



**SUCCESSION
TRAINING**

Learner Guide

RIICWM402D Supervise civil works contractors

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Study Guide Overview

About your study course

As a student or In-service worker, you most likely have already come to the understanding of the practical skills and knowledge required to work within the industry. This course seeks to guide you towards developing those skills and knowledge. In addition, you have both a time and financial investment that makes it a personal challenge. As such, help us to help you take 'responsibility' for your own learning. Talk to the trainer and request student support if desired.

Be receptive towards your learning process and reinforce your studies with self-learning wherever possible.

Getting the most out of your study

- Talk to your trainer / facilitator and ask questions. They are experienced and able to assist you with your enquiries where possible
- Carefully choose your time and place to study outside of the class or in an environment that is comfortable and effective for learning
- Make a schedule to study and talk about your studies with your peers (many hands make light work and there is often value in collaboration)
- Consider how the learner guide information relates to what you are doing
- Seek feedback on your work and study to ensure you are on the right track and re-affirm your effective studying habits
- Make notes, use highlighters, use colours (for the visual learners), underline stuff, scribble memos, and decorate your desk with post-its – whichever approach works best for you
- Read your work examples aloud (to yourself – sometimes as a potential strategy it helps you to understand something by reading it aloud and also to identify areas for consideration)
- Consider the student activities in the learner guide to reinforce your learning as you go
- Please advise if you are having issues. We would like to assist you to make this a positive learning experience.

Required texts and recommended readings

Throughout your course you may be introduced to texts and recommended reading materials for your studies from your trainer. Take note of these. In the meantime, we have compiled a list of resources (see the *Table of Contents* for the '*recommended further readings*' in the back of this guide).

The learner guide and experienced trainers are a support resource to help you meet the requirements though it never hurts to have further materials that you might like to seek out for your own purposes and continued learning.

Referencing Guide

Information has a source and referencing provides the pathway to that source. You will be required to reference if you are providing written submissions that includes work which has been sourced from copyrighted materials that are not your own. In many cases you will be simply referring to your learner guide to provide a written response to a question. In such a case, refer briefly to the page of the guide (e.g. Learner guide P.23).

In all other cases, we would recommend using a referencing system. There are two accepted types in Australia (APA & Harvard).

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For your convenience, we have provided the following links to download either document for use in your studies.

<https://www.library.uq.edu.au/help/referencing-style-guides>

APA Referencing guide link

https://www.library.uq.edu.au/_/filething/files/get/referencing/apa_6%202.pdf

Harvard Referencing guide link

<http://guides.lib.monash.edu/citing-referencing/harvard>

https://www.adelaide.edu.au/writingcentre/referencing_guides/harvardStyleGuide.pdf

Introduction: Unit Description

Required Texts / Reading

The only required text for this course is the **learner guide** and any additional hand-outs / text resources your trainer provides during your classes.

For specific information on the legislations and **codes of practice in roadworks** per state and territory, please visit the following links below.

VIC	https://www.vicroads.vic.gov.au/about-vicroads/acts-and-regulations/road-management-act-regulations-and-codes
NSW	https://www.workcover.nsw.gov.au/_data/assets/pdf_file/0010/19576/construction-work-code-practice-3842.pdf
QLD	https://www.legislation.qld.gov.au/legisln/current/l/localgova09.pdf
WA	https://www.mainroads.wa.gov.au/Pages/default.aspx
SA	http://www.infrastructure.sa.gov.au/road_projects
TAS	http://www.dpti.sa.gov.au/standards/tass
NT	http://www.nt.gov.au/infrastructure/techspecs/roads/documents/StandardSpecificationforRoadworks.pdf
ACT	http://www.legislation.act.gov.au/ni/2011-757/20120101-50486/pdf/2011-757.pdf

The Learner guide

This learner guide provides information to assist in class activities, workplace activities, and the processes by which to use the applied knowledge correctly. It is essential that you learn from both the guide and your trainer in order to complete the related assignments. The learner guide can be used by students as a supporting resource for both the class and workshop environment.

Purpose of the unit

The purpose of this learner guide and in-class training is to provide the necessary background to apply your knowledge and skills in the workplace to Plan and supervise road works.

This unit is appropriate for those working in a management role within the Resources and Infrastructure Industries.

No licensing, legislation or certification requirements apply to this unit at the time of publication.

In-class work and Assessment

For each course you will engage in any number of written and some practical assessments.



Unit Outline Information for students

Unit Title	Supervise Civil Works Contractors
Training Package Unit Code	RIICWM402D
Unit Summary This unit covers the supervision of civil works contractors in Civil Construction. It includes the requirements for ensuring that the planning, preparing, initiating, monitoring, adjusting and reporting of civil works tasks are carried out by the contractor in accordance with the contract requirements. This unit is appropriate for those working in a supervisory role or as a technical specialist, supervising of civil works contractors within: Civil construction	
Prerequisites	
Nil	
Required Skills:	
Evidence is required to be collected that demonstrates a candidate's competency in this unit. Evidence must be relevant to the roles within this sector's work operations and satisfy all of the requirements of the performance criteria of this unit and include evidence that the candidate: - locates and applies relevant legislation, documentation, policies and procedures - implements appropriate procedures and techniques for the safe, effective and efficient supervision of civil works contractors including accessing, interpreting and applying: - project site soil and geological data - meteorological data - material properties and test results, including compaction test results - project site geotechnical data - project site hydrological data - project engineering survey information - project plans and drawings - project specifications - civil works test results materials properties and test results - works effectively with others to supervise civil works contractors that meets all the required outcomes including: - organising work activities to meet all task requirements - communicating clearly and concisely with others to receive and clarify work instructions - communicating clearly and concisely with others to resolve coordination requirements prior to commencing and during work activities - consulting with stakeholders - demonstrates completion of supervising civil works construction that safely, effectively and efficiently meets all of the required outcomes on more than one (1) occasion including: - preparing a job plan that is to include: - human resource requirements - plant and machinery requirements - construction materials requirements - sub-contractor support requirements - waste disposal requirements - coordination requirements - activity scheduling - materials delivery scheduling - risk assessment and management requirements - Work Health And Safety requirements	

- quality management requirements, including testing scheduling requirements
- traffic management requirements
- environmental requirements
- task monitoring requirements
- task performance monitoring requirements
- communication requirements
- reporting requirements
- successful supervision of civil works contractors including:
- ongoing risk assessment
- engineering survey
- sampling and testing
- recording and observation of construction practice
- general supervision

Required Knowledge:

The candidate must demonstrate knowledge in supervising civil works contractors through:

- accessing, interpreting and applying legislative, organisation and site requirements and procedures for:
- risk assessment and management
- statutory compliance
- work, health and safety
- environmental management
- quality management
- work zone traffic management
- contract management
- communication
- administration
- plant, equipment and tools maintenance
- recording and reporting
- employment
- workplace relationship
- organisational and site operational obligations
- materials quality and delivery requirements and procedures
- the relationship between various areas of civil works
- civil works plant and equipment capabilities and limitations
- using team leadership techniques
- works planning techniques
- civil works monitoring methods
- engineering survey principles
- mentoring techniques
- civil works construction sequencing
- set out requirements and procedures
- road geometry
- drainage requirements

Chapter 1: Plan and prepare to supervise civil works contractors

By the end of this chapter you will have addressed the following:

- 1.1 Access, interpret and apply civil work documentation and ensure the work activity is compliant
- 1.2 Obtain, read, interpret, clarify and confirm work requirements
- 1.3 Identify and address potential risks, hazards and environmental issues, and implement control measures
- 1.4 Select and wear personal protective equipment appropriate for work activities
- 1.5 Ensure the contractor has a job plan available and ensure best use of the available resources that meet the task requirements
- 1.6 Identify resources required to complete the tasks

1.1 Access, interpret and apply civil works documentation and ensure the work activity is compliant

Plans and specifications are designed to guide the civil construction project. They outline what needs to be done and how the job should look when completed. Plans may include details for:

- Materials to be used
- Grades of materials to be used
- Classification of materials to be used, such as, sub-grade materials that differ to finished level materials.
- Quantities of materials that need to be used
- Size of the project or dimensions of the project
- Other specific information.

In your role as a supervisor, manager or similar position as part of a civil construction project, it's an unavoidable fact that to do your job well and to the level expected by your business owner as well as legislation you will have to access, interpret and apply documentation that allows you to ensure that the work activity is compliant and meeting expectation.

Externally sourced documentation may include:

- Legislative, organisation and site requirements and procedures
- Manufacturer's guidelines and specifications
- Australian standards and guidelines
- Relevant codes of practice
- Employment and workplace relations legislation
- Equal employment opportunity and disability discrimination legislation

Project sourced documentation may include:

- Project related engineering drawings and plans
- Environment Impact Statement and Management Plan
- Social and community impact studies
- Waste Management Plans
- Water Management Plans

Organisational sourced documentation may include:

- Work Health and Safety Management Plan
- Safe Work Method Statements (Work Instructions)
- Personnel files
- Plant, equipment and machinery inventory lists
- Resource materials inventory
- Project budget
- Maintenance Management Plans
- Security Management Plan

Such documents should be reviewed to determine any key performance trigger points throughout that require compliance to be confirmed.

Persons within the Project team will have components of their role descriptions that relate to the interpretation and compliance of such requirements – your role as a Supervisor / Manager is often to coordinate and ensure that the compliance checks are being made and maintained. Any deviations from plan are to be recorded as part of the Project history and accommodated through corrective actions or change management for continuous improvement.

Many site plant and resource management related documents may be subject to audit, review, monitoring or examination by third parties, such as City/Council Officials, Regulators, Engineer's etc. – so close monitoring and correct document management and record keeping is essential.

Operator's Equipment Maintenance (OEM)

Manufacturers of plant provide requirements relating to maintenance and can be typically found within a "Service Manual" or "Maintenance Manual". These manuals typically include:

- Details of the parts that require maintenance
- The intervals at which different type of maintenance is to be carried out
- Details of the maintenance required for each piece of plant and/or equipment. This may include inspecting, lubricating, measuring, replacing or rebuilding certain components.

It is critically important that plant is maintained in accordance with the manufacturer's requirements.

1.2 Obtain, read, interpret, clarify and confirm work requirements

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.

Work instructions provide information regarding the safest way to do the job, and the equipment and other resources needed.

Project plans and drawings provide an overview of the project site, for example:

- Location of the site and earthworks in relation to the surrounding area
- Traffic management considerations
- Location of Laydown yard, Explosives Magazine, Maintenance Workshops etc.
- The position of structures, roads, access areas
- Layout of drainage lines
- Foundation details and landscaping features

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

Preparation of the design scope and range of options to define work requirements can often include:

- The identification of viable options and the selection of options that best meet the required outcomes
- Implementation of procedures and techniques for the safe, effective and efficient supervision of civil works
- Implementation of site plant and resource management plans
- The identification of relevant information and scope of the work required to meet the required outcomes
- Knowledge of the requirements, procedures and instructions for the implementation of site plant and resource management plans
- Budget plans and costs



The supervisor must be able to interpret compliance documentation as well as any members of the working team.

The best way to interpret compliance documentation to others is to ensure that the information is detailed for what is expected from them.

Key words like "should", "Consider" and "must/requires/mandatory" should not be confused and understanding the difference is vital to communicating the requirements of a task to others.

Should	Consider	Must, Requires, Mandatory
•Should indicates a preferred course of action. if you take a different course of action you will need to be able to justify this in the event of an accident or incident.	•Consider means that you have a choice of actions and need to select the action that will give the best and safest result for the particular circumstances.	•<i>Must, Requires and Mandatory</i> all mean that the action is a legal requirement and MUST be complied with.

It is essential that supervisors understand the requirements that must be met of each particular task and location. In some scenarios variations may occur on a project and it is always a good idea to ensure that these variations of procedures and requirements are documented before they are implemented. Supervisor officers will most likely need to provide written confirmation of the changes before implementation.

While some of the compliance requirements may be similar, such as compliance with OHS/WHs requirements, others will vary greatly depending on the environmental conditions, work processes and tasks being undertaken.

It is also important to understand that all work carried out including the testing must comply with the requirements of the following standards and Queensland Testing Methods.

Australian Standards

AS 1141 - Methods of Sampling and Testing Aggregate

AS 1160 - Bitumen Emulsions for Construction and Maintenance of Pavements

AS 1289 - Methods of Testing Soils for Engineering Purposes

AS 2008 - Residual Bitumen for Pavements

AS 2150 - Asphalt (Hot-Mixed) A guide to good practice

AS 2157 - Cutback Bitumen

AS 2341 - Methods of Testing Bitumen and Related Road making Products

AS 2357 - Mineral Fillers for Asphalt

AS 2758.2 - Aggregates and Rock for Engineering Purposes – Aggregate for Sprayed Bituminous Surfacing

AS 2758.5 – Aggregates and Rock for Engineering Purposes – Asphalt Aggregates

AUSTROADS References and Test Methods

AP – T01/00 - Austroads Provisional Specification for Multigrade Binders

AP – T04/00 - Austroads Specification Framework for Polymer Modified Binders.

AP – 41/96 - Bitumen Sealing Safety Guide.

APRG Rpt 19 - AUSTROADS specification framework for Polymer Modified Binders

MBT01 - Sampling of Polymer Modified Binders

MBT03 - Pre-treatment of Polymer Modified Binders (Rolling Thin Film Oven)

MBT11 - Handling Viscosity of Polymer Modified Binders (Brookfield Thermosel)

MBT12 - Flashpoint of Polymer Modified Bitumen

MBT21 - Elastic Recovery Consistency and Stiffness of Polymer Modified Binders (ARRB Elastometer)

MBT22 - Torsional Recovery of Polymer Modified Binder

MBT23 - Force Ductility

MBT24 - Toughness of Polymer Modified Binder (ARRB Extensometer)

MBT31 - Softening Point of Polymer Modified Binders

MBT32 - Compression Limit of Polymer Modified Binders

NAS-70 - NAASRA Performance Requirements for Mechanical Sprayers of Bituminous Materials

1.3 Identify and address potential risks, hazards and environmental issues, and implement control measures

Risk Assessment

Safety for workers and equipment is paramount in any type of construction work. There are safety methods that are specific to the work type and the use of appropriate equipment. There are duty holders who have responsibility to ensure the health and safety of the workers. Hazards and risks must be identified, so that measures can be implemented to control them.

Hazards are sources of potential harm. **Risk** is the likelihood that a person will be harmed if exposed to a hazard.

Conducting a risk analysis involves looking at the **likelihood** of a hazard occurring, and the **expected level of consequence** should that hazard occur. This analysis produces a risk rating.

Degrees of **likelihood** are:

- Rare: occurs only in exceptional circumstances
- Unlikely: possible, but not likely to occur
- Possible: event may occur
- Likely: event likely to occur once or more
- Frequent: event will occur many times

Levels of **consequence** are:

- Catastrophic: major injuries or death
- Major: multiple serious injuries, long term illness
- Moderate: injury requiring significant medical treatment or hospitalisation
- Minor: injury requiring basic medical treatment
- Insignificant: none or only minor injury requiring first aid

The probability and consequence can be mapped onto a Risk Matrix like the one below, to determine the Risk Rating.

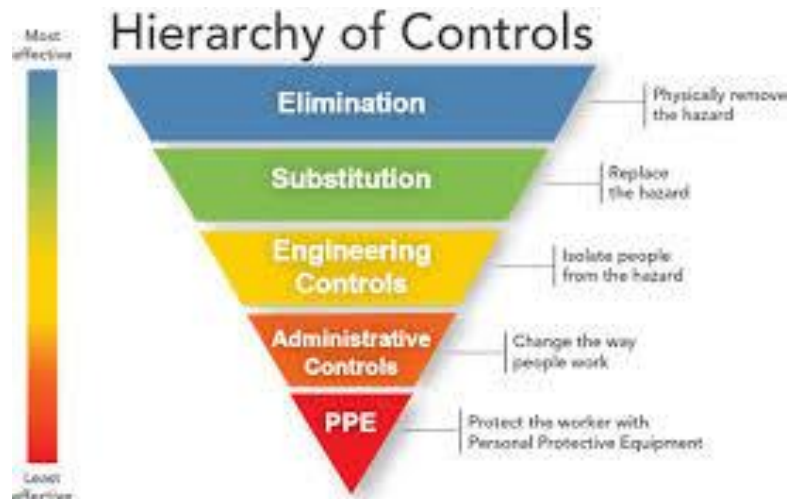
		CONSEQUENCE				
		Insignificant	Minor	Moderate	Major	Catastrophic
LIKELIHOOD		1	2	3	4	5
Almost Certain	A	H	H	E	E	E
Likely	B	M	H	H	E	E
Moderate	C	L	M	H	E	E
Unlikely	D	L	L	M	H	E
Rare	E	L	L	M	H	H

The Risk Rating assigned then determines what level of action needs to be taken:

- Extreme: immediate action is required
- High: action plan required, with specific responsibilities to be allocated
- Medium: requires regular monitoring and review, to ensure risk is not increasing
- Low: risk is acceptable and able to be managed by procedures

Identification of the risk rating can lead to selecting control strategies for managing the risks.

In an ideal world, the best management strategy is to remove or eliminate the risk altogether however this may not always be possible. The Hierarchy of Control provides a range of options for managing risk, across a number of levels, from the most preferred to the least preferred option.



1. **Elimination** – The most effective and desired control measure, this involves removing the hazard or hazardous work practice from the workplace altogether.
2. **Substitution** – Replace the hazard or hazardous work practice with a less dangerous one.
3. **Isolation** – Isolate or separate the hazard or hazardous work practice from people. For example, installing barriers or marking hazardous areas as restricted zones.
4. **Engineering control** – If elimination, substitution or isolation cannot be implemented, an engineering control involves modifying tools or equipment to make them safer. For example, installing ventilation systems, or guards on dangerous machinery.
5. **Administrative control** – This involved establishing specific operating procedures to reduce risk. For example, providing specific operating instructions for machinery or limiting the amount of time a person is exposed to a hazard at any one time.
6. **Personal protective equipment** – This is the last resort and should only be considered where the hazard cannot be addressed through the methods above. Suitable and appropriately maintained equipment should be provided to workers for their protection while exposed to hazards, as well as sufficient training on how to use the equipment.

Personal Protective Equipment

Personal protective equipment is a form of clothing especially designed to protect a person that is exposed to hazardous work and other safety risks involved in field work. PPE for roadworks include:

- Eye protection – goggles, face shields, glasses
- Hearing protection – ear muffs, ear plugs
- Head protection – broad brimmed hats, helmets, hard hats
- Body protection – overalls, gloves, high visibility clothing, including sunscreen

Emergency Plans and Procedures



Even with comprehensive planning and risk assessment, unexpected incidents can occur. Every organisation must have procedures in place to deal with emergencies that arise, and it is important that you are aware of how these procedures apply to your work and work site.

Emergencies such as fires and major accidents can result in significant damage, injury and loss of life. Therefore, it is important to know how to respond in emergency situations to minimise these outcomes.

You should make sure that you are aware of the emergency procedures of your workplace, and that your work site is prepared with the necessary emergency plans and equipment.

This could include first aid kits, fire extinguishers and blankets.

Emergency plans may vary from organisation to organisation, but will generally include:

- An emergency response system
- Evacuation procedures
- Procedure in notifying organisations at the earliest opportunity in case of an emergency
- Medical treatment and assistance on site and off site
- Communication system between all persons of authority, persons of duty, external emergency response team

Environmental Management

Environmental management measures will depend on the site activities and the sensitivity of the project area and surrounding land or water environment. For example, excavations resulting in steep slopes are likely to lead to soil erosion and water quality problems downstream and will require the installation of erosion protection measures.

It is important that construction activities are undertaken in accordance with environmental legislation. Everyone on site is responsible for complying with environmental legislation. Under the Environment Protection Act 1993 everyone has a general duty not to harm the environment by polluting. Pollution can include soil, water, air and noise pollution. Penalties for offences against environmental legislation are significant. The following legislation is relevant to aspects of pavement construction

- Aboriginal Heritage Act 1988
- Agricultural and Veterinary Products (control and use) Chemicals Act 2002
- Coast Protection Act 1972
- Dangerous Substances Act 1979
- Development Act 1993
- Environment Protection Act 1993
- Environment Protection and Biodiversity Conservation Act 1999 (Commonwealth)
- Fire and Emergency Services Act 2004
- Heritage Places Act 1993
- Marine Parks Act 2007
- National Parks and Wildlife Act 1972
- Native Vegetation Act 1991
- Natural Resources Management Act 2004
- Petroleum Products Regulations Act 1995

The construction site may require a license under the Environment Protection Act if the contractor is undertaking a Prescribed Activity under Schedule 1 of the Act (including earthworks drainage, dredging and rail operations). The contractor should contact the Environment Protection Authority (EPA) for clarification of license requirements under the Act. The license may include specific conditions such as soil erosion controls, dust and noise monitoring.

An environmental management system has been developed by the Department to minimize the environmental impact of projects.

For contractors the most important elements of the system are the Contractor's Environmental Management Plan (CEMP), which describes how the environmental management requirements, identified in the Project Environmental Management Plan (PEMP) or contract documents, will be implemented and managed on site. See Table 1 for an example CEMP.

The CEMP details how the contractor will mitigate construction impacts and documents the contractor's plans for inspecting, monitoring, auditing and correcting or improving environmental performance on the site. This ensures potential environmental impacts are effectively managed.

Larger projects require a CEMP to address the contract specific requirements. All projects are required to comply with the contract requirements and the Department's Environmental Code of Practice for Construction - Road, Rail and Marine Facilities and legislative requirements.

Table 1 - Example types of measures in CEMP

Contract requirement	Action	Inspection/Test	Frequency	Acceptance criteria	Evidence	Responsible Person
Construction of detention basin at chainage 500-1000m and operating at a minimum of 75% capacity at all times	Construct sediment detention basin prior to construction commencing and divert flow from construction site. Maintain sediment levels below 25%	Hold point prior to earthworks commencing. Physical inspection against established markers	Inspect weekly between AprilAugust and at other times before and after rain	Basin constructed. Sediment level below 25% of basin capacity	Site inspection & entry in checklist. Site inspection & entry in checklist	Project engineer. Site supervisor.
Protect cut and fill areas from surface runoff and stabilise as soon as possible	Cut off drains to be installed. Straw bales, silt fences or erosion matting to be used to intercept flow and stabilise surfaces as required	Visual inspection	Inspect daily between AprilAugust and at other times before and after rain	Minimal longitudinal scour marks in surface, minimal sediment in drains/pipes	Site inspection & entry in checklist. Photos may be taken	Site supervisor
Progressive mulching of completed areas as per construction program	Mulching of areas as approved by contract manager within 1 week of completion	Visual inspection	Inspect weekly	Nominated areas mulched	Site inspection and entry in checklist	Site supervisor

Important steps to reduce environmental Impacts

- 1) Walk the construction route to identify the limit of vegetation clearance, significant vegetation, 'no go' areas, locations for stockpiles, plant compounds and access roads.
- 2) Clearly identify the extent of the construction area and those areas to remain undisturbed
- 3) Ensure machinery and equipment is clean before bringing to site
- 4) Keep work and vehicles within the construction area
- 5) Keep machinery and stockpiles on cleared areas
- 6) Use the appropriate machinery for the task
- 7) Plan vegetation removal (do not clear vegetation unnecessarily).
- 8) Topsoil should be stripped and stockpiled for use as soon as practicable.
- 9) Protect and maintain site erosion control measures, such as:
 - replacing temporary cut-off drains at the end of the day's work
 - minimize exposed soil and slopes
 - avoid damage to erosion control measures
 - replace damaged erosion control measures, including silt fences, temporary bunds and straw bales
 - Ensure the works drain to the erosion/ sedimentation control structures.
 - Ensure waste is controlled and disposed of correctly
 - Clean equipment before moving to another site.
 - If unsure about any environmental controls contact the Site Supervisor.

Environmental Emergency Response

Many of the recommendations in this workbook will reduce the risk of an environmental incident. However, there is always some risk that an environmental incident may occur on the project site. Examples of environmental incidents are:

- Significant spill of fuel or oil
- Significant chemical spill
- Severe erosion from flooding
- Fire (onsite or from off-site)
- Damage to a heritage site (Aboriginal or non-Aboriginal)
- Overflow from on-site wash-down areas into creeks or drainage lines
- Destruction of a rare plant outside the defined construction zone

It is important to be aware of site instruction(s) dealing with such emergencies. Prompt and effective action is likely to significantly reduce the environmental impact. Any such action should not endanger the health or safety of any of the site workers.

An emergency response plan is an essential part of the Contractor's Environmental Management Plan. If you are unaware of the emergency plan it is important to discuss it with the Site Supervisor.

Some environmental incidents such as spillages and uncovering of Aboriginal heritage sites require reporting to the appropriate authorities. The Site Supervisor should be aware of these requirements.

1.4 Select and wear personal protective equipment appropriate for work activities

Personal protective equipment (PPE) is clothing, equipment or substances designed to be worn by someone to protect them from risks of injury or illness. PPE can include:

- hearing protective devices, such as ear muffs and ear plugs
- respirators
- eye and face protection, such as goggles
- safety helmets and sun hats
- gloves and safety boots
- clothing, such as high visibility vests or life jackets.

PPE is the least effective method of controlling a safety risk and does not control the hazard at the source. Because of this, the control of exposure to risks should be secured by one or more measures other than the provision of personal protective equipment.

PPE should only be used:

- where there are no other practical higher order control measures available (i.e. as a last resort)
- as a temporary measure until a more effective way of controlling the risk can be used
- to supplement higher level control measures (as a backup).

Where PPE is to be used, the person conducting a business or undertaking (PCBU) who directs the work to be undertaken must ensure the worker is provided with PPE, or ensure that PPE is provided by another PCBU.

When choosing appropriate PPE, consider how the equipment will protect the worker. Relying on PPE alone is not likely to reduce the risk of injuries, but it could reduce the severity of any potential injury.

The employer, must ensure that the PPE provided is:

- suitable to the nature of the work and any associated hazards
- suitable in size and fit and reasonably comfortable for the worker who is to use or wear it
- maintained, repaired or replaced to ensure it is in good working order, and clean and hygienic
- used/worn by the worker so far as is reasonably practicable.

Workers must be provided with information, training and instruction in relation to the safe use, storage and maintenance of the PPE and must use the PPE in accordance with the information, training or reasonable instruction.

Workers must not intentionally misuse or damage the PPE and must inform the PCBU of any damage to, defect in or need to clean or decontaminate the PPE of which the worker becomes aware.

The PCBU must also ensure that PPE used or worn by 'other persons' at the workplace is capable of minimizing the risks to the person's health and safety and is used or worn by the person.

1.5 Ensure the contractor has a job plan available and ensure best use of the available resources that meet the task requirement

One of the most critical factors for project success is having a well-developed job plan that is documented and is monitored consistently for effectiveness.

The Job Management Plan provides a 'roadmap' for the project team to follow – as well as it being one of the Project Managers main communications and control tools throughout the project.

There are a number of aspects to be considered when creating a job plan which should include the following information:

- Task requirements
- Human resource requirements
- Plant and machinery requirements
- Construction materials requirements
- Sub-contractor support requirements
- Waste disposal requirements
- Coordination requirements
- Activity scheduling
- Materials delivery scheduling
- Risk assessment and management requirements
- Work health and safety requirements
- Quality management requirements, including testing scheduling requirements
- Traffic management requirements
- Environmental requirements
- Task monitoring requirements
- Task performance monitoring requirements
- Communication requirements
- Reporting requirements

Job plans may refer to other instruction documents such as work method statements, job safety analysis or drawings and specifications. Once the site or project manager has given the details of the task a plan can be developed with the members of the project to carry out the work.

1.6 Identify resources required to complete the tasks

Resources

There are many individual resources needed to complete a project. In a road construction project, the major resource groups are Manpower, Equipment, and Materials.

Manpower may include:

- Leadership team – persons of authority
- Operations team – construction equipment operators, machine operators, construction labourers

Equipment may include:

- Pneumatic tools
- Rock crushers
- Asphalt and concrete equipment
- Ancillary equipment

Materials may include:

- bituminous mixes – hot mix asphalt (HMA), cold-laid plant mix, mixed-in-place or road mix, penetration macadam
- asphalt – warm mix asphalt concrete, cut-back asphalt concrete, mastic asphalt
- gravel – crushed stone, pea gravel, marble chips
- concrete and structures
- stabilised and recycled materials – recycled glass, recycled concrete aggregate
- unbound materials – for flexible pavement structures

Here is a table containing the common equipment and machinery used for road construction:

Road Construction Equipment	
Equipment	Description / Use
air compressor	provides air energy to drive pneumatic tools and equipment to work
pneumatic tools	(see next table for different tools and uses)
central mix plants	an assembly of specialised equipment; produces paving mixtures of aggregate and bituminous material; installed and remains in place until the construction is done
portable mix plants	works the same as a central mix plant but portable and can be transferred to a more convenient location on site
aggregate spreader	an attachment to the tipping trucks, can be adjusted to deliver controlled quantity of aggregate over the surface.
rotary sweeper	used to remove dust from the surface before paving
asphalt distributor	an equipment used in seal coating roads; has many different components, all of which must be working in order to operate the equipment
asphalt pavers	used to place the hot bituminous mix to the desired thickness and cross section
aggregate batching plant	proportions the sand, gravel, cement, and water of a concrete mix
concrete mixers	used for small casting works and is portable
bulldozers	a crawler that is used to push construction materials such as sand, soil, or rubble
loader / shovel	used in lowering or lifting materials and can be used for moderate excavation work and land clearing
excavator / backhoe	can be equipped with different types of front-end operating attachments to suit the type of work that needs to be done
scarapers	used in massive earth excavation works
grader	levels and smooths out the construction surface
hauling equipment	used to move supplies or construction materials
compaction equipment	used in preparing the subgrade level before applying the concrete layer

Chapter 2: Ensure appropriate initiation of tasks is carried out

By the end of this chapter you will have addressed the following:

- 2.1 Confirm that the contractor has the required resources
- 2.2 Ensure the contractor has communicated clear and timely instructions to team members and others involved
- 2.3 Set out tasks as required for the effective completion of the civil works

2.1 Confirm that the contractor has the required resources

It is important to have adequate resources that meet the requirement of the task before beginning. These requirements can include:

- Personnel and labor
 - Are there enough trained and competent people to complete the tasks in the timeframe given?
 - Often sub-contractors can be used to supply deficiencies within the available people, plant, equipment and machinery. Sub-contractors must be approved for the work tasks and inducted properly to the work site
- Plant, machinery, equipment and Construction materials
 - Are the necessary materials and resources available to achieve the set task?
 - The types of equipment will vary depending on the type of work that is being done. E.g. will haulage vehicles be needed to deliver or remove materials? What kind of Equipment for excavation will be needed for road surfacing? Are the tasks within the limitations and capabilities of the plant equipment?

Work environment will also be taken into account E.g. the need for additional lighting or dust suppression equipment.

Co-ordination

Implementation of the following steps that will work together to achieve the end result

1. Sequencing of tasks
2. Availability of personnel and equipment
3. The use of space, access and egress from the site
4. Delivery or removal of materials to/from the work area
5. Movement of mobile plant and equipment on site
6. Maintenance of plant and equipment
7. Traffic management in or around the site

Estimation

Estimation is an essential practice when calculating quantities of materials needed for a task. This is to allow unexpected situations that may lead to additional costs.

Calculating quantity requirements or providing quotes will generally involve project managers to give an approximation of how much material will be needed. Good practice is to always round numbers to the nearest 0 or 0.5 of the last digit of a number.

For example:

- A measurement of 240.6m^2 , would round up to 241m^2
- A measurement of 23.3m^2 , would round up to 23.4m^2
- A measurement of 78m^3 , would round up to 79m^3

Sometimes it is better to round up (e.g. when estimating material requirements) or round down (e.g. when removing an area such as road surface). This will ensure errors are made on the side of caution, reducing unnecessary expense and delays in projects. Estimating does not mean taking a glance at a job and guessing at the needs. Instead it is a skilled task based on calculations made from measurements to find the required amounts of material to ensure the job can be completed.

Estimating is performed by measuring the site, calculating the required amounts, then adding in the tolerance factors and producing a final figure. Caution needs to be taken as to not overestimate too much as this can lead to ordering too much of something, wastage and cost blow-outs.

Once calculated and estimated the quantities of materials for a project the information needs to be passed onto the site or project manager who will be able to check the details and organize the materials needed for the task.

Any estimations for materials where rounding off has occurred should be recorded.

2.2 Ensure the contractor has communicated clear and timely instructions to team members and others involved

Every workplace will have expectations with regard to the standard or quality of work carried out by its employees. Quality can be a subjective idea – one person's opinion of what is an acceptable standard may not match the opinion of the next person. Therefore, documentation of the workplace standards is essential for a quality system.

When supervising civil works contractors, it is important they are aware of the standards that apply to the work being done, and to ensure that the work is completed according to the level required. The standards may apply to how work is carried out (for example, ensuring minimal disruption to other services) and the final outcome (for example, the appearance of site once work is completed).



Communication

Clarifying and confirming work instruction and specifications requires the application of communication skills and techniques.

There are many ways to give and receive information, such as verbally or in some written form. In many situations, it is a good idea to use multiple methods in order to communicate effectively. It's important to choose methods that suit both the message and the person receiving it.

Below are some key questions to ask:

- Who am I communicating to? For example, a workmate a supervisor, or multiple people.
- What method is most practical? Face-to-face may be too time consuming, so using other options such as email may be more efficient, while on a worksite hand signals may be most effective.
- How important is the message? Will it only be relevant once, or does it need to be referred back to again?
- Does everyone need to hear the same thing? Ultimately, the answer should be yes to avoid confusion, but sometime not everyone needs the same level of detail.
- Do I need to get a response? If you to collect specific information, you may need to provide a process for doing this.

The table below contains tips and recommendations to assist with verbal and written communication:

Type of communication	Tips and recommendations
Verbal	Speak at a pace that's easy for someone to understand. The most common problem effecting communication is speaking too fast. Avoid mumbling Speak about an issue in a logical manner, making sure that you provide adequate and relevant background and context so the receiving person is able to establish a clear picture of what you are talking about Talk only about the issue at hand and only give enough information for the receiving person to understand what you are talking about. Giving more information than is required can be very frustrating to the receiving person
Written	Choose words deliberately Construct sentences carefully and thoughtfully Use correct grammar Writing clearly allows your audience to easily comprehend your message Remove words and sentences that are not needed Be aware of needing to ensure clauses or phrases are constructed in a way that is simple and as short as possible.

Persuasion

Persuasion can be a powerful tool in ensuring that anyone undertaking a task will do so and achieve the desired objectives in such a way that is best suited to the needs and vision of the supervisor or site manager. The art of persuasion and influence may be a challenge to perfect; it takes practice and experience. Practice and rehearsing how to present the situation and create all possible “or-if” possibilities and how to best present the proposal which is most mutually beneficial is key to a successful operation.

The following is adapted from *INFLUENCE: Science and Practice* (Allyn and Bacon, August 2008). In this new edition Dr. Robert B. Cialdini, one of the world’s leading experts in the field of persuasion, reveals six universal principles that everyone needs to understand for business and personal success. The six principles include:

Reciprocation: People feel indebted to others who do something for them or offer them a gift. That’s why free samples are so effective. Getting something for nothing makes buyers feel obligated to purchase.

Commitment and Consistency: People are more likely to follow through with something if they have committed to it, verbally or in writing.

Social Proof: Whether they realize it or not, people look to others for cues on how to behave and what to believe.

Liking: “People prefer to say yes to individuals they know and like,” says Cialdini. Research shows that people attribute talent, kindness, honesty, and intelligence to people they find attractive.

Authority: There is strong pressure in society for people to obey authority figures and experts. Authority comes in many forms. Dressing in a business suit makes one appear authoritative at work. Size – being tall – and status – such as a high-ranking job title – also increase one’s authority and makes it easier to influence others.

Scarcity: According to the scarcity principle, people assign more value to objects and opportunities that come in limited quantities or are more difficult to obtain.

<http://careerbright.com/career-self-help/5-essential-tips-to-influence-and-persuade-others-at-the-workplace>

INFLUENCE: Science and Practice (Allyn and Bacon, August 2008, Dave Lakhani in *Persuasion: The Art of Getting What you Want*)

Approval processes/protocols

Once the relevant people have approved the plan, the plan needs to be recorded as being approved. This is typically done within a document management system, whereby the following are recorded:

- The title of the document

- The author

- The date it was developed

- The date it was approved for use

- Who approved it?

- A document number is allocated to the document

A revision or version number is issued

After these details have been recorded within the document management system, the document can be used.

Examples of different ways to communicate instructions:

- Briefings
- Hand over meetings
- Work orders
- Toolbox meetings
- Site meetings
- Notice boards
- Policies, procedures and manuals

It is important to consider the skills of each team member and ensure that the instructions provided are done so in the most suitable format to ensure correct understanding of the task. Clear instructions will help to avoid having to clarify details or to step in at short notice to correct the actions of a team member if they are going about their work in an inefficient or unsafe way.

A method to confirm that each member of the team has understood instruction is to have them explain back to you, in their own words, what is being asked of them. Another method is to group more experienced team members with not so experienced team members as they will be able to lead by example.

2.3 Set out tasks as required for the effective completion of the civil works

Setting out task needs to be done in such a way that ensures effective completion of the required tasks without creating a hazard.

When developing work plans it is important to:

- Identify which tasks will help ensure goals are achieved and allocate time accordingly.
- Prioritise and get small urgent tasks out of the way first
- Delegate work if other team members are able to do it, or more quickly, or effectively
- Ensure other team members know what they need to achieve each day
- Divide the principal tasks for the day into achievable blocks of work
- Tackle them one at a time

Deadlines

On civil projects it is best to set interim deadlines as well as a final deadline. Allow time for contingencies as the larger the project the more contingency time will be needed. A decision needs to be made on what deadlines are considered fixed or flexible. Don't allow work to take longer than it should. If a task is only worth 2 weeks, make sure it is completed in 2 weeks.

Task outlines

Task outlines may include:

- Establishing control lines
- Establishing the cleared width
- Determining batters
- Establishing offsets

Procedures and requirements set out for the site will be determined by various factors and specifications of the job. These should be established at the beginning of the project however they can change depending on the needs of the tasks during the project

Establishing control lines

Varying from site to site, control lines are used as a base line for measuring. They usually comprise boundary lines, fences, string lines, defined work areas or other details indicated in plans or drawings

Establishing the cleared width

Establishing a cleared width ensures that the work stays within a defined area with the goal of minimizing environmental damage that may occur through earth works by clearly indicated the level of clearing that must be undertaken.

Determining batters

Batters are slopes that usually form naturally in the work location such as an embankment fill area. They often have specific set out requirements to meet slope and grade dimensions.

Establishing Construction offsets

Offsets are used to determine how far off the control line an activity is to take place. A negative number <http://www.slgroupp.com.au/lime-cement-stabilisation-process/> means the offset is to the left of the line, a positive number means the offset is to the right of the line.

The shape of the final product of the job can be manipulated by varying the amount of movement between the right and the left of the control line.

Offset figures are obtained from the site construction plan when establishing offsets.

Levelling devices

Levelling devices are used in many different aspects of the setting out processes – to determine gradients, batters, benches if required, to measure offsets, to determine drainage grades and to help with road geometry.

To ensure effective use of the levelling equipment and devices it is necessary to ensure the equipment is correctly calibrated before using it. How this is done will vary between different brands and models of the equipment. Using the operator's manuals, product specifications and manufacturer's instructions will determine the method for calibration of the equipment.

Chapter 3: Oversee the execution of tasks

By the end of this chapter you will have addressed the following:

- 3.1 Monitor civil works contractors' performance and ensure they achieve the required outcomes
- 3.2 Ensure the safe, effective and efficient conduct of the tasks
- 3.3 Initiate adjustments to civil works practice or job plan and ensure safe execution of work and achievement of required outcomes
- 3.4 Ensure plant equipment and tools maintenance requirements are carried out and recorded

3.1 Monitor civil works contractor's performance and ensure they achieve the required outcomes

To ensure the required outcome is achieved for the construction worksite monitoring task performance is essential.

Monitoring tasks that should be considered are:

- Ongoing risk assessments
- Engineering and survey monitoring
- Maintaining construction records
- Supervising personnel
- Monitoring equipment use
- Monitoring the relationship between different civil works

Ongoing risk assessments (including pre-start risk assessments)

This is the best way to monitor that team members are not placing themselves or other members of the team in danger. The effectiveness of any implemented hazard controls need to be also monitored closely as to ensure they are still suitable controls. Changes to the work site caused by completion of works, weather and other variables can create hazards new and or make hazard controls less effective.

Engineering and survey monitoring

Work being conducted must be in accordance with the engineering requirements. Surveying may need to be conducted at scheduled points to make sure the work is progressing correctly and in accordance with the task specifications. Any changes or deviations from the plans will need to be monitored as well as have the new instructions passed onto the team members undertaking the job.

Maintaining construction records

Progress or incident records as well as material used reports, environmental reports and quality assurance reports may need to be maintained during the construction process. All records need to be prepared and processed properly as they can provide a paper-trail of the work that has been completed so far and action taken to respond to any unexpected circumstances during the week.

Supervising Personnel

Monitoring the work team ensures that they are completing the expected tasks in the expected manner. Monitoring of tasks can determine if the required outcome is being achieved based on:

- Task specifications (how the tasks are to be completed)
- Drawings requirements
- Coordination requirements (between individual members or between different teams)
- Waste management requirements
- Activity scheduling (ensuring tasks are being completed on time)
- Cost requirements (individual costs for different tasks as well as costs of the overall project)

Some examples of monitoring methods include:

- Observation of the tasks and activities
- Monitoring completion times
- Task inspection and reporting
- Individual monitoring, supervision or evaluation

The conduct of the monitoring and inspections will often vary from different sites, tasks and timelines of job completion. Each inspection will have a different reporting, observation and recording procedures that need to be known and followed including checklists, inspection logs or registers and site-specific requirements.

Monitoring equipment use

Monitoring the type of equipment being used and how it is being used is important to identify when the equipment is being used in a way that is dangerous, or may result in damage to the equipment itself. Understanding the limitations and capabilities of the equipment being used by the work team is very important in achieving proper monitoring.

It is also important to consider duration and intensity of work that is being completed as to make sure that the equipment is not pushed to the point of failure as this can negatively affect the site budget and timelines.

Organization of appropriate maintenance activities needs to be monitored closely as well as the team to ensure they complete them with the directions provided. Being aware of which member of the team is using the equipment is also needed to be monitored closely as only personnel that have been properly trained in the use of it may do so. It is a breach of duty of care to allow an untrained or inexperienced person to operate equipment on site.

Monitoring the relationship between different civil works areas

On a large civil works project there are a number of teams all working on different parts of the job. Some of which are reliant on the completion of other work before it can begin, while others may be completed in conjunction with other tasks

For example during pavement construction compaction and levelling of subgrade can occur at the same time as landscaping.

Coordination between work teams will help monitor the progress of tasks directly relating to ones a particular team is in charge of.

3.2 Ensure the safe, effective and efficient conduct of the tasks

Civil construction work often requires workers to follow well-defined procedures and processes. Problems can occur when these procedures are not followed, or when circumstances occur that are not covered by the procedures.

In most cases as the job progresses through the project timeline new hazards and changes to the work environment occur. It is the responsibility of the site supervisor to monitor these changes (planned or unexpected) and initiate the communication process to the workers of the job as well as site managers and planners and review a WHS management plan if needed.

- Situations where a WHS management plan may be reviewed include:
- Changes of critical personnel, for example project manager, site supervisor, site safety manager
- If safety rules on site change
- Changes in legislation, regulations or codes practice

Where there are significant changes to the site conditions that result in changes to persons with responsibility for health and safety or additional persons with responsibility for health and safety

Where reasonably practicable, the review process should be undertaken in consultation with workers (including contractors and subcontractors) at the workplace.

Following the revision of a WHS management plan, if a process has changed, the principal contractor must ensure, so far as is reasonably practicable, that each person carrying out construction work in connection with the construction project is made aware of any revisions to the WHS management plan. This can be achieved by providing the revisions in writing to contractors and holding face-to-face discussions.

3.3 initiate adjustments to civil works practice or job plan and ensure safe execution of work and achievement of required outcomes

Making changes to work practices are a necessary and common practice during the civil construction process. They occur in response to developing site conditions or even as planned changes or revisions passed on from supervisors or engineers. These changes are needed to ensure the safety of personnel and equipment as well as ensuring the required job outcome are achieved. These changes may be necessary to meet:

- Task specification requirements
- Task drawings requirements
- Coordination requirements
- Activity scheduling requirements
- Unit cost requirements
- Overall task cost requirements
- Waste management requirements

When a dangerous or unexpected situation occurs changes are needed to be made quickly as well as communication with all workers involved and the documentation completed once the situation is safe.

Planned changes are a normal process of the civil construction as work progresses. They usually consist of:

- Equipment changes
- Personnel changes
- Safety concerns
- Changes in materials
- Changes in processes
- Any other change onsite known in advance

Normally these changes are initiated in a more controlled manner and completed in a written format. Often procedures, Work Method Statements (WMS), work instructions or process directions will need to be re-written to accommodate these changes.

3.4 Ensure plant equipment and tools maintenance requirements are carried out and recorded

All plant and equipment must be inspected and maintained by a competent person in accordance with the procedures provided by the designer or manufacturer. Plant and equipment must be made safe during inspection, maintenance, cleaning, alteration and repair and if necessary, the plant stopped to gain access.

A risk assessment or safe work procedure must be undertaken prior to the commencement of the work to ensure that appropriate controls are used to protect persons working on or near plant and equipment during cleaning, maintenance, alterations or repairs. Plant isolation will be conducted in accordance with the Plant Isolation Safety Tag and Lockout Procedure.

Unsafe plant and equipment can be identified via:

- Equipment inspections
- Pre-operational checks
- Hazard and incident reporting process

If an item of plant or equipment is considered damaged, faulty or in need of repair, an 'Out of Service' tag is to be fitted by the person who considers the plant damaged or faulty. A maintenance request would be initiated by the person and the piece of plant and equipment would be isolated and removed from service until it is made safe. The incident should be reported through the hazard and incident reporting process. These incidents may require an investigation by police, WHSO, Insurance Companies or others, depending on the circumstances.

INFLUENCE: Plant and Equipment Maintenance Procedures Version: 2

Chapter 4: Report on the execution of tasks

By the end of this chapter you will have addressed the following:

- 4.1 Complete and submit written and verbal reports
- 4.2 Recommend improvements to safety, efficiency and effectiveness.

4.1 Complete and submit written and verbal reports

The reports that are completed may be comprised of different types of data, including:

- The measurements used for the ordering of materials
- The test results of materials
- Photographs of the project under completion
- Diary notes of the Project Manager providing insight into daily tasks, events and attainment of milestones

Reports are usually based on common templates and should be completed in a legible, non-emotional based and concise manner – The reader of the report needs to get sufficient information from the report to have a clear understanding of the information be relayed.

In recent times, the use of 'info-graphics' is becoming more and more popular, in order to present a great expanse of critical information in a simple, engaging and attractive manner. They are graphic visual representations of information, data or knowledge intended to present information quickly and clearly. They can improve understanding by utilising graphics to enhance the reader's ability to see patterns and trends.

Reporting requires a factual account of what happened throughout the job and what was not planned for. The report needs to have information presented logically and have statements with backed up evidence. Following is a basic structure of a reporting format:

- Executive Summary – this provides a 'snapshot' or shortened version of what is contained within the report. It focusses on the key outcomes of the report and is generally not any longer than one page.
- Introduction – this is where the background information and context of the topic is described.
- Maintenance Plan Documentation – this section describes the maintenance execution as per the documented plan and how the plan was maintained.
- Resource management – describes the methods used to manage all aspects of resources (facilities, people, tools, equipment etc.) in the maintenance activities
- Budget Performance - Did the maintenance activities occur as per the budget, was it under budget or over budget, and why.
- Lessons Learned – the focus on the things that went well and those that didn't. This forms the basis for recommendations and continuous improvement analysis.
- Summary of Recommendations – this is where recommendations are made and described concisely in how, when, and why they are being made.
- Appendices – are used to attach supporting documentation or additional, more detailed, information that is referred to throughout the report.

The content of reports should be able to assist the relevant Manager or other interested stakeholders in analysing data to identify various aspects, including:

- Cost over-runs
- Deviation from the plan
- Incident causation and contributing factors
- Trends in hazards reporting, incident occurrences and control actions
- Opportunities for gaining greater efficiency

- Opportunities for gaining greater effectiveness
- Opportunities for improving the overall performance

4.2 Recommend improvements to safety, efficiency and effectiveness

Recommended changes are sometimes needed in order to improve the safety, efficiency and effectiveness of the civil work program and tasks being undertaken. These areas may include:

- Processes
- Methods
- Safety procedures
- Materials
- Activities
- Schedules
- Manpower
- Sub-contractors

Recommendations for change should be based on real evidence and should provide an outline of the kind of improvements that can be expected. If the improvement is required to improve safety, a realistic description of the potential for danger (risk analysis) should always be included with the recommendation.

If recommendation is for further training or specialisation, an outline of why the cost of training will be outweighed by the ongoing benefit of training should be included in the report. It is important to outline the general training process including the use of 3rd party training organisations, on-site training or sending personnel off for a period of time to learn the skills off-site. All of these options will have different management requirements that need to be considered when making a decision about how training should occur.

Recommendations should be presented in a logical, emotionless and thoroughly. Major change recommendations should be made in a written format, while minor changes, such as operator changes, can be made verbally.

Conclusion

You will have by now covered:

- accessing, interpreting and applying legislative, organisation and site requirements and procedures for:
 - risk assessment and management
 - statutory compliance
 - work, health and safety
 - environmental management
 - quality management
 - work zone traffic management
 - contract management
 - communication
 - administration
 - plant, equipment and tools maintenance
 - recording and reporting
 - employment
 - workplace relationship
 - organisational and site operational obligations
 - materials quality and delivery requirements and procedures
- the relationship between various areas of civil works
- civil works plant and equipment capabilities and limitations
- using team leadership techniques
- works planning techniques
- civil works monitoring methods
- engineering survey principles
- mentoring techniques
- civil works construction sequencing
- set out requirements and procedures
- road geometry
- drainage requirements

This resource guide provided the required knowledge to undertake the theory assessment for RIICWM402D Supervise civil works contractors for written assessment purposes.

Please understand that you will need to review the information from the guide as required to reinforce your learning. If there are any objectives you are still unclear about, please discuss them with your trainer. Or if you would like to know more about the next step in your academic please talk to your trainer (or one of our consultants) and ask about further pathways to more qualifications.

Once you fulfil the theory and practical assessments related to this section of the course you will have completed and hopefully gained competency.

We wish you the very best and thank you for your participation.