



Australian Government

Department of Education, Employment and Workplace Relations

UETTDRIS55A Install and maintain low voltage underground services

Release: 1

UETTDRIS55A Install and maintain low voltage underground services

Elements and Performance Criteria

ELEMENT PERFORMANCE CRITERIA

1	Prepare for the installation and maintenance of LV underground services and associated equipment	1.1	Works schedule(s), including drawings, plans, requirements, established procedures, and material lists, are received, analysed and confirmed, if necessary, by site inspection.	AA Note 5 + AA Note 5 Assessment Questions
		1.2	Relevant requirements and established procedures for the work are communicated to all personnel and identified for all work sites.	UETTDREL16 + Practical Demonstration + Theory assessment
		1.3	OHS policies and procedures related to requirements and established procedures for the installation and maintenance of LV underground services and associated equipment are obtained and confirmed for the purposes of the work to be performed and communicated.	UETTDREL16 + Practical Demonstration + Theory assessment
		1.4	Work is prioritised and sequenced following consultation with others for completion within acceptable timeframes and in accordance with established procedures.	AA Note 6 + AA Note 6 Assessment Questions
		1.5	Hazards are identified, OHS risks assessed and control measures are prioritised, implemented and monitored including emergency exits kept clear according to established procedures.	UETTDREL16 + Practical Demonstration + Theory assessment
		1.6	Relevant work permits are obtained to access and perform work according to requirements and/or established procedures.	UETTDREL16 + Practical Demonstration

ELEMENT PERFORMANCE CRITERIA

			+ Theory assessment
	1.7	Resources including personnel, equipment, tools and personal protective equipment required for the job are obtained and confirmed in working order.	AA Note 6 + AA Note 6 Assessment Questions
	1.8	Relevant personnel at worksite are confirmed current in First Aid, Rescue and other related work procedures according to requirements.	UETTDREL16 + Practical Demonstration + Theory assessment
	1.9	Liaison and communication issues with other/authorised personnel, authorities, clients and land owners are resolved to carry out work where necessary.	UETTDREL16 + Practical Demonstration + Theory assessment
	1.10	Site is prepared according to the work schedule and to minimise risk and damage to property, commerce, and individuals in accordance with established procedures	UETTDREL16 + Practical Demonstration + Theory assessment
	1.11	Personnel participating in the work, including plant operators and contractors, are fully briefed and respective responsibilities confirmed where applicable in accordance with established procedures.	UETTDREL16 + Practical Demonstration + Theory assessment
	1.12	Road signs, barriers and warning devices are positioned in accordance with requirements.	UETTDREL16 + Practical Demonstration +

ELEMENT PERFORMANCE CRITERIA

			Theory assessment	
2	Carry out installation and maintenance of LV underground services and associated equipment	2.1	OHS and sustainable energy principles and practices to reduce the incidents of accidents and minimise waste are monitored and followed in accordance with requirements and/or established procedures.	UETTDREL16 + Practical Demonstration + Theory assessment
		2.2	Lifting, climbing, working in confined spaces and aloft, and use of power tools/equipment, techniques and practices are safely followed and, currency according to requirements confirmed.	UEECD0007 Notes + UEECD0007 Theory assessment
		2.3	Essential knowledge and associated skills are applied in the safe installation and maintenance of LV underground services and associated equipment to ensure completion to quality standards with a minimum of waste according to requirements.	AA Note 6 + AA Note 6 Assessment
		2.4	LV underground services and associated equipment are installed according to the work schedule and requirements/established procedures.	AA Note 6 + AA Note 6 Assessment
		2.5	Maintenance, including repair and/or replacement of LV services and associated equipment is carried out, in accordance with the work schedule and requirements/established procedures.	UG Equipment + UG Equipment Assessment
		2.6	Hazard warnings and safety signs are recognised and hazards and assessed OHS risks are reported to the immediate authorised persons for directions according to established procedures.	UG Equipment + UG Equipment Assessment
		2.7	Unplanned events during the installation and maintenance of LV services and associated equipment are undertaken within the scope	UG Equipment + UG Equipment Assessment

ELEMENT PERFORMANCE CRITERIA

			of established procedures.	
		2.8	Known solutions to a variety of problems are applied using acquired essential knowledge and associated skills.	UG Equipment + UG Equipment Assessment
		2.9	Ongoing checks of quality of the work are undertaken in accordance with instructions and established procedures.	UG Equipment + UG Equipment Assessment
3	Complete the installation and maintenance of LV underground services and associated equipment	3.1	Work undertaken is checked/tested against works schedule for conformance with requirements and anomalies reported in accordance with established procedures.	UG Equipment + UG Equipment Assessment
		3.2	Accidents and/or injuries are reported in accordance with requirements/established procedures, where applicable.	UETTDREL16 + Practical Demonstration + Theory assessment
		3.3	Work site is rehabilitated, cleaned up and made safe in accordance with established procedures.	UEECD0007 Notes + UEECD0007 Theory assessment
		3.4	Tools, equipment and any surplus resources and materials are, where appropriate, cleaned, checked and returned to storage in accordance with established procedures.	UG Equipment + UG Equipment Assessment
		3.5	Relevant work permit(s) are signed off and, the LV services and associated equipment are returned to service in accordance with requirements.	UG Equipment + UG Equipment Assessment
		3.6	Works completion records, reports, as installed /modified drawing and/or documentation and information are finalised and processed and appropriate personnel notified.	UG Equipment + UG Equipment Assessment

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

8) Essential Knowledge and Associated Skills (EKAS): This describes the essential skills and knowledge and their level, required for this unit.

Evidence shall show that knowledge has been acquired of installing and maintaining low voltage services (underground).

All knowledge and skills detailed in this unit should be contextualised to current industry practices and technologies.

KS01-TIS55A Low voltage electrical underground service installation

Evidence shall show an understanding of the installation of low voltage electrical services to an extent indicated by the following aspects:

T1 Standards, codes, legislation, supply authority regulations and or enterprise requirements

T2 Requirements for the use of enterprise construction manuals, system diagrams/plans and drawings, encompassing:

- Types of low voltage underground services
- Methods of construction and installation
- Minimum depths for underground services to be buried and proximity to other assets and structures

T3 Installation equipment/tools

- Equipment and tools for underground service installation
- Fittings and hardware for underground service installation

T4 Methods of laying cables including:

- Conduits and sand and slabbing

T5 Characteristics and applications of different types of cables encompassing:

- Cable cross-sectional area of conductors
- Current rating and fuse types and ratings

T6 Techniques for maintenance of service installations encompassing:

- Diagnosis and repair of faults

T7 Jointing and terminating methods encompassing:

- Polymeric heat-shrink materials

AA Note 5

Electrical Distribution Textbook 3.1+3.5

AA Note 6

Electrical Distribution Textbook 3.1+3.5

+ UG Equipment

AA Note 5

UG Equipment

UG Equipment

UG Equipment

UG Equipment

UG Equipment

REQUIRED SKILLS AND KNOWLEDGE

- Polymeric tape materials
- Insulated piercing connectors (IPCs)
- Energised and de-energised cables
- Connections to point of entry, fuse boxes, pillars, pits

T8 Testing and commissioning procedures encompassing:

- Pre-energising tests - insulation resistance and continuity test
- Inspection
- Equipment functionality tests
- Polarity, voltage and phase sequence tests
- Neutral and phase identification tests
- Neutral integrity tests
- Meter function test
- Testing check forms

T9 Connection principles:

- Purpose and function of MEN system
- Types of connection faults
- Causes and effects of incorrect and poor electrical connections
- Principles of loop impedance
- Reasons for and methods used to maintain standard phase sequencing
- Purpose and operation of service fusing
- Use of independent earth for testing

UETDRMP011_R1**UG Equipment**

Evidence Guide

		Range of tools/equipment/materials/procedures/workplaces variables	
Group No		The minimum number of items on which skill is to be demonstrated	Item List
A		At least two of the following:	Underground pillar/p (single phase) Underground pillar/p (three phase*) Underground to over (* must do)
B		At least one of the following:	Fuse units Circuit breakers Service links
C		At least four of the following:	Polarity test * Phase rotation test Continuity test Voltage test Insulation resistance (* must do)
D		At least one of the following:	Aluminium LV cable XLPE cable Copper LV cable
E		At least one occasion	Dealing with an unplanned drawing on essential associated skills to provide appropriate solutions to the holistic assessment of the listed items.

Range of tools/equipment/materials/procedures/workplaces/other variables			
Group No	The minimum number of items on which skill is to be demonstrated	Item List	
A	At least two of the following:	Underground pillar/pit connection (single phase) Underground pillar/pit connection (three phase*) Underground to overhead connection (* must do)	Lesson 12 UG Equipment
B	At least one of the following:	Fuse units Circuit breakers Service links	Lesson 15 Assessment
C	At least four of the following:	Polarity test * Phase rotation test Continuity test Voltage test Insulation resistance test (* must do)	Lesson 2-Carry out Test Procedure http://www.iqytechnicalcollege.com/Lesson 2 Notes.pdf
D	At least one of the following:	Aluminium LV cable XLPE cable Copper LV cable	Lesson 5 AA Note 1 Assessment
E	At least one occasion	Dealing with an unplanned event by drawing on essential knowledge and associated skills to provide appropriate solutions incorporated in the holistic	OHS

		assessment with the above listed items.	
--	--	---	--