Topic Skills Practice Cover Sheet

Unit Name:	UEENEEG103A Install low voltage wiring and accessories
Topic Title:	Underground cabling

Skill Practice Number:	6.1
Skill Practice Name:	Identify Underground Services

Student Name:	
Student ID:	
College/Campus:	
Group:	

Results	
Planning:	
Carryout:	
Completion:	
Overall Results:	
Comments:	

Topic Skills Practice 6.1

UEENEEG103A Install low voltage wiring and accessories

KS01-EG103A Installation of wiring systems

Topic: 6. Underground cabling

Skills Practice 6.1: Identify Underground Services

Task:

To obtain information relating to the presence of existing underground services at a given location, and interpret plans to determine the suitability of proposed underground wiring.

Objectives:

At the completion of this skills practice, you should be able to:

- Obtain plans of existing underground services.
- Interpret plans to identify the locations of existing underground services.
- Determine the suitability of underground cable routes.

Topic Skills Practice 6.1

1. Planning the Unit Skills Test

1.1 Standards and Equipment

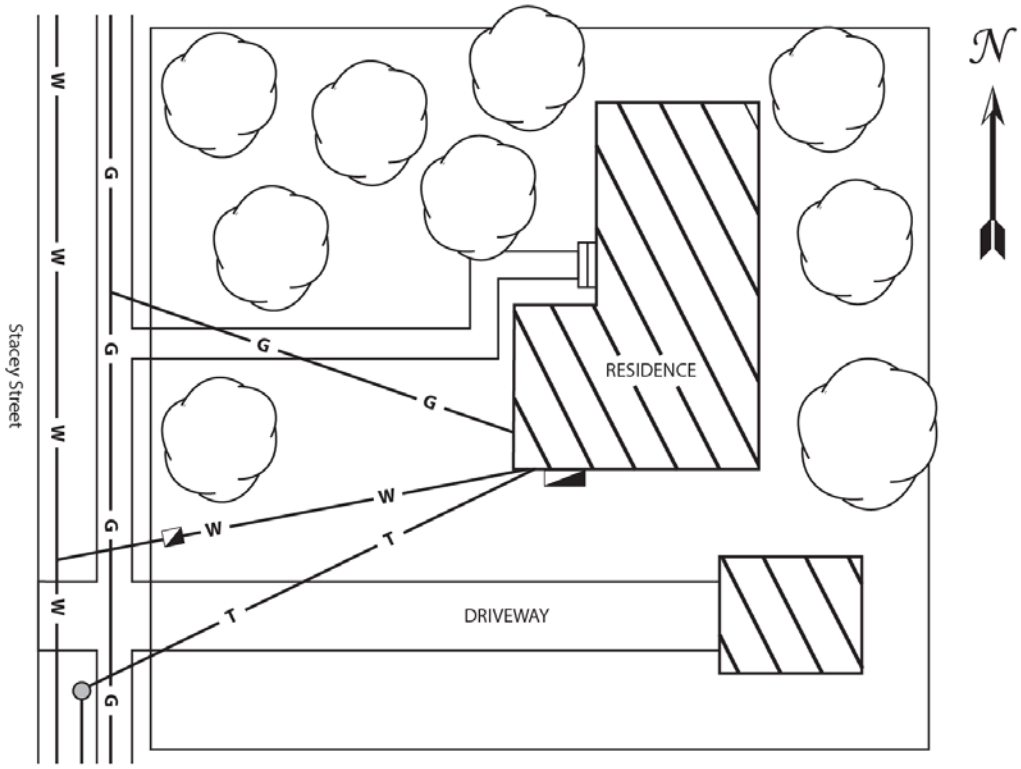
1.1.1 To complete this skills practice, your teacher/trainer will provide a proposed underground cable route at your location. You will need to obtain the following resources and equipment:

- Plans of existing underground infrastructure at your location
- AS/NZS 3000 Wiring Rules
- Pens/pencils

2. Carrying Out the Skills Practice

2.1 Identify Existing Underground Services

2.1.1 On the diagram below, identify the existing underground services, and determine a suitable underground cable route from the point of supply (POS) at the top of the service pole, to the main switchboard (MSB). Indicate the cable route on the diagram and record details of the wiring system in the table provided at the top of the following page.



Other services indicated: _____

_____

_____

Topic Skills Practice 6.1

Underground Wiring System	
Description:	
Applicable Requirements/Rules	
Wiring System Category:	
Depth of Cover:	
AS/NZS 3000 Clause(s):	
Local Service Rules Clause(s):	

Feedback

Have your teacher/trainer check your answers

Teacher/Trainer Initials and Date	✓

2.2 Obtain Information on Underground Services

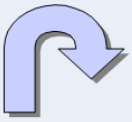
2.2.1 Your teacher/trainer will provide you with a proposed underground cable route at your location. In the space provided below, draw a neat sketch to show a bird's eye view of the proposed installation:

Proposed Excavation For Underground Wiring

Topic Skills Practice 6.1

2.2.2 As directed by your teacher/trainer, obtain plans of existing underground services for the proposed excavation area.

2.2.3 Use the plans of the area to identify any existing services that are located in the vicinity of the proposed excavation area, and indicate them on your sketch on the previous page.

	 *Feedback* Have your teacher/trainer check your work	Teacher/Trainer Initials and Date	✓

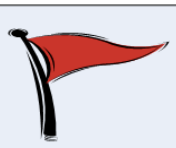
3. Completing the Skills Practice

3.1 Skills Practice Review Questions

3.1.1 Complete the following questions after you have successfully completed section 2 of the skills practice.

1. What types of existing services are located in the proposed area?

2. Did the locations of underground services in your area affect the initial planned excavation works? If so, explain how.

	 *Feedback* Have your teacher/trainer check your answers	Teacher/Trainer Initials and Date	✓

Topic Skills Practice Cover Sheet

Unit Name:	UEENEEG103A Install low voltage wiring and accessories
Topic Title:	Underground cabling

Skill Practice Number:	6.2
Skill Practice Name:	Select Cables for Underground Consumer's Mains

Student Name:	
Student ID:	
College/Campus:	
Group:	

Results	
Planning:	
Carryout:	
Completion:	
Overall Results:	
Comments:	

Topic Skills Practice 6.2

UEENEEG103A Install low voltage wiring and accessories

KS01-EG103A Installation of wiring systems

Topic 6. Underground cabling

Skills Practice 6.2: Select Cables for Underground Consumer's Mains

Task:

To use Australian Standards, local service and installation rules (SIR) and manufacturer's catalogues to select suitable cables and wiring systems for given underground consumer's mains installations.

Objectives:

At the completion of this skills practice, you should be able to:

- Select suitable underground wiring systems based on installation requirements
- Identify and apply derating factors based on installation conditions.
- Select minimum cable size based on required current carrying capacity.
- Select equipment from manufacturer's catalogues for underground cable installations.

1. Planning the Unit Skills Test

1.1 Standards and Equipment

1.1.1 Obtain the following current Australian Standards, documents and equipment:

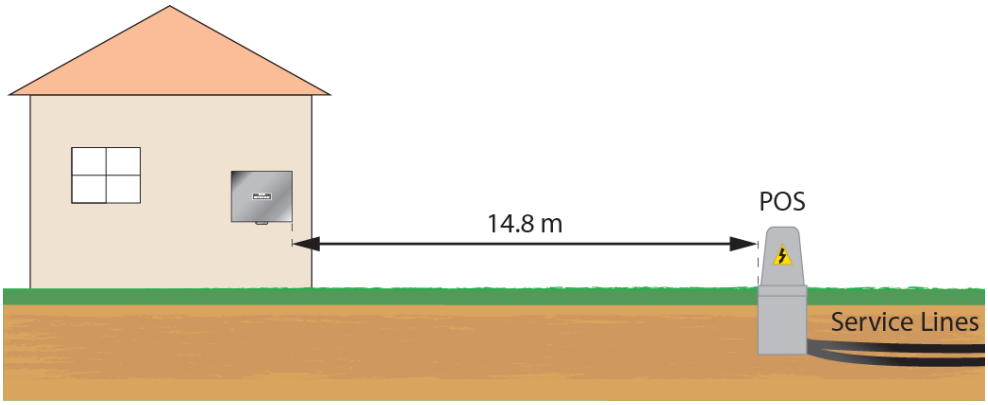
- AS/NZS 3000 Wiring Rules.
- AS/NZS 3008.1.1:2017 Electrical installations - Selection of cables.
- Local Service and Installation Rules (SIR).
- Manufacturer's catalogues.
- Pens/pencils.

Topic Skills Practice 6.2

2. Carrying Out the Skills Practice

2.1 Consumer's Mains Cable Selection

2.1.1 A set of three phase unprotected consumer's mains are required to be run underground between the point of supply (POS) and the main switchboard (MSB) of the installation pictured below.



2.1.2 Select a suitable wiring system for the installation in compliance with AS/NZS 3000 Wiring Rules and local service and installation rules (SIR), and record details in the spaces provided below:

Underground Wiring System	
Description:	
Applicable Requirements/Rules	
Wiring System Category:	
AS/NZS 3000 Clause(s):	
Local SIR Clause(s):	

	Feedback Have your teacher/trainer check your answers	Teacher/Trainer Initials and Date	✓

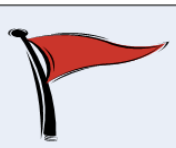
Topic Skills Practice 6.2

2.1.3 Use AS/NZS 3008.1.1:2017 to select suitable cables for the installation and record details in the table provided below.

Installation Requirements and Conditions:

- Maximum Demand: 100 A per phase
- Ambient Soil Temperature: 20°C
- Soil Resistivity: 0.8°C.m/W

Cable			
Type/Cores:		**Insulation:**	
Installation			
Installation Method:			
AS/NZS 3008.1.1 Table:		**Item No:**	
Rating/Derating			
Factor 1:			
AS/NZS 3008.1.1 Table:		**Column:**	
Factor 2:			
AS/NZS 3008.1.1 Table:		**Column:**	
Factor 3:			
AS/NZS 3008.1.1 Table:		**Column:**	
Conductor Size			
Conductor Size:			
Current Carrying Capacity:			
AS/NZS 3008.1.1 Table:		**Column:**	



Feedback

Have your teacher/trainer check your answers

Teacher/Trainer Initials and Date

Topic Skills Practice 6.2

2.1.4 Use manufacturer's catalogues to select a suitable enclosure for the installation and record details in the table provided below.

Enclosure	
Type:	
Manufacturer:	
Model No:	
Quantity:	
Installation Details	
Depth of Cover:	
AS/NZS 3000 Clause(s):	
Local SIR Clause(s):	

2.1.5 Use manufacturer's catalogues to select suitable mechanical protection for the installation (if necessary) and record details in the table provided below.

Additional Mechanical Protection			
Type:		**Manufacturer:**	
Quantity:		**Model No:**	
Installation Details			
Depth of Cover:			
AS/NZS 3000 Clause(s):			
Local SIR Clause(s):			

Topic Skills Practice 6.2

2.1.6 Use manufacturer's catalogues to select suitable marker tape for the installation and record details in the table provided below.

Marker Tape			
Type:		**Manufacturer:**	
Quantity:		**Model No:**	
Installation Details			
Depth of Cover:			
AS/NZS 3000 Clause(s):			
Local SIR Clause(s):			

Feedback

Have your teacher/trainer check your answers

Teacher/Trainer Initials and Date

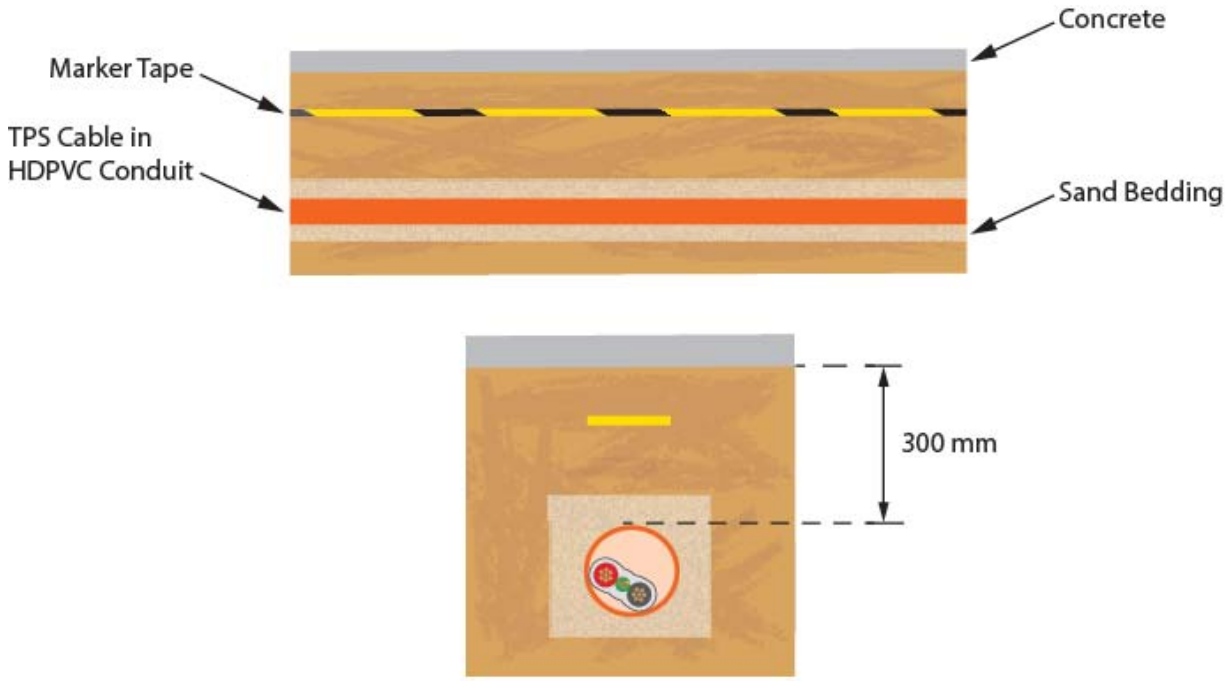
3. Completing the Skills Practice

3.1 Skills Practice Review Questions

3.1.1 Complete the following questions after you have successfully completed section 2 of the skills practice.

1. Describe the AS/NZS 3000 Wiring Rules requirements for Category B underground wiring systems.

Topic Skills Practice 6.2



2. What category is the underground wiring system pictured above? Provide AS/NZS 3000 Clause(s) to support your answer.

3. Explain how existing underground services can be located prior to commencing excavation works.

	Feedback Have your teacher/trainer check your answers	Teacher/Trainer Initials and Date	✓