

RIICRC306E

Learner Guide Instructions

Who is this document for?

The learner.

What is in this document?

- Course information that matches the PowerPoint presentation.
- Review questions.
- Practical assessment instructions for learners.

What do you need to do before you use it for the first time?

1. Rebrand the document.
2. Review the document as part of your validation process.
3. Set the reading and test time limits that are highlighted in pink at the end of the document.

See the 'Read Me First' document for a complete set of instructions on how to use these resources.



LEARNER GUIDE

RIICRC306E Conduct Earthworks

Learner Name:	
Learner ID:	
Learner Contact Number:	
Learner Email Address:	
Date Training Commenced:	

This Book Contains:

- Course Information.
- Review Questions.
- Practical Assessment overview and Instructions.

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1.1 Introduction

This course is based on the national unit of competency **RIICRC306E Conduct Earthworks**.

You will learn about:

- ◆ Planning and preparing your work.
- ◆ Setting out sub-grades.
- ◆ Forming earthworks.
- ◆ Placing and compacting sub-grade replacement materials.
- ◆ Cleaning up the work area.



1.1.1 What are Earthworks?

Earthworks are civil construction works created by processing soils and materials into structures such as roads and walls. It generally involves machine excavation, compaction and backfilling.

Earthworks may include the:

Action	Description
Cutting and filling of areas with existing material.	Materials may be added or removed from an area to create the desired surface and level. When material such as earth or rock is removed it is described as 'cut', and when materials are added they are referred to as 'filled'. A job involving both cutting and filling may require workers to fill areas with the same materials which were removed from other sections of the worksite.
Forming of existing materials.	Forming involves using materials to create the desired configuration. This may involve using a range of materials including existing materials from the area, materials bought in from off-site or a mixture of both.
Replacement of unsuitable materials.	Some materials on site cannot be reused as part of the work due to their composition and must be replaced with something more appropriate for the job.
Stabilisation of unsuitable materials.	When unstable materials are not entirely removed from the earthworks site they must be stabilised using other materials, plant and equipment.
Use of geo-synthetic materials.	Synthetic materials may be used to stabilise the area where earthworks are being completed. These require specialised preparation to ensure they remain in good condition.

Work areas where earthworks are conducted may include:

- ◆ Haul roads.
- ◆ Formed/prepared roads.
- ◆ Access roads.
- ◆ Pads.
- ◆ Dam walls.



Review Questions

1.

What is the difference between 'cutting' and 'filling' in earthworks?



2.

What is meant by the term 'forming' in earthworks?



1.2 Work Instructions

You need to be clear about what work you will be doing. Make sure you have everything about the job written down before you start. This includes what you will be doing, how you will be doing it and what equipment you will be using.

Make sure you have all of the details about where you will be working. For example:

- ◆ **The Site** – Is there clear access for all equipment? Are there buildings, structures, facilities or traffic in the way?
- ◆ **The Weather** – Is there wind, rain or other bad weather? Is it too dark?
- ◆ **Facilities and Services** – Are there power lines or underground services to think about?
- ◆ **Traffic** – Are there people, vehicles or other equipment in the area that you need to think about? Do you need to get them moved out of the area? Do you need to set up barriers or signs?
- ◆ **Hazards** – Are there dangerous materials to work around or think about? Will you be working close to traffic or machinery?



You also need to make sure you have all of the details about the kind of work you will be doing:

- ◆ **The Task** – What type of earthworks needs to be conducted? How big is the area? How long will it take?
- ◆ **Equipment and Materials** – What type of equipment will be used? How big is it? How much room does it need? Are there any special materials or chemicals that will be used?
- ◆ **Communications** – How are you going to communicate with other workers?
- ◆ **Procedures and Rules** – Do you need any special permits or licences? Are there site rules that affect the way you will do the work?



1.2.1 Reading and Checking Your Work Instructions



All work needs to follow worksite, environment and company safety procedures.

Procedures help to make sure that all work is done in a safe way, without damaging equipment or putting people in unsafe situations. They also help to make sure that work is done in the correct order and doesn't interrupt or get in the way of other work that is happening on the site.

Your work instructions will tell you the safest way to do the job, and the equipment that you will need to use. It is a good idea to check your work instructions with your boss or supervisor to make sure you know exactly what you need to do.

In some situations you may be required to put together a clear set of instructions from various sources. To do this you may need to understand and obtain relevant information from site drawings, blueprints or plans.

If you don't know where to get your instructions or you can't understand them, you can ask your boss or supervisor. They will tell you where to find your work instructions and explain what they mean.

1.2.2 Project Specifications

Some of your work instructions might be given to you in plans, maps, reports and specifications. You will need to get the information out of these documents and use it to do your job.

Project specifications will tell you the types, quantities, grades and classifications of materials you will be working with.

Every task or activity relating to conducting earthworks will also have quality requirements relating to:

- ◆ Compaction.
- ◆ Drainage.
- ◆ Levels.
- ◆ Slope.
- ◆ Shape.
- ◆ Material standards.



To apply the requirements, you need to follow instructions and procedures exactly. It is essential that these quality requirements are known, understood and adhered to in all earthworks activities and tasks.

Specifications may be given to you as drawings and plans. Plans are usually "scale drawings" that represent a large area on a small sheet of paper and show proportion at the same time.

Project plans and maps give you an overview of the site, for example:

- ◆ The location of your work area in relation to the whole work site.
- ◆ The position of stockpiles, work zones, roads and access areas.
- ◆ The location of environmentally sensitive or 'no go' areas.
- ◆ Contours, or the lay of the land, e.g. slopes, banks, depressions.



Depending on the project, drawings may be very detailed or they could be simple sketches.

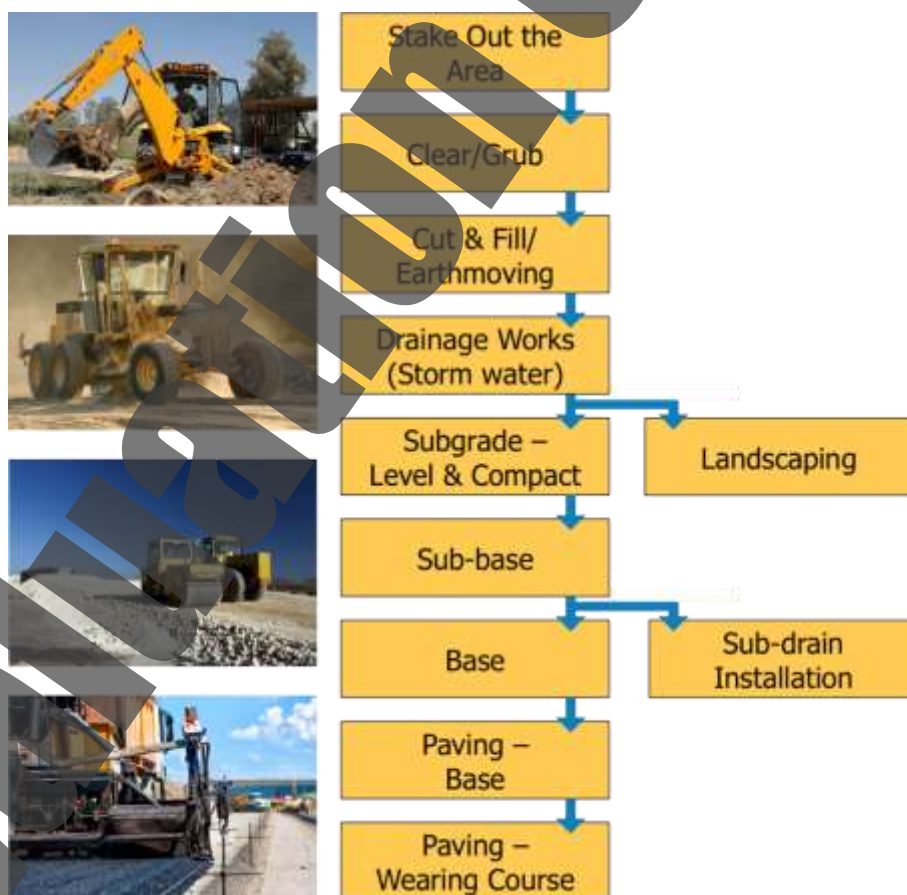
You should learn about the conventions and symbols used in the plans and drawings so you can understand what the information means.

1.2.2.1 Earthworks Sequences

During your work you will need to make sure all activities comply with the specifications and standards of the worksite. This may involve following a particular set of tasks in a set sequence.

It is important that the tasks are completed in the right order for the project to go smoothly.

Here is an example of a basic civil construction earthworks sequence from clearing the area through to preparing for road construction:

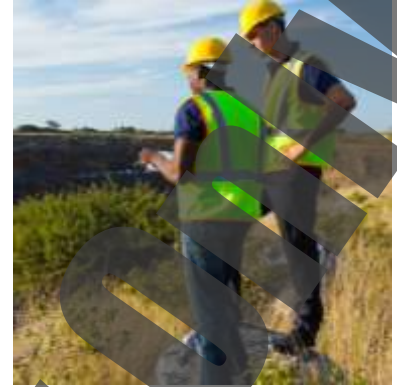


1.2.3 Organising Work Activities

After receiving and clarifying all of your work instructions and requirements, you will need to organise and plan for your work activities. This is a major component of earthworks because each step must be completed before the next step can start.

Organising your work activities involves scheduling your daily and weekly tasks to complete all assigned tasks in the best, most efficient manner that still meets the requirements of the worksite. It will allow you to plan for the time ahead to ensure that project timelines do not get out of hand.

While you will be performing your own work activities you will also be involved with the activities of plant and machinery operators. This means you are required to sequence work activities and work with others onsite concerning timing issues.



Some people prefer a handwritten checklist or Work Method Statement, others a computerised diary entry. What works for you is the most important thing.

A Work Method Statement (WMS) is a list of steps that outlines how a job will be done. It also includes any hazards that occur at each step, and what you need to do about them. These statements can also be known as Safe Work Method Statement (SWMS), Job Safety Analysis (JSA) or Safe Operating Procedure (SOP).

Work Method Statements are a great tool for organising your work activities and making sure you have completed everything. This is because they outline the details of all tools, equipment and coordination with other workers relating to your job. Make sure all of these are available and ready before you start.

Flexibility is important when organising your work priorities to allow you to reorganise if:

- Higher priority tasks arise.
- Accidents occur.
- Weather interferes.
- There are unexpected conditions onsite.

You need to take responsibility for your own activities to make sure that your assigned activities will be completed to the required standard, in the documented manner and within appropriate timeframes.

1.2.4 Worksite Communications

It is important to coordinate your activities with other workers when you are planning for and carrying out the work to make sure everyone knows:

- ◆ The work being completed.
- ◆ How, when and where you will be operating.
- ◆ What they need to do.



All workers on site must understand their own role and the roles of others before starting work. It helps to make sure work is done safely and efficiently.



You will also need to alert personnel to any hazards you notice during your work activities, including changing work environments.

People you may need to communicate and coordinate with on site include:

- ◆ Other mobile plant operators.
- ◆ Processing plant operators.
- ◆ Maintenance workers.
- ◆ Water truck/cart operators.
- ◆ Service vehicle operators.
- ◆ Crane and float operators.
- ◆ Contractors.
- ◆ Inspectors, both internal and external, including WHS, environmental and quality assurance officers.
- ◆ Supervisors.
- ◆ Site visitors.



1.2.4.1 Communicating with Others

When communicating with others on site, make sure that you:

- ◆ Speak clearly and unambiguously – stick to the important details, don't waffle.
- ◆ Give instructions or directions so that they are easily understood.
- ◆ Provide complex information or explain issues to your listener in a way that ensures they understand. You could try breaking down the details, simplifying the information or referring to related examples.
- ◆ Listen carefully, answer questions and provide clarification as necessary. You can also ask questions to clarify understanding.
- ◆ Use all communications equipment appropriately, following the required procedures and protocols.



Communication equipment you might need to use includes:

- ◆ Two-way radios.
- ◆ Telephones.
- ◆ Written reports.
- ◆ Emails.
- ◆ Text messages.
- ◆ Other site-specific systems.



Make sure that you follow your site procedures and protocols for communicating on site. This may include using the correct communication processes for communicating work activities or exclusion zones.

Review Questions

3.	Why is it a good idea to check your work instructions with your boss or supervisor?	<input type="checkbox"/>
4.	Why should you learn about the conventions and symbols used in plans and drawings?	<input type="checkbox"/>
5.	What might you refer to when reviewing the position of stockpiles, work zones, roads and access areas for the site?	<input type="checkbox"/>

6.

What does organising your work activities involve?



7.

When communicating on site, what can you do to ensure understanding?



1.3 Working Safely

You must follow all safety rules and instructions when performing any work. If you are not sure about what you should do, ask your boss or supervisor. They will tell you what you need to do and how to do it in a safe way.



1.3.1 Health and Safety Rules

Every workplace has to follow laws and rules to keep everyone safe. There are 4 main types:

Law	Description
Acts	Laws to protect the health, safety, and welfare of people at work.
Regulations	Gives more details or information on particular parts of the Act.
Codes of Practice	Are practical instructions on how to meet the terms of the law.
Australian Standards	Give you the minimum levels of performance or quality for a hazard, work process or product.

Some states use OHS laws, and other states use WHS laws. They both talk about the same thing, but use different words or names for people. If you have any questions about safety rules you should talk to your boss or supervisor.

1.3.2 Operations Documentation

Before starting your work you need to make sure you have access to all operations documentation for the job. This will help you to do your work in the safest way and make sure all work is compliant.

Operations documentation includes:

- Site Details**
The information and safety requirements of the workplace environment (where you will be working).
- Hazard Details**
Any hazards in the work area or related to the work. This could also include instructions on how to handle dangerous or hazardous materials.
- Task Details**
Instructions of what the work is or what you will be doing (this can include diagrams or plans). Also instructions on how to safely do the job.
- Faulty Equipment Procedures**
Isolation procedures to follow or forms to fill out.
- Signage**
Site signage tells you what equipment you need to have, or areas that are not safe to be in.
- Emergency Procedures**
Instructions on what to do in emergency situations, for example if there is a fire, accident or emergency where evacuation or first aid is needed.
- Equipment and Work Instructions**
Details of how to operate plant and equipment and the sequence of work to be done.

1.3.3 How to Keep Everyone Safe

WHS law says that all companies and workers need to keep themselves and other people safe while they work. This is called a duty of care.



To keep yourself and other workers safe you need to:

- ◆ Follow your instructions.
- ◆ Follow all workplace rules.
- ◆ Make sure all equipment is safe to use.
- ◆ Carry out your work safely.
- ◆ Report any problems.

If you think something is dangerous tell your boss or supervisor as soon as possible.

Your worksite will also have instructions for working safely including:

- ◆ Emergency procedures, including using fire fighting equipment, first aid and evacuation.
- ◆ Handling hazardous materials.
- ◆ Safe operating procedures.
- ◆ Personal protective clothing and equipment.
- ◆ Safe use of tools and equipment.



Review Questions

8.	What are the four (4) types of health and safety laws and rules?	<input type="checkbox"/>
1.		
2.		
3.		
4.		

9.

List three (3) things that may be included in 'operations documentation'.



1.

2.

3.

1.4 Identify and Manage Risks and Hazards



Before you start work, you need to check for any hazards or risks in the area.

If you find a hazard or risk you need to do something to control it. By lowering or removing risks we can make hazards less dangerous. This will help to make the workplace safer.

1.4.1 Identify Hazards

A **Hazard** is a thing or situation with the potential to cause harm or damage.

Part of your job is to look around to see if you can find any hazards before you start any work.

When you start checking for hazards, make sure you look everywhere. A good way to do this is to check:

- ◆ Up high above your head.
- ◆ All around you at eye level.
- ◆ Down low on the ground (and also think about what is under the ground).

