan, confirmed and applied to the allotted task
<table>
<thead>
<tr>
<th></th>
<th>Set out and excavate</th>
<th>2.1 Work area and materials are prepared to support the efficient installation of the pipe work</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td></td>
<td>2.2 Dewatering requirements are determined and applied</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2.3 Location, alignment direction, level and grade of stormwater system is determined from job drawings/specifications</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2.4 Works are set out to specification</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2.5 Plant operator is advised of excavation requirements and levels are monitored</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2.6 Stormwater system bedding is installed in accordance with plans, specifications and standards</td>
</tr>
</tbody>
</table>
3 Install stormwater system

3.1 Pipes are lowered and placed in position to design specifications

3.2 Pipes are joined in accordance with manufacturers specifications

3.3 Alignment level and grade is checked continuously for conformance with design plans and specifications

3.4 Side support and/or overlay is positioned beside the pipes

3.5 Inspection openings are fitted in accordance with job specifications

3.6 Backfill procedure is monitored to ensure work is completed to specification, where specified

4 Test stormwater system

4.1 Test is performed to relevant authority requirements as determined by the specifications

4.2 Stormwater system test procedures are performed establishing functionality and serviceability

4.3 Test results are recorded and reported

2.9 Clean up

5.1 Work area is cleared and materials disposed of or recycled in accordance with project environmental management plan

5.2 Plant, tools and equipment are cleaned, checked, maintained and stored in accordance with manufacturers’ recommendations and standard work practices
Range Statement

The Range Statement provides advice to interpret the scope and context of this unit of competency allowing for differences between enterprises and workplaces. It relates to the unit as a whole and facilitates holistic assessment. The following variables relate to this particular unit:

**Unit scope**

- Types of stormwater systems are to include only in-ground
- Stormwater pipes may be constructed from but not limited to reinforced concrete (RCP), PVC, steel, fibre reinforced concrete (FRC) and DICL
- Installation procedures are to include but not be limited to selecting size, type and material of pipe, bedding down pipes, positioning pipes, checking alignment, level and grade, fitting inspection holes and may include repair work where required
- Testing procedures may include but not be limited to visual straightness, ovality, tolerance, air and water
- Bedding materials may include aggregate and sand
- Pipe joining methods are to include but not be limited to rubber ring, solvent welded and may include arc welded and mechanical jointed
- Traffic control signage may include but not be limited to escort vehicle, highway traffic signs, site safety signage, temporary signage for the benefit of motorists and pedestrians, barricades, and traffic conditions signage
- Planning and preparation is to include but not be limited to worksite inspection, equipment defect identification, assessment of conditions and hazards and determination of work requirements
- Traffic conditions may include but not be limited to congested urban environments, low traffic rural areas, off-road un-trafficked areas, buildings, parking sites and pedestrian areas
Safety (OH&S)

- OH&S requirements are to be in accordance with State or Territory legislation and regulations, organisational safety policies and procedures, and project safety plan. This may include 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.

- Personal protective equipment is to include that prescribed under legislation, regulation and workplace policies and practices.

- Safe operating procedures are to include but not be limited to recognising and preventing hazards associated with underground services, other machines, personnel, restricted access barriers, traffic control, working in proximity to others, worksite visitors and the public.

- Hazards and risks may include but not be limited to uneven/unstable terrain, trees, underground services, buildings, excavations, traffic, embankments, cuttings, structures and hazardous materials.

- Emergency procedures related to this unit are to include but may not be limited to emergency shutdown and stopping, extinguishing equipment fires, organisational first aid requirements and evacuation.

- Safe parking practices are to include but not be limited to ensuring access ways are clear, equipment/machinery is away from overhangs and refuelling sites, safe distance from excavations, and secured from unauthorised access or movement.

Environmental Requirements

- Environmental requirements are to include but are not limited to organisational/project environmental management plan, waste management, water quality protection, noise, vibration, dust and clean-up management.

Quality Requirements

- Quality requirements may include but not be limited to dimensions, tolerances, standards of work and material standards as detailed in the project drawings, specifications and project documentation to meet client satisfaction.

Statutory/Regulatory Authorities

- State/Regulatory Authorities may Federal, State and Local Authorities.
Tools and equipment
- Tools and equipment are to include but not be limited to levelling equipment, shovels, lifting equipment, crow bars, hammers, grinders, jointing equipment and may include oxy-acetylene equipment, scaffolding and saws

Materials
- Materials are to include but not be limited to pipes, concrete, backfill and bedding materials

Communications
- Communications are to include but not be limited to verbal instructions and fault reporting and may include two way radio, hand signals, mobile phone, site specific instructions, written instructions or instructions related to job/task

Information
- Information sources may include but not be limited to verbal or written and graphical instructions, signage, work schedules/plans/specifications, work bulletins, charts and hand drawings, memos, material safety data sheets (MSDS) and diagrams or sketches
  - Safe work procedures or equivalent related to the installation of stormwater systems
  - Regulatory/legislative requirements pertaining to the installation of stormwater systems
  - Manufacturers’ specifications and instructions
  - Organisation work specifications and requirements.
  - Instructions issued by authorised organisational or external personnel
  - Relevant Australian Standards
Evidence Guide

The Evidence Guide identifies the critical aspects, knowledge and skills to be demonstrated to confirm competency for this unit. This is an integral part of the assessment of competency and should be read in conjunction with the Performance Criteria, the Range Statement, and the Assessment Guidelines of the Training Package.

Critical aspects of evidence required to demonstrate competency in this unit

- Location, interpretation and application of relevant information, standards and specifications
- Compliance with site safety plan, OH&S regulations and State/Territory legislation applicable to workplace operations
- Compliance with organisational policies and procedures including quality requirements
- Installation of a minimum of 100 metres of stormwater pipe to design specifications
- Safe and effective operational use of tools, plant and equipment
- Communication and working effectively and safely with others

Relationship to other units

- Pre-requisite units are:

  BCCCM1001C Follow OH&S policies and procedures

  Competency in this unit may be assessed in conjunction with other functional units which together form part of the holistic work role
Specific knowledge required to achieve the performance criteria

- A knowledge of
  - Site and equipment safety requirements
  - Stormwater systems and installation procedures
  - Civil construction terminology
  - Confined space entry requirements
  - Dewatering
  - Concrete and concrete fabrication
  - Processes for interpreting engineering drawings
  - Equipment types, characteristics, technical capabilities and limitations
  - Operational, maintenance and basic diagnostic procedures
  - Processes for the calculation of pipeline grades and percentages
  - Sedimentation and erosion controls
  - Excavation/trench safety
  - Site isolation and traffic control responsibilities and authorities
  - Materials Safety Data Sheets and materials handling methods
  - Project quality requirements
  - JSA’s/Safe work method statement

The context of assessment

- The application of competency is to be assessed in the workplace or realistically simulated workplace

- Assessment is to occur under standard and authorised work practices, safety requirements and environmental constraints

- Assessment of essential underpinning knowledge, other than confirmatory questions, will usually be conducted in an off-site context

- Assessment is to comply with relevant regulatory or Australian Standards requirements
Methods of assessment

- Assessment must satisfy the endorsed assessment guidelines of the Building and Construction industry’s Civil Construction Training Package
- Assessment methods must confirm consistency and accuracy of performance together with application of underpinning knowledge
- Assessment must be by direct observation of tasks, with questioning on underpinning knowledge
- Assessment methods must confirm the ability to access and correctly interpret and apply the essential underpinning knowledge
- Assessment may be applied under project related conditions (real or simulated) and require evidence of process
- Assessment must confirm a reasonable inference that competency is able not only to be satisfied under the particular circumstance, but is able to be transferred to other circumstances
- Assessment may be in conjunction with assessment of other units of competency, including those listed above

Specific resource requirements for this unit

- The following resources should be made available:
  - workplace location or simulated workplace
  - materials relevant to the installation of stormwater systems
  - hand and power tools, plant and equipment appropriate to the installation of stormwater systems
  - specifications and work instructions

... End ...
BCCPL3004B  Install pre-cast gully pits

Unit Descriptor
This unit specifies the competency required to install pre-cast gully pits to enable inspection and maintenance of pipe systems. It includes the minimum criteria for competency assessment.

This unit includes setting out, installing, rendering, modifying and repairing access facilities.

Employability Skills
The required outcomes described in this Unit of Competency contain applicable facets of employability skills. The Employability Skills Qualification Summary for the qualification in which this Unit of Competency is packaged will assist in identifying employability skill requirements.

Element
Elements define the essential outcomes of a unit of competency.

Performance Criteria
Performance criteria specify the level of performance required to demonstrate achievement of the element.

1 Plan and prepare
1.0 Work instructions, including plans, specifications, quality requirements and operational details relevant to the tasks are obtained, confirmed and applied to the allotted task
1.1 Safety requirements are obtained from the site safety plan and organisational policies and procedures, confirmed and applied to the allotted task
1.2 Signage requirements are identified and obtained from the project traffic management plan and implemented
1.3 Plant, tools and equipment selected to carry out tasks are consistent with the requirements of the job, checked for serviceability and any faults are rectified or reported
1.4 Environmental protection requirements are identified from the project environmental management plan, confirmed and applied to the allotted task
2 Install gully pits

2.1 Plant operator is advised of excavation and base preparation requirements

2.2 Location and positioning of gully pit is determined from plans and drawings

2.3 Work area is safely set out to design specifications

2.4 Ingress of water is controlled by dewatering

2.5 Main components of the pre-cast unit are positioned, fabricated or installed to design specifications

2.6 Finished surface is sealed by rendering where specified

2.7 Auxiliary components or modifications are positioned and attached to pre-cast unit according to design specifications where specified

2.8 New and existing gully pits are inspected for damage or wear and repaired in accordance with specifications

3 Clean up

3.1 Work area is cleared and materials disposed of or recycled in accordance with project environmental management plan

3.2 Plant, tools and equipment are cleaned, checked, maintained and stored in accordance with manufacturers’ recommendations and standard work practices

Range Statement

The Range Statement provides advice to interpret the scope and context of this unit of competency allowing for differences between enterprises and workplaces. It relates to the unit as a whole and facilitates holistic assessment. The following variables relate to this particular unit:

Unit scope

- Gully pits are to include but not be limited to pre-cast unit sections

- Gully pit use is to include only stormwater systems

- Installation procedures are to include but not be limited to selecting size, type and material of pit, positioning gully pits, rendering, attaching auxiliary components, making or attaching modifications and repair work

- Auxiliary components are to include but not be limited to covers and may include steps, conversion slabs and benching
Unit scope (continued)

- Location of gully pits are to include but not be limited to roads, verges and may include private properties
- Dewatering methods may include but not be limited to wells, trenches, sumps, pits, submersible pumps, vacuum pumps, surface pumps and sludge pumps
- Traffic control signage may include but not be limited to escort vehicle, highway traffic signs, site safety signage, temporary signage for the benefit of motorists and pedestrians, barricades, and traffic conditions signage
- Planning and preparation is to include but not be limited to worksite inspection, equipment defect identification, assessment of conditions and hazards and determination of work requirements
- Traffic conditions may include but not be limited to congested urban environments, low traffic rural areas, off-road un-trafficked areas, buildings, parking sites and pedestrian areas

Safety (OH&S)

- OH&S requirements are to be in accordance with State or Territory legislation and regulations, organisational safety policies and procedures, and project safety plan. This may include 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
- Personal protective equipment is to include that prescribed under legislation, regulation and workplace policies and practices
- Safe operating procedures are to include but not be limited to recognising and preventing hazards associated with underground services, other machines, personnel, restricted access barriers, traffic control, working in proximity to others, worksite visitors and the public
- Hazards and risks may include but not be limited to uneven/unstable terrain, underground services, buildings, excavations, traffic, embankments, cuttings, structures and hazardous materials
<table>
<thead>
<tr>
<th>Category</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Safety (OH&amp;S)</strong></td>
<td>• Emergency procedures related to this unit are to include but may not be limited to emergency shutdown and stopping, extinguishing equipment fires, organisational first aid requirements and evacuation</td>
</tr>
<tr>
<td>(continued)</td>
<td>• Safe parking practices are to include but not be limited to ensuring access ways are clear, equipment/machinery is away from overhangs and refuelling sites, safe distance from excavations, and secured from unauthorised access or movement</td>
</tr>
<tr>
<td><strong>Environmental Requirements</strong></td>
<td>• Environmental requirements are to include but are not limited to organisational/project environmental management plan, waste management, water quality protection, noise, vibration, dust and clean-up management</td>
</tr>
<tr>
<td><strong>Quality Requirements</strong></td>
<td>• Quality requirements may include but not be limited to dimensions, tolerances, standards of work and material standards as detailed in the project drawings, specifications and project documentation to meet client satisfaction</td>
</tr>
<tr>
<td><strong>Statutory/Regulatory Authorities</strong></td>
<td>• Statutory/regulatory authorities may include statutory/regulatory Government authorities, Local Government statutory authorities</td>
</tr>
<tr>
<td><strong>Tools and equipment</strong></td>
<td>• Tools and equipment are to include but not be limited to levelling equipment, shovels, lifting equipment, hammers, grinders and may include oxy-acetylene equipment, scaffolding and trowels</td>
</tr>
<tr>
<td><strong>Materials</strong></td>
<td>• Materials are to include but not be limited to concrete, bedding materials, pre-cast components jointing materials (silicon, mastic or epoxy) and cement render</td>
</tr>
<tr>
<td><strong>Communications</strong></td>
<td>• Communications are to include but not be limited to verbal instructions and fault reporting and may include two way radio, hand signals, mobile phone, site specific instructions, written instructions or instructions related to job/task</td>
</tr>
</tbody>
</table>
Information

- Information sources may include but not be limited to verbal or written and graphical instructions, signage, work schedules/plans/specifications, work bulletins, charts and hand drawings, memos, material safety data sheets (MSDS) and diagrams or sketches
- Safe work procedures or equivalent related to the installation of gully pits
- Regulatory/legislative requirements pertaining to the installation of gully pits
- Manufacturers’ specifications and instructions
- Organisation work specifications and requirements.
- Instructions issued by authorised organisational or external personnel
- Relevant Australian Standards

Evidence Guide

The Evidence Guide identifies the critical aspects, knowledge and skills to be demonstrated to confirm competency for this unit. This is an integral part of the assessment of competency and should be read in conjunction with the Performance Criteria, the Range Statement, and the Assessment Guidelines of the Training Package.

Critical aspects of evidence required to demonstrate competency in this unit

- Location, interpretation and application of relevant information, standards and specifications
- Compliance with site safety plan, OH&S regulations and State/Territory legislation applicable to workplace operations
- Compliance with organisational policies and procedures including quality requirements
- Installation of a minimum of two gully pits for stormwater systems to design specifications
- Safe and effective operational use of tools, plant and equipment
- Communication and working effectively and safely with others

Relationship to other units

- Pre-requisite units are:
  BCCCM1001C Follow OH&S policies and procedures

Competency in this unit may be assessed in conjunction with other functional units which together form part of the holistic work role
Specific knowledge required to achieve the performance criteria

- A knowledge of
  - Site and equipment safety requirements
  - Gully pits
  - Civil construction terminology
  - Sedimentation and erosion control
  - Excavation/trench safety
  - Stormwater systems
  - Confined space entry requirements
  - Dewatering
  - Concrete and concrete fabrication
  - Processes for interpreting engineering drawings
  - Equipment types, characteristics, technical capabilities and limitations
  - Operational, maintenance and basic diagnostic procedures
  - Site isolation and traffic control responsibilities and authorities
  - Materials Safety Data Sheets and materials handling methods
  - Project quality requirements
  - JSA’s/Safe work method statement

The context of assessment

- The application of competency is to be assessed in the workplace or realistically simulated workplace
- Assessment is to occur under standard and authorised work practices, safety requirements and environmental constraints
- Assessment of essential underpinning knowledge, other than confirmatory questions, will usually be conducted in an off-site context
- Assessment is to comply with relevant regulatory or Australian Standards requirements
Methods of assessment

- Assessment must satisfy the endorsed assessment guidelines of the Building and Construction industry’s Civil Construction Training Package
- Assessment methods must confirm consistency and accuracy of performance together with application of underpinning knowledge
- Assessment must be by direct observation of tasks, with questioning on underpinning knowledge
- Assessment methods must confirm the ability to access and correctly interpret and apply the essential underpinning knowledge
- Assessment may be applied under project related conditions (real or simulated) and require evidence of process
- Assessment must confirm a reasonable inference that competency is able not only to be satisfied under the particular circumstance, but is able to be transferred to other circumstances
- Assessment may be in conjunction with assessment of other units of competency, including those listed above

Specific resource requirements for this unit

- The following resources should be made available:
  - workplace location or simulated workplace
  - materials relevant to the installation of gully pits
  - hand and power tools, plant and equipment appropriate to the installation of gully pits
  - specifications and work instructions

... End ...
BCCPL3005B Install pre-cast access chambers

Unit Descriptor

This unit specifies the competency required to install pre-cast access chambers to enable inspection and maintenance of pipe systems. It includes the minimum criteria for competency assessment.

This unit includes setting out, installing, rendering, modifying and repairing access facilities.

Employability Skills

The required outcomes described in this Unit of Competency contain applicable facets of employability skills. The Employability Skills Qualification Summary for the qualification in which this Unit of Competency is packaged will assist in identifying employability skill requirements.

Element

Elements define the essential outcomes of a unit of competency.

Performance Criteria

Performance criteria specify the level of performance required to demonstrate achievement of the element.

1 Plan and prepare

1.1 Work instructions, including plans, specifications, quality requirements and operational details relevant to the tasks are obtained, confirmed and applied to the allotted task

1.2 Safety requirements are obtained from the site safety plan and organisational policies and procedures, confirmed and applied to the allotted task

1.3 Signage requirements are identified and obtained from the project traffic management plan and implemented

1.4 Plant, tools and equipment selected to carry out tasks are consistent with the requirements of the job, checked for serviceability and any faults are rectified or reported

1.5 Environmental protection requirements are identified from the project environmental management plan, confirmed and applied to the allotted task
<table>
<thead>
<tr>
<th></th>
<th>Install access chambers</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>2.1</td>
<td>Plant operator is advised of excavation and base preparation requirements</td>
<td></td>
</tr>
<tr>
<td>2.2</td>
<td>Location and positioning of access chamber is determined from plans and drawings</td>
<td></td>
</tr>
<tr>
<td>2.3</td>
<td>Work area is safely set out to design specifications</td>
<td></td>
</tr>
<tr>
<td>2.4</td>
<td>Ingress of water is controlled by dewatering</td>
<td></td>
</tr>
<tr>
<td>2.5</td>
<td>Main components of the pre-cast unit are positioned, fabricated or installed to design specifications</td>
<td></td>
</tr>
<tr>
<td>2.6</td>
<td>Finished surface is sealed by rendering where specified</td>
<td></td>
</tr>
<tr>
<td>2.7</td>
<td>Auxiliary components or modifications are positioned and attached to pre-cast unit according to design specifications where specified</td>
<td></td>
</tr>
<tr>
<td>2.8</td>
<td>New and existing access chambers are inspected for damage or wear and repaired in accordance with specifications</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Clean up</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.1</td>
<td>Work area is cleared and materials disposed of or recycled in accordance with project environmental management plan</td>
</tr>
<tr>
<td>3.2</td>
<td>Plant, tools and equipment are cleaned, checked, maintained and stored in accordance with manufacturers’ recommendations and standard work practices</td>
</tr>
</tbody>
</table>

**Range Statement**

The Range Statement provides advice to interpret the scope and context of this unit of competency allowing for differences between enterprises and workplaces. It relates to the unit as a whole and facilitates holistic assessment. The following variables relate to this particular unit:

**Unit scope**

- Access chambers are to include but not be limited to pre-cast unit sections
- Access chamber use is to include sewerage and stormwater pipelines
- Installation procedures are to include but not be limited to selecting size, type and material of chamber, positioning access chambers, rendering, attaching auxiliary components, making or attaching modifications and repair work
- Auxiliary components are to include but not be limited to covers and may include steps, conversion slabs and benching
Unit scope (continued)

• Location of access chambers are to include but not be limited to roads, verges and may include private properties

• Dewatering methods may include but not be limited to wells, trenches, sumps, pits, submersible pumps, vacuum pumps, surface pumps and sludge pumps

• Traffic control signage may include but not be limited to escort vehicle, highway traffic signs, site safety signage, temporary signage for the benefit of motorists and pedestrians, barricades, and traffic conditions signage

• Planning and preparation is to include but not be limited to worksite inspection, equipment defect identification, assessment of conditions and hazards and determination of work requirements

• Traffic conditions may include but not be limited to congested urban environments, low traffic rural areas, off-road un-trafficked areas, buildings, parking sites and pedestrian areas

Safety (OH&S)

• OH&S requirements are to be in accordance with State or Territory legislation and regulations, organisational safety policies and procedures, and project safety plan. This may include 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

• Personal protective equipment is to include that prescribed under legislation, regulation and workplace policies and practices

• Safe operating procedures are to include but not be limited to recognising and preventing hazards associated with underground services, other machines, personnel, restricted access barriers, traffic control, working in proximity to others, worksite visitors and the public

• Hazards and risks may include but not be limited to uneven/unstable terrain, underground services, buildings, excavations, traffic, embankments, cuttings, structures and hazardous materials
Safety (OH&S) (continued)

- Emergency procedures related to this unit are to include but may not be limited to emergency shutdown and stopping, extinguishing equipment fires, organisational first aid requirements and evacuation.

- Safe parking practices are to include but not be limited to ensuring access ways are clear, equipment/machinery is away from overhangs and refuelling sites, safe distance from excavations, and secured from unauthorised access or movement.

Environmental Requirements

- Environmental requirements are to include but are not limited to organisational/project environmental management plan, waste management, water quality protection, noise, vibration, dust and clean-up management.

Quality Requirements

- Quality requirements may include but not be limited to dimensions, tolerances, standards of work and material standards as detailed in the project drawings, specifications and project documentation to meet client satisfaction.

Statutory/Regulatory Authorities

- State/Regulatory Authorities may Federal, State and Local Authorities.

Tools and equipment

- Tools and equipment are to include but not be limited to levelling equipment, shovels, lifting equipment, hammers, grinders and may include oxy-acetylene equipment, scaffolding and trowels.

Materials

- Materials are to include but not be limited to concrete, bedding materials, pre-cast components jointing materials (silicon, mastic or epoxy) and cement render.

Communications

- Communications are to include but not be limited to verbal instructions and fault reporting and may include two way radio, hand signals, mobile phone, site specific instructions, written instructions or instructions related to job/task.
Information

- Information sources may include but not be limited to verbal or written and graphical instructions, signage, work schedules/plans/specifications, work bulletins, charts and hand drawings, memos, material safety data sheets (MSDS) and diagrams or sketches
- Safe work procedures or equivalent related to the installation of access chambers
- Regulatory/legislative requirements pertaining to the installation of access chambers
- Manufacturers’ specifications and instructions
- Organisation work specifications and requirements.
- Instructions issued by authorised organisational or external personnel
- Relevant Australian Standards

Evidence Guide

The Evidence Guide identifies the critical aspects, knowledge and skills to be demonstrated to confirm competency for this unit. This is an integral part of the assessment of competency and should be read in conjunction with the Performance Criteria, the Range Statement, and the Assessment Guidelines of the Training Package.

Critical aspects of evidence required to demonstrate competency in this unit

- Location, interpretation and application of relevant information, standards and specifications
- Compliance with site safety plan, OH&S regulations and State/Territory legislation applicable to workplace operations
- Compliance with organisational policies and procedures including quality requirements
- Installation of a minimum of two access chambers to design specifications
- Safe and effective operational use of tools, plant and equipment
- Communication and working effectively and safely with others

Relationship to other units

- Pre-requisite units are:
  BCCCM1001C Follow OH&S policies and procedures
  Competency in this unit may be assessed in conjunction with other functional units which together form part of the holistic work role
Specific knowledge required to achieve the performance criteria

- A knowledge of
  - Site and equipment safety requirements
  - Access chambers
  - Civil construction terminology
  - Sedimentation and erosion control
  - Excavation/trench safety
  - Sewerage systems
  - Confined space entry requirements
  - Dewatering
  - Concrete and concrete fabrication
  - Processes for interpreting engineering drawings
  - Equipment types, characteristics, technical capabilities and limitations
  - Operational, maintenance and basic diagnostic procedures
  - Site isolation and traffic control responsibilities and authorities
  - Materials Safety Data Sheets and materials handling methods
  - Project quality requirements
  - JSA’s/Safe work method statement

The context of assessment

- The application of competency is to be assessed in the workplace or realistically simulated workplace

- Assessment is to occur under standard and authorised work practices, safety requirements and environmental constraints

- Assessment of essential underpinning knowledge, other than confirmatory questions, will usually be conducted in an off-site context

- Assessment is to comply with relevant regulatory or Australian Standards requirements
Methods of assessment

- Assessment must satisfy the endorsed assessment guidelines of the Building and Construction industry’s Civil Construction Training Package
- Assessment methods must confirm consistency and accuracy of performance together with application of underpinning knowledge
- Assessment must be by direct observation of tasks, with questioning on underpinning knowledge
- Assessment methods must confirm the ability to access and correctly interpret and apply the essential underpinning knowledge
- Assessment may be applied under project related conditions (real or simulated) and require evidence of process
- Assessment must confirm a reasonable inference that competency is able not only to be satisfied under the particular circumstance, but is able to be transferred to other circumstances
- Assessment may be in conjunction with assessment of other units of competency, including those listed above

Specific resource requirements for this unit

- The following resources should be made available:
  - workplace location or simulated workplace
  - materials relevant to the installation of access chambers
  - hand and power tools, plant and equipment appropriate to the installation of access chambers
  - specifications and work instructions

… End …
**BCCPO3019B  Conduct stabiliser operations**

**Unit Descriptor**

This unit specifies the competency required to conduct stabiliser operations covering the mixing of materials and additives and the achievement of specified line and depth. It includes the minimum criteria for competency assessment.

This unit covers the planning and preparation for work, the conduct of pre-operational checks, the operation of the stabiliser, the conduct of operator maintenance and other work finalisation activities.

**Employability Skills**

The required outcomes described in this Unit of Competency contain applicable facets of employability skills. The Employability Skills Qualification Summary for the qualification in which this Unit of Competency is packaged will assist in identifying employability skill requirements.

**Element Performance Criteria**

Elements define the essential outcomes of a unit of competency.

1. **Plan and prepare**
   1.1 Work instructions, including plans, specifications, quality requirements and operational details are obtained, confirmed and applied to the allotted task
   1.2 Safety requirements are obtained from the site safety plan and organisational policies and procedures, confirmed and applied to the allotted task
   1.3 Signage requirements are identified and obtained from the project traffic management plan and implemented
   1.4 Material to be laid and handling procedures to be employed are determined according to specifications
   1.5 Plant, tools and equipment selected to carry out tasks are consistent with the requirements of the job, checked for serviceability and any faults are rectified or reported
   1.6 Environmental protection requirements are identified from the project environmental management plan, confirmed and applied to the allotted task
<table>
<thead>
<tr>
<th></th>
<th>Conduct stabiliser pre-operational checks</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td><strong>2.1</strong> Pre-start, start up, park and shut down procedures are carried out in accordance with manufacturers’ and/or site specific requirements</td>
</tr>
<tr>
<td></td>
<td><strong>2.2</strong> Stabiliser controls and functions, including implements or other attachments, brakes and manoeuvrability are checked for serviceability and any faults are rectified or reported</td>
</tr>
</tbody>
</table>
3 Operate stabiliser

3.1 Site hazards associated with stabiliser operations are identified and safe operating techniques are used to minimise risk

3.2 Operating techniques for stabiliser are identified and applied to achieve optimum output in accordance with manufacturers’ design specifications while achieving specified tolerances

3.3 Stabiliser is operated to work instructions in accordance with company operating procedures

3.4 Stabiliser is operated to produce results, including mixing of materials, use of additives and line and length within design specifications to meet specified tolerances

4 Relocate stabiliser

4.1 Stabiliser is moved safely between work sites, observing relevant codes and traffic management requirements

4.2 Stabiliser is prepared for relocation in accordance with the manufacturers’ specifications

5 Carry out operator maintenance

5.1 Inspection and fault finding are conducted in accordance with manufacturers’ specifications and/or organisational requirements

5.2 Routine operational servicing and lubrication tasks are carried out to manufacturers’ and/or organisational requirements

5.3 Minor maintenance is carried out to manufacturers’ and/or organisational requirements

5.4 Performance of machine is constantly recorded to enable timely repair of equipment

2.10 Clean up

6.1 Work area is cleared and materials disposed of or recycled in accordance with project environmental management plan

6.2 Plant, tools and equipment are cleaned, checked, maintained and stored in accordance with manufacturers’ recommendations and standard work practices
Range Statement

The Range Statement provides advice to interpret the scope and context of this unit of competency allowing for differences between enterprises and workplaces. It relates to the unit as a whole and facilitates holistic assessment. The following variables relate to this particular unit:

Unit scope

- A stabiliser is a self propelled wheeled machine designed to pulverise and mix a variety of types of insitu construction materials during stabilisation operations. The stabiliser may also work in conjunction with a water truck.

- Stabiliser tasks are to include the mixing of materials, the application of additives and the achievement of specified line and depth

- Stabilisation is to include but not be limited to enhancing the properties of the existing pavement, decreasing permeability, volume change, increased strength and durability

- Stabilisation is undertaken to failing pavement by churning up (excavating and remixing) the existing fill (pavement) to the depth specified by the geotechnical report, mixing it with additive and refilling it in layers using the stabilised material. The pavement is then left in the specified shape to allow for even placement of bitumen seal or asphalt

- Additives to the existing soil or pavement are to include but not be limited to cement and may include lime, bitumen or other chemicals where the existing material is not conducive to cement treatment

- Site locations may include but not be limited to car parks, airport runways, container yards, hard stands, footpaths, bikeways, rural and urban roads and highways

- Operator maintenance is to include cleaning, authorised servicing and the monitoring, recording and reporting of faults. It may also include the conduct of authorised minor replacements and the provision of assistance to maintenance personnel during maintenance and repair activities
Safety (OH&S)

- OH&S requirements are to be in accordance with State or Territory legislation and regulations, organisational safety policies and procedures, and project safety plan. This may include 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

- Personal protective equipment is to include that prescribed under legislation, regulation and workplace policies and practices

- Safe operating procedures are to include but not be limited to recognising and preventing hazards associated with underground and overhead services, other machines, personnel, restricted access barriers, traffic control, working at heights, working in proximity to others, worksite visitors and the public

- Safe parking practices are to include but not be limited to ensuring access ways are clear, equipment/machinery is away from overhangs and refuelling sites, safe distance from excavations, and secured from unauthorised access or movement

- Hazards and risks may include but not be limited to uneven/unstable terrain, trees, fires, overhead and underground services, bridges, buildings, excavations, traffic, embankments, cuttings, structures and hazardous materials

- Emergency procedures related to this unit are to include but may not be limited to emergency shutdown and stopping, extinguishing fires, organisational first aid requirements and evacuation

Environmental Requirements

- Environmental requirements are to include but are not limited to organisational/project environmental management plan, waste management, water quality protection, noise, vibration, dust and clean-up management

Quality Requirements

- Quality requirements may include but not be limited to dimensions, tolerances, standards of work and material standards as detailed in the project drawings, specifications and project documentation to meet client satisfaction

Statutory/Regulatory Authorities

- State/Regulatory Authorities may include Federal, State and Local Authorities
Renovate large diameter pipes and chambers

**Materials**
- Materials are to include but not be limited to imported fill, aggregates, cement and may include lime, bitumen and other chemicals

**Tools and equipment**
- Tools and equipment are to include hand tools and maintenance equipment relevant to the particular stabiliser

**Communications**
- Communications are to include but not be limited to verbal instructions and fault reporting and may include two way radio, hand signals, mobile phone, site specific instructions, written instructions or instructions related to job/task

- On site meeting processes may include notification/scheduling (time, place, purpose), task discussions and local coordination of procedural and operational issues

**Information**
- Information sources may include but not be limited to verbal or written and graphical instructions, signage, work schedules/plans/specifications, work bulletins, charts and hand drawings, memos, maps, material safety data sheets (MSDS) and diagrams or sketches

- Safe work procedures or equivalent related to stabiliser operations

- Regulatory/legislative requirements pertaining to stabiliser operations

- Manufacturers’ specifications and instructions

- Organisation work specifications and requirements.

- Instructions issued by authorised organisational or external personnel

- Relevant Australian Standards and Austroads

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BCC03 Civil Construction Training Package to be reviewed by 31/12/2006 Version 3

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Evidence Guide

The Evidence Guide identifies the critical aspects, knowledge and skills to be demonstrated to confirm competency for this unit. This is an integral part of the assessment of competency and should be read in conjunction with the Performance Criteria, the Range Statement, and the Assessment Guidelines of the Training Package.

Critical aspects of evidence required to demonstrate competency in this unit

- Location, interpretation and application of relevant information, standards and specifications
- Compliance with site safety plan, OH&S regulations and State/Territory legislation applicable to workplace operations
- Compliance with organisational policies and procedures including quality requirements
- The conduct of stabiliser operations are to be performed on two separate projects and are to include the mandatory tasks stated in the Range Statement and the stabilising of an area of at least 500m² ensuring moisture content, additive application rate, pulverising, mixing, line and length are in accordance with project specifications. This is to be performed utilising two different additive types
- The conduct of authorised operator maintenance
- Safe and effective operational use of tools, plant and equipment
- Communication and working effectively and safely with others

Relationship to other units

- Pre-requisite units are:
  BCCCM1001C Follow OH&S policies and procedures

  Competency in this unit may be assessed in conjunction with other functional units which together form part of the holistic work role
Specific knowledge required to achieve the performance criteria

- A knowledge of
  - Basic principles of soil technology for civil works
  - Stabiliser types, characteristics, technical capabilities and limitations
  - Stabilising techniques including pulverising, mixing and the use of additives
  - Operational, maintenance and basic diagnostic procedures
  - Site isolation and traffic control responsibilities and authorities
  - Site and equipment safety requirements
  - 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
  - Methods of changing machine attachments
  - Safe operating techniques in all terrain
  - Basic earthworks calculations
  - Civil construction activity sequences of road construction, earthworks and drainage
  - Levelling techniques
  - JSA’s/Safe work method statement
The context of assessment

- The application of competency is to be assessed in the workplace or realistically simulated workplace.
- Assessment is to occur under standard and authorised work practices, safety requirements and environmental constraints.
- Assessment of essential underpinning knowledge, other than confirmatory questions, will usually be conducted in an off-site context.
- Assessment is to comply with relevant regulatory or Australian Standards requirements.

Methods of assessment

- Assessment must satisfy the endorsed assessment guidelines of the Building and Construction industry’s Civil Construction Training Package.
- Assessment methods must confirm consistency and accuracy of performance together with application of underpinning knowledge.
- Assessment must be by direct observation of tasks, with questioning on underpinning knowledge.
- Assessment methods must confirm the ability to access and correctly interpret and apply the essential underpinning knowledge.
- Assessment may be applied under project related conditions (real or simulated) and require evidence of process.
- Assessment must confirm a reasonable inference that competency is able not only to be satisfied under the particular circumstance, but is able to be transferred to other circumstances.
- Assessment may be in conjunction with assessment of other units of competency, including those listed above.
Specific resource requirements for this unit

- The following resources should be made available:
  - workplace location or simulated workplace
  - an operational stabiliser
  - access to a water cart
  - materials relevant to the stabilising tasks
  - specifications and work instructions

... End ...

...
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**BCCBS2002B Hand spread asphalt**

**Unit Descriptor**
This unit specifies the competency required to hand spread asphalt to the required line and level for a finished surface. It relates to hand asphalt spreading and levelling conducted before and after compaction. It includes the minimum criteria for competency assessment.

This unit includes joint construction and working in conjunction with an asphalt paver.

**Employability Skills**
The required outcomes described in this Unit of Competency contain applicable facets of employability skills. The Employability Skills Qualification Summary for the qualification in which this Unit of Competency is packaged will assist in identifying employability skill requirements.

**Element Performance Criteria**

<table>
<thead>
<tr>
<th>Element</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Plan and prepare</td>
<td><strong>1.1</strong> Work instructions, including plans, specifications, quality requirements and operational details are obtained, confirmed and applied to the allotted task</td>
</tr>
<tr>
<td></td>
<td><strong>1.2</strong> Safety requirements are obtained from the site safety plan and organisational policies and procedures, confirmed and applied to the allotted task</td>
</tr>
<tr>
<td></td>
<td><strong>1.3</strong> Signage requirements are identified and obtained from the project traffic management plan and implemented</td>
</tr>
<tr>
<td></td>
<td><strong>1.4</strong> Tools and equipment selected to carry out tasks are consistent with the requirements of the job, checked for serviceability and any faults are rectified or reported</td>
</tr>
<tr>
<td></td>
<td><strong>1.5</strong> Environmental protection requirements are identified from the project environmental management plan, confirmed and applied to the allotted task</td>
</tr>
</tbody>
</table>
2 Spread asphalt

2.1 Hand spreading is conducted in safe proximity to the paver

2.2 Asphalt is hand placed to required level and line

2.3 Even finish is achieved when raking and joints are constructed to correct level

2.4 Low spots, high spots and defects are identified and repaired in the mat

2.5 Faults in the mat detected prior to or during operations are identified and reported

3 Clean up

3.1 Work area is cleared and materials disposed of or recycled in accordance with project environmental management plan

3.2 Tools and equipment are cleaned, checked, maintained and stored in accordance with manufacturers’ recommendations and standard work practices

Range Statement

The Range Statement provides advice to interpret the scope and context of this unit of competency allowing for differences between enterprises and workplaces. It relates to the unit as a whole and facilitates holistic assessment. The following variables relate to this particular unit:
Unit scope

- Asphalt spreading is to include but not be limited to constructing new work, repairing surfaces, repair of defects, paver runs and joints
- Asphalt is to include but not be limited to dense graded, open graded and may include stonemastic
- Defects to be rectified in the paver run may include but not be limited to bumps, segregation, blemishes, bony materials and voids
- Joints are to include but not be limited to longitudinal, transverse, hot to hot and cold to hot
- Planning and preparation is to include but not be limited to worksite inspection, equipment defect identification, assessment of conditions and hazards and determination of work requirements
- Traffic conditions may include but not be limited to congested urban environments, low traffic rural areas, off-road un-trafficked areas, buildings, parking sites and pedestrian areas
- Site locations may include but not be limited to car parks, airport runways, container yards, hard stands, footpaths, bikeways and roadways
- Areas adjacent to the work area may include but not be limited to nature strips, driveways, footpaths, shoulders, drains, kerb and channel

Safety (OH&S)

- OH&S requirements are to be in accordance with State or Territory legislation and regulations, organisational safety policies and procedures, and project safety plan. This may include 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 spreading may include but not be limited to procedures minimising strain and fatigue, adherence to site traffic plans, precautions taken when working close to traffic, awareness of rollers and other vehicles working in the area
- Safe operating procedures are to include but not be limited to recognising and preventing hazards associated with uneven/unstable terrain, trees, 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
- Hazards and risks may include but not be limited to 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 are to include but may not be limited to extinguishing equipment fires, organisational first aid requirements and evacuation

- Personal protective equipment is to include that prescribed under legislation, regulation and workplace policies and practices
### Environmental Requirements

- Environmental requirements are to include but are not limited to organisational/project environmental management plan, waste management, water quality protection, noise, vibration, dust and clean-up management.

### Quality Requirements

- Quality requirements may include but not be limited to dimensions, tolerances, standards of work and material standards as detailed in the project drawings, specifications and project documentation to meet client satisfaction.

### Statutory/Regulatory Authorities

- State/Regulatory Authorities may include Federal, State and Local Authorities.

### Tools and equipment

- Tools and equipment are to include but not limited to rakes, brooms, shovels and depth gauges and may include straight edges, shovel baths, smart levels and string lines.

### Materials

- Materials are to include but not limited to asphalt and release agents and may include emulsion, slurry and Styrene Butadiene Styrene modified binders (SBS) handled and used in accordance with the Australian Asphalt Paving Association (AAPA) code of practice for SBS modified binders.

### Communications

- Communications are to include but not limited to verbal instructions and fault reporting and may include two way radio, hand signals, mobile phone, site specific instructions, written instructions or instructions related to job/task.

### Information

- Information sources may include but not be limited to verbal or written and graphical instructions, signage, work schedules/plans/specifications, work bulletins, charts and hand drawings, memos, maps, material safety data sheets (MSDS) and diagrams or sketches.
- Safe work procedures or equivalent related to the hand spreading of asphalt.
- Regulatory/legislative requirements pertaining to the hand spreading of asphalt.
- Manufacturers’ specifications and instructions.
- Organisation work specifications and requirements.
- Instructions issued by authorised organisational or external personnel.
- Relevant Australian Standards and Austroads.
- AAPA advisory notes and codes of practice.
Evidence Guide

The Evidence Guide identifies the critical aspects, knowledge and skills to be demonstrated to confirm competency for this unit. This is an integral part of the assessment of competency and should be read in conjunction with the Performance Criteria, the Range Statement, and the Assessment Guidelines of the Training Package.

Critical aspects of evidence required to demonstrate competency in this unit

- Location, interpretation and application of relevant information, standards and specifications
- Compliance with site safety plan, OH&S regulations and State/Territory legislation applicable to workplace operations
- Compliance with organisational policies and procedures including quality requirements
- A minimum of $5m^2$ of asphalt (per patch) to line and level is to be hand spread without segregation:
  - two patches over 50mm thick, each with a different type of asphalt
  - two patches under 50mm thick, each with a different type of asphalt
- Work with a paver to lay a minimum of 100 lineal metres of longitudinal joint and two transverse joints
- Safe and effective operational use of tools and equipment
- Communication and working effectively and safely with others

Relationship to other units

- Pre-requisite units are:
  BCCCM1001C Follow OH&S policies and procedures

Competency in this unit may be assessed in conjunction with other functional units which together form part of the holistic work role.
Specific knowledge required to achieve the performance criteria

- A knowledge of
  - Site and equipment safety requirements
  - Equipment types, characteristics and limitations
  - Operational and maintenance procedures
  - Hand spreading asphalt
  - Site isolation and traffic control responsibilities and authorities
  - The properties of asphalt
  - The AAPA code of practice for working with SBS modified binders
  - Processes for the calculation of material requirements
  - Materials Safety Data Sheets and materials handling methods
  - Project quality requirements
  - Civil construction terminology
  - JSA’s/Safe work method statements

The context of assessment

- The application of competency is to be assessed in the workplace or realistically simulated workplace
- Assessment is to occur under standard and authorised work practices, safety requirements and environmental constraints
- Assessment of essential underpinning knowledge, other than confirmatory questions, will usually be conducted in an off-site context
- Assessment is to comply with relevant regulatory or Australian Standards requirements
Methods of assessment

- Assessment must satisfy the endorsed assessment guidelines of the Building and Construction industry’s Civil Construction Training Package
- Assessment methods must confirm consistency and accuracy of performance together with application of underpinning knowledge
- Assessment must be by direct observation of tasks, with questioning on underpinning knowledge
- Assessment methods must confirm the ability to access and correctly interpret and apply the essential underpinning knowledge
- Assessment may be applied under project related conditions (real or simulated) and require evidence of process
- Assessment must confirm a reasonable inference that competency is able not only to be satisfied under the particular circumstance, but is able to be transferred to other circumstances
- Assessment may be in conjunction with assessment of other units of competency, including those listed above

Specific resource requirements for this unit

- The following resources should be made available:
  - workplace location or simulated workplace
  - materials relevant to hand spreading asphalt
  - hand and power tools and equipment appropriate to hand spreading asphalt
  - specifications and work instructions

... End ...
**BCCBS2003B** Safely handle bituminous materials

**Unit Descriptor**
This unit specifies the competency required to safely handle bituminous materials for the construction and maintenance of pavements. It includes the minimum criteria for competency assessment.

This unit includes safety and handling requirements for the heating and blending application of bituminous materials.

**Employability Skills**
The required outcomes described in this Unit of Competency contain applicable facets of employability skills. The Employability Skills Qualification Summary for the qualification in which this Unit of Competency is packaged will assist in identifying employability skill requirements.

**Element**
Elements define the essential outcomes of a unit of competency.

<table>
<thead>
<tr>
<th>Element</th>
<th>Performance Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Plan and prepare</td>
<td>1.1 Work instructions, including plans, specifications, quality requirements and operational details are obtained, confirmed and applied to the allotted task</td>
</tr>
<tr>
<td></td>
<td>1.2 Safety requirements are obtained from the site safety plan and organisational policies and procedures, confirmed and applied to the allotted task</td>
</tr>
<tr>
<td></td>
<td>1.3 Tools and equipment selected to carry out tasks are consistent with the requirements of the job, checked for serviceability and any faults are rectified or reported</td>
</tr>
<tr>
<td></td>
<td>1.4 Environmental protection requirements are identified from the project environmental management plan, confirmed and applied to the allotted task</td>
</tr>
</tbody>
</table>
2 Work safely with bituminous materials

2.1 Characteristics and uses of bituminous materials and additives used in surfacing are identified

2.2 Hazards associated with working with hot bitumen are identified and minimisation strategies are implemented

2.3 Australian Asphalt Paving Association (AAPA) code of practice for working with Styrene Butadiene Styrene (SBS) modified binders is adhered to

2.4 Fire precautions associated with hot bitumen as detailed in Austroads Bitumen Sealing Safety Guide are adhered to

2.5 Information including OH&S is extracted from material safety data sheet associated with bituminous materials and applied

2.6 Work is performed to the requirements of the organisation’s environmental policy and EPA standards

3 Demonstrate first aid for bitumen burns

3.1 First aid is performed in the case of a bitumen burn in accordance with Austroads Bitumen Sealing Safety Guide

3.2 ‘Bitumen Burn Tag’ is attached to victims of burns who are to be treated off site in accordance with Austroads Bitumen Sealing Safety Guide

4 Clean up

4.1 Work area is cleared and materials disposed of or recycled in accordance with project environmental management plan

4.2 Tools and equipment are cleaned, checked, maintained and stored in accordance with manufacturers’ recommendations and standard work practices

Range Statement

The Range Statement provides advice to interpret the scope and context of this unit of competency allowing for differences between enterprises and workplaces. It relates to the unit as a whole and facilitates holistic assessment. The following variables relate to this particular unit:
Unit scope

- Minimising the risk of hazards are to include but not be limited to temperature control, correct product changeover procedures, correct mixing/blending procedures, avoiding the presence of water in hot bitumen, avoiding fumes, exposure to heat, static electricity, fires, burns and the safe handling of flammable substances

- Planning and preparation is to include but not be limited to worksite inspection, equipment defect identification, assessment of conditions and hazards and determination of work requirements

- Traffic conditions may include but not be limited to congested urban environments, low traffic rural areas, off-road un-trafficked areas, buildings, parking sites and pedestrian areas

- Site locations may include but not be limited to car parks, airport runways, container yards, hard stands, footpaths, bikeways and roadways
Safety (OH&S)  
- OH&S requirements are to be in accordance with State or Territory legislation and regulations, organisational safety policies and procedures, and project safety plan. This may include 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 operating procedures are to include but not be limited to recognising and preventing hazards associated with uneven/unstable terrain, trees, 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.

- Hazards and risks may include but not be limited to uneven/unstable terrain, trees, fires, overhead and underground services, bridges, buildings, excavations, traffic, embankments, cuttings, structures and hazardous materials.

- Emergency procedures are to include but may not be limited to extinguishing fires, organisational first aid requirements and evacuation.

- Personal protective equipment is to include that prescribed under legislation, regulation and workplace policies and practices.

Environmental Requirements  
- Environmental requirements are to include but are not limited to organisational/project environmental management plan, waste management, water quality protection, noise, vibration, dust and clean-up management.

Quality Requirements  
- Quality requirements may include but not be limited to dimensions, tolerances, standards of work and material standards as detailed in the project drawings, specifications and project documentation to meet client satisfaction.

Statutory/Regulatory Authorities  
- State/Regulatory Authorities may include Federal, State and Local Authorities.
Tools and equipment

- Tools and equipment are to include but not be limited to infrared thermometers, hazchem signs and water finding paste

Materials

- Materials are to include but not be limited to bituminous materials (bitumen, cutback bitumen products, emulsions, asphalt, slurries, additives, fluxes, cutters) and may include aggregates, SBS modified binders, polymers and geo-synthetic products

Communications

- Communications are to include but not limited to verbal instructions and fault reporting and may include two way radio, hand signals, mobile phone, site specific instructions, written instructions or instructions related to job/task

Information

- Information sources may include but not be limited to verbal or written and graphical instructions, signage, work schedules/plans/specifications, work bulletins, charts and hand drawings, memos, maps, material safety data sheets (MSDS) and diagrams or sketches

- Burns card

- Safe work procedures or equivalent related to the safe handling of bituminous materials

- Regulatory/legislative requirements pertaining to the safe handling of bituminous materials

- Manufacturers’ specifications and instructions

- Organisation work specifications and requirements.

- Instructions issued by authorised organisational or external personnel

- Relevant Australian Standards and Austroads

- AAPA advisory notes and codes of practice
Evidence Guide

The Evidence Guide identifies the critical aspects, knowledge and skills to be demonstrated to confirm competency for this unit. This is an integral part of the assessment of competency and should be read in conjunction with the Performance Criteria, the Range Statement, and the Assessment Guidelines of the Training Package.

Critical aspects of evidence required to demonstrate competency in this unit

- Location, interpretation and application of relevant information, standards and specifications
- Compliance with site safety plan, OH&S regulations and State/Territory legislation applicable to workplace operations
- Compliance with organisational policies and procedures including quality requirements
- A minimum of five major hazards associated with handling bituminous materials are reported
- A minimum of four bituminous materials are stored and used together
- Burn first aid is applied to a minimum of one simulated burn and tagged accordingly
- A minimum of one simulated fire involving a bituminous substance is extinguished
- Communication and working effectively and safely with others

Relationship to other units

- Pre-requisite units are:
  BCCCM1001C Follow OH&S policies and procedures

Competency in this unit may be assessed in conjunction with other functional units which together form part of the holistic work role.
Specific knowledge required to achieve the performance criteria

- A knowledge of
  - Site and equipment safety requirements
  - Bituminous materials
  - SBS modified binders
  - Material safety data sheet requirements
  - Equipment types, characteristics, capabilities and limitations
  - Operational and maintenance procedures
  - Site isolation responsibilities and authorities
  - Processes for the calculation of material requirements
  - Materials handling methods
  - Project quality requirements
  - Civil construction terminology
  - JSA’s/Safe work method statements

The context of assessment

- The application of competency is to be assessed in the workplace or realistically simulated workplace.

- Assessment is to occur under standard and authorised work practices, safety requirements and environmental constraints.

- Assessment of essential underpinning knowledge, other than confirmatory questions, will usually be conducted in an off-site context.

- Assessment is to comply with relevant regulatory or Australian Standards requirements.
Methods of assessment

- Assessment must satisfy the endorsed assessment guidelines of the Building and Construction industry’s Civil Construction Training Package
- Assessment methods must confirm consistency and accuracy of performance together with application of underpinning knowledge
- Assessment must be by direct observation of tasks, with questioning on underpinning knowledge
- Assessment methods must confirm the ability to access and correctly interpret and apply the essential underpinning knowledge
- Assessment may be applied under project related conditions (real or simulated) and require evidence of process
- Assessment must confirm a reasonable inference that competency is able not only to be satisfied under the particular circumstance, but is able to be transferred to other circumstances
- Assessment may be in conjunction with assessment of other units of competency, including those listed above

Specific resource requirements for this unit

- The following resources should be made available:
  - workplace location or simulated workplace for the safe handling of bituminous materials
  - bituminous materials
  - personal protective equipment, fire fighting and first aid equipment appropriate for handling bituminous materials
  - specifications and work instructions

… End …
Conduct profile planer operations

BCCBS3001B  Conduct profile planer operations

This unit specifies the competency required to plane and remove layers of material from a surface. It includes the minimum criteria for competency assessment.

The unit covers planning and preparation for work, the conduct of operational checks, the safe and effective operation of the profile planer for a range of mandatory tasks, the fitting and removal of attachment parts, use and removal of attachments, operator maintenance activities and the loading/unloading of the profile planer onto a trailer or float.

Employability Skills

The required outcomes described in this Unit of Competency contain applicable facets of employability skills. The Employability Skills Qualification Summary for the qualification in which this Unit of Competency is packaged will assist in identifying employability skill requirements.

Element Performance Criteria

Elements define the essential outcomes of a unit of competency.

1  Plan and prepare

   1.1 Work instructions, including plans, specifications, quality requirements and operational details are obtained, confirmed and applied to the allotted task

   1.2 Safety requirements are obtained from the site safety plan and organisational policies and procedures, confirmed and applied to the allotted task

   1.3 Signage requirements are identified and obtained from the project traffic management plan and implemented

   1.4 Plant, tools and equipment selected to carry out tasks are consistent with the requirements of the job, checked for serviceability and any faults are rectified or reported

   1.5 Environmental protection requirements are identified from the project environmental management plan, confirmed and applied to the allotted task

2  Conduct profile planer pre-operational checks

   2.1 Pre-start, start up, park and shut down procedures are carried out in accordance with manufacturers’ and/or site specific requirements

   2.2 Profile planer controls and functions, including implements or other attachments, brakes and manoeuvrability are checked for serviceability and any faults are rectified or reported
3 Operate profile planer

3.1 Site hazards associated with profile planer operations are identified and safe operating techniques are used to minimise risk

3.2 Operating techniques for profile planer are identified and applied to achieve optimum output in accordance with manufacturers’ design specifications while achieving specified tolerances

3.3 Profile planer is operated to work instructions in accordance with company operating procedures

3.4 Profile planer is operated to remove material to an agreed line and level within specified tolerances

4 Select, remove and fit attachments

4.1 Attachment for the task is selected

4.2 Attachment is removed and fitted according to manufacturers’ manual and site requirements

4.3 Attachment is tested to ensure correct fitting and operation as specified in manufacturers’ manual

4.4 Attachment is used in accordance with manufacturers’ recommendations and design limits

4.5 Removed attachments are cleaned and stored in designated location

5 Relocate the profile planer

5.1 Profile planer is moved safely between work sites, observing relevant codes and traffic management requirements

5.2 Profile planer is prepared for relocation in accordance with the manufacturers’ specifications

6 Carry out profile planer operator maintenance

6.1 Profile planer is safely parked, prepared for maintenance and shut down as per manufacturers’ manual and organisational requirements

6.2 Inspection and fault finding are conducted in accordance with manufacturers’ specifications and/or organisational requirements

6.3 Defective parts are removed and replaced safely and effectively according to manufacturers’ manual and organisational requirements

6.4 Regular programmed maintenance tasks are carried out in accordance with manufacturers’ and/or organisational requirements
7 Clean up

7.1 Work area is cleared and materials disposed of or recycled in accordance with project environmental management plan.

7.2 Profile planer, tools and equipment are cleaned, checked, maintained and stored in accordance with manufacturers’ recommendations and standard work practices.

Range Statement

The Range Statement provides advice to interpret the scope and context of this unit of competency allowing for differences between enterprises and workplaces. It relates to the unit as a whole and facilitates holistic assessment. The following variables relate to this particular unit:

Unit scope

- A profile planer is a self propelled wheeled or tracked machine designed for the purpose of in-situ milling of construction materials. The profile planer also transfers the milled materials via conveyor to storage or tip trucks.
- Profile planer tasks are to include the removal/excavation of materials to a thickness and a line/level, loading of trucks and stockpiling.
- Profile planer tasks may include mixing materials, levelling and pulverising.
- Attachments are to include additional or interchangeable conveyor systems.
- Operations may include asphalt pavement milling, edge planing, straight work and confined work (such as intersection, carpark etc).
- Operator maintenance is to include cleaning, authorised servicing and the monitoring, recording and reporting of faults. It may also include the conduct of authorised minor replacements and the provision of assistance to maintenance personnel during maintenance and repair activities.
Safety (OH&S)

- OH&S requirements are to be in accordance with State or Territory legislation and regulations, organisational safety policies and procedures, and project safety plan. This may include 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

- Personal protective equipment is to include that prescribed under legislation, regulation and workplace policies and practices

- Safe operating procedures are to include but not be limited to recognising and preventing hazards associated with underground and overhead services, other machines, personnel, traffic control, working in proximity to others, worksite visitors and the public

- Safe parking practices are to include but not be limited to ensuring access ways are clear, equipment/ profile planer is away from overhangs and refuelling sites, safe distance from excavations, and secured from unauthorised access or movement

- Hazards and risks may include but not be limited to uneven/unstable terrain, trees, fires, overhead and underground services, bridges, buildings, structures and hazardous materials

- Emergency procedures related to equipment operation are to include but may not be limited to emergency stop, fire fighting, medical and first aid and evacuation

Environmental Requirements

- Environmental requirements are to include but are not limited to organisational/project environmental management plan, waste management, water quality protection, noise, vibration, dust and clean-up management

Quality Requirements

- Quality requirements may include but not be limited to dimensions, tolerances, standards of work and material standards as detailed in the project drawings, specifications and project documentation to meet client satisfaction
<table>
<thead>
<tr>
<th>Statutory/Regulatory Authorities</th>
<th>State/Regulatory Authorities may include Federal, State and Local Authorities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Materials</td>
<td>Materials may include but are not limited to soil, granular materials, asphalt, concrete and rock</td>
</tr>
<tr>
<td></td>
<td>Rock types may include metamorphic, igneous and sedimentary</td>
</tr>
<tr>
<td>Tools and equipment</td>
<td>Tools and equipment are to include hand tools and maintenance equipment relevant to the particular profile planer</td>
</tr>
<tr>
<td>Communications</td>
<td>Communications are to include but not be limited to verbal instructions and fault reporting and may include two way radio, hand signals, mobile phone, site specific instructions, written instructions or instructions related to job/task</td>
</tr>
<tr>
<td></td>
<td>On site meeting processes may include notification/scheduling (time, place, purpose), task discussions and local coordination of procedural and operational issues</td>
</tr>
<tr>
<td>Information</td>
<td>Information sources may include but not be limited to verbal or written and graphical instructions, signage, work schedules/plans/specifications, work bulletins, charts and hand drawings, memos, maps, material safety data sheets (MSDS), diagrams or sketches and graphics</td>
</tr>
<tr>
<td></td>
<td>Safe work procedures related to the operation of profile planers on construction sites</td>
</tr>
<tr>
<td></td>
<td>Regulatory/legislative requirements pertaining to profile planer operations and the environment</td>
</tr>
<tr>
<td></td>
<td>Manufacturers’ specifications and instructions</td>
</tr>
<tr>
<td></td>
<td>Organisation work specifications and requirements.</td>
</tr>
<tr>
<td></td>
<td>Instructions issued by authorised organisational or external personnel</td>
</tr>
<tr>
<td></td>
<td>Relevant Australian Standards</td>
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<tr>
<td></td>
<td>AAPA advisory notes and codes of practice</td>
</tr>
</tbody>
</table>
Evidence Guide

The Evidence Guide identifies the critical aspects, knowledge and skills to be demonstrated to confirm competency for this unit. This is an integral part of the assessment of competency and should be read in conjunction with the Performance Criteria, the Range Statement, and the Assessment Guidelines of the Training Package.

Critical aspects of evidence required to demonstrate competency in this unit

- Location, interpretation and application of relevant information, standards and specifications
- Compliance with site safety plan, OH&S regulations and State/Territory legislation applicable to workplace operations
- Compliance with organisational policies and procedures including quality requirements
- The conduct of profile planer operations are to be performed in a minimum of two different material types/surfaces types and are to include the mandatory tasks of removal/excavation of materials to a thickness and a line/level, loading of trucks and stockpiling
- Operations including asphalt pavement, milling, edge planing, straight work and confined work (such as intersection, car park etc)
- The application of emergency procedures
- The conduct of authorised operator maintenance
- Communication and working effectively and safely with others

Relationship to other units

- Pre-requisite units are:
  BCCCM1001C Follow OH&S policies and procedures

  Competency in this unit may be assessed in conjunction with other functional units which together form part of the holistic work role
Specific knowledge required to achieve the performance criteria

- A knowledge of
  - Profile planer types, characteristics, technical capabilities and limitations
  - Basic soil types and characteristics
  - Basic principles of soil compaction
  - Site and equipment safety requirements
  - Profile planer techniques related to essential tasks
  - Processes for interpreting engineering drawings and sketches
  - Operational, maintenance and basic diagnostic procedures
  - Site isolation and traffic control responsibilities and authorities
  - Materials Safety Data Sheets and materials handling methods
  - Project quality requirements
  - Civil construction terminology
  - Methods of changing machine attachments
  - Safe operating techniques in all terrain
  - Basic earthworks calculations
  - JSA’s/Safe work method statements

The context of assessment

- The application of competency is to be assessed in the workplace or realistically simulated construction site
- Assessment is to occur under standard and authorised work practices, safety requirements and environmental constraints
- Assessment of essential underpinning knowledge, other than confirmatory questions, will usually be conducted in an off-site context
- Assessment is to comply with relevant regulatory or Australian Standards requirements

Methods of assessment

- Assessment must satisfy the endorsed assessment guidelines of the Building and Construction industry’s Civil Construction Training Package
- Assessment methods must confirm consistency and accuracy of performance together with application of underpinning knowledge
- Assessment must be by direct observation of tasks, with questioning on underpinning knowledge
• Assessment methods must confirm the ability to access and correctly interpret and apply the essential underpinning knowledge

• Assessment may be applied under project related conditions (real or simulated) and require evidence of process

• Assessment must confirm a reasonable inference that competency is able not only to be satisfied under the particular circumstance, but is able to be transferred to other circumstances

• Assessment may be in conjunction with assessment of other units of competency, including those listed above

Specific resource requirements for this unit

• The following resources should be made available:
  - workplace location or simulated workplace
  - an operational profile planer with appropriate attachment/parts
  - realistic tasks covering the mandatory task requirements
  - a trailer or float appropriate to the profile planer
  - maintenance materials appropriate to the profile planer equipment
  - specifications and work instructions

... End ...
### BCCFW3002B Install temporary and permanent rock anchors

#### Unit Descriptor
This unit specifies the competency required to prepare and install temporary and permanent rock anchors to prevent wall and roof collapse. It includes the minimum criteria for competency assessment.

This unit includes the stabilisation of rock, clay and other unstable materials where a designed loading is imposed on the anchor.

#### Employability Skills
The required outcomes described in this Unit of Competency contain applicable facets of employability skills. The Employability Skills Qualification Summary for the qualification in which this Unit of Competency is packaged will assist in identifying employability skill requirements.

#### Element Performance Criteria
Performance criteria specify the level of performance required to demonstrate achievement of the element.

<table>
<thead>
<tr>
<th>Element</th>
<th>Performance Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Plan and prepare 1.1</td>
<td>Work instructions, including plans, specifications, quality requirements and operational details are obtained, confirmed and applied to the allotted task</td>
</tr>
<tr>
<td>1.2</td>
<td>Safety requirements are obtained from the site safety plan and organisational policies and procedures, confirmed and applied to the allotted task</td>
</tr>
<tr>
<td>1.3</td>
<td>Signage requirements are identified and obtained from the project traffic management plan and implemented</td>
</tr>
<tr>
<td>1.4</td>
<td>Plant, tools and equipment selected to carry out tasks are consistent with the requirements of the job, checked for serviceability and any faults are rectified or reported</td>
</tr>
<tr>
<td>1.5</td>
<td>Environmental protection requirements are identified from the project environmental management plan, confirmed and applied to the allotted task</td>
</tr>
<tr>
<td>2 Set up and prepare anchor holes 2.1</td>
<td>Location, type and installation requirements of anchors are identified from site structural design drawings or visually</td>
</tr>
<tr>
<td>2.2</td>
<td>Work area is isolated from other site operations</td>
</tr>
<tr>
<td>2.3</td>
<td>Location of anchor holes are determined from surveyor’s set out</td>
</tr>
<tr>
<td>2.4</td>
<td>Drill rig is established in position and set to correct angle</td>
</tr>
<tr>
<td>Step</td>
<td>Task Description</td>
</tr>
<tr>
<td>------</td>
<td>------------------</td>
</tr>
<tr>
<td>2</td>
<td>Set up and prepare anchor holes (continued)</td>
</tr>
<tr>
<td>2.5</td>
<td>Holes are drilled to specified diameter and depth</td>
</tr>
<tr>
<td>2.6</td>
<td>Holes are cleaned through the water flushing process</td>
</tr>
<tr>
<td>2.7</td>
<td>Bond length of holes for permanent anchors are water tested for leakage to specified rate and grouted, re-drilled and retested</td>
</tr>
<tr>
<td>2.8</td>
<td>Holes are temporarily covered to prevent entry of foreign material</td>
</tr>
<tr>
<td>3</td>
<td>Install anchors to anchor holes</td>
</tr>
<tr>
<td>3.1</td>
<td>Components are checked to verify conformity with job requirements</td>
</tr>
<tr>
<td>3.2</td>
<td>Anchors are greased, sheathed and assembled to specifications</td>
</tr>
<tr>
<td>3.3</td>
<td>Temporary anchors are prepared to specifications with spacers and grout tubes fitted</td>
</tr>
<tr>
<td>3.4</td>
<td>Permanent anchors are prepared to specifications with spacers and grout tubes fitted and external polyethylene sheath prepared</td>
</tr>
<tr>
<td>3.5</td>
<td>Anchors and sheaths are carefully installed to full depth, without damage to specifications</td>
</tr>
<tr>
<td>3.6</td>
<td>Grouting plant and flow monitoring apparatus is set up to design requirements</td>
</tr>
<tr>
<td>3.7</td>
<td>Grout is mixed and pumped into hole to specifications</td>
</tr>
<tr>
<td>4</td>
<td>Set up anchorage assembly and stress anchors</td>
</tr>
<tr>
<td>4.1</td>
<td>Anchorage is placed correctly using packing materials as specified</td>
</tr>
<tr>
<td>4.2</td>
<td>Anchors are stressed to nominated loads</td>
</tr>
<tr>
<td>4.3</td>
<td>Anchors are locked off to nominated loads as designed</td>
</tr>
<tr>
<td>4.4</td>
<td>Mesh is installed to job specification</td>
</tr>
<tr>
<td>4.5</td>
<td>Shotcrete is applied to design depth and tolerance and job specification</td>
</tr>
<tr>
<td>4.6</td>
<td>Permanent anchors are monitored at scheduled intervals to determine and record anchor’s residual load</td>
</tr>
<tr>
<td>4.7</td>
<td>Anchors are cut where required and sealed to specification requirements</td>
</tr>
<tr>
<td>5</td>
<td>Clean up</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Range Statement

The Range Statement provides advice to interpret the scope and context of this unit of competency allowing for differences between enterprises and workplaces. It relates to the unit as a whole and facilitates holistic assessment. The following variables relate to this particular unit:

Unit scope

- Types of anchors are to include but not be limited to anchor bolts, cable anchoring, spiling bars and may include grouted anchors and bolts, mechanically anchored bolts and dowels
- Anchoring requirements are to include but not be limited to ground stabilisation, roof and wall support and may include stressing
- Temporary anchorages are to include but not be limited to construction processes, stability for temporary structures and stability to operating plant
- Soil types may include but not be limited to sand, rock, clay, shale, gravel and silt
- Traffic control signage may include but not be limited to escort vehicle, highway traffic signs, site safety signage, temporary signage for the benefit of motorists and pedestrians, barricades, and traffic conditions signage
- Planning and preparation is to include but not be limited to worksite inspection, equipment defect identification, assessment of conditions and hazards and determination of work requirements
- Traffic conditions may include but not be limited to congested urban environments, low traffic rural areas, off-road un-trafficked areas, buildings, parking sites and pedestrian areas
- Site locations may include but not be limited to cuttings, tunnels and embankments
Safety (OH&S) • OH&S requirements are to be in accordance with State or Territory legislation and regulations, organisational safety policies and procedures, and project safety plan. This may include 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

• Personal protective equipment is to include that prescribed under legislation, regulation and workplace policies and practices

• Safe operating procedures are to include but not be limited to recognising and preventing hazards associated with overhead and underground services, other machines, personnel, traffic control, working in proximity to others, worksite visitors and the public

• Hazards and risks may include but not be limited to 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 are to include but may not be limited to emergency shutdown and stopping, extinguishing fires, organisational first aid requirements and evacuation

Environmental Requirements • Environmental requirements are to include but not be limited to organisational/project environmental management plan, waste management, water quality protection, noise, vibration, dust and clean-up management

Quality Requirements • Quality requirements may include but not limited to dimensions, tolerances, standards of work and material standards as detailed in the project drawings, specifications and project documentation to meet client satisfaction

Statutory/Regulatory Authorities • Statutory/Regulatory Authorities may include Federal, State and Local Authorities

Tools and equipment • Tools and equipment are to include but not limited to compressors, pneumatic tools, spanners, drilling rigs and attachments and grouting rigs
Materials
- Materials may include but not limited to anchor bolts, spiling bars, steel cables and ribbed steel bards

Communications
- Communications are to include but not limited to verbal instructions and fault reporting and may include two way radio, hand signals, mobile phone, site specific instructions, written instructions or instructions related to job/task

Information
- Information sources may include but not be limited to verbal or written and graphical instructions, signage, work schedules/plans/specifications, work bulletins, charts and hand drawings, memos, maps, material safety data sheets (MSDS) and diagrams or sketches
- Safe work procedures or equivalent related to the installation of temporary and permanent rock anchors
- Regulatory/legislative requirements pertaining to the installation of temporary and permanent rock anchors
- Manufacturers’ specifications and instructions
- Organisation work specifications and requirements.
- Instructions issued by authorised organisational or external personnel
- Relevant Australian Standards
Evidence Guide

The Evidence Guide identifies the critical aspects, knowledge and skills to be demonstrated to confirm competency for this unit. This is an integral part of the assessment of competency and should be read in conjunction with the Performance Criteria, the Range Statement, and the Assessment Guidelines of the Training Package.

Critical aspects of evidence required to demonstrate competency in this unit

- Location, interpretation and application of relevant information, standards and specifications
- Compliance with site safety plan, OH&S regulations and State/Territory legislation applicable to workplace operations
- Compliance with organisational policies and procedures including quality requirements
- Installation of a minimum of ten permanent anchor bolts, finished with mesh and shotcrete
- Installation of a minimum of ten temporary anchor bolts
- Safe and effective operational use of tools, plant and equipment
- Communication and working effectively and safely with others

Relationship to other units

- Pre-requisite units are:
  BCCCM1001C Follow OH&S policies and procedures

Competency in this unit may be assessed in conjunction with other functional units which together form part of the holistic work role
Specific knowledge required to achieve the performance criteria

- A knowledge of
  - Site and equipment safety requirements
  - Foundation work
  - Temporary and permanent rock anchors and their installation techniques
  - Scaffolding and work platform installation
  - Construction principles
  - Processes for interpreting engineering drawings
  - Soil, sand, rock, clay, shale, gravel and silt types and characteristics
  - Water erosion
  - Equipment types, characteristics, technical capabilities and limitations
  - Operational, maintenance and basic diagnostic procedures
  - Site isolation and traffic control responsibilities and authorities
  - Materials Safety Data Sheets and materials handling methods
  - Project quality requirements
  - Civil construction terminology
  - JSA’s/Safe work method statements

The context of assessment

- The application of competency is to be assessed in the workplace or realistically simulated workplace

- Assessment is to occur under standard and authorised work practices, safety requirements and environmental constraints

- Assessment of essential underpinning knowledge, other than confirmatory questions, will usually be conducted in an off-site context

- Assessment is to comply with relevant regulatory or Australian Standards requirements
Methods of assessment

- Assessment must satisfy the endorsed assessment guidelines of the Building and Construction industry’s Civil Construction Training Package
- Assessment methods must confirm consistency and accuracy of performance together with application of underpinning knowledge
- Assessment must be by direct observation of tasks, with questioning on underpinning knowledge
- Assessment methods must confirm the ability to access and correctly interpret and apply the essential underpinning knowledge
- Assessment may be applied under project related conditions (real or simulated) and require evidence of process
- Assessment must confirm a reasonable inference that competency is able not only to be satisfied under the particular circumstance, but is able to be transferred to other circumstances
- Assessment may be in conjunction with assessment of other units of competency, including those listed above

Specific resource requirements for this unit

- The following resources should be made available:
  - workplace location or simulated workplace
  - materials relevant to temporary and permanent rock anchor installation
  - hand and power tools, plant and equipment appropriate to temporary and permanent rock anchor installation
  - specifications and work instructions
BCCFW3003B  Install primary ground support

Unit Descriptor

This unit specifies the competency required to prepare, set out, install and maintain primary ground support for the purpose of ground stabilisation. It includes the minimum criteria for competency assessment.

This unit includes the stabilisation of embankments, tunnels, access shafts and general ground environments.

Employability Skills

The required outcomes described in this Unit of Competency contain applicable facets of employability skills. The Employability Skills Qualification Summary for the qualification in which this Unit of Competency is packaged will assist in identifying employability skill requirements.

Element

Elements define the essential outcomes of a unit of competency.

1 Plan and prepare

1.1 Work instructions, including plans, specifications, quality requirements and operational details are obtained, confirmed and applied to the allotted task

1.2 Safety requirements are obtained from the site safety plan and organisational policies and procedures, confirmed and applied to the allotted task

1.3 Signage requirements are identified and obtained from the project traffic management plan and implemented

1.4 Tools and equipment selected to carry out tasks are consistent with the requirements of the job, checked for serviceability and any faults are rectified or reported

1.5 Environmental protection requirements are identified from the project environmental management plan, confirmed and applied to the allotted task

2 Set out and prepare for primary ground support

2.1 Requirements for ground support construction are determined from ground conditions and engineer’s directions

2.2 Method of installing ground support is identified and implemented in accordance with the excavation process

2.3 Material requirements for primary ground support is obtained

2.4 Primary ground support is installed in accordance with progressive development of the excavation process
<table>
<thead>
<tr>
<th></th>
<th>Description</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>Set out and prepare for primary ground support (continued)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2.5 Position of sets/rings and points of support are set out to engineer’s specifications</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2.6 Component parts of ground support are prepared to designed requirements</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Install primary ground support</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3.1 Relevant primary ground support system is selected</td>
<td></td>
</tr>
<tr>
<td></td>
<td>3.2 Primary ground support system is installed in accordance with job specifications</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Maintain primary ground support</td>
<td></td>
</tr>
<tr>
<td></td>
<td>4.1 Daily inspection of primary ground support is carried out to ensure system is secure in accordance to specifications, particularly where explosives are in use</td>
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</tr>
<tr>
<td></td>
<td>4.2 Faults are identified and adjustments made to ensure ground support maintained</td>
<td></td>
</tr>
<tr>
<td></td>
<td>4.3 Ground faults are identified and support rectifications determined and carried out to engineer’s design and specifications</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Clean up</td>
<td></td>
</tr>
<tr>
<td></td>
<td>5.1 Work area is cleared and materials disposed of or recycled in accordance with project environmental management plan</td>
<td></td>
</tr>
<tr>
<td></td>
<td>5.2 Tools and equipment are cleaned, checked, maintained and stored in accordance with manufacturers’ recommendations and standard work practices</td>
<td></td>
</tr>
</tbody>
</table>
Range Statement

The Range Statement provides advice to interpret the scope and context of this unit of competency allowing for differences between enterprises and workplaces. It relates to the unit as a whole and facilitates holistic assessment. The following variables relate to this particular unit:

Unit scope

- Types of primary ground support are to include but not be limited to steel sets/rings, timber sets, pre-cast concrete segmental sections, timber lagging sections, steel spilings, steel sheeting, dry mix concrete pads and reinforced concrete beams
- Installing primary ground support may include but not be limited to ground stabilisation to access shafts and tunnels and embankment stabilisation
- Soil types may include but not be limited to sand, rock, clay, shale, gravel and silt
- Traffic control signage may include but not be limited to escort vehicle, highway traffic signs, site safety signage, temporary signage for the benefit of motorists and pedestrians, barricades, and traffic conditions signage
- Planning and preparation is to include but not be limited to worksite inspection, equipment defect identification, assessment of conditions and hazards and determination of work requirements
- Traffic conditions may include but not be limited to congested urban environments, low traffic rural areas, off-road un-trafficked areas, buildings, parking sites and pedestrian areas
- Site locations may include but not be limited to cuttings, tunnels and embankments

Safety (OH&S)

- OH&S requirements are to be in accordance with State or Territory legislation and regulations, organisational safety policies and procedures, and project safety plan. This may include 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
- Personal protective equipment is to include that prescribed under legislation, regulation and workplace policies and practices
| **Safety (OH&S) (continued)** | Safe operating procedures are to include but not be limited to recognising and preventing hazards associated with overhead and underground services, other machines, personnel, traffic control, working in proximity to others, worksite visitors and the public. |
| **Environmental Requirements** | Environmental requirements are to include but not be limited to organisational/project environmental management plan, waste management, water quality protection, noise, vibration, dust and clean-up management. |
| **Quality Requirements** | Quality requirements may include but not limited to dimensions, tolerances, standards of work and material standards as detailed in the project drawings, specifications and project documentation to meet client satisfaction. |
| **Statutory/Regulatory Authorities** | Statutory/Regulatory Authorities may include Federal, State and Local Authorities. |
| **Tools and equipment** | Tools and equipment are to include but not limited to shovels, crow bars, spanners, measuring tapes, picks, mattocks, sledge hammers, spirit levels and may include angle grinders, kanga hammers, tampers and oxy-acetylene equipment. |
| **Materials** | Materials are to include but not limited to: Sets and rings – sole plates, posts/legs, headers/crowns, liner blocks and prefabricated lattice girders; Sheet pilings – lagging, sheeting, pile caps and wailers; Panel or box sets – longitudinal ties, sets and braces. |
| **Communications** | Communications are to include but not limited to verbal instructions and fault reporting and may include two way radio, hand signals, mobile phone, site specific instructions, written instructions or instructions related to job/task. |
Information

- Information sources may include but not be limited to verbal or written and graphical instructions, signage, work schedules/plans/specifications, work bulletins, charts and hand drawings, memos, maps, material safety data sheets (MSDS) and diagrams or sketches.

- Safe work procedures or equivalent related to the installation of primary ground support.

- Regulatory/legislative requirements pertaining to the installation of primary ground support.

- Manufacturers’ specifications and instructions.

- Organisation work specifications and requirements.

- Instructions issued by authorised organisational or external personnel.

- Relevant Australian Standards.
Evidence Guide

The Evidence Guide identifies the critical aspects, knowledge and skills to be demonstrated to confirm competency for this unit. This is an integral part of the assessment of competency and should be read in conjunction with the Performance Criteria, the Range Statement, and the Assessment Guidelines of the Training Package.

Critical aspects of evidence required to demonstrate competency in this unit

- Location, interpretation and application of relevant information, standards and specifications
- Compliance with site safety plan, OH&S regulations and State/Territory legislation applicable to workplace operations
- Compliance with organisational policies and procedures including quality requirements
- Installation of at least one of the following primary ground support systems to specifications:
  - Sets and rings for two projects;
  - Sheet piling for one project; or
  - Panel and box sets for two projects
- Safe and effective operational use of tools and equipment
- Communication and working effectively and safely with others

Relationship to other units

- Pre-requisite units are:
  BCCC1001C Follow OH&S policies and procedures

Competency in this unit may be assessed in conjunction with other functional units which together form part of the holistic work role.
Specific knowledge required to achieve the performance criteria

- A knowledge of
  - Site and equipment safety requirements
  - Foundation work
  - Primary ground support systems and their installation techniques
  - Scaffolding and work platform installation
  - Construction principles
  - Processes for interpreting engineering drawings
  - Soil, sand, rock, clay, shale, gravel and silt types and characteristics
  - Water erosion
  - Equipment types, characteristics, technical capabilities and limitations
  - Operational, maintenance and basic diagnostic procedures
  - Site isolation and traffic control responsibilities and authorities
  - Materials Safety Data Sheets and materials handling methods
  - Project quality requirements
  - Civil construction terminology
  - JSA’s/Safe work method statements

The context of assessment

- The application of competency is to be assessed in the workplace or realistically simulated workplace
- Assessment is to occur under standard and authorised work practices, safety requirements and environmental constraints
- Assessment of essential underpinning knowledge, other than confirmatory questions, will usually be conducted in an off-site context
- Assessment is to comply with relevant regulatory or Australian Standards requirements
Methods of assessment

- Assessment must satisfy the endorsed assessment guidelines of the Building and Construction industry’s Civil Construction Training Package

- Assessment methods must confirm consistency and accuracy of performance together with application of underpinning knowledge

- Assessment must be by direct observation of tasks, with questioning on underpinning knowledge

- Assessment methods must confirm the ability to access and correctly interpret and apply the essential underpinning knowledge

- Assessment may be applied under project related conditions (real or simulated) and require evidence of process

- Assessment must confirm a reasonable inference that competency is able not only to be satisfied under the particular circumstance, but is able to be transferred to other circumstances

- Assessment may be in conjunction with assessment of other units of competency, including those listed above

Specific resource requirements for this unit

- The following resources should be made available:
  - workplace location or simulated workplace
  - materials relevant to primary ground support installation
  - hand and power tools, plant and equipment appropriate to primary ground support installation
  - specifications and work instructions

... End ...
Install stormwater systems

This unit specifies the competency required to install stormwater systems to service urban and rural community storm water requirements. It includes the minimum criteria for competency assessment.

This unit includes testing of stormwater systems.

The required outcomes described in this Unit of Competency contain applicable facets of employability skills. The Employability Skills Qualification Summary for the qualification in which this Unit of Competency is packaged will assist in identifying employability skill requirements.

Element

Elements define the essential outcomes of a unit of competency.

1 Plan and prepare

1.1 Work instructions, including plans, specifications, quality requirements and operational details relevant to the tasks are obtained, confirmed and applied to the allotted task

1.2 Safety requirements are obtained from the site safety plan and organisational policies and procedures, confirmed and applied to the allotted task

1.3 Signage requirements are identified and obtained from the project traffic management plan and implemented

1.4 Plant, tools and equipment selected to carry out tasks are consistent with the requirements of the job, checked for serviceability and any faults are rectified or reported

1.5 Environmental protection requirements are identified from the project environmental management plan, confirmed and applied to the allotted task
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| 2 | Set out and excavate | 2.1 Work area and materials are prepared to support the efficient installation of the pipe work  
2.2 Dewatering requirements are determined and applied  
2.3 Location, alignment direction, level and grade of stormwater system is determined from job drawings/specifications  
2.4 Works are set out to specification  
2.5 Plant operator is advised of excavation requirements and levels are monitored  
2.6 Stormwater system bedding is installed in accordance with plans, specifications and standards |
| 3 | Install stormwater system | 3.1 Pipes are lowered and placed in position to design specifications  
3.2 Pipes are joined in accordance with manufacturers specifications  
3.3 Alignment level and grade is checked continuously for conformance with design plans and specifications  
3.4 Side support and/or overlay is positioned beside the pipes  
3.5 Inspection openings are fitted in accordance with job specifications  
3.6 Backfill procedure is monitored to ensure work is completed to specification, where specified |
| 4 | Test stormwater system | 4.1 Test is performed to relevant authority requirements as determined by the specifications  
4.2 Stormwater system test procedures are performed establishing functionality and serviceability  
4.3 Test results are recorded and reported |
| 5 | Clean up | 5.1 Work area is cleared and materials disposed of or recycled in accordance with project environmental management plan  
5.2 Plant, tools and equipment are cleaned, checked, maintained and stored in accordance with manufacturers’ recommendations and standard work practices |
Range Statement

The Range Statement provides advice to interpret the scope and context of this unit of competency allowing for differences between enterprises and workplaces. It relates to the unit as a whole and facilitates holistic assessment. The following variables relate to this particular unit:

Unit scope

- Types of stormwater systems are to include only in-ground
- Stormwater pipes may be constructed from but not limited to reinforced concrete (RCP), PVC, steel, fibre reinforced concrete (FRC) and DICL
- Installation procedures are to include but not be limited to selecting size, type and material of pipe, bedding down pipes, positioning pipes, checking alignment, level and grade, fitting inspection holes and may include repair work where required
- Testing procedures may include but not be limited to visual straightness, ovality, tolerance, air and water
- Bedding materials may include aggregate and sand
- Pipe joining methods are to include but not be limited to rubber ring, solvent welded and may include arc welded and mechanical jointed
- Traffic control signage may include but not be limited to escort vehicle, highway traffic signs, site safety signage, temporary signage for the benefit of motorists and pedestrians, barricades, and traffic conditions signage
- Planning and preparation is to include but not be limited to worksite inspection, equipment defect identification, assessment of conditions and hazards and determination of work requirements
- Traffic conditions may include but not be limited to congested urban environments, low traffic rural areas, off-road un-trafficked areas, buildings, parking sites and pedestrian areas
Safety (OH&S)

- OH&S requirements are to be in accordance with State or Territory legislation and regulations, organisational safety policies and procedures, and project safety plan. This may include 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.

- Personal protective equipment is to include that prescribed under legislation, regulation and workplace policies and practices.

- Safe operating procedures are to include but not be limited to recognising and preventing hazards associated with underground services, other machines, personnel, restricted access barriers, traffic control, working in proximity to others, worksite visitors and the public.

- Hazards and risks may include but not be limited to uneven/unstable terrain, trees, underground services, buildings, excavations, traffic, embankments, cuttings, structures and hazardous materials.

- Emergency procedures related to this unit are to include but may not be limited to emergency shutdown and stopping, extinguishing equipment fires, organisational first aid requirements and evacuation.

- Safe parking practices are to include but not be limited to ensuring access ways are clear, equipment/machinery is away from overhangs and refuelling sites, safe distance from excavations, and secured from unauthorised access or movement.

Environmental Requirements

- Environmental requirements are to include but are not limited to organisational/project environmental management plan, waste management, water quality protection, noise, vibration, dust and clean-up management.

Quality Requirements

- Quality requirements may include but not be limited to dimensions, tolerances, standards of work and material standards as detailed in the project drawings, specifications and project documentation to meet client satisfaction.

Statutory/Regulatory Authorities

- State/Regulatory Authorities may Federal, State and Local Authorities.
Tools and equipment
• Tools and equipment are to include but not be limited to levelling equipment, shovels, lifting equipment, crow bars, hammers, grinders, jointing equipment and may include oxy-acetylene equipment, scaffolding and saws

Materials
• Materials are to include but not be limited to pipes, concrete, backfill and bedding materials

Communications
• Communications are to include but not be limited to verbal instructions and fault reporting and may include two way radio, hand signals, mobile phone, site specific instructions, written instructions or instructions related to job/task

Information
• Information sources may include but not be limited to verbal or written and graphical instructions, signage, work schedules/plans/specifications, work bulletins, charts and hand drawings, memos, material safety data sheets (MSDS) and diagrams or sketches
  • Safe work procedures or equivalent related to the installation of stormwater systems
  • Regulatory/legislative requirements pertaining to the installation of stormwater systems
  • Manufacturers’ specifications and instructions
  • Organisation work specifications and requirements.
  • Instructions issued by authorised organisational or external personnel
  • Relevant Australian Standards
Evidence Guide

The Evidence Guide identifies the critical aspects, knowledge and skills to be demonstrated to confirm competency for this unit. This is an integral part of the assessment of competency and should be read in conjunction with the Performance Criteria, the Range Statement, and the Assessment Guidelines of the Training Package.

Critical aspects of evidence required to demonstrate competency in this unit

- Location, interpretation and application of relevant information, standards and specifications
- Compliance with site safety plan, OH&S regulations and State/Territory legislation applicable to workplace operations
- Compliance with organisational policies and procedures including quality requirements
- Installation of a minimum of 100 metres of stormwater pipe to design specifications
- Safe and effective operational use of tools, plant and equipment
- Communication and working effectively and safely with others

Relationship to other units

- Pre-requisite units are:
  - BCCCM1001C Follow OH&S policies and procedures

Competency in this unit may be assessed in conjunction with other functional units which together form part of the holistic work role.
Specific knowledge required to achieve the performance criteria

- A knowledge of
  - Site and equipment safety requirements
  - Stormwater systems and installation procedures
  - Civil construction terminology
  - Confined space entry requirements
  - Dewatering
  - Concrete and concrete fabrication
  - Processes for interpreting engineering drawings
  - Equipment types, characteristics, technical capabilities and limitations
  - Operational, maintenance and basic diagnostic procedures
  - Processes for the calculation of pipeline grades and percentages
  - Sedimentation and erosion controls
  - Excavation/trench safety
  - Site isolation and traffic control responsibilities and authorities
  - Materials Safety Data Sheets and materials handling methods
  - Project quality requirements
  - JSA’s/Safe work method statement

The context of assessment

- The application of competency is to be assessed in the workplace or realistically simulated workplace
- Assessment is to occur under standard and authorised work practices, safety requirements and environmental constraints
- Assessment of essential underpinning knowledge, other than confirmatory questions, will usually be conducted in an off-site context
- Assessment is to comply with relevant regulatory or Australian Standards requirements
Methods of assessment

- Assessment must satisfy the endorsed assessment guidelines of the Building and Construction industry’s Civil Construction Training Package
- Assessment methods must confirm consistency and accuracy of performance together with application of underpinning knowledge
- Assessment must be by direct observation of tasks, with questioning on underpinning knowledge
- Assessment methods must confirm the ability to access and correctly interpret and apply the essential underpinning knowledge
- Assessment may be applied under project related conditions (real or simulated) and require evidence of process
- Assessment must confirm a reasonable inference that competency is able not only to be satisfied under the particular circumstance, but is able to be transferred to other circumstances
- Assessment may be in conjunction with assessment of other units of competency, including those listed above

Specific resource requirements for this unit

- The following resources should be made available:
  - workplace location or simulated workplace
  - materials relevant to the installation of stormwater systems
  - hand and power tools, plant and equipment appropriate to the installation of stormwater systems
  - specifications and work instructions

... End ...
BCCPL3004B

Unit Descriptor
This unit specifies the competency required to install pre-cast gully pits to enable inspection and maintenance of pipe systems. It includes the minimum criteria for competency assessment.

This unit includes setting out, installing, rendering, modifying and repairing access facilities.

Employability Skills
The required outcomes described in this Unit of Competency contain applicable facets of employability skills. The Employability Skills Qualification Summary for the qualification in which this Unit of Competency is packaged will assist in identifying employability skill requirements.

Element
Elements define the essential outcomes of a unit of competency.

Performance Criteria
Performance criteria specify the level of performance required to demonstrate achievement of the element.

1 Plan and prepare

1.1 Work instructions, including plans, specifications, quality requirements and operational details relevant to the tasks are obtained, confirmed and applied to the allotted task

1.2 Safety requirements are obtained from the site safety plan and organisational policies and procedures, confirmed and applied to the allotted task

1.3 Signage requirements are identified and obtained from the project traffic management plan and implemented

1.4 Plant, tools and equipment selected to carry out tasks are consistent with the requirements of the job, checked for serviceability and any faults are rectified or reported

1.5 Environmental protection requirements are identified from the project environmental management plan, confirmed and applied to the allotted task
2 Install gully pits

2.1 Plant operator is advised of excavation and base preparation requirements

2.2 Location and positioning of gully pit is determined from plans and drawings

2.3 Work area is safely set out to design specifications

2.4 Ingress of water is controlled by dewatering

2.5 Main components of the pre-cast unit are positioned, fabricated or installed to design specifications

2.6 Finished surface is sealed by rendering where specified

2.7 Auxiliary components or modifications are positioned and attached to pre-cast unit according to design specifications where specified

2.8 New and existing gully pits are inspected for damage or wear and repaired in accordance with specifications

3 Clean up

3.1 Work area is cleared and materials disposed of or recycled in accordance with project environmental management plan

3.2 Plant, tools and equipment are cleaned, checked, maintained and stored in accordance with manufacturers’ recommendations and standard work practices

Range Statement

The Range Statement provides advice to interpret the scope and context of this unit of competency allowing for differences between enterprises and workplaces. It relates to the unit as a whole and facilitates holistic assessment. The following variables relate to this particular unit:

Unit scope

- Gully pits are to include but not be limited to pre-cast unit sections
- Gully pit use is to include only stormwater systems
- Installation procedures are to include but not be limited to selecting size, type and material of pit, positioning gully pits, rendering, attaching auxiliary components, making or attaching modifications and repair work
- Auxiliary components are to include but not be limited to covers and may include steps, conversion slabs and benching
Unit scope (continued)

- Location of gully pits are to include but not be limited to roads, verges and may include private properties
- Dewatering methods may include but not be limited to wells, trenches, sumps, pits, submersible pumps, vacuum pumps, surface pumps and sludge pumps
- Traffic control signage may include but not be limited to escort vehicle, highway traffic signs, site safety signage, temporary signage for the benefit of motorists and pedestrians, barricades, and traffic conditions signage
- Planning and preparation is to include but not be limited to worksite inspection, equipment defect identification, assessment of conditions and hazards and determination of work requirements
- Traffic conditions may include but not be limited to congested urban environments, low traffic rural areas, off-road un-trafficked areas, buildings, parking sites and pedestrian areas

Safety (OH&S)

- OH&S requirements are to be in accordance with State or Territory legislation and regulations, organisational safety policies and procedures, and project safety plan. This may include 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
- Personal protective equipment is to include that prescribed under legislation, regulation and workplace policies and practices
- Safe operating procedures are to include but not be limited to recognising and preventing hazards associated with underground services, other machines, personnel, restricted access barriers, traffic control, working in proximity to others, worksite visitors and the public
- Hazards and risks may include but not be limited to uneven/unstable terrain, underground services, buildings, excavations, traffic, embankments, cuttings, structures and hazardous materials
Safety (OH&S) (continued) • Emergency procedures related to this unit are to include but may not be limited to emergency shutdown and stopping, extinguishing equipment fires, organisational first aid requirements and evacuation

• Safe parking practices are to include but not be limited to ensuring access ways are clear, equipment/machinery is away from overhangs and refuelling sites, safe distance from excavations, and secured from unauthorised access or movement

Environmental Requirements • Environmental requirements are to include but are not limited to organisational/project environmental management plan, waste management, water quality protection, noise, vibration, dust and clean-up management

Quality Requirements • Quality requirements may include but not be limited to dimensions, tolerances, standards of work and material standards as detailed in the project drawings, specifications and project documentation to meet client satisfaction

Statutory/Regulatory Authorities • Statutory/regulatory authorities may include statutory/regulatory Government authorities, Local Government statutory authorities

Tools and equipment • Tools and equipment are to include but not be limited to levelling equipment, shovels, lifting equipment, hammers, grinders and may include oxy-acetylene equipment, scaffolding and trowels

Materials • Materials are to include but not be limited to concrete, bedding materials, pre-cast components jointing materials (silicon, mastic or epoxy) and cement render

Communications • Communications are to include but not be limited to verbal instructions and fault reporting and may include two way radio, hand signals, mobile phone, site specific instructions, written instructions or instructions related to job/task
Information

- Information sources may include but not be limited to verbal or written and graphical instructions, signage, work schedules/plans/specifications, work bulletins, charts and hand drawings, memos, material safety data sheets (MSDS) and diagrams or sketches
- Safe work procedures or equivalent related to the installation of gully pits
- Regulatory/legislative requirements pertaining to the installation of gully pits
- Manufacturers’ specifications and instructions
- Organisation work specifications and requirements.
- Instructions issued by authorised organisational or external personnel
- Relevant Australian Standards

Evidence Guide

The Evidence Guide identifies the critical aspects, knowledge and skills to be demonstrated to confirm competency for this unit. This is an integral part of the assessment of competency and should be read in conjunction with the Performance Criteria, the Range Statement, and the Assessment Guidelines of the Training Package.

Critical aspects of evidence required to demonstrate competency in this unit

- Location, interpretation and application of relevant information, standards and specifications
- Compliance with site safety plan, OH&S regulations and State/Territory legislation applicable to workplace operations
- Compliance with organisational policies and procedures including quality requirements
- Installation of a minimum of two gully pits for stormwater systems to design specifications
- Safe and effective operational use of tools, plant and equipment
- Communication and working effectively and safely with others

Relationship to other units

- Pre-requisite units are:
  BCCCM1001C Follow OH&S policies and procedures

Competency in this unit may be assessed in conjunction with other functional units which together form part of the holistic work role
Specific knowledge required to achieve the performance criteria

- A knowledge of
  - Site and equipment safety requirements
  - Gully pits
  - Civil construction terminology
  - Sedimentation and erosion control
  - Excavation/trench safety
  - Stormwater systems
  - Confined space entry requirements
  - Dewatering
  - Concrete and concrete fabrication
  - Processes for interpreting engineering drawings
  - Equipment types, characteristics, technical capabilities and limitations
  - Operational, maintenance and basic diagnostic procedures
  - Site isolation and traffic control responsibilities and authorities
  - Materials Safety Data Sheets and materials handling methods
  - Project quality requirements
  - JSA’s/Safe work method statement

The context of assessment

- The application of competency is to be assessed in the workplace or realistically simulated workplace
- Assessment is to occur under standard and authorised work practices, safety requirements and environmental constraints
- Assessment of essential underpinning knowledge, other than confirmatory questions, will usually be conducted in an off-site context
- Assessment is to comply with relevant regulatory or Australian Standards requirements
Methods of assessment

- Assessment must satisfy the endorsed assessment guidelines of the Building and Construction industry’s Civil Construction Training Package
- Assessment methods must confirm consistency and accuracy of performance together with application of underpinning knowledge
- Assessment must be by direct observation of tasks, with questioning on underpinning knowledge
- Assessment methods must confirm the ability to access and correctly interpret and apply the essential underpinning knowledge
- Assessment may be applied under project related conditions (real or simulated) and require evidence of process
- Assessment must confirm a reasonable inference that competency is able not only to be satisfied under the particular circumstance, but is able to be transferred to other circumstances
- Assessment may be in conjunction with assessment of other units of competency, including those listed above

Specific resource requirements for this unit

- The following resources should be made available:
  - workplace location or simulated workplace
  - materials relevant to the installation of gully pits
  - hand and power tools, plant and equipment appropriate to the installation of gully pits
  - specifications and work instructions

... End ...
BCCPL3005B  Install pre-cast access chambers

Unit Descriptor

This unit specifies the competency required to install pre-cast access chambers to enable inspection and maintenance of pipe systems. It includes the minimum criteria for competency assessment.

This unit includes setting out, installing, rendering, modifying and repairing access facilities.

Employability Skills

The required outcomes described in this Unit of Competency contain applicable facets of employability skills. The Employability Skills Qualification Summary for the qualification in which this Unit of Competency is packaged will assist in identifying employability skill requirements.

Element

Elements define the essential outcomes of a unit of competency.

Performance Criteria

Performance criteria specify the level of performance required to demonstrate achievement of the element.

1  Plan and prepare

1.1 Work instructions, including plans, specifications, quality requirements and operational details relevant to the tasks are obtained, confirmed and applied to the allotted task

1.2 Safety requirements are obtained from the site safety plan and organisational policies and procedures, confirmed and applied to the allotted task

1.3 Signage requirements are identified and obtained from the project traffic management plan and implemented

1.4 Plant, tools and equipment selected to carry out tasks are consistent with the requirements of the job, checked for serviceability and any faults are rectified or reported

1.5 Environmental protection requirements are identified from the project environmental management plan, confirmed and applied to the allotted task
2 Install access chambers

2.1 Plant operator is advised of excavation and base preparation requirements

2.2 Location and positioning of access chamber is determined from plans and drawings

2.3 Work area is safely set out to design specifications

2.4 Ingress of water is controlled by dewatering

2.5 Main components of the pre-cast unit are positioned, fabricated or installed to design specifications

2.6 Finished surface is sealed by rendering where specified

2.7 Auxiliary components or modifications are positioned and attached to pre-cast unit according to design specifications where specified

2.8 New and existing access chambers are inspected for damage or wear and repaired in accordance with specifications

3 Clean up

3.1 Work area is cleared and materials disposed of or recycled in accordance with project environmental management plan

3.2 Plant, tools and equipment are cleaned, checked, maintained and stored in accordance with manufacturers’ recommendations and standard work practices

Range Statement

The Range Statement provides advice to interpret the scope and context of this unit of competency allowing for differences between enterprises and workplaces. It relates to the unit as a whole and facilitates holistic assessment. The following variables relate to this particular unit:

Unit scope

- Access chambers are to include but not be limited to pre-cast unit sections
- Access chamber use is to include sewerage and stormwater pipelines
- Installation procedures are to include but not be limited to selecting size, type and material of chamber, positioning access chambers, rendering, attaching auxiliary components, making or attaching modifications and repair work
- Auxiliary components are to include but not be limited to covers and may include steps, conversion slabs and benching
Unit scope (continued)

- Location of access chambers are to include but not be limited to roads, verges and may include private properties
- Dewatering methods may include but not be limited to wells, trenches, sumps, pits, submersible pumps, vacuum pumps, surface pumps and sludge pumps
- Traffic control signage may include but not be limited to escort vehicle, highway traffic signs, site safety signage, temporary signage for the benefit of motorists and pedestrians, barricades, and traffic conditions signage
- Planning and preparation is to include but not be limited to worksite inspection, equipment defect identification, assessment of conditions and hazards and determination of work requirements
- Traffic conditions may include but not be limited to congested urban environments, low traffic rural areas, off-road un-trafficked areas, buildings, parking sites and pedestrian areas

Safety (OH&S)

- OH&S requirements are to be in accordance with State or Territory legislation and regulations, organisational safety policies and procedures, and project safety plan. This may include 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
- Personal protective equipment is to include that prescribed under legislation, regulation and workplace policies and practices
- Safe operating procedures are to include but not be limited to recognising and preventing hazards associated with underground services, other machines, personnel, restricted access barriers, traffic control, working in proximity to others, worksite visitors and the public
- Hazards and risks may include but not be limited to uneven/unstable terrain, underground services, buildings, excavations, traffic, embankments, cuttings, structures and hazardous materials
### Safety (OH&S) (continued)
- Emergency procedures related to this unit are to include but may not be limited to emergency shutdown and stopping, extinguishing equipment fires, organisational first aid requirements and evacuation.
- Safe parking practices are to include but not be limited to ensuring access ways are clear, equipment/machinery is away from overhangs and refuelling sites, safe distance from excavations, and secured from unauthorised access or movement.

### Environmental Requirements
- Environmental requirements are to include but are not limited to organisational/project environmental management plan, waste management, water quality protection, noise, vibration, dust and clean-up management.

### Quality Requirements
- Quality requirements may include but not be limited to dimensions, tolerances, standards of work and material standards as detailed in the project drawings, specifications and project documentation to meet client satisfaction.

### Statutory/Regulatory Authorities
- State/Regulatory Authorities may Federal, State and Local Authorities.

### Tools and equipment
- Tools and equipment are to include but not be limited to levelling equipment, shovels, lifting equipment, hammers, grinders and may include oxy-acetylene equipment, scaffolding and trowels.

### Materials
- Materials are to include but not be limited to concrete, bedding materials, pre-cast components jointing materials (silicon, mastic or epoxy) and cement render.

### Communications
- Communications are to include but not be limited to verbal instructions and fault reporting and may include two way radio, hand signals, mobile phone, site specific instructions, written instructions or instructions related to job/task.
Information

- Information sources may include but not be limited to verbal or written and graphical instructions, signage, work schedules/plans/specifications, work bulletins, charts and hand drawings, memos, material safety data sheets (MSDS) and diagrams or sketches
- Safe work procedures or equivalent related to the installation of access chambers
- Regulatory/legislative requirements pertaining to the installation of access chambers
- Manufacturers’ specifications and instructions
- Organisation work specifications and requirements.
- Instructions issued by authorised organisational or external personnel
- Relevant Australian Standards

Evidence Guide

The Evidence Guide identifies the critical aspects, knowledge and skills to be demonstrated to confirm competency for this unit. This is an integral part of the assessment of competency and should be read in conjunction with the Performance Criteria, the Range Statement, and the Assessment Guidelines of the Training Package.

Critical aspects of evidence required to demonstrate competency in this unit

- Location, interpretation and application of relevant information, standards and specifications
- Compliance with site safety plan, OH&S regulations and State/Territory legislation applicable to workplace operations
- Compliance with organisational policies and procedures including quality requirements
- Installation of a minimum of two access chambers to design specifications
- Safe and effective operational use of tools, plant and equipment
- Communication and working effectively and safely with others

Relationship to other units

- Pre-requisite units are:
  BCCCM1001C Follow OH&S policies and procedures

  Competency in this unit may be assessed in conjunction with other functional units which together form part of the holistic work role
Specific knowledge required to achieve the performance criteria

• A knowledge of
  - Site and equipment safety requirements
  - Access chambers
  - Civil construction terminology
  - Sedimentation and erosion control
  - Excavation/trench safety
  - Sewerage systems
  - Confined space entry requirements
  - Dewatering
  - Concrete and concrete fabrication
  - Processes for interpreting engineering drawings
  - Equipment types, characteristics, technical capabilities and limitations
  - Operational, maintenance and basic diagnostic procedures
  - Site isolation and traffic control responsibilities and authorities
  - Materials Safety Data Sheets and materials handling methods
  - Project quality requirements
  - JSA’s/Safe work method statement

The context of assessment

• The application of competency is to be assessed in the workplace or realistically simulated workplace

• Assessment is to occur under standard and authorised work practices, safety requirements and environmental constraints

• Assessment of essential underpinning knowledge, other than confirmatory questions, will usually be conducted in an off-site context

• Assessment is to comply with relevant regulatory or Australian Standards requirements
Methods of assessment

- Assessment must satisfy the endorsed assessment guidelines of the Building and Construction industry’s Civil Construction Training Package
- Assessment methods must confirm consistency and accuracy of performance together with application of underpinning knowledge
- Assessment must be by direct observation of tasks, with questioning on underpinning knowledge
- Assessment methods must confirm the ability to access and correctly interpret and apply the essential underpinning knowledge
- Assessment may be applied under project related conditions (real or simulated) and require evidence of process
- Assessment must confirm a reasonable inference that competency is able not only to be satisfied under the particular circumstance, but is able to be transferred to other circumstances
- Assessment may be in conjunction with assessment of other units of competency, including those listed above

Specific resource requirements for this unit

- The following resources should be made available:
  - workplace location or simulated workplace
  - materials relevant to the installation of access chambers
  - hand and power tools, plant and equipment appropriate to the installation of access chambers
  - specifications and work instructions

... End ...
BCCPO3019B  Conduct stabiliser operations

Unit Descriptor

This unit specifies the competency required to conduct stabiliser operations covering the mixing of materials and additives and the achievement of specified line and depth. It includes the minimum criteria for competency assessment.

This unit covers the planning and preparation for work, the conduct of pre-operational checks, the operation of the stabiliser, the conduct of operator maintenance and other work finalisation activities.

Employability Skills

The required outcomes described in this Unit of Competency contain applicable facets of employability skills. The Employability Skills Qualification Summary for the qualification in which this Unit of Competency is packaged will assist in identifying employability skill requirements.

Element

Elements define the essential outcomes of a unit of competency.

1  Plan and prepare

   1.1  Work instructions, including plans, specifications, quality requirements and operational details are obtained, confirmed and applied to the allotted task

   1.2  Safety requirements are obtained from the site safety plan and organisational policies and procedures, confirmed and applied to the allotted task

   1.3  Signage requirements are identified and obtained from the project traffic management plan and implemented

   1.4  Material to be laid and handling procedures to be employed are determined according to specifications

   1.5  Plant, tools and equipment selected to carry out tasks are consistent with the requirements of the job, checked for serviceability and any faults are rectified or reported

   1.6  Environmental protection requirements are identified from the project environmental management plan, confirmed and applied to the allotted task
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<th>Conduct stabiliser operations</th>
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<td>2</td>
<td>Conduct stabiliser pre-operational checks</td>
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<tr>
<td>2.1</td>
<td>Pre-start, start up, park and shut down procedures are carried out in accordance with manufacturers’ and/or site specific requirements</td>
</tr>
<tr>
<td>2.2</td>
<td>Stabiliser controls and functions, including implements or other attachments, brakes and manoeuvrability are checked for serviceability and any faults are rectified or reported</td>
</tr>
<tr>
<td>3</td>
<td>Operate stabiliser</td>
</tr>
<tr>
<td>3.1</td>
<td>Site hazards associated with stabiliser operations are identified and safe operating techniques are used to minimise risk</td>
</tr>
<tr>
<td>3.2</td>
<td>Operating techniques for stabiliser are identified and applied to achieve optimum output in accordance with manufacturers’ design specifications while achieving specified tolerances</td>
</tr>
<tr>
<td>3.3</td>
<td>Stabiliser is operated to work instructions in accordance with company operating procedures</td>
</tr>
<tr>
<td>3.4</td>
<td>Stabiliser is operated to produce results, including mixing of materials, use of additives and line and length within design specifications to meet specified tolerances</td>
</tr>
<tr>
<td>4</td>
<td>Relocate stabiliser</td>
</tr>
<tr>
<td>4.1</td>
<td>Stabiliser is moved safely between work sites, observing relevant codes and traffic management requirements</td>
</tr>
<tr>
<td>4.2</td>
<td>Stabiliser is prepared for relocation in accordance with the manufacturers’ specifications</td>
</tr>
<tr>
<td>5</td>
<td>Carry out operator maintenance</td>
</tr>
<tr>
<td>5.1</td>
<td>Inspection and fault finding are conducted in accordance with manufacturers’ specifications and/or organisational requirements</td>
</tr>
<tr>
<td>5.2</td>
<td>Routine operational servicing and lubrication tasks are carried out to manufacturers’ and/or organisational requirements</td>
</tr>
<tr>
<td>5.3</td>
<td>Minor maintenance is carried out to manufacturers’ and/or organisational requirements</td>
</tr>
<tr>
<td>5.4</td>
<td>Performance of machine is constantly recorded to enable timely repair of equipment</td>
</tr>
<tr>
<td>6</td>
<td>Clean up</td>
</tr>
<tr>
<td>6.1</td>
<td>Work area is cleared and materials disposed of or recycled in accordance with project environmental management plan</td>
</tr>
<tr>
<td>6.2</td>
<td>Plant, tools and equipment are cleaned, checked, maintained and stored in accordance with manufacturers’ recommendations and standard work practices</td>
</tr>
</tbody>
</table>
Range Statement

The Range Statement provides advice to interpret the scope and context of this unit of competency allowing for differences between enterprises and workplaces. It relates to the unit as a whole and facilitates holistic assessment. The following variables relate to this particular unit:

Unit scope

- A stabiliser is a self propelled wheeled machine designed to pulverise and mix a variety of types of insitu construction materials during stabilisation operations. The stabiliser may also work in conjunction with a water truck.

- Stabiliser tasks are to include the mixing of materials, the application of additives and the achievement of specified line and depth

- Stabilisation is to include but not be limited to enhancing the properties of the existing pavement, decreasing permeability, volume change, increased strength and durability

- Stabilisation is undertaken to failing pavement by churning up (excavating and remixing) the existing fill (pavement) to the depth specified by the geotechnical report, mixing it with additive and refilling it in layers using the stabilised material. The pavement is then left in the specified shape to allow for even placement of bitumen seal or asphalt

- Additives to the existing soil or pavement are to include but not be limited to cement and may include lime, bitumen or other chemicals where the existing material is not conducive to cement treatment Site locations may include but not be limited to car parks, airport runways, container yards, hard stands, footpaths, bikeways, rural and urban roads and highways

- Operator maintenance is to include cleaning, authorised servicing and the monitoring, recording and reporting of faults. It may also include the conduct of authorised minor replacements and the provision of assistance to maintenance personnel during maintenance and repair activities
| Safety (OH&S)                                                                 | • OH&S requirements are to be in accordance with State or Territory legislation and regulations, organisational safety policies and procedures, and project safety plan. This may include 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 |
|                                                                              | • Personal protective equipment is to include that prescribed under legislation, regulation and workplace policies and practices |
|                                                                              | • Safe operating procedures are to include but not be limited to recognising and preventing hazards associated with underground and overhead services, other machines, personnel, restricted access barriers, traffic control, working at heights, working in proximity to others, worksite visitors and the public |
|                                                                              | • Safe parking practices are to include but not be limited to ensuring access ways are clear, equipment/machinery is away from overhangs and refuelling sites, safe distance from excavations, and secured from unauthorised access or movement |
|                                                                              | • Hazards and risks may include but not be limited to uneven/unstable terrain, trees, fires, overhead and underground services, bridges, buildings, excavations, traffic, embankments, cuttings, structures and hazardous materials |
|                                                                              | • Emergency procedures related to this unit are to include but may not be limited to emergency shutdown and stopping, extinguishing fires, organisational first aid requirements and evacuation |
| Environmental Requirements                                                   | • Environmental requirements are to include but are not limited to organisational/project environmental management plan, waste management, water quality protection, noise, vibration, dust and clean-up management |
| Quality Requirements                                                         | • Quality requirements may include but not be limited to dimensions, tolerances, standards of work and material standards as detailed in the project drawings, specifications and project documentation to meet client satisfaction |
| Statutory/Regulatory Authorities                                             | • State/Regulatory Authorities may include Federal, State and Local Authorities |
Materials
- Materials are to include but not be limited to imported fill, aggregates, cement and may include lime, bitumen and other chemicals

Tools and equipment
- Tools and equipment are to include hand tools and maintenance equipment relevant to the particular stabiliser

Communications
- Communications are to include but not be limited to verbal instructions and fault reporting and may include two way radio, hand signals, mobile phone, site specific instructions, written instructions or instructions related to job/task

- On site meeting processes may include notification/scheduling (time, place, purpose), task discussions and local coordination of procedural and operational issues

Information
- Information sources may include but not be limited to verbal or written and graphical instructions, signage, work schedules/plans/specifications, work bulletins, charts and hand drawings, memos, maps, material safety data sheets (MSDS) and diagrams or sketches

- Safe work procedures or equivalent related to stabiliser operations

- Regulatory/legislative requirements pertaining to stabiliser operations

- Manufacturers’ specifications and instructions

- Organisation work specifications and requirements.

- Instructions issued by authorised organisational or external personnel

- Relevant Australian Standards and Austroads
**Evidence Guide**

The Evidence Guide identifies the critical aspects, knowledge and skills to be demonstrated to confirm competency for this unit. This is an integral part of the assessment of competency and should be read in conjunction with the Performance Criteria, the Range Statement, and the Assessment Guidelines of the Training Package.

**Critical aspects of evidence required to demonstrate competency in this unit**

- Location, interpretation and application of relevant information, standards and specifications
- Compliance with site safety plan, OH&S regulations and State/Territory legislation applicable to workplace operations
- Compliance with organisational policies and procedures including quality requirements
- The conduct of stabiliser operations are to be performed on two separate projects and are to include the mandatory tasks stated in the Range Statement and the stabilising of an area of at least 500m² ensuring moisture content, additive application rate, pulverising, mixing, line and length are in accordance with project specifications. This is to be performed utilising two different additive types
- The conduct of authorised operator maintenance
- Safe and effective operational use of tools, plant and equipment
- Communication and working effectively and safely with others

**Relationship to other units**

- Pre-requisite units are:
  
  BCCCM1001C Follow OH&S policies and procedures

  Competency in this unit may be assessed in conjunction with other functional units which together form part of the holistic work role
Specific knowledge required to achieve the performance criteria

- A knowledge of
  - Basic principles of soil technology for civil works
  - Stabiliser types, characteristics, technical capabilities and limitations
  - Stabilising techniques including pulverising, mixing and the use of additives
  - Operational, maintenance and basic diagnostic procedures
  - Site isolation and traffic control responsibilities and authorities
  - Site and equipment safety requirements
  - 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
  - Methods of changing machine attachments
  - Safe operating techniques in all terrain
  - Basic earthworks calculations
  - Civil construction activity sequences of road construction, earthworks and drainage
  - Levelling techniques
  - JSA's/Safe work method statement
The context of assessment
- The application of competency is to be assessed in the workplace or realistically simulated workplace.
- Assessment is to occur under standard and authorised work practices, safety requirements and environmental constraints.
- Assessment of essential underpinning knowledge, other than confirmatory questions, will usually be conducted in an off-site context.
- Assessment is to comply with relevant regulatory or Australian Standards requirements.

Methods of assessment
- Assessment must satisfy the endorsed assessment guidelines of the Building and Construction industry’s Civil Construction Training Package
- Assessment methods must confirm consistency and accuracy of performance together with application of underpinning knowledge
- Assessment must be by direct observation of tasks, with questioning on underpinning knowledge
- Assessment methods must confirm the ability to access and correctly interpret and apply the essential underpinning knowledge
- Assessment may be applied under project related conditions (real or simulated) and require evidence of process
- Assessment must confirm a reasonable inference that competency is able not only to be satisfied under the particular circumstance, but is able to be transferred to other circumstances
- Assessment may be in conjunction with assessment of other units of competency, including those listed above
Specific resource requirements for this unit

- The following resources should be made available:
  - workplace location or simulated workplace
  - an operational stabiliser
  - access to a water cart
  - materials relevant to the stabilising tasks
  - specifications and work instructions

... End ...