22574VIC Certificate III in Concrete Sawing and Drilling

This course has been accredited under Part 4.4 of the Education and Training Reform Act 2006

Accreditation period: 1 January 2021 to 31 December 2025

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Section A: Copyright and course classification information

1. Copyright owner of the course	Copyright of this material is held by the Department of Education and Training, Victoria; and managed by the Office of the Victorian Skills Commissioner. © State of Victoria (Department of Education and Training) 2021
2. Address	Office of the Victorian Skills Commissioner Level 1, 21 Degraves Street Melbourne, VIC, 3000 **Postal address:** Office of the Victorian Skills Commissioner PO Box 354 Flinders Lane VIC, 8009 **Organisational contact** Andrew Donnison Project Manager Office of the Victorian Skills Commissioner PO Box 354 Flinders Lane VIC, 8009 *andrew.donnison@vsc.vic.gov.au* and *enquiries@vsc.vic.gov.au* **Day-to-day contact** Curriculum Maintenance Manager, Building Industries (Building and Construction, Civil Construction, Furnishing and Water) Holmesglen Institute PO Box 42 Holmesglen Vic 3148 Telephone: (03) 9564 1987 Email: *teresa.signorello@holmesglen.edu.au*
3. Type of submission	This submission is for re accreditation.
4. Copyright acknowledgement	Copyright of the following units of competency from nationally endorsed training packages is administered by the Commonwealth of Australia and can be accessed from training.gov.au see website ***here*.** © Commonwealth of Australia The following units of competency are imported from the **CPC Construction, Plumbing and Services Training Package:** • CPCCWHS2001 Apply WHS requirements, policies and procedures in the construction industry • CPCCCM1015 Carry out measurements and calculations

	• CPCCCM2001 Read and interpret plans and specifications • CPCCCM1012 Work effectively and sustainably in the construction industry • CPCCCM1014 Conduct workplace communication • CPCCCM2008 Erect and dismantle restricted height scaffolding • CPCCCO3046 Repair and rectify concrete • CPCCWHS1001 Prepare to work safely in the construction industry and **CPC08 Construction, Plumbing and Services Training Package:** • CPCCCM2010B Work safely at heights and **BSB Business Services Training Package:** • BSBXTW301 Work in a team and **MSF Furnishing Training Package** • MSFFL2035 Mechanically prepare surfaces for installation of flooring materials • MSFFL3056 Polish concrete floors • MSFFL3057 Select and fit diamond tools for concrete surface preparation and polishing and **RII Resources and Infrastructure Industry Training Package:** • RIIWHS202E Enter and work in confined spaces and **TLI Transport and Logistics Training Package:** • TLILIC0005 Licence to operate a boom-type elevating work platform (boom length 11 metres or more) • TLID3035 Operate a boom type elevating work platform administered by the Commonwealth of Australia. © Commonwealth of Australia. Copyright of this material is reserved to the Crown in the right of the State of Victoria. © State of Victoria (Department of Education and Training) **2021.** This work is licensed under a Creative Commons Attribution-NoDerivs 3.0 Australia licence (more information is available ***here***. 
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	The Office of the Victorian Skills Commissioner will establish licensing or franchising arrangements with interested parties and reserves the right to levy a licensing or franchising fee. Information can be obtained from: Andrew Donnison Project Manager Office of the Victorian Skills Commissioner Address: Level 1, 21 Degraves Street, Melbourne VIC 3000 Phone: 03 8892 1454 Email: andrew.donnison@vsc.vic.gov.au and enquiries@vsc.vic.gov.au 
6. Course accrediting body	Victorian Registration and Qualifications Authority
7. AVETMISS information	**ANZSCO code** Australian and New Zealand Standard Classification of Occupations 721999 Mobile Plant Operators NEC **ASCED Code** Field of Education 0403 Building **National course code** 22574VIC
8. Period of accreditation	1 January 2021 to 31 December 2025

Section B: Course information

1. Nomenclature	*Standard 1 AQTF Standards for Accredited Courses*
1.1 Name of the qualification	Certificate III in Concrete Sawing and Drilling
1.2 Nominal duration of the course	575-886 hours
2. Vocational or educational outcomes	***Standard 1 AQTF Standards for Accredited Courses***
2.1 Purpose of the course	The Certificate III in Concrete Sawing and Drilling provides an accredited training program and vocational outcomes for a person employed as a plant and equipment operator for the sawing, drilling, coring and deconstruction of concrete structures within the construction industry.
3. Development of the course	***Standards 1 and 2 AQTF Standards for Accredited Courses***
3.1 Industry/enterprise/ community needs	In Australia, there are an estimated 1200 contractors employing around 3000+ workers who provide concrete sawing and drilling services. They are represented by the Concrete Sawing and Drilling Association – Australia (CSDAA), the peak industry body / employer association for concrete sawing and drilling contractors and equipment suppliers. Concrete sawing and drilling work is complex. It is a specialised area within the construction industry, undertaken by dedicated contractors who provide valuable equipment and highly skilled workers on commercial, civil and domestic project sites. They are not considered 'concreters' (who generally pour and level wet concrete); their role involves sawing, drilling and breaking set concrete to customise structures to accommodate services and / or make repairs and alterations to existing structures (including roads and airport runways). Therefore, operators within this niche industry need detailed underpinning technical knowledge to operate the required portable plant efficiently and safely. Training for this role has traditionally occurred informally on-the-job or through short, unrecognised training programs. In order to ensure safety, preserve standards and provide an accredited pathway into the industry, the CSDAA undertook research prior to the development of the course, to determine the possibility of developing an accredited qualification. A detailed investigation commenced in 2013/2014 of the suite of training programs and resources offered by its affiliated association in America, as well as technical resources used in Europe. This culminated in the development of the accredited course 22281VIC Course in Concrete Sawing and Drilling in 2015.

	Since accreditation, only one registered training organisation (RTO) has delivered the course, successfully enrolling 20 students. High set up costs related to expensive equipment requirements is cited as the major prohibitive factor for RTO course implementation. The pending expiration of this course in 2019 compelled the CSDAA to examine course architecture to align with industry expectations and enhance cost effectiveness of delivery options. The complexity of the role of the concrete sawing and drilling contractor was therefore reviewed by the Project Steering Committee (PSC) against Australian Qualification Framework learning outcomes; the result determined the renewal of the 'course in' as a Certificate III qualification, to be delivered most appropriately in a blended mode, with significant on-job practice over a period of up to twelve months. The proposed course redesign is supported by employers in the industry and the Master Builders Association, who are represented on the Steering Committee. **Target group for the course** The identified cohort represents people with some work experience within the industry and those from allied trades. The course will therefore provide a pathway for either initial, or further skill building and skill recognition. Participants are not expected to have knowledge of the building and construction industry prior to enrolling into the course. **Course consultation and validation process** PSC members comprised executive representation from CSDAA, key individual enterprises consisting of small to large concrete cutting, sawing and drilling firms and one equipment manufacturer / supplier. Consultation with the group involved: • email and telephone consultation to form the PSC and confirm draft content. • a review of the skills and knowledge profile of a concrete sawing and drilling operator. • PSC meetings were held to review and evaluate the course structure and content in reference to contemporary concrete cutting, sawing and drilling practices. • A desktop review of current concrete cutting, sawing and drilling methods and related equipment research was undertaken to support the development of the accredited course.

	Project Steering Committee The PSC guided the development of the accredited course, members include: • Jason Franken (Chair), President, Concrete Cutting, Sawing and Drilling Association Australia; Owner/operator – Supercity Concrete Cutting Pty Ltd • Mark Horne, Advanced Sawing Pty Ltd • Cameron McLean, National Sales Manager/Application Engineer – Tyrolit Australia (equipment manufacturer/supplier) • Kerrie Auer, Power Concrete Cutting Pty Ltd • Corrie Williams – Master Builders • Anne Duggan, CFMMEU In attendance: • Teresa Signorello – Project Manager, CMM Building Industries • Susan Fechner – Senior Project Officer, CMM Building Industries The role of the PSC was to evaluate, confirm and validate the outcomes of the course. The members also provided technical information throughout the project. The PSC recognised that existing nationally accredited construction training for the majority of concrete workers who pour and level concrete was not applicable to this specialised role. The outcomes of several national units within the CPC Construction, Plumbing and Services Training Package, RII Resources and Infrastructure Industry Training Package and TLI Transport and Logistics Training Package were carefully considered by the PSC with respect to their potential application to the course context and appropriate units were included. A range of entry level units related to workplace safety, communication and performing measurements and calculations were considered appropriate to support development of the generic skill and knowledge required to underpin performance of technical units. Their inclusion was therefore viewed as suitable within the course structure. It was determined that focused attention for concrete sawing and drilling methods, supported by generic skill transfer was required to support the vocational outcome of a concrete sawing and drilling operator.

	This course: • does not duplicate, by title or coverage, the outcomes of an endorsed training package qualification • is not a subset of a single training package qualification that could be recognised through one or more statements of attainment or a skill set. • does not include units of competency additional to those in a training package qualification that could be recognised through statements of attainment in addition to the qualification • does not comprise units that duplicate units of competency of a training package qualification.
3.2 Review for re-accreditation	A review of the accredited course was undertaken to determine the relevance and currency of its outcomes to industry since accreditation. Data considered for analysis included course enrolments and qualitative data from the association and industry employers. Desktop research of trending information was also considered in the course review process, consisting of industry report evaluation, appraisal of current affairs issues and monitoring of employment advertisement skill needs. **Transition Arrangements** The 22574VIC Certificate III in Concrete sawing and drilling replaces and is not equivalent to 22281VIC Course in Concrete sawing and drilling. The 22281VIC Course in Concrete sawing and drilling is due to expire on 31 December 2020. There can be no new enrolments in the 22281VIC Course in Concrete sawing and drilling after the 31 December 2020. The following table identifies the relationship between units from the previous course and current course.

Mapping Table Certificate III Concrete sawing and drilling

Unit code and title from 22281VIC		Unit code and title from 22574VIC		Relationship
VU21676	Operate a flat saw to cut concrete and asphalt	VU23061	Operate a flat saw to cut concrete and asphalt	Equivalent
VU21677	Operate a diamond core drill system on floor and wall applications	VU23062	Operate a diamond core drill system on floor and wall applications	Equivalent
VU21678	Operate hand held saw up to 600mm depth on concrete	VU23063	Operate hand held saw	Equivalent
VU21679	Operate track mounted saw to cut concrete and steel	VU23064	Operate track mounted saw to cut concrete and steel	Equivalent
VU21680	Operate a diamond wire saw to cut concrete and steel	VU23065	Operate a diamond wire saw to cut concrete and steel	Equivalent
VU21681	Operate a portable hydraulic cracking jaw system	VU23066	Operate a portable hydraulic cracking jaw system	Equivalent
VU21682	Operate a hydraulic press system	VU23067	Operate a hydraulic press system	Equivalent
VU21683	Scan concrete using ground penetrating radar (GPR)	VU23068	Scan concrete using ground penetrating radar (GPR)	Equivalent
VU21684	Operate a demolition robot for deconstruction work	VU23069	Operate a mechanical robot for deconstruction work	Equivalent

Unit code and title from 22281VIC	Unit code and title from 22574VIC		Relationship
	VU23070	Select, use and maintain hand tools and equipment for concrete drilling and sawing	Newly developed unit
	CPCCWHS1001	Prepare to work safely in the construction industry	Imported unit added
	CPCCWHS2001	Apply WHS requirements, policies and procedures in the construction industry	Imported unit added
	CPCCCM1015	Carry out measurements and calculations	Imported unit added
	CPCCCM2001	Read and interpret plans and specifications	Imported unit added
	CPCCCM1012	Work effectively and sustainably in the construction industry	Imported unit added
	CPCCCM1014	Conduct workplace communication	Imported unit added
	CPCCCM2008	Erect and dismantle restricted height scaffolding	Imported unit added
	CPCCCM2010B	Work safely at heights	Imported unit added
	BSBXTW301	Work in a team	Imported unit added

Unit code and title from 22281VIC	Unit code and title from 22574VIC		Relationship
	RIIWHS202E	Enter and work in confined spaces	Imported unit added
	TLILIC0005	Licence to operate a boom-type elevating work platform (boom length 11 metres or more)	Imported unit added
	TLID3035	Operate a boom type elevating work platform	Imported unit added
	CPCCCO3046	Repair and rectify concrete	Imported unit added
	MSFFL2035	Mechanically prepare surfaces for installation of flooring materials	Imported unit added
	MSFFL3056	Polish concrete floors	Imported unit added
	MSFFL3057	Select and fit diamond tools for concrete surface preparation and polishing	Imported unit added

4. Course outcomes	*Standards 1, 2, 3 and 4 AQTF Standards for Accredited Courses*
4.1 Qualification level	The course outcomes of the 22574VIC Certificate III in Concrete Sawing and Drilling are consistent with the Australian Qualifications Framework specifications for Certificate III. This qualification provides individuals with a broad range of knowledge and skills to undertake concrete plant and equipment operations across differing construction industry contexts. Graduates of the Certificate III in Concrete Sawing and Drilling will have basic factual, technical and procedural knowledge related to concrete sawing and drilling in the construction industry. For example, applying knowledge of concrete construction principles to processes for breaking set concrete structures. Graduates of the Certificate III in Concrete Sawing and Drilling will have: • cognitive, technical and communication skills to interpret and act on available information. For example, in interpreting plans, drawings, work permits, service scans and specifications. • cognitive and communication skills to apply and communicate known solutions to a variety of predictable problems and to deal with unforeseen contingencies using known solutions. For example, in working with others involved in or affected by the work, to plan and sequence tasks and take corrective action for unexpected situations • technical and communication skills to provide technical information to a variety of specialist and non-specialist audiences. For example, report faults or defects in sawing / coring / drilling equipment to appropriate personnel. Graduates of a Certificate III will demonstrate the application of knowledge and skills: • with discretion and judgement in the selection of equipment, services or contingency measures. For example, selecting and checking equipment types and accessories appropriate for task and serviceability. • to adapt and transfer skills and knowledge within known routines, methods, procedures and time constraints. For example, applying set up procedures, including hazard identification, to support safe and efficient equipment operation and task completion. • in contexts that include taking responsibility for own outputs in work and learning including participation in teams and taking limited responsibility for the output of others within established parameters. For

	example, continuously applying quality checks against drilling and sawing practices and planning order of sequences with other team members. The volume of learning for this qualification is typically 1 to 2 years. This incorporates structured training delivery and opportunities for practice and reinforcement of skills including, self-directed study, research, project work and written assignments.
4.2 Employability skills	The table in Appendix 1 contains a summary of the employability skills for the 22574VIC Certificate III in Concrete Sawing and Drilling. This table should be interpreted in conjunction with the detailed requirements of each unit of competency packaged in this course. The outcomes described here are broad industry requirements and will vary according to electives undertaken. These employability skills are typical of the outcomes of this course and should not be interpreted as definitive.
4.3 Recognition given to the course	Not applicable
4.4 Licensing/ regulatory requirements (if applicable)	There are no licensing or regulatory requirements for this course however WorkSafe Victoria require all people who work on a construction site to have proof of having completed a general occupational health and safety (OHS) construction induction for the industry. The unit *CPCCWHS1001 Prepare to work safely in the construction industry* is recognised by WorkSafe Victoria for the registration of construction workers for occupational health and safety (OHS) induction. Refer to the relevant jurisdiction regarding licensing and regulatory requirements relating to other states/territories.
5. Course rules	***Standards 2, 6, 7 and 9 AQTF Standards for Accredited Courses***

5.1 Course structure

To be awarded the *22574VIC Certificate III in Concrete Sawing and Drilling*, a total of 18 units of competency must be completed:

- 13 core units
- 6 elective units from the list of electives

All electives chosen must contribute to a valid, industry-supported vocational outcome and must support the job role and overall integrity of the AQF level of this qualification and should not duplicate the outcomes of the core units.

Where the full course is not completed, a Statement of Attainment will be issued for any units completed.

*Denotes unit is a pre-requisite unit

Unit of competency code	Field of Education code (six-digit)	Unit of competency title	Pre-requisite	Nominal hours
Core units				
CPCCWHS1001	061301	Prepare to work safely in the construction industry	Nil	6
*CPCCWHS2001	061301	Apply WHS requirements, policies and procedures in the construction industry	Nil	20
VU23061	040399	Operate a flat saw to cut concrete and asphalt	Nil	60
*VU23062	040399	Operate a diamond core drill system on floor and wall applications	Nil	80
VU23063	040399	Operate hand held saw	Nil	60
CPCCCM1015	010101	Carry out measurements and calculations	Nil	20
VU23070	040399	Select, use and maintain hand tools and equipment for concrete drilling and sawing	Nil	20
CPCCCM2001	040301	Read and interpret plans and specifications	Nil	36
CPCCCM1012	120505	Work effectively and sustainably in the construction industry	Nil	20
CPCCCM1014	120505	Conduct workplace communication	Nil	20
CPCCCM2008	040329	Erect and dismantle restricted height scaffolding	Nil	40
CPCCCM2010B	061301	Work safely at heights	CPCCOHS2001A (This unit has been superseded by CPCCWHS2001 and is equivalent)	8
BSBXTW301	120505	Work in a team	Nil	40
Elective units				
VU23064	040399	Operate track mounted saw to cut concrete and steel	Nil	100

VU23065	040399	Operate diamond wire saw to cut concrete and steel	VU23062	120
VU23066	040399	Operate a portable hydraulic cracking jaw system	VU23062	60
VU23067	040399	Operate a hydraulic press system	VU23062	60
VU23068	040399	Scan concrete using ground penetrating radar (GPR)	Nil	30
VU23069	040399	Operate a mechanical robot for deconstruction work	Nil	80
RIIWHS202E	061301	Enter and work in confined spaces	Nil	30
TLILIC0005	030717	Licence to operate a boom-type elevating work platform (boom length 11 metres or more)	Nil	30
TLID3035	030717	Operate a boom type elevating work platform	Nil	30
CPCCCO3046	040399	Repair and rectify concrete	CPCCWHS2001	36
MSFFL2035	030717	Mechanically prepare surfaces for installation of flooring materials	Nil	30
MSFFL3056	030717	Polish concrete floors	Nil	20
MSFFL3057	030717	Select and fit diamond tools for concrete surface preparation and polishing	Nil	15
		Total nominal hours		**575-886**

5.2 Entry requirements	There are no entry requirements for the 22574VIC Certificate III in Concrete Sawing and Drilling. The following is a general guide to entry in relation to the language, literacy and numeracy skills of learners aligned to the Australian Core Skills Framework (ACSF), details of which can be accessed from *here* . Learners enrolling in the 22574VIC Certificate III in Concrete Sawing and Drilling are best equipped to successfully undertake the course if they have as a minimum, language, literacy and numeracy skills that align to Level 2 of the Australian Core Skills Framework (ACSF). Learners with language, literacy and numeracy skills at a lower level than suggested may require additional support to successfully undertake the qualification.
6. Assessment	***Standards 10 and 12 AQTF Standards for Accredited Courses***
6.1 Assessment strategy	All assessment, including Recognition of Prior Learning (RPL), must be compliant with the requirements of: • Standard 1 of the AQTF: Essential Conditions and Standards for Initial/Continuing Registration and Guidelines 4.1 and 4.2 of the VRQA Guidelines for VET Providers, or • the Standards for Registered Training Organisations 2015 (SRTOs), or • the relevant standards and Guidelines for RTOs at the time of assessment. Assessment strategies should be designed to: • cover the range of skills and knowledge required to demonstrate achievement of competence • collect evidence on a number of occasions to suit a variety of contexts and situations • be appropriate to the knowledge, skills, methods of delivery and needs and characteristics of learners • recognise prior learning • be equitable to all groups of learners. Assessment strategies for the course should reflect the practical nature of the work undertaken. It is recommended that assessment include: • oral and written questioning related to underpinning knowledge • practical demonstration of activities which combine a number of learning outcomes to provide depth and context to the training

	• holistic assessment that reflects realistic job tasks. Assessment of imported units of competency from nationally endorsed training packages must comply with the assessment requirements detailed in the source training product.
6.2 Assessor competencies	Assessment must be undertaken by a person or persons in accordance with: • Standard 1.4 of the AQTF: Essential Conditions and Standards for Initial/Continuing Registration and Guidelines 3 of the VRQA Guidelines for VET Providers, or • the Standards for Registered Training Organisations 2015 (SRTOs), or • the relevant standards and Guidelines for RTOs at the time of assessment. All assessment of units imported from Training Packages must reflect the requirements for assessors specified in the relevant source training product.
7. Delivery	***Standards 11 and 12 AQTF Standards for Accredited Courses***
7.1 Delivery modes	The course aims to develop practical competencies within an industry setting. Practical demonstrations and opportunity for application are considered to provide the most suitable strategy to reflect the objectives of the course. Some areas of content may be common to more than one element or more than one unit, therefore integration may be appropriate. Delivery options, including grouping of learners and learning activities, should recognise the varying learning needs, educational backgrounds, preferred learning styles and constraints of the individual learner and the specific requirements of each unit. The units may be delivered singularly, or they may be integrated holistically with a number of units. As the role involves practical skill development, the practical skill component of the course must be delivered in a: • workplace, or • simulated workplace that accurately reflects workplace conditions. Practical exercises may take the form of realistic, holistic projects to provide the learner with a 'real work' experience.

	The knowledge components of the course may be delivered using face-to-face, online or blended modes.
7.2 Resources	Training must be undertaken by a person or persons in accordance with: • Standard 1.4 of the AQTF: Essential Conditions and Standards for Initial/Continuing Registration and Guideline 3 of the VRQA Guidelines for VET Providers, or • the Standards for Registered Training Organisations 2015 (SRTOs), or • the relevant standards and Guidelines for RTOs at the time of assessment. Delivery and assessment materials should reflect the local work environment as far as possible. Refer to the individual units for specific tool and equipment requirements. Trainers of nationally endorsed units of competency must meet any additional requirements specified in the relevant training product.
8. Pathways and articulation	***Standard 8 AQTF Standards for Accredited Courses***
	There are no formal articulation arrangements in place at the time of accreditation. Learners who complete units of competency from endorsed training packages or accredited courses will be eligible for credit into other qualifications that contain those units.
9. Ongoing monitoring and evaluation	***Standard 13 AQTF Standards for Accredited Courses***
	The Curriculum Maintenance Manager for Building Industries, in conjunction with the Office of the Victorian Skills Commissioner is responsible for the ongoing monitoring and evaluation of the 22574VIC Certificate III in Concrete Sawing and Drilling. Formal course evaluations will be undertaken halfway through the accreditation period and will be based on student and teacher evaluation surveys and industry stakeholder surveys/consultations. The Victorian Registration and Qualifications Authority (VRQA) will be notified of any changes to the course.

Appendix 1

Employability Skill	Industry/enterprise requirements for this qualification include the following facets. On successful completion of the course a graduate should be able to:
Communication that contributes to productive and harmonious relations across employees and customers	• use questioning to identify and confirm own and team work requirements • use appropriate terminology in task related communication to discuss and share information • listen carefully to follow instructions • read and interpret a range of workplace information and documentation from a range of sources • inform / warn colleagues of pending work tasks to reduce WHS/OHS risk • report faults or defects in tools and equipment, including setting adjustments • complete workplace documentation relating to concrete sawing and drilling requirements
Teamwork that contributes to productive working relationships and outcomes	• collaborate and plan work tasks with others to maximise productivity / safety and minimise project disruption • develop effective working relationships with a range of workplace personnel • employ a duty of care responsibility when working with others
Problem solving that contributes to productive outcomes	• select and assemble tools and equipment (including accessories) according to manufacturer's instructions • apply measurements and calculations to calibrate equipment for work tasks • identify potential work area hazards when preparing for work tasks, including weather and environmental conditions • complete risk assessments and apply control measures • perform equipment trouble shooting to determine reasons for non-conformance
Initiative and enterprise that contribute to innovative outcomes	• prepare, maintain and clean-up work area with cognisance to safety requirements • recognise and act on sustainable opportunities when undertaking work tasks • identify and act on tool and equipment faults or defects, including setting adjustments • act on workplace hazards identified according to workplace procedures

Planning and organising that contribute to long and short-term strategic planning	• prioritise and sequence own work tasks • identify own work tasks and scope of work responsibility • manage work tasks to synchronise efficiently with colleague work tasks and project schedules
Self-management that contributes to employee satisfaction and growth	• complete work tasks to required standards and timeframes • contribute to safety and sustainable practices during work task preparation, application, shut down and clean up • monitor own performance and manage contingencies effectively
Learning that contributes to ongoing improvement and expansion in employee and company operations and outcomes	• invite and integrate new ideas, technologies and work processes that improve work practice • actively seek new and unfamiliar situations and learning opportunities
Technology that contributes to the effective carrying out of tasks	• perform equipment safety check, maintenance (service/routine), operation and shut down • actively monitor equipment safety controls • use technology to measure concrete depth, calculate tool and equipment tolerances, limits. loads and parameters • use technology to convert metric to imperial measurement

Section C–Units of competency

The following imported units of competency from endorsed training packages can be downloaded from the National Register, available *here*

BSBXTW301	Work in a team
CPCCCM2010B	Work safely at heights
CPCCWHS1001	Prepare to work safely in the construction industry
CPCCWHS2001	Apply WHS requirements, policies and procedures in the construction industry
CPCCCM1015	Carry out measurements and calculations
CPCCCM2001	Read and interpret plans and specifications
CPCCCM1012	Work effectively and sustainably in the construction industry
CPCCCM1014	Conduct workplace communication
CPCCCM2008	Erect and dismantle restricted height scaffolding
CPCCCO3046	Repair and rectify concrete
MSFFL2035	Mechanically prepare surfaces for installation of flooring materials
MSFFL3056	Polish concrete floors
MSFFL3057	Select and fit diamond tools for concrete surface preparation and polishing
RIIWHS202E	Enter and work in confined spaces
TLILIC0005	Licence to operate a boom-type elevating work platform (boom length 11 metres or more)
TLID3035	Operate a boom type elevating work platform

The following units of competency developed for the course, comply with the current requirements from the Training Package Development Handbook and are contained in Section C.

Unit code		VU23061	
Unit title		Operate a flat saw to cut concrete and asphalt	
Unit descriptor		This unit specifies the outcomes required to operate a flat saw to cut varying depths on a flat concrete or asphalt surface. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.	
Employability Skills		This unit contains Employability Skills.	
Application of the unit		This unit applies to construction workers who specialise in concrete sawing and drilling and who operate a flat saw to complete work tasks. Tasks may be large or small and include trenching for new services and assets, inserting expansion joints in new concrete paving and installing detector loops for vehicle detection. Site location for work application may apply to: • existing structures being renovated, extended or demolished • major infrastructure such as roads, dams, floors, bridge decks, highways and airport pavements.	
ELEMENT		**PERFORMANCE CRITERIA**	
Elements describe the essential outcomes of a unit of competency.		*Performance criteria describe the required performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge and/or the range statement. Assessment of performance is to be consistent with the evidence guide.*	
1	Prepare for work	1.1	Obtain plans, permit to work, service scan and ***specifications*** from job supervisor.
		1.2	Identify site specific safe work method statement (SWMS), ***work health and safety (WHS)/occupational health and safety (OHS)*** and ***environmental requirements*** associated with flat sawing.
		1.3	Plan and sequence tasks in conjunction with others involved in or affected by the work.
		1.4	Select ***personal protective equipment (PPE)*** applicable to flat sawing and check for serviceability.
		1.5	Prepare work area to support efficient flat sawing.
		1.6	Identify ***sustainability principles and concepts*** when preparing for and undertaking work process.

ELEMENT		PERFORMANCE CRITERIA	
2	Prepare equipment for flat sawing	2.1	Identify flat sawing area and requirements from plans and specifications or given information.
		2.2	Select and assemble ***flat sawing equipment*** and ***cutting tools*** in accordance with manufacturer's operating instructions.
		2.3	Complete flat sawing equipment and pre-start checks to meet job requirements in accordance with manufacturer's operating instructions.
		2.4	Check, install and connect power, water supply and environmental controls.
		2.5	Communicate pending work practice involving potential disbursement of powdered substances to work colleagues to facilitate risk reduction practices.
3	Perform flat sawing	3.1	Saw floor to required depths using safe sawing practices, allowing for adjustments to settings and sawing techniques.
		3.2	Take appropriate action to report or remedy faults or defects in concrete and asphalt or flat sawing equipment.
4	Clean up and maintain equipment	4.1	Clean and tidy work area to ensure space is free of hazardous powdered substance, in accordance with WHS/OHS regulations.
		4.2	Dispose of, reuse or recycle materials in accordance with legislation, regulation, codes of practice and job specification.
		4.3	Clean, check, maintain and store ***tools and equipment*** in accordance with manufacturer's operating instructions and workplace procedures.
		4.4	Remove and dispose of PPE in accordance with WHS/OHS regulations.
5	Finalise job requirements	5.1	Identify and complete required documentation in accordance with workplace requirements.
		5.2	Inform supervisor of job completion.

REQUIRED SKILLS AND KNOWLEDGE

This describes the essential skills and knowledge and their level, required for this unit.

Required skills

Technical skills to:

- independently perform various flat sawing tasks
- monitor flat saw safety controls
- carry out servicing and routine maintenance

Planning and organising skills to:

- plan, sequence and set out work tasks with others
- maintain a safe work site

Numeracy skills to:

- apply correct rpm to diamond blade diameters using English units
- measure depth of concrete and asphalt and apply to flat saw settings
- compute tolerances for floor sawing

Literacy skills to:

- read and interpret manufacturer's operating instructions, WHS/OHS documents and pre-start checks for flat saw systems
- complete required workplace documentation such as log books, incident and maintenance reports

Communication skills to:

- communicate verbally with others any maintenance needs and faults
- use hand signals to communicate on work site

Teamwork skills to:

- work and plan with other operators
- relate to people with varying abilities and from a range of backgrounds such as supervisors, managers, other employees and trades

Self management skills to:

- identify and report equipment faults and defects to appropriate personnel
- rectify equipment faults and defects

Required knowledge

- Relevant WHS/OHS statutory regulations, policies and procedures, codes and standards e.g. hazardous substances, PPE, manual handling techniques, concrete sawing and drilling safety requirements including risk of dust containing crystalline silica
- Environmental regulations for state and territories relating to slurry, collection and control devices, filtration devices and techniques
- Environmental work practices and systems including use of correct-sized equipment recycling of blades, water, motor oil, hydraulic fluid, fuel filters, paper, slurry filtration and separation
- Safe work method statement (SWMS) requirements
- Flat sawing systems, their components and applications including petrol, diesel, hydraulic, electric, and air powered systems
- Flat saw diamond blades and tools including the various types of diamond blades specific for sawing concrete, asphalt, sandstone, exposed aggregates and pavers
- Common flat sawing equipment faults and problems and appropriate troubleshooting actions including incorrect blade, incorrect use, loss of blade tension, undercutting, uneven segment wear, excessive wear, cracked blade centre, loss of blade segment, cracked segment, eccentricity, overheated blade, ovalised bore hole, blade glazing, and excessive rpm
- Auxiliary equipment including water suction devices, pumps, lifting devices, tools and accessories
- Water use and environmental controls
- Flat saw tracking and alignment for straightness of cut
- Flat sawing computations and tolerances
- Scanning theory and types of scanning to locate embedded services
- Concrete/reinforced concrete and its characteristics
- Electricity – terms, units, motors, safety, systems and implications
- Hydraulics and hydraulic circuits
- Mechanics including machine elements, torque
- Basic principles of construction relevant to cutting concrete and asphalt including substructures
- Asbestos: definition and types, use in building products, health risks of exposure, potential locations on a building site, relevant legislation and standards, workplace procedures if asbestos is found on site, asbestos register, basic removal overview
- Tolerances and Limits for Construction Drilling and Sawing, in accordance with current International Association of Concrete Drillers and Sawers (IACDS) guidelines
- Basic parameters for concrete drilling and sawing equipment, in accordance with current International Association of Concrete Drillers and Sawers (IACDS) guidelines

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording in the Performance Criteria is detailed below. Add any essential operating conditions that may be present with training and assessment depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts.	
Specifications may include:	• manufacturers guidelines and instructions • organisational quality procedures • regulatory and legislative requirements • relevant Australian codes and standards • work schedules, specifications and requirements. • CSDAA best practice statements that cover all activities in the concrete drilling and sawing industry
Work health and safety (WHS)/occupational health and safety (OHS) is to be according to federal, state and territory legislation and regulations and:	must include: • asbestos awareness, asbestos identification and knowledge of legal and safety requirements for handling, storage and removal of asbestos • silica dust awareness • personal protective clothing and equipment may include: • dangerous goods storage and handling • manual handling • safety regulations and codes of practice • safe operating procedures including recognising and preventing hazards associated with: o anchoring o blades o bracing o concealed services o cordons, covers and barriers o dust o electricity o embedded service o excavation o hot work o load suspension o loading and unloading from vehicles o manual handling o materials storage o occupational health controls o pre-stressed structures o pressurised and inflammable gases o surrounding structure and facilities o trip hazards o use of firefighting equipment o use of first aid equipment o use of tools and equipment

	○ vibration ○ work site visitors and the public ○ working at heights ○ working in confined spaces ○ working in proximity to others ○ workplace environment and safety
Environmental requirements may include:	• clean-up protection • waste management
Personal protective equipment (PPE) may include:	• disposable dust mask • safety glasses • water proof gloves • ear muffs • work wear
Sustainability principles and concepts may include:	• selecting appropriate material to ensure minimal environmental impact • efficient use of materials • recycling material
Flat sawing equipment may include:	• flat saw – push • flat saw – self propelled • flat saw – soft cut • flat saw – rider • flat saw – grinding • flat saw – grooving • power variants, diesel, LPG, petrol, hydraulic, air, and electric
Cutting tools may include:	• standard, concrete and asphalt • loop, grooving, chamfered, silenced (laminated) • custom task specific • wet-cutting blades • dry-cutting blades.
Tools and equipment may include:	• water suction devices • lifting devices • pumps • hand tools

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment Guidelines for this Training Package.	

Critical aspects for assessment and evidence required to demonstrate competency in this unit	A person who demonstrates competency in this unit must be able to provide evidence of the ability to:
	• interpret and apply relevant flat sawing information, standards and manufacturer's operating instructions
	• set up the work site and equipment
	• communicate and work effectively and safely with others
	• follow given plans and instructions to:
	  ○ select, set and fasten the correct diamond blade to suit a defined task
	  ○ flat saw concrete/asphalt to cover tasks which vary in:
	  – lengths
	  – depths
	  – materials
	  – structures e.g. suspended floor
	• apply safe flat sawing practices throughout the work sequence
	• apply sustainability principles and concepts
	• comply with regulations, standards and organisational quality procedures and processes.

Context of and specific resources for assessment	The application of competency is to be assessed in the workplace or realistically simulated workplace. Assessment is to comply with relevant regulatory or Australian Standards requirements. Resource requirements for assessment of this unit are: • SWMS, WHS/OHS and environmental requirements • flat saw and diamond blades • flat saw manufacturer operating instructions • tools and equipment • water supply for connection to relevant tool / equipment • IACDS Standards • job plan and specifications
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct observation of the candidate performing concrete cutting and sawing practices in a real workplace setting or simulated environment

	• written and oral questioning to test underpinning knowledge and its application to concrete cutting and sawing practices • project activities that allow the candidate to demonstrate the application of skill and knowledge related to concrete cutting and sawing practices • third party workplace reports of on-the-job performance by the candidate

Unit code		VU23062	
Unit title		Operate a diamond core drill system on floor and wall applications	
Unit descriptor		This unit specifies the outcomes required to operate a diamond core drilling system to drill access and service penetrations through various construction materials. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.	
Employability Skills		This unit contains Employability Skills.	
Application of the unit		This unit applies to construction workers who specialise in concrete sawing and drilling and who operate a diamond core drilling system to complete work tasks. Tasks may be large or small and include installing reinforcing bars, mechanical anchors and providing access to new services and assets. Site location for work application may apply to: • existing structures being renovated, extended or demolished • confined areas and those with limited access • underwater (using remotely operated equipment) • major infrastructure such as roads, dams • sewerage systems	
ELEMENT		**PERFORMANCE CRITERIA**	
Elements describe the essential outcomes of a unit of competency.		*Performance criteria describe the required performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge and/or the range statement. Assessment of performance is to be consistent with the evidence guide.*	
1	Prepare for work	1.1	Obtain plans and ***specifications*** from job supervisor.
		1.2	Identify site specific safe work method statement (SWMS), ***work health and safety (WHS)/occupational health and safety (OHS)*** and ***environmental requirements*** associated with diamond core drilling.
		1.3	Plan and sequence tasks in conjunction with others involved in or affected by the work.
		1.4	Select ***personal protective equipment (PPE)*** applicable to diamond core drilling and check for serviceability.
		1.5	Identify area to be diamond core drilled and, where required, the drill hole marked, in accordance with job requirements.
		1.6	Determine method of removal and securing of the core plug penetration.
		1.7	Identify ***sustainability principles and concepts*** when preparing for and undertaking work process.

2	Prepare equipment for diamond core drilling	2.1	Prepare and check ***drilling system*** and ***accessories*** in accordance with pre-start checks and workplace procedures.
		2.2	Secure building structures and diamond drilling cores according to plans and specifications
		2.3	Anchor/mount and align diamond core drilling rig, and mount the drill motor and diamond drill bit in accordance with manufacturer's operating instructions.
		2.4	Check, install and connect power, water supply and waste disposal means, in accordance with workplace procedures.
		2.5	Check the diamond core drilling system and protective devices and parts for faultless functioning.
		2.6	Communicate pending work practice involving potential disbursement of powdered substances to work colleagues to facilitate risk reduction practices.
3	Perform diamond core drilling and core plug removal	3.1	Recognise and mitigate diamond ***core drilling hazards*** in accordance with workplace procedures.
		3.2	Drill core hole using safe drilling practices, allowing for adjustments to settings and drilling techniques, according to job requirements.
		3.3	Take appropriate action to report or remedy faults or defects in drilling equipment.
		3.4	Remove drilling core plug safely.
4	Clean up and maintain equipment	4.1	Clean and tidy work area to ensure space is free of hazardous powdered substances in accordance with WHS/OHS regulations.
		4.2	Dispose of, reuse or recycle materials, according to legislation, regulation, codes of practice and job specification.
		4.3	Clean, check, maintain and store ***tools and equipment*** in accordance with manufacturer's operating instructions and workplace procedures.
		4.4	Remove and dispose of PPE in accordance with WHS/OH regulations.
5	Finalise job requirements	5.1	Identify and complete required documentation in accordance with workplace requirements.
		5.2	Inform supervisor of job completion.

REQUIRED SKILLS AND KNOWLEDGE

This describes the essential skills and knowledge and their level, required for this unit.

Required skills

Technical skills to:

- monitor safety controls
- use core drilling systems and techniques to drill through various construction materials vertically, horizontally and inverted positions
- carry out servicing and routine maintenance of the core drill unit

Communication skills to:

- enable clear and direct communication using questioning to identify and confirm requirements, share information, listen and understand
- follow instructions
- use and interpret non-verbal communication, such as hand signals

Planning and organising skills to:

- plan, sequence and set out work tasks with others
- maintain a safe work site

Numeracy skills to:

- measure for anchor bolt location and centre of hole to be drilled
- calculate the maximum weight of the core plug
- convert metric and imperial calculations to identify diamond core bit sizes

Literacy skills to:

- read and interpret manufacturer's operating instructions, WHS/OHS documents and workplace signage and pre-start checks for diamond core drill systems
- complete required workplace documentation such as log books, incident and maintenance reports

Teamwork skills to:

- work and plan with other operators
- relate to people with varying abilities and from a range of backgrounds such as supervisors, managers, other employees and trades

Self-management skills to:

- identify and report equipment faults and defects to appropriate personnel
- rectify equipment faults and defects

Required knowledge

- Relevant WHS/OHS statutory regulations, policies and procedures, codes and standards, e.g. hazardous substances, PPE, manual handling techniques, concrete sawing and drilling safety requirements including risk of dust containing crystalline silica
- Environmental regulations for state and territories relating to slurry, collection and control devices, filtration devices and techniques
- Environmental work practices and systems including use of correct-sized equipment recycling of core bits, water, motor oil, hydraulic fluid, fuel filters, paper, slurry filtration and separation
- Safe work method statement (SWMS) requirements
- Diamond core drill systems, their components, drilling accessories and applications including hand-operated, wet, dry, electric, hydraulic, rotary percussion, high frequency and air
- Common diamond core drilling equipment faults and problems and appropriate troubleshooting actions
- Water use and supply for diamond core drilling
- Mechanical and epoxy anchor systems including drop-in anchors and wedge anchors, mechanical and epoxy anchor systems
- Core drilling computations and tolerances
- Scanning theory and types of scanning
- Concrete/reinforced concrete and its characteristics
- Electricity – terms, units, motors, safety, systems and implications
- Hydraulics and hydraulic circuits
- Basic mechanics including machine elements, torque
- Basic principles of construction relevant to cutting concrete and asphalt including substructure
- Asbestos: definition and types, use in building products, health risks of exposure, potential locations on a building site, relevant legislation and standards, workplace procedures if asbestos is found on site, asbestos register, basic removal overview
- Tolerances and Limits for Construction Drilling and Sawing and basic parameters for concrete drilling and sawing equipment in accordance with current International Association of Concrete Drillers and Sawers (IACDS) guidelines
- Basic parameters for concrete drilling and sawing equipment, in accordance with current International Association of Concrete Drillers and Sawers (IACDS) guidelines
- Environmental regulations for state and territories relating to slurry, collection and control devices, filtration devices and techniques

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording in the Performance Criteria is detailed below. Add any essential operating conditions that may be present with training and assessment depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts.	
Specifications may include:	• manufacturers guidelines and instructions • organisational quality procedures • regulatory and legislative requirements • relevant Australian codes and standards • work schedules, specifications and requirements • CSDAA best practice statements that cover all activities in the concrete drilling and sawing industry
Work health and safety (WHS)/occupational health and safety (OHS) is to be according to federal, state and territory legislation and regulations and:	must include: • asbestos awareness, asbestos identification and knowledge of legal and safety requirements for handling, storage and removal of asbestos • Silica dust awareness • personal protective clothing and equipment may include: • dangerous goods storage and handling • manual handling • safety regulations and codes of practice • safe operating procedures including recognising and preventing hazards associated with: o electricity o hi-frequency equipment, electric cable o manual handling o pressurised and inflammable gases o surrounding structure and facilities o trip hazards o work site visitors and the public o working at heights o spotters, covers and barriers o load suspension o working in confined spaces o operating equipment remotely underwater o working in proximity to others o use of firefighting equipment o use of first aid equipment o use of tools and equipment o workplace environment and safety o occupational health controls

	○ anchoring ○ bracing ○ materials storage ○ excavation ○ hot work ○ concealed services ○ dust and gases ○ vibration ○ blades ○ noise ○ damage to structures and services ○ loss of vacuum pressure ○ working alone ○ entanglement
Environmental requirements may include:	• clean-up protection • waste management.
Personal protective equipment (PPE) may include:	• disposable dust mask • safety glasses • water proof gloves • ear muffs • work wear
Sustainability principles and concepts may include:	• selecting appropriate material to ensure minimal environmental impact • efficient use of materials • recycling material
Drilling system may include:	• hand held drilling system • small duty drilling unit <150mm • medium duty drilling machine <500mm • heavy duty drilling machine >500mm • gyro stand-multi angled and inverted • power variants, electric, high frequency, hydraulic, and air • wet drilling system • dry drilling system

Accessories may include:	• hammer drill for fixing anchors • anchors and anchor setting tools • threaded studs, bolts, nuts and washers • continuous tube core bits • wrenches for bits, spindles, extensions, levelling screws and anchor bolts and nuts • level and tape measure • bit extensions and adapters • water hoses, electric cords, ground faults interrupt and assorted electrical plug adapters • power supply • pump and water supply • wet pick-up vacuum cleaner
Core drilling hazards may include:	• drilling wood, glass and plastics • drilling loose parts including loose parts in concrete • drilling in an explosion-protected area • drilling with inadequate or incorrect waste water disposal • drilling without protective devices provided by manufacturer

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment Guidelines for this Training Package.	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	A person who demonstrates competency in this unit must be able to provide evidence of the ability to: • interpret and apply relevant diamond core drilling information, standards and manufacturer's operating instructions • set up the work site and equipment • communicate and work effectively and safely with others • follow given plans and instructions to: o select, set and fasten the correct diamond core bit to suit a defined task o accurately core drill concrete to cover tasks in horizontal and vertical structures and floor and wall applications and to include: – a through hole – a blind hole – an inverted hole – a 600 mm hole in a floor – a diagonal hole • select the correct tools and use appropriate processes, and equipment • apply safe diamond core drilling practices throughout the work sequence • comply with regulations, standards and organisational quality procedures and processes • apply sustainability principles and concepts
Context of and specific resources for assessment	The application of competency is to be assessed in the workplace or realistically simulated workplace. Assessment is to comply with relevant regulatory or Australian Standards requirements. Resource requirements for assessment of this unit are: • SWMS, WHS/OHS and environmental requirements • job plan and specifications • diamond core drilling system and accessories • manufacturer operating instructions • water supply for connection to relevant tool / equipment • power supply • IACDS Standards.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit:

	• direct observation of the candidate performing concrete drilling practices in a real workplace setting or simulated environment • written and oral questioning to test underpinning knowledge and its application to concrete drilling practices • project activities that allow the candidate to demonstrate the application of skill and knowledge related to concrete drilling practices • third party workplace reports of on-the-job performance by the candidate

Unit code		VU23063	
Unit title		Operate hand held saw	
Unit descriptor		This unit describes the outcomes required to use hand held saws, including demolition handsaws, diamond-tipped chain saws and ring saws, for cutting ancillary structures up to 600mm depth. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.	
Employability Skills		This unit contains Employability Skills.	
Application of the unit		This unit applies to construction workers who specialise in concrete sawing and drilling, and use hand held saws to complete tasks where the use of a larger saw is not possible or cost-effective. Hand held saw is used in a wide variety of tasks, which may include small jobs, complicated shapes, cramped conditions and cutting of various materials. Site location for work application may apply to: • existing structures being renovated, extended or demolished • confined areas and those with limited access • major infrastructure such as roads, dams • sewerage systems.	
ELEMENT		**PERFORMANCE CRITERIA**	
Elements describe the essential outcomes of a unit of competency.		*Performance criteria describe the required performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge and/or the range statement. Assessment of performance is to be consistent with the evidence guide.*	
1	Prepare for work	1.1	Obtain plans and ***specifications*** from job supervisor.
		1.2	Identify safe work method statement (SWMS)***, work health and safety (WHS)/occupational health and safety (OHS)*** and ***environmental requirements*** associated with hand held sawing tasks.
		1.3	Plan and sequence tasks in conjunction with others involved in or affected by the work.
		1.4	Prepare work area to support efficient hand sawing using hand held equipment.
		1.5	Select ***personal protective equipment (PPE)*** applicable to task and check for serviceability.
		1.6	Identify ***sustainability principles and concepts*** when preparing for and undertaking work process.

ELEMENT		PERFORMANCE CRITERIA	
2	Prepare equipment for hand held sawing	2.1	Select ***saw type*** and blade appropriate for task and check for serviceability.
		2.2	Set up hand held saws in accordance with manufacturer's operating instructions.
		2.3	Check, install and connect ***power source***, water supply and environmental controls.
		2.4	Communicate pending work practice involving potential disbursement of powdered substances to work colleagues to facilitate risk reduction practices.
3	Perform hand held sawing	3.1	Recognise and mitigate ***hazards*** associated with hand held sawing in accordance with workplace procedures.
		3.2	Complete task to job requirements using ***safe and effective cutting practices***, allowing for adjustments to settings and sawing technique.
		3.3	Square and straight cutting lines according to specifications.
		3.4	Take appropriate action to report or remedy defects in materials or equipment.
4	Clean up and maintain equipment	4.1	Clean and tidy work area to ensure space is free of hazardous powdered substances in accordance with WHS/OHS regulations.
		4.2	Dispose of, reuse or recycle materials in accordance with legislation, regulation, codes of practice and job specification.
		4.3	Clean, check, maintain and store ***tools and equipment*** in accordance with manufacturer's recommendations and workplace procedures.
		4.4	Remove and dispose of PPE in accordance with WHS/OHS regulations.
5	Finalise job requirements	5.1	Identify and complete required documentation in accordance to workplace requirements.
		5.2	Inform supervisor of job completion.

REQUIRED SKILLS AND KNOWLEDGE

This describes the essential skills and knowledge and their level, required for this unit.

Required skills

Technical skills to:

- select and use appropriate saw type and blade for cutting task
- perform hand sawing tasks independently to various depths
- install power/water supply and environmental control measures
- detect and locate malfunctions and perform equipment troubleshooting
- carry out routine servicing and maintenance of the hand saws
- monitor the correct functioning of the hand saw safety controls
- identify confined space work areas or restricted work areas.

Communication skills to:

- enable clear and direct communication, using questioning to identify and confirm requirements, share information, listen and understand
- follow instructions
- use and interpret non-verbal communication, such as hand signals.

Planning and organising skills to:

- plan, sequence and set out work tasks with others
- maintain a safe work site

Numeracy skills to:

- apply measurements required for task, including conversion of metric to imperial measurements for blade sizes
- measure depth of concrete.

Literacy skills to:

- read and interpret equipment operating instructions and WHS/OHS documents
- complete required workplace documentation such as log books, incident and maintenance reports.

Teamwork skills to:

- action tasks
- relate to people from a range of backgrounds and with varying abilities, such as supervisors, managers, other employees and other trades.

Self management skills to:

- identify and report equipment faults and defects to appropriate personnel
- rectify equipment faults and defects

Required knowledge

- Relevant OHS/WHS regulations, policies and procedures, codes of practice and standards e.g. hazardous substances, PPE, manual handling techniques, concrete sawing and drilling safety requirements including risk of dust containing crystalline silica
- Environmental work practices and systems including recycling of blades, water, motor oil, hydraulic fluid, fuel filters, paper, slurry filtration and separation
- Safe work method statement (SWMS) requirements
- Environmental regulations for state and territories relating to slurry, collection and control devices, filtration devices and techniques
- Operation of drive motors, hydraulic, combustion, air, and electric
- Structure, operating principles and application of hand held concrete saws, including:
  - demolition hand saws
  - chain saws (diamond-tipped)
  - ring saws
- Nature and application of diamond blades/chains for hand cutting
- Hazards associated with hand held sawing
- Common faults and problems with hand held saws, such as: poor cutting, slow speed, chain stretch, blade slipping
- Appropriate trouble-shooting actions for hand held sawing
- Hazard identification methods
- Workplace and equipment safety requirements, including relevant statutory regulations, codes and standards such as International (IACDS) and Australian (CSDAA) standards, specifications and best practices
- Swiss Association of Concrete Drilling and Cutting Enterprises (SVBC) Technical Manual for Construction Cutting Specialists
- Concrete/reinforced concrete and its characteristics
- Electricity – terms, units, motors, safety
- Hydraulics and hydraulic circuits
- Basic mechanics including machine elements, torque
- Basic principles of construction relevant to cutting concrete and asphalt, including substructure
- Tolerances and Limits for Construction Drilling and Sawing, in accordance with current International Association of Concrete Drillers and Sawers (IACDS) guidelines
- Basic parameters for concrete drilling and sawing equipment, in accordance with current International Association of Concrete Drillers and Sawers (IACDS) guidelines
- Asbestos: definition and types, use in building products, health risks of exposure, potential locations on a building site, relevant legislation and standards, workplace procedures if asbestos is found on site, asbestos register, basic removal overview

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording in the Performance Criteria is detailed below. Add any essential operating conditions that may be present with training and assessment depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts.	
Specifications may include:	• manufacturers guidelines and instructions • organisational quality procedures • regulatory and legislative requirements • relevant Australian codes and standards • work schedules, specifications and requirements. • CSDAA best practice statements that cover all activities in the concrete drilling and sawing industry
Work health and safety (WHS)/occupational health and safety (OHS) is to be according to federal, state and territory legislation and regulations and:	must include: • asbestos awareness, asbestos identification and knowledge of legal and safety requirements for handling, storage and removal of asbestos • Silica dust awareness • Personal protective clothing and equipment may include: • dangerous goods storage and handling • manual handling • safety regulations and codes of practice • safe operating procedures including recognising and preventing hazards associated with: ○ anchoring ○ blades ○ bracing ○ concealed services ○ cordons, covers and barriers ○ dust ○ electricity ○ excavation ○ hot work ○ load suspension ○ loading and unloading from vehicles ○ manual handling ○ materials storage ○ occupational health controls ○ operating equipment remotely underwater ○ pressurised and inflammable gases

	○ surrounding structure and facilities ○ trip hazards ○ use of firefighting equipment ○ use of first aid equipment ○ use of tools and equipment ○ vibration ○ work site visitors and the public ○ working at heights ○ working in confined spaces ○ working in proximity to others ○ workplace environment and safety
Environmental requirements may include:	• clean-up protection • waste management.
Personal protective equipment (PPE) may include:	• disposable dust mask • safety glasses • water proof gloves • ear muffs • work wear
Sustainability principles and concepts may include:	• selecting appropriate material to ensure minimal environmental impact • efficient use of materials • recycling material.
Saw type must include:	• chain saws (diamond-tipped) • hand held ring saws • Demolition/quick cut hand saws.
Power source may include:	• compressed air • electric • high frequency • hydraulic • two stroke combustible
Hazards may include:	• carbon monoxide (use of petrol engine saws in unventilated areas) • chain breakage (chain saws) • cut concrete falling • dust

	• Silica dust • forcing the blade (ring saws) • gyro effect • hydraulic pressure • insufficient water supply • kickback • live electrical wiring near cutting area • noise • obstructions (plumbing, electrical conduit, air ducts) in the cutting zone • saw operation outside manufacturers' operational guidelines • use of ladder while cutting • vibration • water ingress.
Safe and effective cutting practices include:	• appropriate blade choice and rotation • establishment of stable cutting position • adherence to the cutting line • appropriate cutting sequence • ensuring adequate water flow
Tools and equipment may include:	• spanners • torque wrench • screw drivers • vice grips • pry bars

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment Guidelines for this Training Package.	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	A person who demonstrates competency in this unit must be able to provide evidence of the ability to: • interpret and apply relevant information, standards and manufacturer's operating instructions for concrete cutting • apply safety requirements throughout the work sequence • follow given plans and/or instructions to perform cutting tasks on concrete walls and floors, asphalt and pipes up to 600 mm depth, which demonstrate square and straight cutting lines with a deviation of less than 10 mm from the target line, using each of: o hand held ring saw o diamond-tipped chain saw o quick cut/demolition hand saw • tasks to be performed both horizontally and vertically • select and fit appropriate diamond blades/chains and use appropriate processes, tools and equipment • complete all work to specification • comply with regulations, standards and organisational quality procedures and processes • communicate and work effectively and safely with others • apply relevant sustainability principles and concepts
Context of and specific resources for assessment	The application of competency is to be assessed in the workplace or realistically simulated workplace. Assessment is to comply with relevant regulatory or Australian Standards requirements. Resource requirements for assessment of this unit are: • hand held ring saw, diamond-tipped chain saw, demolition hand saw and blades • manufacturer's operating instructions for the saws provided • power/water supply where required to operate the equipment selected • IACDS Standards • job plan and specifications • Foundations in Safety Code of Practice • SVBS Technical Manual for Construction Cutting Specialists 2007

Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct observation of the candidate performing concrete sawing and cutting practices in a real workplace setting or simulated environment • written and oral questioning to test underpinning knowledge and its application to concrete sawing and cutting practices • project activities that allow the candidate to demonstrate the application of skill and knowledge related to concrete sawing and cutting practices • third party workplace reports of on-the-job performance by the candidate

Unit code		VU23064	
Unit title		Operate track mounted saw to cut concrete and steel	
Unit descriptor		This unit describes the outcomes required to use track-mounted saws for cutting walls. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.	
Employability Skills		This unit contains Employability Skills.	
Application of the unit		This unit applies to construction workers who specialise in concrete sawing and drilling, and use track mounted saws to complete tasks such as: • sawing reinforced and non-reinforced concrete • sawing precise dimensional door, vent and window openings	
ELEMENT		**PERFORMANCE CRITERIA**	
Elements describe the essential outcomes of a unit of competency.		*Performance criteria describe the required performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge and/or the range statement. Assessment of performance is to be consistent with the evidence guide.*	
1	Prepare for work	1.1	Obtain plans and ***specifications*** from job supervisor.
		1.2	Identify safe work method statement (SWMS***), work health and safety (WHS)/occupational health and safety (OHS)*** and ***environmental requirements*** associated with track mounted sawing tasks .
		1.3	Plan and sequence tasks in conjunction with others involved in or affected by the work.
		1.4	Prepare work area to support efficient track mounted sawing.
		1.5	Select ***personal protective equipment (PPE)*** applicable to task and check for serviceability.
		1.6	Identify ***sustainability principles and concepts*** when preparing for and undertaking work process.

ELEMENT		PERFORMANCE CRITERIA	
2	Prepare for track mounted sawing	2.1	Select and check track mounted saw and blade appropriate for task and serviceability.
		2.2	Set up track mounted saws in accordance with manufacturer's operating instructions.
		2.3	Check, install and connect ***power source***, water supply and environmental controls.
		2.4	Determine and mark out appropriate cutting sequence and anchor points.
		2.5	Communicate pending work practice involving potential disbursement of powdered substances to work colleagues to facilitate risk reduction practices.
3	Perform sawing with a track mounted saw	3.1	Recognise and mitigate ***hazards*** associated with track mounted sawing in accordance with workplace procedures.
		3.2	Install anchors and mount saw rails safely.
		3.3	Complete task to job requirements using ***safe and effective cutting practices***, allowing for adjustments to settings and sawing techniques.
		3.4	Select ***accessories***, where appropriate, and fit correctly.
		3.5	Square and straight cutting lines according to specifications.
		3.6	Secure cut openings according to job requirements
		3.7	Take appropriate action to report or remedy defects in materials or track mounted sawing equipment.
4	Clean up and maintain equipment	4.1	Clean and tidy work area to ensure space is free of hazardous powdered substances, in accordance with WHS/OHS regulations.
		4.2	Dispose of, reuse or recycle materials in accordance with legislation, regulation, codes of practice and job specification.
		4.3	Clean, check, maintain and store ***tools and equipment*** in accordance with manufacturer's operating instructions and workplace procedures.
		4.4	Remove and dispose of PPE in accordance with WHS/OHS regulations.
5	Finalise job requirements	5.1	Identify and complete required documentation in accordance to workplace requirements.
		5.2	Inform supervisor of job completion.

REQUIRED SKILLS AND KNOWLEDGE

This describes the essential skills and knowledge and their level, required for this unit.

Required skills

Technical skills to:

- carry out routine servicing and maintenance of the track saw
- complete pre-start checks for track sawing system
- cut straight lines both vertically and horizontally, including corners
- detect, locate and troubleshoot equipment malfunctions
- identify confined space work areas or restricted work areas
- install power, water supply and environmental controls
- monitor correct functioning of the saw's safety controls
- perform track sawing tasks independently
- select and use appropriate sawing system and blade type for cutting task

Communication skills to:

- enable clear and direct communication, using questioning to identify and confirm requirements, share information, listen and understand
- follow instructions
- use and interpret non-verbal communication, such as hand signals

Planning and organising skills to:

- plan, sequence and set out work tasks with others
- maintain a safe work site

Numeracy skills to:

- apply measurements required for task, including conversion of metric to imperial measurements for blade sizes
- measure depth of concrete and apply to track mounted saw settings

Literacy skills to:

- read and interpret equipment operating instructions, WHS/OHS documents and pre start checks for track mounted saw
- complete required workplace documentation such as log books, incident and maintenance reports

Teamwork skills to:

- action tasks
- relate to people from a range of backgrounds and with varying abilities, such as supervisors, managers, other employees and other trades

Self management skills to:

- identify and report equipment faults and defects to appropriate personnel
- rectify equipment faults and defects

Required knowledge

- Relevant WHS/OHS statutory regulations, policies and procedures, codes and standards e.g. hazardous substances, PPE, manual handling techniques, concrete sawing and drilling safety requirements including risk of dust containing crystalline silica
- Environmental regulations for state and territories relating to slurry, collection and control devices, filtration devices and techniques
- Environmental work practices and systems including recycling of blades, water, motor oil, hydraulic fluid, fuel filters, paper, slurry filtration and separation
- Appropriate trouble-shooting actions for track mounted sawing
- Concrete/reinforced concrete and its characteristics
- Electricity – terms, units, motors, safety
- Hydraulics and hydraulic circuits
- Basic mechanics including machine elements, torque
- Operation of drive motors, hydraulic, combustion, air, and electric
- Basic principles of construction relevant to cutting concrete and steel, including substructure
- Common faults and problems with track mounted saws, such as, power supply issues, incorrect saw head movement, incorrect swivel arm movement, sawing power too low, saw blade jamming
- Hazard identification methods
- Hazards associated with track mounted sawing
- Nature and application of diamond saw blades
- Safe work method statement (SWMS) requirements
- Asbestos: definition and types, use in building products, health risks of exposure, potential locations on a building site, relevant legislation and standards, workplace procedures if asbestos is found on site, asbestos register, basic removal overview
- Structure, operating principles and application of track mounted saws
- Swiss Association of Concrete Drilling and Cutting Enterprises (SVBC) Technical Manual for Construction Cutting Specialists
- Workplace and equipment safety requirements, including relevant statutory regulations, codes and standards such as international (IACDS) and Australian (CSDAA) standards, tolerances, specifications and best practices

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording in the Performance Criteria is detailed below. Add any essential operating conditions that may be present with training and assessment depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts.	
Specifications may include:	• manufacturers guidelines and instructions • organisational quality procedures • regulatory and legislative requirements • relevant Australian codes and standards • work schedules, specifications and requirements. • CSDAA best practice statements that cover all activities in the concrete drilling and sawing industry
Work health and safety (WHS)/occupational health and safety (OHS) is to be according to federal, state and territory legislation and regulations and:	must include: • asbestos awareness, asbestos identification and knowledge of legal and safety requirements for handling, storage and removal of asbestos • silica dust awareness • personal protective clothing and equipment may include: • dangerous goods storage and handling • manual handling • safety regulations and codes of practice • safe operating procedures including recognising and preventing hazards associated with: o anchoring o blades o bracing o concealed services o cordons, covers and barriers o dust o electricity o load suspension o loading and unloading from vehicles o manual handling o materials storage o occupational health controls o pressurised and inflammable gases o surrounding structure and facilities o trip hazards o use of firefighting equipment o use of first aid equipment o use of tools and equipment o vibration

	○ work site visitors and the public ○ working at heights ○ working in confined spaces ○ working in proximity to others ○ workplace environment and safety
Environmental requirements may include:	• clean-up protection • waste management
Personal protective equipment (PPE) may include:	• disposable dust mask • safety glasses • water proof gloves • ear muffs • work wear
Sustainability principles and concepts may include:	• selecting appropriate material to ensure minimal environmental impact • efficient use of materials • recycling material.
Power source may include:	• hydraulic • electric • high frequency • air
Hazards include:	• sawing wood, glass and plastic • size/weight of cut blocks • falling wall saw • sawing in explosion-protected areas • live electrical wiring near cutting area • hydraulic pressure • hot diamond saw blades • flying fragments, segment pieces and metal pieces • saw operation outside manufacturers' operational guidelines • insufficient cooling • silica dust • dust • obstructions (plumbing, electrical conduit, air ducts) in the cutting zone • heavy structural elements falling • vibration • noise

Safe and effective cutting practices include:	• appropriate selection of blade/segmentation • planning cutting sequence to maximise productivity and safety • correct location of anchors and track mounts • danger areas marked out and secured • planning to avoid cutting reinforcing bar lengthwise • adherence to the cutting line • planning for safe falling of cut blocks • securing loose openings prior to removal • ensuring adequate water flow • ensuring end pieces are fitted to tracks.
Accessories may include:	• blade guard • track stops • corner saw
Tools and equipment may include:	• spanners • torch wrench • screw drivers • vice grips • pry bars

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment Guidelines for this Training Package.	

Critical aspects for assessment and evidence required to demonstrate competency in this unit	A person who demonstrates competency in this unit must be able to provide evidence of the ability to:
	• interpret and apply relevant information, standards and manufacturer's operating instructions for concrete and steel cutting
	• apply safety requirements throughout the work sequence
	• follow given plans and/or instructions and use a track mounted saw, cut a minimum of one of each of:
	  ○ openings
	  ○ parting cuts
	  ○ flush cuts
	  ○ angular cuts
	  ○ joints in walls
	• cutting tasks to demonstrate square and straight cutting lines
	• correctly select and use appropriate processes, blades, tools and equipment for concrete and steel cutting
	• complete all work to specification
	• comply with regulations, standards and organisational quality procedures and processes
	• communicate and work effectively and safely with others
	• apply relevant sustainability principles and concepts

Context of and specific resources for assessment	The application of competency is to be assessed in the workplace or realistically simulated workplace. Assessment is to comply with relevant regulatory or Australian Standards requirements. Resource requirements for assessment of this unit are: • reinforced concrete structures for demonstrating cutting • track mounted saws, electric, pneumatic and hydraulic powered • selection of blade sizes for saws • manufacturer's operating instructions for the saws provided • power/water supply where required to operate the equipment selected • IACDS Standards • job plan and specifications

	• Foundations in Safety Code of Practice • SVBS Technical Manual for Construction Cutting Specialists 2007.
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct observation of the candidate performing concrete sawing and cutting practices in a real workplace setting or simulated environment • written and oral questioning to test underpinning knowledge and its application to concrete sawing and cutting practices • project activities that allow the candidate to demonstrate the application of skill and knowledge related to concrete swing and cutting practices • third party workplace reports of on-the-job performance by the candidate

Unit code		VU23065	
Unit title		Operate diamond wire saw to cut concrete and steel	
Unit descriptor		This unit specifies the outcomes required to operate a diamond wire saw to cut concrete and steel. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.	
Employability Skills		This unit contains Employability Skills.	
Pre-requisite unit		VU23062 Operate a diamond core drill system on floor and wall applications	
Application of the unit		This unit applies to construction workers who specialise in concrete sawing and drilling and who operate a diamond wire sawing system to complete work tasks. Diamond wire sawing is used for deconstruction work that cannot be achieved using conventional sawing or core drilling systems. Tasks may be large or small and include wire sawing piles, caissons, beams, foundations and footings made from various materials. Site location for work application may apply to: • existing structures needing to be demolished • underwater (using remotely operated equipment) • bridges, dams, locks, weirs, spillways • power plants, tunnels	
ELEMENT		**PERFORMANCE CRITERIA**	
Elements describe the essential outcomes of a unit of competency.		*Performance criteria describe the required performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge and/or the range statement. Assessment of performance is to be consistent with the evidence guide.*	
1	Prepare for work	1.1	Obtain plans and ***specifications*** from job supervisor.
		1.2	Identify safe work method statement (SWMS)***, work health and safety (WHS)/occupational health and safety (OHS)*** and ***environmental requirements*** associated with diamond wire sawing.
		1.3	Plan and sequence tasks in conjunction with others involved in or affected by the work.
		1.4	Select ***personal protective equipment (PPE)*** applicable to diamond wire sawing and check for serviceability.
		1.5	Identify area to be wire sawn, embedment types, size and location of existing services and determine sawing sequence.
		1.6	Plan slurry collection and waste disposal in accordance with environmental regulations.
		1.7	Identify possible work area risks, secure the risk area and clear area of obstacles.
		1.8	Coordinate and plan support and lifting of structure to meet job requirements.

		1.9	Identify ***sustainability principles and concepts*** when preparing for and undertaking work process.
2	Prepare equipment for diamond wire sawing	2.1	Check, install and connect power and water supply and set up slurry collection.
		2.2	Core drill the structure to allow for wire access and rigging holes in accordance with the work plan.
		2.3	Position and secure ***diamond wire sawing system*** and saw control station in accordance with manufacturer's operating instructions.
		2.4	Select diamond wire sawing equipment settings and check wire tension to meet job requirements in accordance with manufacturer's operating instructions.
		2.5	Inspect ***diamond wire*** and join, as requested, keeping in mind hazards associated with joining.
		2.6	Position diamond wire pulleys in accordance with site-specific requirements and add guarding.
		2.7	Round concrete corners to ensure safe start up and diamond wire rotates freely on the circumference of cut area.
		2.8	Check guarding and covering of diamond wire is in accordance with manufacturer's instructions.
		2.9	Communicate pending work practice involving potential disbursement of powdered substances to work colleagues to facilitate risk reduction practices.
3	Perform diamond wire sawing	3.1	Recognise and mitigate diamond wire sawing hazards in accordance with workplace procedures.
		3.2	Complete task to job requirements using safe and effective cutting practices, allowing for adjustments to settings and sawing technique.
		3.3	Cut material free in a safe and effective manner according to specifications.
		3.4	Take appropriate action to report or remedy faults or defects in sawing equipment.
4	Clean up and maintain equipment	4.1	Clean and tidy work area to ensure space is free of hazardous powdered substances, in accordance with WHS/OHS regulations.
		4.2	Dispose of, reuse or recycle materials in accordance with legislation, regulation, codes of practice and job specification.
		4.3	Clean, check, maintain and store ***tools and equipment*** in accordance with manufacturer's operating instructions and workplace procedures.
		4.4	Remove and dispose of PPE in accordance with WHS/OHS regulations.
5	Finalise job requirements	5.1	Identify and complete required documentation in accordance with workplace requirements.
		5.2	Inform supervisor of job completion.

REQUIRED SKILLS AND KNOWLEDGE

This describes the essential skills and knowledge and their level, required for this unit.

Required skills

Technical skills to:

- assemble diamond wire saw
- position guide pulleys correctly relevant to tasking
- join electroplated and sintered diamond wire
- perform wire sawing independently using a diamond wire saw to cut various construction materials
- monitor safety controls
- carry out servicing and routine maintenance of the wire saw unit

Planning and Organising skills to:

- plan, sequence and set out work tasks with others
- maintain a safe work site

Numeracy skills to:

- calculate hydraulic, electric, and high frequency power using English units
- calculate water pressure maximums, cutting speeds and quantity guide values
- estimate time needed for job in relation to area of cut and access holes

Literacy skills to:

- read and interpret manufacturer's operating instructions, WHS/OHS documents and pre-start checks for diamond wire saw
- complete required workplace documentation such as log books, incident and maintenance reports

Communication skills to:

- communicate verbally with others any maintenance needs and faults
- use hand signals to communicate on work site

Teamwork skills to:

- work and plan with other operators
- relate to people with varying abilities and from a range of backgrounds such as supervisors, managers, other employees and trades

Self-management skills to:

- identify and report equipment faults and defects to appropriate personnel
- rectify equipment faults and defects

Required knowledge

- Relevant WHS/OHS statutory regulations, policies and procedures, codes and standards e.g. hazardous substances, PPE, manual handling techniques, concrete sawing and drilling safety requirements including risk of dust containing crystalline silica
- Environmental regulations for state and territories relating to slurry, collection and control devices, filtration devices and techniques
- Environmental work practices and systems including use of correct-sized equipment recycling of diamond wire, water, motor oil, hydraulic fluid, fuel filters, paper, slurry filtration and separation
- Safe work method statement (SWMS) requirements
- Types of diamond wire systems and saws and their components and applications including:
  - hydraulic
  - electric
  - drive motors with drive pulley
- Diamond wire types and their applications including impregnated and electroplated diamond wire
- Diamond wire types and their applications including spring wire, injected wire, and injected over sprig wire
- Diamond wire efficiency values for various speeds and production values in kilowatt outputs
- Common diamond wire problems and appropriate troubleshooting actions including:
  - does not cut or cuts slowly
  - one-sided wear
  - does not start or run
  - jumps off the drive rollers
  - jumps of the guide and diverting roller
  - strong and rapid vibrations
  - jamming in the cut
  - slips on the drive roller
  - collapse
  - pulls out of pressed connector piece
  - joiner failure
  - breaks in diamond wire
- Auxiliary equipment including water suction devices, pumps, lifting devices, tools and accessories
- Water use for cooling water and diamond wire use and creation of water barrier to allow recycling
- Diamond wire sawing cutting speeds for concrete, abrasive materials, brick masonry, concrete including reinforced and various sold steel types
- Scanning theory and types of scanning
- Concrete/reinforced concrete and its characteristics
- Electricity – terms, units, motors, safety, systems and implications

- Hydraulics and hydraulic circuits
- Hi frequency motors and power
- Basic mechanics including machine elements, torque
- Basic principles of construction relevant to cutting concrete and asphalt including substructure
- Asbestos: definition and types, use in building products, health risks of exposure, potential locations on a building site, relevant legislation and standards, workplace procedures if asbestos is found on site, asbestos register, basic removal overview
- Tolerances and Limits for Construction Drilling and Sawing, in accordance with current International Association of Concrete Drillers and Sawers (IACDS) guidelines
- Basic parameters for concrete drilling and sawing equipment, in accordance with current International Association of Concrete Drillers and Sawers (IACDS) guidelines

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording in the Performance Criteria is detailed below. Add any essential operating conditions that may be present with training and assessment depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts.	
Specifications may include:	• manufacturers guidelines and instructions • organisational quality procedures • regulatory and legislative requirements • relevant Australian codes and standards • work schedules, specifications and requirements. • CSDAA best practice statements that cover all activities in the concrete drilling and sawing industry
Work health and safety (WHS)/occupational health and safety (OHS) is to be according to federal, state and territory legislation and regulations and:	must include: • asbestos awareness, asbestos identification and knowledge of legal and safety requirements for handling, storage and removal of asbestos • silica dust awareness • personal protective clothing and equipment may include: • dangerous goods storage and handling • manual handling • safety regulations and codes of practice • safe operating procedures including recognising and preventing hazards associated with: o electricity o electrical equipment - electric cables o manual handling o pressurised and inflammable gases o surrounding structure and facilities o trip hazards o work site visitors and the public o working at heights o cordons, covers and barriers o load suspension o loading and unloading from vehicles o working in confined spaces o working in proximity to others o use of firefighting equipment o use of first aid equipment o use of tools and equipment o workplace environment and safety o occupational health controls o operating equipment remotely underwater

	○ anchoring ○ bracing ○ materials storage ○ embedded service ○ pre-stressed structures ○ excavation ○ hot work ○ concealed services ○ dust and gases ○ vibration ○ blades ○ noise ○ damage to structures and services ○ loss of vacuum pressure ○ working alone ○ entanglement
Environmental requirements may include:	• clean-up protection • waste management.
Personal protective equipment (PPE) may include:	• disposable dust mask • safety glasses • water proof gloves • ear muffs • work wear
Sustainability principles and concepts may include:	• selecting appropriate material to ensure minimal environmental impact • efficient use of materials • recycling material
Diamond wire sawing systems may include:	• small wire saw <15kw (hydraulic and electric) • medium wire saw <35kw (hydraulic and electric) • large wire saw >35kw (hydraulic and electric) • wire saw conversion kit for wall saws (saw head with drive pulley) • circular saw (hydraulic and electric) • plunge cutting wire saw • pipe-cutting diamond wire saw • wire saw system for dry sawing • wire saw control station
Diamond wire may include:	• electroplated diamond wire 10.5mm diameter • sintered diamond wire 11.5mm diameter
Diamond wire sawing hazards may include:	• wire breaking or crimping and whipping out of cut • fast moving sand and grit particles that can’t be seen when exiting the cut

	• crushing injuries when mounting the diamond wire and rollers • structural elements falling or crashing down from a height • machine suddenly starting up • flying fragments and segments, pieces of beads and metal • ceased pulley bearings • hydraulic hose and coupling failure under load • shifting structures during sawing operations • cutting through guide pulleys • using worn and defective wire and crimp joiners • insufficient power supply to operate unit • crimp joiner fatigue and wear rates
Tools and equipment may include:	• diamond wire saw system • power unit • saw control unit • drive wheel assembly • idler wheels and universal brackets • diamond wire • crimping device • diamond wire connector pieces • safety shielding for wire and drive wheel • timber for guiding wire in cut • sump pump • slurry/water storage containers • shoring, scaffolding, rigging and rigging equipment • core drilling equipment, hammer drills, bits, anchors and miscellaneous hand tools

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment Guidelines for this Training Package.	

Critical aspects for assessment and evidence required to demonstrate competency in this unit	A person who demonstrates competency in this unit must be able to provide evidence of the ability to:
	• interpret and apply relevant diamond wire sawing and drilling information, standards and manufacturer's operating instructions
	• set up the work site and equipment
	• communicate and work effectively and safely with others
	• follow given plans and instructions to:
	  ○ correctly join and crimp wire to specified length
	  ○ set up a diamond wire saw unit mounted in both horizontal and vertical positions
	  ○ cut concrete and steel using a diamond wire saw to cover a range of tasks including:
	  – horizontally mounting a unit
	  – vertically mounting a unit
	  – pull cut
	  – push cut
	  – vertical pull cut
	  – vertical push cut
	• correctly select and use appropriate processes, tools and equipment
	• apply safe wire sawing practices throughout the work sequence
	• comply with regulations, standards and organisational quality procedures and processes
	• apply sustainability principles and concepts

Context of and specific resources for assessment	The application of competency is to be assessed in the workplace or realistically simulated workplace. Assessment is to comply with relevant regulatory or Australian Standards requirements. Resource requirements for assessment of this unit are: • WHS/OHS and environmental requirements • diamond wire saw system • power unit • control unit • diamond wire • diamond wire connector pieces • manufacturer's operating instructions

	• tools and equipment • air, water and power • IACDS Standards • job plan and specifications
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct observation of the candidate performing concrete sawing and cutting practices in a real workplace setting or simulated environment • written and oral questioning to test underpinning knowledge and its application to concrete sawing and cutting practices • project activities that allow the candidate to demonstrate the application of skill and knowledge related to concrete sawing and cutting practices • third party workplace reports of on-the-job performance by the candidate

Unit code		VU23066	
Unit title		Operate a portable hydraulic cracking jaw system	
Unit descriptor		This unit specifies the outcomes required to operate a portable hydraulic cracking jaw system as part of concrete sawing and drilling operations. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.	
Employability Skills		This unit contains Employability Skills.	
Pre-requisite unit		VU23062 Operate a diamond core drill system on floor and wall applications	
Application of the unit		This unit applies to construction workers who specialise in concrete sawing and drilling and who operate a portable hydraulic cracking jaw system to complete work tasks. Tasks may be large or small and include splitting the concrete by clamping it between two steel points, which are then contracted together under hydraulic pressure. Work application may apply to: • breaking-up cut-outs • removal of walls • enlargement of cut-outs in walls and ceilings • demolition of stairs • existing structures being renovated, extended or demolished	
ELEMENT		**PERFORMANCE CRITERIA**	
Elements describe the essential outcomes of a unit of competency.		*Performance criteria describe the required performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge and/or the range statement. Assessment of performance is to be consistent with the evidence guide.*	
1	Prepare for work	1.1	Obtain plans and ***specifications*** from job supervisor.
		1.2	Identify safe work method statement (SWMS)***, work health and safety (WHS)/occupational health and safety (OHS)*** and ***environmental requirements*** associated with cracking jaw tasks.
		1.3	Plan and sequence tasks in conjunction with others involved in or affected by the work.
		1.4	Select ***personal protective equipment (PPE)*** applicable to cracking jaws and check for serviceability.

ELEMENT		PERFORMANCE CRITERIA	
		1.5	Identify materials to be cracked and fragmented and determine course of action.
		1.6	Identify possible work area risks, secure the risk area and clear area of obstacles.
		1.7	Identify ***sustainability principles and concepts*** when preparing for and undertaking work process.
2	Prepare equipment for cracking and fragmentation	2.1	Check, install and connect power source.
		2.2	Position ***hydraulic cracking jaw system*** in accordance with manufacturer's operating instructions.
		2.3	Select hydraulic cracking jaw system equipment settings to meet job requirements in accordance with manufacturer's operating instructions.
		2.4	Communicate pending work practice involving potential disbursement of powdered substances to work colleagues to facilitate risk reduction practices.
3	Perform hydraulic cracking jaw operations	3.1	Recognise and mitigate hazards associated with hydraulic cracking jaw operations in accordance with workplace procedures.
		3.2	Crack and fragment concrete allowing for adjustments to settings and technique, while being alert to ***hydraulic cracking jaw hazards***.
		3.3	Cut concrete using appropriate cutting tool and protective gear.
		3.4	Take appropriate action to report or remedy faults or defects in hydraulic cracking jaw equipment.
4	Clean up and maintain equipment	4.1	Clean and tidy work area to ensure space is free of ***hazardous powdered substance*** in accordance with WHS/OHS regulations.
		4.2	Dispose of, reuse or recycle materials in accordance with legislation, regulation, codes of practice and job specification.
		4.3	Clean, check, maintain and store ***tools and equipment*** in accordance with manufacturer's operating instructions and workplace procedures.
		4.4	Remove and dispose of PPE in accordance with WHS/OHS regulations.
5	Finalise job requirements	5.1	Identify and complete required documentation in accordance with workplace requirements.
		5.2	Inform supervisor of job completion.

REQUIRED SKILLS AND KNOWLEDGE

This describes the essential skills and knowledge and their level, required for this unit.

Required skills

Technical skills to:

- assemble a hydraulic cracking jaw system
- independently use hydraulic cracking jaw system to crack and fragment concrete structures
- monitor hydraulic cracking jaw unit's safety controls
- use ancillary hydraulic tools such as a combination shear, angle grinder with cut off discs and oxyacetylene cutting torch
- carry out servicing and routine maintenance of the hydraulic cracking jaw unit

Planning and Organising skills to:

- plan, sequence and set out work tasks with others
- maintain a safe work site

Numeracy skills to:

- calculate pressure boosters to increase the working pressure of the primary circuit

Literacy skills to:

- read and interpret manufacturer's operating instructions, WHS/OHS documents and pre-start checks for hydraulic cracking jaw system
- complete required workplace documentation such as log books, incident and maintenance reports

Communication skills to:

- communicate verbally with others any maintenance needs and faults
- use hand signals to communicate on work site

Teamwork skills to:

- work and plan with other operators
- relate to people with varying abilities and from a range of backgrounds such as supervisors, managers, other employees and trades

Self management skills to:

- identify and report to appropriate personnel any faults in tools, equipment or materials
- rectify equipment faults and defects

Required knowledge

- Relevant WHS/OHS statutory regulations, codes and standards, e.g. hazardous substances, PPE, manual handling techniques, concrete sawing and drilling safety requirements including risk of dust containing crystalline silica
- Environmental regulations for state and territories relating to slurry, collection and control devices, filtration devices and techniques
- Environmental work practices and systems including use of correct-sized equipment recycling of blades, water, motor oil, hydraulic fluid, fuel filters, paper, slurry filtration and separation
- Safe work method statement (SWMS) requirements
- Hydraulic cracking jaw systems and their components including:
  - those with a rigid body and points which close in a parallel manner
  - combination shears which operate on the shear principle (portable jaws and jaws for excavator mounting)
- Common cracking jaw problems and appropriate troubleshooting actions
- Hazards associated with cracking jaws
- Auxiliary equipment including conversion kits for combi-jaws, curved shear kit
- Scanning theory and types of scanning
- Concrete/reinforced concrete and its characteristics
- Electricity – terms, units, motors, safety, systems and implications
- Hydraulics and hydraulic circuits
- Basic mechanics including machine elements, torque
- Basic principles of construction relevant to cracking and fragmenting concrete structures, including substructure
- Safety regulator Concrete, Cutting and Drilling requirement
- Asbestos: definition and types, use in building products, health risks of exposure, potential locations on a building site, relevant legislation and standards, workplace procedures if asbestos is found on site, asbestos register, basic removal overview
- Tolerances and Limits for Construction Drilling and Sawing, in accordance with current International Association of Concrete Drillers and Sawers (IACDS) guidelines
- Basic parameters for concrete drilling and sawing equipment, in accordance with current International Association of Concrete Drillers and Sawers (IACDS) guidelines

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording in the Performance Criteria is detailed below. Add any essential operating conditions that may be present with training and assessment depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts.	
Specifications may include:	• manufacturers guidelines and instructions • organisational quality procedures • regulatory and legislative requirements • relevant Australian codes and standards • work schedules, specifications and requirements. • CSDAA best practice statements that cover all activities in the concrete drilling and sawing industry
Work health and safety (WHS)/occupational health and safety (OHS) is to be according to federal, state and territory legislation and regulations and:	must include: • asbestos awareness, asbestos identification and knowledge of legal and safety requirements for handling, storage and removal of asbestos • silica dust awareness • personal protective clothing and equipment may include: • dangerous goods storage and handling • manual handling • safety regulations and codes of practice • safe operating procedures including recognising and preventing hazards associated with: o electricity o electrical equipment - electric cables o manual handling o pressurised and inflammable gases o surrounding structure and facilities o trip hazards o work site visitors and the public o working at heights o cordons, covers and barriers o load suspension o working in confined spaces o working in proximity to others o use of firefighting equipment o use of first aid equipment o use of tools and equipment o occupational health controls o anchoring o bracing

	○ materials storage ○ embedded service ○ pre-stressed structures ○ excavation ○ hot work ○ concealed services ○ dust and gases ○ vibration ○ blades ○ noise ○ damage to structures and services ○ loss of vacuum pressure ○ working alone ○ entanglement
Environmental requirements may include:	• clean-up protection • waste management.
Personal protective equipment (PPE) may include:	• disposable dust mask • safety glasses • water proof gloves • ear muffs • work wear
Sustainability principles and concepts may include:	• selecting appropriate material to ensure minimal environmental impact • efficient use of materials • recycling material
Hydraulic cracking jaw system may include:	• jaws with a rigid body and points which close in a parallel manner • jaws which operate on the shear principle (portable jaws and jaws for excavator mounting)
Cracking jaw hazards may include:	• flying fragments • electrical, trips, slips and falls • pinch points • falling crushing materials
Hazardous powdered substances may include:	• dust containing crystalline silica • asbestos • dust
Tools and equipment may include:	• conversion kits for combi-jaws • curved shear kit

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment Guidelines for this Training Package.	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	A person who demonstrates competency in this unit must be able to provide evidence of the ability to: • interpret and apply relevant portable hydraulic cracking jaw system information, standards and manufacturer's operating instructions • set up the work site and equipment • communicate and work effectively and safely with others • follow given plans and instructions for: o installing a spacer ring and a flat face pressure head on a rigid portable hydraulic cracking jaw system o using a combination jaw with a combination shear attachment o using a portable hydraulic cracking jaw system in a range of tasks, including cracking and fragmenting walls and cutting reinforcing bars of varying: – thicknesses – lengths – materials • correctly select and us appropriate processes, tools and equipment • apply safe cracking and fragmentation practices throughout the work sequence • comply with regulations, standards and organisational quality procedures and processes • apply sustainability principles and concepts
Context of and specific resources for assessment	The application of competency is to be assessed in the workplace or realistically simulated workplace. Assessment is to comply with relevant regulatory or Australian Standards requirements. Resource requirements for assessment of this unit are: • WHS/OHS and environmental requirements • portable hydraulic cracking jaw system • manufacturer's operating instructions • tools and equipment • power • IACDS Standards • job plan and specifications
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge.

	The following examples are appropriate for this unit: • direct observation of the candidate performing concrete sawing and drilling practices in a real workplace setting or simulated environment • written and oral questioning to test underpinning knowledge and its application to concrete sawing and drilling practices • project activities that allow the candidate to demonstrate the application of skill and knowledge related to concrete sawing and drilling practices • third party workplace reports of on-the-job performance by the candidate

Unit code		VU23067	
Unit title		Operate hydraulic press system	
Unit descriptor		This unit specifies the outcomes required to operate a hydraulic press system as part of concrete sawing and drilling operations. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication	
Employability Skills		This unit contains Employability Skills.	
Pre-requisite unit		VU23062 Operate a diamond core drill system on floor and wall applications	
Application of the unit		This unit applies to construction workers who specialise in concrete sawing and drilling and who operate a hydraulic press system to complete work tasks. A hydraulic press system is used for separating structural sections under high hydraulic pressure. Tasks may be large or small and include bursting and splitting masonry, concrete and steel-reinforced concrete. Site location for work application may apply to: • existing structures needing to be demolished • bridges, dams, locks, weirs, spillways • power plants, tunnels • underwater (using remotely operated equipment) • quarries and mines	
ELEMENT		**PERFORMANCE CRITERIA**	
Elements describe the essential outcomes of a unit of competency.		*Performance criteria describe the required performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge and/or the range statement. Assessment of performance is to be consistent with the evidence guide.*	
1	Prepare for work	1.1	Obtain plans and ***specifications*** from job supervisor
		1.2	Identify safe work method statement (SWMS)***, work health and safety (WHS)/occupational health and safety (OHS)*** and ***environmental requirements*** associated with press systems.
		1.3	Plan and sequence tasks in conjunction with others involved in or affected by the work.
		1.4	Select ***personal protective equipment (PPE)*** applicable to cracking jaws and check for serviceability.

ELEMENT		PERFORMANCE CRITERIA	
		1.5	Identify structural section separation, noting diameter, position and direction of steel reinforcement of the object and determine the split course.
		1.6	Identify possible work area risks, secure the risk area and clear of obstacles.
		1.7	Identify ***sustainability principles and concepts*** when preparing for and undertaking work process.
2	Prepare for press separation	2.1	Check, install and connect power source.
		2.2	***Core drill*** the section in accordance with the work plan and measure precisely.
		2.3	Position ***hydraulic press system*** in accordance with manufacturer's operating instructions.
		2.4	Select hydraulic press system equipment settings to meet job requirements and in accordance with manufacturer's operating instructions.
		2.5	Communicate pending work practice involving potential disbursement of powdered substances to work colleagues to facilitate risk reduction practices.
3	Perform press separation	3.1	Recognise and mitigate hazards associated with press separation in accordance with workplace procedures.
		3.2	Separate section to meet job requirements, while being alert to ***hydraulic press hazards***.
		3.3	Separate wedge and brace sections to assist with retraction of press cylinders.
		3.4	Take appropriate action to report or remedy faults or defects in press equipment
4	Clean up and maintain equipment	4.1	Clean and tidy work area to ensure space is free of hazardous powdered substances, in accordance with WHS/OHS regulations.
		4.2	Dispose of, reuse or recycle materials in accordance with legislation, regulation, codes of practice and job specification.
		4.3	Clean, check, maintain and store ***tools and equipment*** in accordance with manufacturer's operating instructions and workplace procedures.
		4.4	Remove and dispose of PPE in accordance with WHS/OHS regulations.
5	Finalise job requirements	5.1	Identify and complete required documentation in accordance to workplace requirements.
		5.2	Inform supervisor of job completion.

REQUIRED SKILLS AND KNOWLEDGE

This describes the essential skills and knowledge and their level, required for this unit.

Required skills

Technical skills to:

- assemble a hydraulic press system
- independently operate hydraulic press system
- monitor safety controls
- carry out servicing and routine maintenance of the press unit

Planning and Organising skills to:

- plan, sequence and set out work tasks with others
- maintain a safe work site

Numeracy skills to:

- calculate correct position and diameter of drill holes i.e. 90-degree angle to the normal surface of the section to be drilled, minimum pressing force and weight of material being separated

Literacy skills to:

- read and interpret manufacturer's operating instructions, WHS/OHS documents and pre-start checks for hydraulic press system
- complete required workplace documentation such as log books, incident and maintenance reports.

Communication skills to:

- communicate verbally with others any maintenance needs and faults
- use hand signals to communicate on work site

Teamwork skills to:

- work and plan with other operators
- relate to people with varying abilities and from a range of backgrounds such as supervisors, managers, other employees and trades
- identify and report to appropriate personnel any faults in tools, equipment or materials

Self management skills to:

- identify and report equipment faults and defects to appropriate personnel
- rectify equipment faults and defects

Required knowledge

- Relevant WHS/OHS statutory regulations, policies and procedures, codes and standards e.g. hazardous substances, PPE, manual handling techniques, concrete sawing and drilling safety requirements including risk of dust containing crystalline silica
- Environmental regulations for state and territories relating to slurry, collection and control devices, filtration devices and techniques
- Environmental work practices and systems including use of correct-sized equipment recycling of blades, water, motor oil, hydraulic fluid, fuel filters, paper, slurry filtration and separation
- Safe work method statement (SWMS) requirements
- Hydraulic press systems and their components
- Common press system problems and appropriate troubleshooting actions
- Hazards associated with press systems
- Auxiliary equipment including wedge sets, hose extensions, grease
- Understanding of minimum pressing force required
- Scanning theory and types of scanning
- Concrete/reinforced concrete and its characteristics
- Electricity – terms, units, motors, safety, systems and implications
- Hydraulics and hydraulic circuits
- Basic mechanics including machine elements, torque
- Basic principles of construction relevant to cutting concrete and asphalt including substructure
- Asbestos: definition and types, use in building products, health risks of exposure, potential locations on a building site, relevant legislation and standards, workplace procedures if asbestos is found on site, asbestos register, basic removal overview
- Tolerances and Limits for Construction Drilling and Sawing, in accordance with current International Association of Concrete Drillers and Sawers (IACDS) guidelines
- Basic parameters for concrete drilling and sawing equipment, in accordance with current International Association of Concrete Drillers and Sawers (IACDS) guidelines

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording in the Performance Criteria is detailed below. Add any essential operating conditions that may be present with training and assessment depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts.	
Specifications may include:	• manufacturers guidelines and instructions • organisational quality procedures • regulatory and legislative requirements • relevant Australian codes and standards • work schedules, specifications and requirements. • CSDAA best practice statements that cover all activities in the concrete drilling and sawing industry
Work health and safety (WHS)/occupational health and safety (OHS) is to be according to federal, state and territory legislation and regulations and:	must include: • asbestos awareness, asbestos identification and knowledge of legal and safety requirements for handling, storage and removal of asbestos • silica dust awareness • personal protective clothing and equipment may include: • dangerous goods storage and handling • manual handling • safety regulations and codes of practice • safe operating procedures including recognising and preventing hazards associated with: o electricity o electrical equipment - electric cables o manual handling o pressurised and inflammable gases o surrounding structure and facilities o trip hazards o work site visitors and the public o working at heights o cordons, covers and barriers o load suspension o working in confined spaces o working in proximity to others o use of firefighting equipment o use of first aid equipment o use of tools and equipment o workplace environment and safety o occupational health controls o operating equipment remotely underwater

	○ anchoring ○ bracing ○ materials storage ○ embedded service ○ pre-stressed structures ○ excavation ○ hot work ○ concealed services ○ dust and gases ○ vibration ○ blades ○ noise ○ damage to structures and services ○ loss of vacuum pressure ○ working alone ○ entanglement
Environmental requirements may include:	• clean-up protection • waste management
Personal protective equipment (PPE) may include:	• disposable dust mask • safety glasses • water proof gloves • ear muffs • work wear
Sustainability principles and concepts may include:	• selecting appropriate material to ensure minimal environmental impact • efficient use of materials • recycling material
Core drill may include:	• through holes • blind holes • inverted holes • diagonal holes
Hydraulic press system may include:	• drive unit (electric motor or internal combustion motor) • high pressure hose • low pressure hose • press tool • press plate
Hydraulic press hazards may include:	• flying fragments • incorrect drilling holes • sections toppling over or falling • hose lines falling with sections

Tools and equipment may include:	• distribution manifold • core drilling equipment and accessories • deconstruction hand tools e.g. wedges, hammers • spatula • oxy acetylene and cutting equipment

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment Guidelines for this Training Package.	

Critical aspects for assessment and evidence required to demonstrate competency in this unit	A person who demonstrates competency in this unit must be able to provide evidence of the ability to:
	• interpret and apply relevant bursting and splitting information, standards and manufacturer's operating instructions
	• set up the work site and equipment
	• communicate and work effectively and safely with others
	• follow given plans and instructions to:
	  ○ set up and use core drilling system to provide press system access
	  ○ identify and assess fault lines in rock material and pre-determine crack line for press system
	  ○ use a hydraulic press to cover a range of tasks, including using 1 and 2 press cylinders to break concrete in a:
	  – horizontal axis
	  – vertical axis
	• correctly select and use appropriate processes, tools and equipment
	• apply safe press system practices throughout the work sequence
	• comply with regulations, standards and organisational quality procedures and processes
	• apply sustainability principles and concepts

Context of and specific resources for assessment	The application of competency is to be assessed in the workplace or realistically simulated workplace. Assessment is to comply with relevant regulatory or Australian Standards requirements. Resource requirements for assessment of this unit are: • SWMS, WHS/OHS and environmental requirements • hydraulic press system • drive unit • core drilling system and accessories • manufacturer's operating instructions • tools and equipment • power • IACDS Standards • job plan and specifications

Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct observation of the candidate performing concrete sawing and drilling practices in a real workplace setting or simulated environment • written and oral questioning to test underpinning knowledge and its application to concrete sawing and drilling practices • project activities that allow the candidate to demonstrate the application of skill and knowledge related to concrete sawing and drilling practices • third party workplace reports of on-the-job performance by the candidate

Unit code		VU23068	
Unit title		Scan concrete using ground penetrating radar (GPR)	
Unit descriptor		This unit describes the outcomes required to use ground penetrating radar (GPR), to detect utilities and identify potential problems in cutting, sawing or drilling concrete. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.	
Employability Skills		This unit contains Employability Skills.	
Application of the unit		This unit applies to construction workers who specialise in concrete sawing and drilling, and use ground penetrating radar (GPR) equipment to scan and inspect concrete to: • locate and size reinforcing structures, cables, conduits, PVC pipes • measure slab or wall thickness • locate live power cables • detect voids and cracks • assess/inspect the condition of concrete	
ELEMENT		**PERFORMANCE CRITERIA**	
Elements describe the essential outcomes of a unit of competency.		*Performance criteria describe the required performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge and/or the range statement. Assessment of performance is to be consistent with the evidence guide.*	
1	Prepare for work	1.1	Obtain plans and ***specifications*** from job supervisor.
		1.2	Identify safe work method statement (SWMS)***, work health and safety (WHS)/occupational health and safety (OHS)*** and ***environmental requirements*** associated with use of GPR equipment.
		1.3	Plan and sequence tasks in conjunction with others involved in or affected by the work.
		1.4	Prepare work area and GPR equipment to support efficient scanning.
		1.5	Identify and eliminate, where possible, environmental limitations that impede the use of GPR equipment.
		1.6	Select ***personal protective equipment (PPE)*** applicable to task and check for serviceability.
		1.7	Identify ***sustainability principles and concepts*** when preparing for and undertaking work process.
		1.8	Conduct pre-start checks for GPR equipment.
2	Perform GPR scanning for a range of purposes	2.1	Recognise and mitigate ***hazards*** associated with GPR equipment.
		2.2	Complete ***scanning tasks*** to job requirements, allowing for adjustments to settings and technique.

		2.3	Interpret radargram images accurately and reproduce, as required.
		2.4	Take appropriate action to report or remedy faults or defects of GPR equipment.
3	Clean up and maintain equipment	3.1	Clean, check, maintain and store GPR equipment in accordance with manufacturer's recommendations and workplace procedures.
		3.2	Remove and dispose of PPE in accordance with WHS/OHS regulations.
4	Finalise job requirements	4.1	Identify and complete required documentation in accordance to workplace requirements.
		4.2	Inform supervisor of job completion.

REQUIRED SKILLS AND KNOWLEDGE

This describes the essential skills and knowledge and their level, required for this unit.

Required skills

Technical skills to:

- select and use appropriate GPR equipment for task
- scan in a methodical fashion
- identify suitable conditions and substances for use of GPR equipment
- interpret radargrams
- monitor equipment functioning and conduct basic troubleshooting
- identify confined space and restricted work areas

Communication skills to:

- enable clear and direct communication, using questioning to identify and confirm requirements, share information, listen and understand
- follow instructions
- use and interpret non-verbal communication, such as hand signals

Planning and organising skills to:

- plan, sequence and set out work tasks with others
- maintain a safe work site

Literacy skills to:

- read and interpret manufacturer's operating instructions, WHS/OHS documents and pre-start checks for ground penetrating radar
- complete required workplace documentation such as log books, incident and maintenance reports.

Teamwork skills to:

- action tasks
- relate to people from a range of backgrounds and with varying abilities, such as supervisors, managers, other employees and other trades.

Self management skills to:

- identify and report equipment faults and defects to appropriate personnel
- rectify equipment faults and defects

Required knowledge

- Relevant WHS/OHS statutory regulations, policies and procedures, codes and standards e.g. hazardous substances, PPE, manual handling techniques, concrete sawing and drilling safety requirements including risk of dust containing crystalline silica
- Basic operation of GPR scanning equipment
- Common faults and problems with GPR equipment
- Asbestos: definition and types, use in building products, health risks of exposure, potential locations on a building site, relevant legislation and standards, workplace procedures if asbestos is found on site, asbestos register, basic removal overview
- Concrete/reinforced concrete and its characteristics

Basic principles of construction relevant to cutting concrete and asphalt including substructures • Safe work method statements (SWMS) requirements	
RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording in the Performance Criteria is detailed below. Add any essential operating conditions that may be present with training and assessment depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts.	
Specifications may include:	• manufacturers guidelines and instructions • organisational quality procedures • regulatory and legislative requirements • relevant Australian codes and standards • work schedules, specifications and requirements. • CSDAA best practice statements that cover all activities in the concrete drilling and sawing industry
Work health and safety (WHS)/occupational health and safety is to be according to federal, state and territory legislation and regulations and:	must include: • asbestos awareness, asbestos identification and knowledge of legal and safety requirements for handling, storage and removal of asbestos • silica dust awareness • personal protective clothing and equipment may include: • dangerous goods storage and handling • manual handling • safety regulations and codes of practice • safe operating procedures including recognising and preventing hazards associated with: o anchoring o bracing o concealed services o cordons, covers and barriers o dust o electricity o excavation o hot work o load suspension o loading and unloading from vehicles o manual handling o materials storage o occupational health controls o pressurised and inflammable gases o surrounding structure and facilities o trip hazards

	○ use of firefighting equipment ○ use of first aid equipment ○ use of tools and equipment ○ vibration ○ work site visitors and the public ○ working at heights ○ working in confined spaces ○ working in proximity to others ○ workplace environment and safety
Environmental requirements may include:	• clean-up protection • waste management
Personal protective equipment (PPE) may include:	• disposable dust mask • safety glasses • water proof gloves • ear muffs • work wear
Sustainability principles and concepts may include:	• selecting appropriate material to ensure minimal environmental impact • efficient use of materials • recycling material.
Hazards include:	• electrocution • traffic • other trades.
Scanning tasks include:	• locating and sizing reinforcing, cables, conduits, PVC pipes • measuring slab or wall thickness to a depth of 1.0m+ • locating live power cables • detecting voids and cracks.

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment Guidelines for this Training Package.	

Critical aspects for assessment and evidence required to demonstrate competency in this unit	A person who demonstrates competency in this unit must be able to provide evidence of the ability to:
	• interpret and apply relevant information and manufacturer's operating instructions for using GPR equipment
	• apply safety requirements throughout the work sequence
	• follow given plans and/or instructions using GPR equipment to:
	  ○ locate services
	  ○ estimate sizes of pipes, conduits etc.
	  ○ accurately measure slab or wall thickness to a depth of 1.0m+
	  ○ locate live power cables
	  ○ detect voids and cracks
	• interpret radar grams accurately, including distinguishing between metal and non-metal objects shown in the scanned image
	• use the full range of capabilities available on the user interface
	• comply with regulations, standards and organisational quality procedures and processes
	• communicate and work effectively and safely with others
	• apply sustainability principles and concepts

Context of and specific resources for assessment	The application of competency is to be assessed in the workplace or realistically simulated workplace. Assessment is to comply with relevant regulatory or Australian Standards requirements. Resource requirements for assessment of this unit are: • GPR equipment for scanning concrete in two and three dimensions • manufacturer's operating instructions for the equipment provided • Foundations in Safety Code of Practice
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct observation of the candidate performing concrete sawing and drilling practices in a real workplace setting or simulated environment

	• written and oral questioning to test underpinning knowledge and its application to concrete sawing and drilling practices • project activities that allow the candidate to demonstrate the application of skill and knowledge related to concrete sawing and drilling practices • third party workplace reports of on-the-job performance by the candidate

Unit code	VU23069
Unit title	Operate a mechanical robot for deconstruction work
Unit descriptor	This unit specifies the outcomes required to operate a mechanical robot for deconstruction work. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.
Employability Skills	This unit contains Employability Skills.
Application of the unit	This unit applies to construction workers who specialise in concrete sawing and drilling and who operate a mechanical robot remotely to complete work tasks. Tasks may be large or small and include breaking, fragmenting, cutting, detaching, separating, picking up and distributing parts of buildings and constructions. Site location for work application may apply to: • existing structures • high risk work areas • indoor and outdoor • refineries, mines, tunnels • confined areas and those with limited access • major infrastructure such as roads, dams • sewerage systems

ELEMENT		**PERFORMANCE CRITERIA**	
Elements describe the essential outcomes of a unit of competency.		*Performance criteria describe the required performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge and/or the range statement. Assessment of performance is to be consistent with the evidence guide.*	
1	Prepare for work	1.1	Obtain plans and ***specifications*** from job supervisor.
		1.2	Identify safe work method statement (SWMS)***, work health and safety (WHS)/occupational health and safety (OHS)*** and ***environmental requirements*** associated with use of GPR equipment.
		1.3	Plan and sequence tasks in conjunction with others involved in or affected by the work.
		1.4	Select ***personal protective equipment (PPE)*** applicable to task and check for serviceability.
		1.5	Identify structure to be deconstructed and plan the method of work.

		1.6	Identify possible work area risks, secure the risk area and clear area of obstacles.
		1.7	Identify ***sustainability principles and concepts*** when preparing for and undertaking work process.
2	Prepare equipment for deconstruction work	2.1	Prepare ***mechanical robot*** for operation and ensure it is fitted with correct ***attachment*** for the task in accordance with manufacturer's operating instructions.
		2.2	Check machine safety features in accordance with manufacturer's operating instructions.
		2.3	Check power cable and operating cables to ensure they are intact and correctly dimensioned.
		2.4	Check mains voltage for compatibility with machine and connected to a certified residual current device (RCD).
3	Perform deconstruction work	3.1	Check clear operator view of the machine and risk and hazard areas prior to operation.
		3.2	Operate machine in accordance with manufacturer's operating instructions, allowing for adjustments to settings and techniques, while being alert to ***hazards***.
		3.3	Adapt work as required to ensure machine stability.
		3.4	Take appropriate action to report or remedy machine faults or defects in mechanical robot.
4	Clean up and maintain equipment	4.1	Clear work area and dispose of, reuse or recycle materials in accordance with legislation, regulation, codes of practice and job specification.
		4.2	Clean, check, maintain and store tools, equipment and accessories in accordance with manufacturer's operating instructions and workplace procedures.
		4.3	Remove and dispose of PPE in accordance with WHS/OHS regulations.
5	Finalise job requirements	5.1	Identify and complete required documentation in accordance with workplace requirements.
		5.2	Inform supervisor of job completion.

REQUIRED SKILLS AND KNOWLEDGE

This describes the essential skills and knowledge and their level, required for this unit.

Required skills

Technical skills to:

- operate a mechanical robot to break, fragment, cut, detach, separate, pick up or distribute parts of buildings and construction materials
- carry out servicing and routine maintenance of the robot unit

Communication skills to:

- enable clear and direct communication using questioning to identify and confirm requirements, share information, listen and understand
- follow instructions
- use and interpret non-verbal communication, such as hand signals
- communicate verbally with others any maintenance needs and faults
- use hand signals to communicate on work site

Planning and organising skills to:

- plan, sequence and set out work tasks with others
- maintain a safe work site

Numeracy skills to:

- calculate floor loading capacities for various robot makes and models
- calculate area and volume of material being deconstructed.

Literacy skills to:

- monitor safety controls
- read and interpret manufacturer's operating instructions, WHS/OHS documents and pre-start checks for mechanical robot
- complete required workplace documentation such as log books, incident and maintenance reports

Teamwork skills to:

- work and plan with other operators
- relate to people with varying abilities and from a range of backgrounds such as supervisors, managers, other employees and trades

Self management skills to:

- identify and report equipment faults and defects to appropriate personnel
- rectify equipment faults and defects

Required knowledge

- Relevant WHS/OHS statutory regulations, policies and procedures, codes and standards e.g. hazardous substances, PPE, manual handling techniques, concrete sawing and drilling safety requirements including risk of dust containing crystalline silica
- Environmental regulations for state and territories relating to slurry, collection and control devices, filtration devices and techniques
- Environmental work practices and systems including use of correct-sized equipment recycling of core bits, water, motor oil, hydraulic fluid, fuel filters, paper, slurry filtration and separation
- Safe work method statement (SWMS) requirements
- A working knowledge of the mechanical robot's hydraulic system, electric system and control system including components
- Common machine problems and appropriate troubleshooting actions
- Type of floor loading and weight of equipment
- Concrete/reinforced concrete and its characteristics
- Electricity – terms, units, motors, safety, systems and implications
- Hydraulics and hydraulic circuits
- Basic mechanics including machine elements, torque
- Basic principles of construction relevant to cutting concrete and asphalt including substructures
- Asbestos: definition and types, use in building products, health risks of exposure, potential locations on a building site, relevant legislation and standards, workplace procedures if asbestos is found on site, asbestos register, basic removal overview
- Tolerances and Limits for Construction Drilling and Sawing, in accordance with current International Association of Concrete Drillers and Sawers (IACDS) guidelines
- Basic parameters for concrete drilling and sawing equipment, in accordance with current International Association of Concrete Drillers and Sawers (IACDS) guidelines

RANGE STATEMENT	
The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording in the Performance Criteria is detailed below. Add any essential operating conditions that may be present with training and assessment depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts.	
Specifications may include:	• manufacturers guidelines and instructions • organisational quality procedures • regulatory and legislative requirements • relevant Australian codes and standards • work schedules, specifications and requirements. • CSDAA best practice statements that cover all activities in the concrete drilling and sawing industry
Work health and safety (WHS)/occupational health and safety (OHS) is to be according to federal, state and territory legislation and regulations and:	must include: • asbestos awareness, asbestos identification and knowledge of legal and safety requirements for handling, storage and removal of asbestos • silica dust awareness • personal protective clothing and equipment may include: • dangerous goods storage and handling • manual handling • safety regulations and codes of practice • safe operating procedures including recognising and preventing hazards associated with: o electricity o electrical equipment, electric cables o manual handling o pressurised and inflammable gases o surrounding structure and facilities o trip hazards o work site visitors and the public o working at heights o cordons, covers and barriers o load suspension o working in confined spaces o working in proximity to others o use of firefighting equipment o use of first aid equipment o use of tools and equipment o workplace environment and safety o occupational health controls o anchoring o bracing

	○ materials storage ○ embedded service ○ pre-stressed structures ○ excavation ○ hot work ○ concealed services ○ dust and gases ○ vibration ○ blades ○ noises ○ damage to structures and services ○ loss of vacuum pressure ○ working alone ○ entanglement
Environmental requirements may include:	• clean-up protection • waste management.
Personal protective equipment (PPE) may include:	• disposable dust mask • safety glasses • water proof gloves • ear muffs • work wear
Sustainability principles and concepts may include:	• selecting appropriate material to ensure minimal environmental impact • efficient use of materials • recycling material
Mechanical robot will include:	• hydraulic system • electric system • control system.
Attachment may include:	• breakers • side angling device • concrete crusher • metal shears • buckets • grapples • scabblers • drilling heads • cut of saw • shotcrete gun
Hazards may include:	• obstacles in working area • unevenness, loose material, oil, ice etc. • risk of explosion in flammable environments • electricity cables and pipelines

	• dust and gases in confined spaces • damaged electric cables • water reaching machine's equipment • running over power cable • coiled power cable

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment Guidelines for this Training Package.	

Critical aspects for assessment and evidence required to demonstrate competency in this unit	A person who demonstrates competency in this unit must be able to provide evidence of the ability to:
	• interpret and apply mechanical robot manufacturer's operating instructions
	• set up the work site and equipment
	• communicate and work effectively and safely with others
	• follow given plans and instructions to:
	  ○ fit robot attachments e.g. hydraulic hammer attachment and a crushing attachment
	  ○ replace robot parts
	  ○ use a robot unit and its attachments in a range of tasks, including:
	  – breaking a floor structure of defined thickness
	  – loading and unloading a robotic unit from a trailer mounted transport and/or vehicle
	• correctly select and use appropriate processes, tools and equipment
	• use safe practices while using the mechanical robot
	• comply with regulations, standards and organisational quality procedures and processes
	• apply sustainability principles and concepts

Context of and specific resources for assessment	The application of competency is to be assessed in the workplace or realistically simulated workplace. Assessment is to comply with relevant regulatory or Australian Standards requirements.
	Resource requirements for assessment of this unit are: • SWMS, WHS/OHS and environmental requirements • work instructions for operation of the mechanical robot • mechanical robot machine and attachments • manufacturer's operating instructions • power supply • Demolition Code of Practice • job plan and specifications

Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • direct observation of the candidate performing concrete sawing and drilling practices in a real workplace setting or simulated environment • written and oral questioning to test underpinning knowledge and its application to concrete sawing and drilling practices • project activities that allow the candidate to demonstrate the application of skill and knowledge related to concrete sawing and drilling practices • third party workplace reports of on-the-job performance by the candidate.

Unit code		VU23070	
Unit title		Select, use and maintain hand tools and equipment for concrete sawing and drilling	
Unit Descriptor		This unit specifies the outcomes required to safely select, use and maintain hand tools and equipment for concreting sawing and drilling tasks such as bolt cutters, chisels and bolsters, hammers, bars-crow/pinch, hacksaws, power drills and saws, spanners and screwdrivers. These tools may be used independently or to support the operation of mechanical and hydraulic equipment associated with sawing and drilling concrete. The unit is suitable for those undertaking routine work tasks with responsibility for own outputs within established parameters. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.	
Employability Skills		This unit contains Employability Skills.	
Application of the Unit		This unit supports concrete sawing and drilling workers who perform concrete sawing, drilling, coring and deconstruction services, using appropriate equipment hand tools and equipment.	
ELEMENT		**PERFORMANCE CRITERIA**	
Elements describe the essential outcomes of a unit of competency.		*Performance criteria describe the required performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge and/or the range statement. Assessment of performance is to be consistent with the evidence guide.*	
1	Plan and prepare for work	1.1	Read work instructions and ***specifications*** for using concrete drilling and sawing tools and equipment for specific ***tasks***.
		1.2	Plan work tasks to comply with relevant legislation and regulations, and manufacturer, work health and safety, environmental and workplace requirements.
		1.3	Select and fit required personal protective equipment (PPE).
		1.4	Inspect work area, assess hazards and apply risk controls, including required signage and barricades.
2	Select and check tools and equipment	2.1	Select ***tools and equipment*** required for concrete drilling and sawing task in accordance with work instructions.

		2.2	Read manufacturers' instructions to identify functions, limitations and safe methods of operation for selected tools and equipment.
		2.3	Complete pre-operational checks in accordance with workplace instructions and as required by manufacturers' specifications.
3	Use tools and equipment for concrete sawing and drilling task	3.1	Use tools and equipment to carry out concrete sawing and drilling task safely and in accordance with manufacturer and workplace requirements.
		3.2	Take appropriate action to rectify or report faults in tools and equipment.
4	Clean, maintain and store tools and equipment	4.1	Remove and dispose of PPE in accordance with WHS/OHS regulations
		4.2	Clean and maintain tools and equipment in accordance with manufacturer's operating instructions and workplace requirements.
		4.3	Complete servicing routines and preventative maintenance for tools and equipment in accordance with manufacturers requirements.
		4.4	Store tools and equipment in accordance with manufacturer and workplace requirements.

REQUIRED SKILLS AND KNOWLEDGE

This describes the essential skills and knowledge and their level, required for this unit.

Required skills

Technical skills to:

- safely check, operate and maintain tools and equipment

Communication skills to:

- use verbal questioning to identify and confirm task requirements
- report tool and equipment faults
- complete basic documentation

Planning and organising skills to:

- plan and complete tasks in appropriate sequence
- identify and prepare required drilling and sawing tools and equipment

Literacy skills to:

- read and interpret documentation, specifications and instructions

Teamwork skills to:

- work with others to establish and maintain a safe working environment

Self management skills to:

- identify and report equipment faults and defects to appropriate personnel
- rectify equipment faults and defects
- follow instructions
- manage workspace

Required knowledge

- workplace safety requirements and WHS/OHS legislation in relation to handling drilling and sawing tools and equipment, including the required PPE and safety requirement for power supplies
- relevant Australian Standards in relation to handling drilling and sawing tools and equipment
- principles of sustainability relevant to preparing and handling drilling and sawing tools and equipment
- terminology used for drilling and sawing tools and equipment
- characteristics and functions of drilling and sawing tools and equipment
- types of pre-occupational checks required prior to using drilling and sawing tools and equipment
- safe handling and maintenance checks of drilling and sawing tools and equipment, including reporting procedures.
- compliance requirements of legislation and regulations relevant to selecting, using and maintaining tools and equipment:
    - hazard identification and risk control
    - personal protective equipment (PPE)
    - risks associated with silica exposure
    - safety manuals and instructions for plant, tools and equipment
    - safe work method statements (SWMSs)
    - signage and barricades
- workplace requirements for selecting, using and maintaining concreting tools and equipment:
    - cleaning and storing PPE, tools and equipment
    - reporting problems
    - safety requirements

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording in the Performance Criteria is detailed below. Add any essential operating conditions that may be present with training and assessment depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts.	
Specifications may include:	• manufacturers' guidelines and instructions • regulatory and legislative requirements • relevant Australian Standards and codes • organisational quality procedures • work schedules, specifications and requirements • other verbal, written and graphical instructions issued by supervisor
Tasks may include:	• cutting • drilling • sawing • customising multi-level structures to accommodate services • making repairs and alterations to existing concrete structures, including roads and airport runways • renovating, extending or deconstruction of existing structures • alterations to major infrastructure such as roads, dams, sewerage systems
Tools and equipment may include:	• bolt cutters • chisels and bolsters • hammers • bars-crow/pinch • hacksaws • power drills and saws • sledge hammers • clamps • straight edges • brooms • exhaust fans • safety equipment; barricades, fall prevention, PPE, signs • 240v power supplied electrically operated portable and static power tools and leads • compressors • hydraulic crimping tools • pressure water cleaners • setting tools • spirit levels & laser levels • assembly device diamond wire

	• lifting frames, block and tackle • slurry filtration devices • mechanical anchors • plastic sheeting & props • grease guns • steel wedge sets • set squares • slide hammers for jammed core bits • work platforms • acrow props • panel props • water hydrant connections

EVIDENCE GUIDE	
The evidence guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge and the Range Statement.	
Critical aspects for assessment and evidence required to demonstrate competency in this unit	A person who demonstrates competency in this unit must be able to provide evidence of the ability to: select, use and maintain hand tools and equipment for tasks associated with: • pavement floor sawing • core drilling floors or walls • hand sawing on floors or walls In doing so, the learner must have: • complied with relevant safety regulations, codes of practice and work plans • participated in sustainable work practices • selected, checked out and appropriately used PPE • communicated and worked effectively with others, including using appropriate terminology • performed checks on tools and equipment, prior and after handling • reported on condition and faults of tools and equipment, as required • cleaned up and stored tools and equipment after use
Context of and specific resources for assessment	Assessment must be demonstrated in a workplace or simulated environment that complies with standard and authorised work practices, safety requirements and environmental constraints. The following resources must be made available: • industry tools and equipment, including PPE • job tasks, including relevant specifications • manufacturers' specifications • materials appropriate for concrete drilling and sawing hand and power tools
Method of assessment	A range of assessment methods should be used to assess practical skills and knowledge. The following examples are appropriate for this unit: • written and/or oral questioning to assess knowledge and understanding • observations of tasks in a real or simulated work environment • portfolio of evidence of demonstrated performance • third party reports that confirm performance has been completed to the level required and the evidence is based on real performance Assessment may be in conjunction with other related units of competency.