

ALAWA PLUMBING PTY LTD



Environmental Management Plan – for Power Water Corporation Panel Contract Tender (PWD00202-15) for civil and hydraulic works and services to water and sewerage infrastructure for a period of 36 months for the Northern Region – Darwin, Batchelor and Adelaide River Panel Contract

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1. Introduction

1.1 Background

This Environmental Management Plan (EMP) is in accordance with the Tender requirements for a panel contract for civil and hydraulic works and services to water and sewerage infrastructure for a period of 36 months (PWD00202-15).

The EMP will provide a framework for environmental management requirements for these works and is in accordance with existing legislative requirements. It will also outline management procedures to minimize adverse environmental impacts as a result of these activities.

Alawa Plumbing's Integrated Quality, Health, Safety and Environment System (QHS&E) Management System includes the environmental requirements for the business (Refer to Appendix E for overview of QHS&E Framework).

This EMP is a module of Alawa Plumbing's QHS&E Management System and has been developed in context with this panel contract (PWD00202-15) requirements. The EMP is aligned with the Northern Territory Department of Infrastructure "Standard Specification for Environmental Management" which outlines the minimum standards for environmental management for PWC projects.

Alawa Plumbing is in the initial stages of application for certification to the internationally recognized Environmental Management System ISO 40001:2004 framework. Once certification is completed, this certification will remain in place until next review date. After this date, the ISO:2015 will apply. Appendix C details the formal correspondence with ECAAS which are the recognized certification and training body.

1.2 Purpose of the EMP

This EMP has been developed by Alawa Plumbing Pty Ltd for activities related with the panel contract for the Northern Region – Darwin, Batchelor and Adelaide River – panel contract for the provision of civil and hydraulic works and services to water and sewerage infrastructure for a period of 36 months.

This EMP aims to ensure that:

- all environmental safeguards are carried out correctly;
- site activities are well managed;
- adverse impacts on the environment are minimised;
- the biodiversity of the site is conserved or enhanced;
- all relevant legislation and standards is complied with;
- the project is regularly monitored for environmental impact; and
- reviewed and improved to meet relevant regulations standards.

This document is designed to provide environmental guidance to key personnel involved in the activities and to be used as a reference manual for all personnel and contractors involved. It does not replace the need for individual sub-contractors to develop a detailed EMP for their activities.

1.3 Structure of the EMP

The EMP contains the following:

- Chapter 1 Introduces the EMP;
- Chapter 2 Outlines legislative and management requirements;
- Chapter 3 Hazard Identification and Risk Assessment;
- Chapter 4 Identifies roles and responsibilities of key personnel;
- Chapter 5 Environmental Sub plans for managing and mitigating risks;
- Chapter 6 Monitoring measurements and reporting requirements;
- Chapter 7 Incident response and investigation; and
- Chapter 8 Appendices.

2. Statutory Requirements and Guidelines

Requirements for the development and implementation of this EMP are in accordance with the Northern Territory Department of Infrastructure “Standard Specification for Environmental Management, First Edition:2014 (the “Environmental Specifications”).

These standards outline the minimum standards for environmental management for PWC projects.

2.1 Relevant Legislation and Guidelines

Personnel involved in the activities need to be aware of provisions contained in the legislation and related regulations. The Northern Territory *Waste Management Pollution Control Act (WMPC Act)* has regulated guidelines for the classification or mitigation of environmental perturbations. This includes waste management, air pollution, noise and vibration pollution, and disposal of hazardous materials.

All parties will need to be aware of the provisions contained in the legislation.

All personnel involved in the activities will:

1. Be reminded of their statutory responsibility to minimise the impact of the works on the environment;
2. Carry out their work in accordance with the responsibilities outlined in Chapter 4 of this EMP; and
3. Be made aware that under the *Water Act* and *WMPC Act*, the maximum penalties for intentionally failing to notify a pollution incident are up to \$50,000 for a person and \$250,000 for a company. The person undertaking an activity must notify the Administering Authority within 24 hours of becoming aware (or from when the person could reasonably expected to have become aware) of an incident such as a spill which has caused, or is likely to cause, moderate (material) or serious environmental harm.

The notification must include details of:

- the incident;
- the place, date and time of the incident;

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- how the pollution occurred, is occurring or may occur;
- any attempts made to deal with the pollution or resultant environmental harm; and
- the contact details of the person notifying

Offences created under the *Water Act* and *WMPC Act* result in penalties established under the Environmental Offences and Penalties Act. There are four levels of environmental offences as outlined in Table 1.

Table 1 Penalties under the Environmental Offences and Penalties Act.

<i>Environmental Offence</i>	<i>Penalty: Individual</i>	<i>Penalty: Body Corporate</i>	<i>Continuing Daily Penalty</i>	<i>Example</i>
Level 1	\$25,000 - \$250,000 and/or up to 5 years in prison	\$125,000 - \$1,250,000	Up to \$25,000	Intentionally causing pollution resulting in serious environmental harm.
Level 2	\$10,000 - \$100,000	\$50,000 - \$500,000	Up to \$10,000	Intentionally causing pollution resulting in material environmental harm.
Level 3	\$5,000 – \$50,000	\$25,000 - \$250,000	Up to \$5,000	Intentionally failing to comply with approval or license.
Level 4	Up to \$5,000	Up to \$25,000	Up to \$500	Causing environmental nuisance.

2.2 Statutory Requirements

Other Related regulatory requirements will include from time to time:

- Northern Territory Aboriginal Sacred Sites Act and Regulations;
- Bush fires Act and Regulations;
- Dangerous Goods Act and Regulations;
- Environmental Assessment Act and Administrative Procedures;
- Environment Protection and Biodiversity Conservation Act (EPBC);
- Environmental Offences and Penalties Act and Regulations;
- Heritage Act and Regulations;
- Litter Act;
- Soil Conservation and Land Utilization Act;
- Territory Parks and Wildlife Conservation Act (TPWC Act) and Regulations;
- Waste Management and Pollution Control Act (WMPC Act) and Regulations;
- Water Act and Regulations;
- Water Supply and Sewerage Services Act; and
- Weeds Management Act and Regulations.

2.3 Applicable Standards and Guidelines

Comply with the following where applicable:

- Australian Standards;
- Other International Standards where Australia does not have a relevant Standard;
- Codes of Practice;
- NT Government Publications;
- Australian and New Zealand Environmental and Conservation Council Publications (ANZECC);
- National Environment Protection (Ambient Air Quality) Measure 1998 (Air NEPM); and
- Northern Territory Department of Infrastructure Guide Notes

2.4 Approvals Licenses and Permits

Alawa Plumbing will obtain all necessary environmental approvals, licenses and permits as necessary to ensure all PWC projects are conducted competently and within the regulatory requirements. These can include, but not limited to: Listed Waste Transport Permits, Dial Before you dig Permits.

Alawa Plumbing will liaise with the PWC if a project triggers the requirement for a Waste Discharge License or formal assessment under the *Environmental Assessment Act*. At this stage it is understood that PWC will obtain these authorizations.

3. Hazard Identification, Risk Assessment and Control

Alawa Plumbing will not commence construction work at a place of work unless:

- the principal contractor has provided Alawa Plumbing with a copy of the relevant parts of its workplace Environment Management Plan;
- Alawa Plumbing has undertaken an assessment of the potential and actual environmental risks associated with the work activities and the potential impacts these activities may have on the environment. Appendix B provides details of the risk assessment.
- The Safe Work Method Statement (SWMS) is currently used by Alawa Plumbing for WHS. This procedure will be the adopted form used to capture the identified environmental risks and appropriate mitigation methods which will be provided to the principal contractor; and
- Alawa Plumbing has provided induction training to all employees.

Alawa Plumbing maintains and updates the SWMS as the job changes. The risk register will be updated as required to meet changes to SWMS and outcomes of site inspections.

Alawa Plumbing identifies the potential environmental hazards of the proposed work activities, assesses the risks involved and develops controls measures to eliminate, or minimise the risks. The risk management process has been carried out in consultation with employees.

IDENTIFY HAZARDS

Alawa Plumbing has identified all potential environmental hazards and risks established within each of the work activities and associated job steps identified in the SWMS. The hazards were then characterized into two main areas including the site related activities and workshop and depot activities.

These work activities are also detailed in a SWMS which are further broken down to specific tasks and lists each of the job steps and other work related practices.

To assist in identifying environmental hazards and risks, Alawa Plumbing has considered the use of resources such as codes and standards, industry publications; hazard profiles for specific trade groups, workplace experience and consultation (i.e. Toolbox Talks).

ASSESS RISKS

Alawa Plumbing has identified an environmental risk class/ranking for potential workplace hazards by referring to the categories ranging from high to low in a risk matrix.

This procedure aims to provide a process to systematically identify hazards, assess each hazard, determine the associated risk level and implement appropriate control measures.

The Manager, Supervisor or Site Environmental Representative shall ensure that Environmental hazards and risks are satisfactorily assessed, controlled and monitored.

The identification of hazards and the assessment of risks shall be undertaken before:

- the introduction of any plant or substance for the first time at a workplace;

- before work of a type not previously performed at a workplace is commenced;
- when there is a change in the type of work, work practices or plant at a workplace that may result in an increased risk to the environment; or
- when information becomes available concerning work, work practices, plant or substances at a workplace that may impact on the environment;
- where an assessment indicates that there is a significant risk to the environment, steps to be taken to meet the requirements of these regulations shall be identified; and
- An assessment shall be revised when there is evidence to indicate that it is no longer valid, or in any case, at intervals not longer than 5 years.

A record of assessments shall be kept

- for a period of 30 years after the last review, where the assessment relates to exposure of a worker to a hazardous substance and its relationship with the environment and the assessment indicates a requirement for health surveillance or for monitoring of a worker's exposure to the substance; and
- for a period of 5 years after the last review, for all other assessments.

Related Documentation

- Safe Work Method Statement
- Hazard/Accident/Incident Investigation form
- Toolbox meeting record Hazard Inspection
- Safe operation of mobile plant and equipment
- Plant Safety Risk Assessment
- Workplace inspection form
- WHS Hazard Assessment & Control Form
- Hazard Register
- Legislative Requirements, NT *Waste Management and Pollution Control Act* and Regulations; Workplace Health and Safety Act, Regulations, Codes of Practice and Australian Standards

3.1 Hazard Identification Process

An environmental hazard is the state of events that has the potential to threaten the surrounding natural environment and adversely affect people's health.

The process of hazard identification involves identifying all potential environmental hazards/issues related to the activity. Preparation before commencement of new on-site works will involve, induction, then pre-start and toolbox meetings throughout the project duration. The Job Hazard Analysis (JHA) is also known as a Job Safety Analysis (JSEA), Safe Work Method Statements (SWMS), Risk Assessment (RA), and Standard Task Instruction (STI).

Monthly inspections and audits are completed and improvements made and updated into the risk assessment. This means that the risk assessment process is continually reviewed and updated to reflect changes to the works site and business.

RISK LEVEL

Risk is the combination of the probability and possible consequence of harm/impact to the natural environment and people's health arising from exposure to a hazard.

$$\text{Probability} \times \text{Consequence} = \text{Risk Level}$$

Alawa Plumbing has identified a risk class/ranking for potential workplace hazards by referring to the categories in the matrix below.

Step 1: Alawa Plumbing identifies the consequence for each potential risk by using the table below.
Note: If a combination of harm, loss or damage could occur the worst case consequence is selected.

Step 2: Using the following table, Alawa Plumbing determines how likely it is that the risk will occur and result in the consequence identified above.

Step 3: Using the risk matrix below, Alawa Plumbing identifies the risk class/ranking.

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Table 2 Alawa Plumbing Environment Risk Matrix

CONSEQUENCE		LIKELIHOOD				
		Almost Certain Expected to occur in most circumstances (e.g. once per week)	Very Likely Will probably occur in most circumstances (e.g. once per month)	Possible Might occur occasionally (e.g. once per year)	Unlikely Could happen sometime (e.g. once in 10 years).	Rare May happen in exceptional circumstances (e.g. once in 100 years)
S E V E R E I T Y	Extreme – An event or incident that causes substantial permanent damage to the environment. Significant resources required to implement control resulting in permanent damage.	1 Catastrophic	1 Catastrophic	2 High	2 High	2 High
	Major – An event or incident that causes substantial long term negative effect or damage to environment with significant resources required to implement control resulting in minor permanent damage.	2 High	2 High	2 High	3 Medium	3 Medium
	Moderate – An event or incident that causes widespread temporary damage, which requires extended resources to remedy resulting in full recovery.	2 High	2 High	3 Medium	4 Medium	4 Medium
	Minor – An event that causes localized low level damage that is controlled and remedied with minimal resources.	3 Medium	3 Medium	4 Medium	5 Low	5 Low
	Insignificant – An event that is contained within controls and/or an event that is too minor to cause a long term measureable impact.	4 Medium	4 Medium	5 Low	5 Low	6 Low

Table 3 Risk Ranking Responsibility Table

Risk Level	Role Responsible	Action	Monitoring
Catastrophic	CEO/ Board	Cease operation until appropriate controls are in place to lower risk	Risk Register Review
High	CEO	Introduce controls to reduce consequence and/ or likelihood	Incidents & Inspection
Medium	Section Manager	Implement & maintain controls & report incidents& system failures	Incidents & Inspection
Low	Staff	Follow all WHS instruction & report all incidents	Incidents & Inspection

RISK CONTROL

Where a risk to the environment has been identified, controls must be introduced to reduce risk levels to an acceptable level. This is done by reducing the likelihood and/or consequence that may result from this hazard. When introducing a control measure, consideration should be given to what is “practicable” in each instance.

“Practicable” means having regard to:

- The severity of the hazard or risk in question;
- The state of knowledge about the hazard or risk and any way of removing or mitigating that hazard or risk;
- The availability & suitability of ways to remove or mitigate that hazard or risk; and
- The cost of removing or mitigating that hazard or risk.

The following **HIERARCHAL APPROACH** to risk control is used within the Alawa Plumbing WHS Plan.

1. **Elimination** of the hazard or risk or reduction of the risk
2. **Substitution** of the plant or activity to one with a lower level of risk
3. **Engineering controls** – redesign or alter the plant or equipment to ensure the work is performed safely
4. **Administrative Controls** – prepare procedures/ instructions to ensure the work is performed safely
5. **Personal Protective Equipment** type controls. Protective equipment should always be the last control option.

A combination of controls is often appropriate; however, the solution should follow this Hierarchy of Control.

MONITORING

Once control mechanisms have been established regular monitoring takes place. This monitoring may include, but not be limited to:

- Seriousness of the Environmental risk;
- Experience & skill of employees involved;
- Legislative or client requirements;
- Supervision;
- Checklists associated with work procedures;
- Hold points or critical inspection points;
- Records or regular testing or inspections; and
- Specific monitoring checklist.

3.2 Environment Risk Assessment

Alawa Plumbing’s Environment Risk Assessment/Register is detailed in Appendix B. The assessment identified all potential environmental hazards and risks established within each of the work activities and associated job steps identified in the SWMS. The hazards were then characterized into two main

areas including the site related activities and workshop and depot activities. Control measures/treatment measures and responsibilities have been provided to minimize/treat the identified risks.

Chapter 5 of this EMP details the Environmental Sub-Plans for each of the hazards identified.

The Sub-Plans a split up activity and details the issues, objectives, relevant procedures, and management plan.

4. Site Team Responsibilities

The site team responsibilities for Alawa Plumbing Pty Ltd of the following parties involved are outlined below.

Alawa Plumbing has contracted a third party Environmental consultant to develop and integrate the environmental management system into the current management system. The Consultant will also provide onsite advice and conduct site inspections quarterly against the requirements of the EMP. The third party consultant will provide a report and recommendations to Alawa Plumbing at the end of each inspection.

1. Third Party Environment Consultant
2. Project Manager & Site Supervisor/Environmental Representative
3. Tradesman's/labourer
4. Sub-Contractors
5. Emergency Contact
6. Principal

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Table 4 Site Team Responsibilities

Title	Name and Contact Details	Responsibility
Third Party Environment Consultant	Ms Sally Horsnell 0455 669 600	Will also provide onsite advice and conduct site inspections quarterly against the requirements of the EMP. The third party consultant will provide a report and recommendations to Alawa Plumbing at the end of each inspection.
Project Manager and Site Supervisor/Environmental Representative	Nestoras Makrylos 0408 894 783	Certify work is being carried out according to the EMP. Make sure all activities are completed according to specifications. Direct site activities according to EMP. Make sure all work crews are aware of any changes to the EMP and revised procedures. Conduct the site inspections and sign off all environmental measures have been met. Carry out the SWMS with the crew. Make sure all work crews are inducted in environmental and emergency procedures.
Tradesman's/ labourer	Nicholas Makrylos Mick Gilfuis Peter Whitford Jason Cox Petros Kastellorizor Jimmy Voukoulos	Attend site induction and other training sessions. Make sure procedures are followed. Advise Site Supervisor of any potential or actual breaches of plans or statements. Advise Site Supervisor of any suspected sightings of rare threatened flora or fauna or archaeological or heritage items.
Subcontractors	N/A	Attend site induction and other training sessions. Make sure procedures are followed. Advise Site Supervisor of any potential or actual breaches of plans or statements. Advise Site Supervisor of any suspected sightings of rare threatened flora or fauna or archaeological or heritage items.
Emergency Contact	Nestoras Makrylos 0408 894 783	Ensure available for contact when required i.e. call-out.

5. Environmental Management Program

5.1 Environmental Management Structure

Table 5 details the layout of each of the Environmental Sub Plans and define each of the elements.

Each of the Environmental Sub Plans listed hereunder details Alawa Plumbing’s commitment to manage the identified risks.

- Land Management Sub Plan
- Flora and Fauna Sub Plan
- Weed and Pest Management Sub Plan
- Air Quality Management Sub Plan
- Water Management Sub Plan
- Noise and Vibration Management Sub Plan
- Waste Management Sub Plan
- Community Consultation Sub Plan
- Hazardous Materials Management Sub Plan
- Environmental Communications Management Sub Plan
- Cultural Heritage Management Sub Plan

Table 5 Key Elements of EMP

Element	Purpose
Issue	Introduces and discusses the main themes of the issue(s) to be addressed in the relevant Sub Plan.
Objectives	Identifies relevant environmental management objectives for each environmental issue.
Relevant Legislation	Legislation directly related to the environmental issue/activity.
Applicable Standards and guidelines	Standards and guidelines directly related or referenced to the environmental issue/activity.
Procedures, Instructions and Forms	SOP/JSEAs/SWMS are Alawa Plumbing’s documentation used to capture the information i.e. activity/hazard and provide a mechanism for management.
Management Plan	<p><i>Strategy/Action</i> - Provides a summary of how environmental objectives are to be achieved by specifying practical actions. This section identifies general tasks and specific requirements for environmental management.</p> <p><i>Monitoring</i> – Monitoring is undertaken to ensure environmental safeguards are being effectively applied.</p>

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Element	Purpose
	<p><i>Responsibility</i> – Person(s) responsible to ensure the strategy/action(s) are done correctly.</p> <p><i>KPI</i> – Key Performance Indicators are a measure of success of strategy/action.</p> <p><i>Non conformance</i> – Point at which nonconformance with the performance objectives or implementation strategies are identified.</p> <p>Identifies actions to be undertaken should circumstances arise where limits defined by the performance objectives and targets are exceeded.</p> <p><i>Corrective action</i> – Identifies actions to be undertaken should circumstances arise where limits defined by the performance objectives and targets are exceeded.</p>
Reporting	Identifies responsibilities, format and frequency for environmental reporting.

5.2 Land Management Sub Plan

5.2.1 Issue

The main activity involved with the disturbances to land surfaces includes earth excavation such as digging holes/trenches and backfilling. These activities impact the land surface, soils and vegetation, may disturbed protected areas, underground and surface services and infrastructure.

Alawa Plumbing is required to obtain all the necessary Permits, License and Approvals prior to excavating a trench/hole.

Buffer Zones need to be well planned and understood by all site employees and enforced by the Supervisor. Areas need to be demarcated for soil and other stock pile zones and laydown areas.

Having these control in place will help manage surface water flows and pollution discharge from site causing sedimentation to open gutters, drains, waterways and other nearby land surfaces.

It is critical to ensure site work areas and foot prints are limited where practical i.e. vehicular activity, excavations, points of entry and exit. This will minimise land surface disturbances and areas of soil compactions.

Minimising total footprint areas and unnecessary wastage of usable soils or inefficient use of existing soil resources will reduce the overall costs for site rehabilitation.

5.2.2 Objectives

- To ensure all relevant Permits and Approvals are completed prior to the activity.
- To ensure all site staff are aware of project requirements for land disturbances.
- To manage of site waste water discharge.
- To manage safe work areas.
- To ensure no soil wastage, erosion or contamination during excavation.
- To re-use on site soil resources for minimal wastage.

5.2.3 Relevant Legislation

- *Environmental Assessment Act*
- *Environment Protection and Biodiversity Conservation Act (EPBC)*
- *Environmental Offences and Penalties Act*
- *Soil Conservation and Land Utilization Act*
- *Waste Management and Pollution Control Act (WMPC Act)*
- *Water Act*

5.2.4 Applicable Standards and Guidelines

- Australian Standards
- Other International Standards where Australia does not have a relevant Standard
- Codes of Practice
- NT Government Publications
- Australian and New Zealand Environmental and Conservation Council Publications (ANZECC)

- Northern Territory Department of Infrastructure Guide Notes

5.2.5 Procedures, Instructions and Forms

- AP Plant Safety Checklist
- AP Incident and Investigation Procedure and Forms
- QHSE-Reg-05-A Incident Register
- AP Permit to Work_Excavations_Trenches
- Job Safety and Environment Analysis-A
- QHSE-Reg 01-A 2013 Corrective Preventive Actions Reg
- QHSE-For 08-A Hazard & Corrective Action Report-A
- QHSE-For 15-A_SWMS_009_Back Yard Dig
- QHSE-For 15-A_SWMS_011_Plant Operation - Loader-Excavator
- QHSE-Pro 12-A Audit & Inspection Procedure-A
- QHSE-Reg 09-A Inspection & Audit Schedule

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Table 5 Land Management Sub Plan

Strategy	Rationale	Action	Responsibility	KPI	Monitoring	Nonconformance/ Corrective action
Ensure there are adequate/correct environmental permits/licenses in place for the project.	To prevent land surface degradation. Soils and vegetation. Maintain protected areas disturbed.	Obtain all the necessary permits for excavations	Senior Manager / Site Supervisor To ensure relevant permits and obtained and understood prior to works commence	Register of all licenses and permits obtained for the project and held at the Alawa Plumbing Depot site office.	Job Safety and Environmental Analysis is completed for each job and submitted to Principal. Development of a SWMS.	Review of management procedures to obtain permits/ license and approvals. Ensure all workers understand the procedures required.
Excavating outside of permitted area.	To prevent land surface degradation. Soils and vegetation. Maintain protected areas disturbed	Ensure all staff area aware of the no go areas/buffer zones. Install flagging tape and/or bollards.	Senior Manager / Site Supervisor To ensure relevant permits and obtained and understood prior to works commence	Signed off on JSEA, Tool Box meetings sign – off to ensure all staff area aware of project requirements.	Job Safety and Environmental Analysis is completed for each job and submitted to Principal. Development of a SWMS.	Upon receipt of comply the Site Supervisor will contact the Projects Officer who will then liaise with Principal to resolve issue.
To prevent sedimentation from work areas to receiving natural and constructed environments.	To prevent sedimentation to open drains/gutters, waterways, land surfaces	Site Worker: Cover stockpiles and surround jobsite with sediment fence to stop materials washing away. Site Supervisor: Using site plan provided, mark out areas for stockpiles, washout area, materials storage, etc. Site Supervisor: Establish site access and wheel wash or shake down to prevent soil and materials being tracked onto the road. Site Supervisor: Explain how sediment controls work and the importance of the controls to all site workers and subcontractors when they start work. Site Worker: Roads and pavements to be swept (not hosed) daily as needed. No materials to go into storm water drains or gutters.	Site Supervisor Enforce use of SWMS or Work Instructions. Discipline those not following rules	Signed off on JSEA, Tool Box meetings sign – off to ensure all staff area aware of project requirements.	Job Safety and Environmental Analysis is completed for each job and submitted to Principal. Development of a SWMS.	

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Strategy	Rationale	Action	Responsibility	KPI	Monitoring	Nonconformance/ Corrective action
Damage to works and pollution due to site flooding	To prevent sedimentation to open drains/gutters, waterways, land surfaces	Site Supervisor: Check daily and after rain that any exposed soil is contained within the erosion and sediment controls. Setup barriers, witches hats and boundaries of job site.	Site Supervisor: Check daily and after rain that any exposed soil is contained within the erosion and sediment controls. Setup barriers, witches hats and boundaries of job site	Supervisor Enforce use of SWMS or Work Instructions. Discipline those not following rules	Job Safety and Environmental Analysis is completed for each job and submitted to Principal. Development of a SWMS.	
Unstable trench walls/trench causing localized destabilization to area	To maintain public safety, land surface degradation to Soils and vegetation	Review wall stability with a view to shoring if needed. Review needs and reassess if conditions change i.e. Water ingress to excavation or rain.	Senior Manager / Supervisor Enforce use of SWMS or Work Instructions. Discipline those not following rules	Supervisor Enforce use of SWMS or Work Instructions. Discipline those not following rules	Job Safety and Environmental Analysis is completed for each job and submitted to Principal. Development of a SWMS.	
Unnecessary extended disturbance area from vehicular activity at work site	To minimise and maintain land surface degradation and disturbance to soils and vegetation.	Clearly mark the site access point and give access map to all site workers and suppliers. Site worker to fence off areas which are off limits to vehicles. Supervisor to mark out the areas to be excavated. Minimize disturbance areas where practical and within the limits of the permit. Instruct all drivers to use access point.	Supervisor Enforce use of SWMS or Work Instructions. Discipline those not following rules	Supervisor Enforce use of SWMS or Work Instructions. Discipline those not following rules	Job Safety and Environmental Analysis is completed for each job and submitted to Principal. Development of a SWMS.	

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Strategy	Rationale	Action	Responsibility	KPI	Monitoring	Nonconformance/ Corrective action
Manage soil compaction and wastage	To minimise and reinstate areas of activity particularly high traffic areas	Clearly mark the site access point and give access map to all site workers and suppliers. Site worker to fence off areas which are off limits to vehicles. Supervisor to mark out the areas to be excavated. Minimize disturbance areas where practical and within the limits of the permit. Instruct all drivers to use access points.	Site Supervisor Enforce use of SWMS or Work Instructions. Discipline those not following rules	Supervisor Enforce use of SWMS or Work Instructions. Discipline those not following rules	Job Safety and Environmental Analysis is completed for each job and submitted to Principal. Development of a SWMS.	
Wastage of usable soil	To prevent poor or inefficient use of existing soil resources	Excavator: Strip topsoil at start of works and store in stockpiles no more than 1.5 metres high in designated material storage area. Site Supervisor: Calculate quality and quantity of site soil available for works. Retain materials for use on site where possible. Local soil characteristics to suit local self-sustaining plants.	Senior Manager / Manager To ensure rectification work completed as soon as possible	Supervisor Enforce use of SWMS or Work Instructions. Discipline those not following rules	Job Safety and Environmental Analysis is completed for each job and submitted to Principal. Development of a SWMS.	
Prevent soil erosion	To minimise and maintain land surface degradation and disturbance to soils and vegetation	Minimize soil compaction on the site, excavate only where necessary Site Supervisor: Only remove sediment controls after all surfaces have been stabilized. Remove vegetation only in areas designated during the planning stage. Site Supervisor: Check daily and after rain that any exposed soil is contained within the erosion and sediment controls.	Site Supervisor ensure rectification work completed as soon as possible	Supervisor Enforce use of SWMS or Work Instructions. Discipline those not following rules	Job Safety and Environmental Analysis is completed for each job and submitted to Principal. Development of a SWMS.	

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Strategy	Rationale	Action	Responsibility	KPI	Monitoring	Nonconformance/ Corrective action
Manage all Emergency environmental Incidents	To maintain compliance with relevant legislation	ENVIRONMENTAL INCIDENT – The NT EPA Pollution hotline is required to be contact within 24 hours and an incident report provided. Follow up investigations as required and in consultation with Authorities.	Management Emergency procedures developed and incorporated into Environmental Management Plan Supervisor Incident Response and emergency procedures communicate, tested and reviewed regularly	Management/ Supervisors to enforce procedures. Discipline those not following rules	Follow AP Incident and Investigation procedures and Forms as required.	

5.2.5 Reporting

The Site Supervisor is to document all nonconformance's, incidents, corrective actions and complaints.

The Site Supervisor is to keep a register of all nonconformance's, corrective actions, incidents, and complaints.

5.3 Flora and Fauna Management Sub Plan

5.3.1 Issue

The main activity involved with interaction with flora and fauna include creating areas for fauna entrapment and removing vegetation without formal approval.

Alawa Plumbing is required to obtain all the necessary Permits, License, Approvals prior to removing vegetation. There is a risk of disturbing or destroying vegetation with maintains an anthropologically/ecological significance/heritage status and or the risk of creating unrest with the local community by removing vegetation from backyards or neighbouring properties/parks without approval.

All excavations are not to be left unattended, or covered and flagging of bollards put around the excavation if the works extend more than one day

5.3.2 Objectives

- To ensure there all relevant Permits and Approvals are completed prior to the activity.
- To manage safe work area.

5.3.3 Relevant Legislation

- *Bush Fires Act*
- *Environmental Assessment Act*
- *Environment Protection and Biodiversity Conservation Act (EPBC)*
- *Environmental Offences and Penalties Act*
- *Territory Parks and Wildlife Conservation Act (TPWC Act)*

5.3.4 Applicable Standards and Guidelines

- Australian Standards
- Other International Standards where Australia does not have a relevant Standard Codes of Practice
- NT Government Publications
- Australian and New Zealand Environmental and Conservation Council Publications (ANZECC)
- Northern Territory Department of Infrastructure Guide Notes

5.3.5 Procedures, Instructions and Forms

- AP Incident and Investigation Procedure and Forms.
- QHSE-Reg-05-A Incident Register

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- Job Safety and Environment Analysis-A
- QHSE-Pro 12-A Audit & Inspection Procedure-A
- QHSE-Reg 09-A Inspection & Audit Schedule

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Table 6 Flora and Fauna Management Sub Plan

Strategy	Rationale	Action	Responsibility	KPI	Monitoring	Nonconformance/ Corrective action
Ensure there are adequate/correct environmental permits/licenses in place for the project.	Loss of vegetation with potential anthropological/ ecological significance and disgruntle residents/community.	Obtain all the necessary permits for excavations. Ensure all necessary Permits are gained prior to removal of vegetation. Consultation with residents regarding the vegetation to be removed.	Senior Manager To ensure relevant permits and obtained and understood prior to works commence. Supervisor Enforce use of SWMS or Work Instructions. Discipline those not following rules	Register of all licenses and permits obtained for the project and held at the Alawa Plumbing Depot site office.	Job Safety and Environmental Analysis is completed for each job and submitted to Principal. Development of a SWMS.	Review of management procedures to obtain permits/ license and approvals. Ensure all workers understand the procedures required. Upon receipt of comply the Site Supervisor will contact the Projects Officer who will then liaise with Principal to resolve issue.
Manage and supervise all excavations.	Animal entrapment, Risk to public safety.	Supervisor to demarcate excavation area using panel fencing and property owner notified if works not completed within 1 day.	Senior Manager / Supervisor Enforce use of SWMS or Work Instructions. Discipline those not following rules	Supervisor Enforce use of SWMS or Work Instructions. Discipline those not following rules	Job Safety and Environmental Analysis is completed for each job and submitted to Principal. Development of a SWMS.	

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Strategy	Rationale	Action	Responsibility	KPI	Monitoring	Nonconformance/ Corrective action
Manage all Emergency environmental Incidents	To maintain compliance with relevant legislation	ENVIRONMENTAL INCIDENT – The NT EPA Pollution hotline is required to be contact within 24 hours and an incident report provided. Follow up investigations as required and in consultation with Authorities.	Management Emergency procedures developed and incorporated into Environmental Management Plan Supervisor Incident Response and emergency procedures communicate, tested and reviewed regularly	Management/ Supervisors to enforce procedures. Discipline those not following rules	Follow AP Incident and Investigation procedures and Forms as required.	

5.4.5 Reporting

The Site Supervisor is to document all nonconformance's, incidents, corrective actions and complaints.

The Site Supervisor is to keep a register of all nonconformance's, corrective actions, incidents, and complaints.

5.4 Weeds and Pest Management Sub Plan

5.4.1 Issue

The main activity involved with weed management includes managing the site work areas and Alawa Plumbing Site depot and workshop. Weed management applies to all areas of disturbance to land surfaces and wash-down areas.

Alawa Plumbing is to ensure weeds are managed through eradication and control programs using various methods of hand pulling, chemical applications (glyphosate) and mechanical (i.e. wiper snipper, slashing). No hazardous chemicals are to be used around PWC potable water sources.

Managing weed infested areas will also minimise the threat of fires.

Weeds and pest can be transported to work sites via contaminated soils or compost. To prevent this, it is critical to ensure the supplier is able to provide good quality soil and compost and are suitably accredited to do so.

The vehicle wash-down area is located at the Alawa Plumbing Depot. This area will be prone to concentrate weed populations. This area will require ongoing weed management.

It is critical to ensure site work areas and foot prints are limited where practical i.e. vehicular activity, excavations, points of entry and exit. This will minimise land surface disturbances and weed propagation.

5.4.2 Objectives

- To ensure all relevant Permits and Approvals are completed prior to the activity.
- Selection of suitable supplier(s) for the supply of weed, pest and disease free soil and compost.
- To manage weed transfer by vehicles, machinery and equipment.

5.4.3 Relevant Legislation

- *Bush fires Act*
- *Dangerous Goods Act*
- *Environmental Assessment Act*
- *Environment Protection and Biodiversity Conservation Act (EPBC)*
- *Environmental Offences and Penalties Act*
- *Soil Conservation and Land Utilization Act*
- *Territory Parks and Wildlife Conservation Act (TPWC Act)*
- *Waste Management and Pollution Control Act (WMPC Act)*

- *Weeds Management Act.*

5.4.4 Applicable Standards and Guidelines

- Australian Standards
- Other International Standards where Australia does not have a relevant Standard
- Codes of Practice
- NT Government Publications and Guidelines
- Australian and New Zealand Environmental and Conservation Council Publications (ANZECC)
- Northern Territory Department of Infrastructure Guide Notes
- Darwin Regional Weed Management Plan 2015-2020
- Northern Territory Department of Primary Industry and Fisheries Technical Publications and fact sheets

5.4.5 Procedures, Instructions and Forms

- AP_Plant Safety Checklist
- AP Permit to Work_Excavations_Trenches
- Job Safety and Environment Analysis-A
- QHSE-Reg 01-A 2013 Corrective Preventive Actions Reg
- QHSE-For 08-A Hazard & Corrective Action Report-A
- QHSE-For 15-A_SWMS_009_Back Yard Dig
- QHSE-For 15-A_SWMS_011_Plant Operation - Loader-Excavator
- QHSE-Pro 12-A Audit & Inspection Procedure-A
- QHSE-Reg 09-A Inspection & Audit Schedule

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Table 7 Weeds and Pest Management Sub Plan

Strategy	Rationale	Action	Responsibility	KPI	Monitoring	Nonconformance/ Corrective action
Ensure there are adequate/correct environmental permits/licenses in place for the project.	Loss of vegetation with potential anthropological/ecological significance and disgruntle residents/community.	Obtain all the necessary permits for excavations. Ensure all necessary Permits are gained prior to removal of vegetation. Consultation with residents regarding the vegetation to be removed.	Senior Manager To ensure relevant permits and obtained and understood prior to works commence. Supervisor Enforce use of SWMS or Work Instructions. Discipline those not following rules	Register of all licenses and permits obtained for the project and held at the Alawa Plumbing Depot site office.	Job Safety and Environmental Analysis is completed for each job and submitted to Principal. Development of a SWMS.	Review of management procedures to obtain permits/ license and approvals. Ensure all workers understand the procedures. Upon receipt of comply the Site Supervisor will contact the Projects Officer who will then liaise with Principal to resolve issue.
Manage the introduction of weeds, pests or disease through soil or compost importation	Displacement of vegetation. Fire hazard.	Supplier: Each load of soil or compost ordered is to be certified to specified quality.	Manager /Site Supervisor To ensure material is from a suitable supplier source.	Presence of weed growth in imported soils.	Close out inspections. Complaints Register	
Weeds transfer from vehicles, machinery and equipment	Displacement of vegetation. Fire hazard.	All vehicles, machinery and equipment are washed down daily at AP Depot. Ensure that weeds are removed from the site and in particular the wash-down area. Sediments disposed of to a licensed landfill to prevent weed seed spread. Weed spraying around workshop and wash-down area routinely to prevent weed spread.	Senior Manager / Manager Ensure housekeeping conducted by workshop personnel as soon as possible	Presence of weed growth at AP Depot.	Visual Inspections of Depot area conducted routinely. Complaints Register	

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Strategy	Rationale	Action	Responsibility	KPI	Monitoring	Nonconformance/ Corrective action
Manage all Emergency environmental Incidents	To maintain compliance with relevant legislation	ENVIRONMENTAL INCIDENT – The NT EPA Pollution hotline is required to be contact within 24 hours and an incident report provided. Follow up investigations as required and in consultation with Authorities.	Management Emergency procedures developed and incorporated into Environmental Management Plan Supervisor Incident Response and emergency procedures communicate, tested and reviewed regularly	Management/ Supervisors to enforce procedures. Discipline those not following rules	Follow AP Incident and Investigation procedures and Forms as required.	

5.4.6 Reporting

The Site Supervisor is to document all nonconformance's, incidents, corrective actions and complaints.

The Site Supervisor is to keep a register of all nonconformance's, corrective actions, incidents, and complaints.

5.5 Air Quality Management Sub Plan

5.5.1 Issue

The main activity involved with air quality management includes the generation of dust and emissions from excavations and plant exhaust which has the potential to impact ambient air quality during activities of the project and affect nearby community/residents.

Local residents are required to be notified of more than normal dust and debris in the area. Stockpiles will be covered or wet to suppress dust in the air.

Machinery producing visible emissions may be excluded from work or service. Speed of trucks and vehicles will be kept below 20 km/h on any unsealed access tracks.

5.5.2 Objectives

- To manage dust generation at project sites.
- Ensure vehicles are regularly serviced to minimise air pollutants.

5.5.3 Relevant Legislation

- *Environmental Offences and Penalties Act*
- *Soil Conservation and Land Utilization Act*
- *Territory Parks and Wildlife Conservation Act (TPWC Act)*
- *Waste Management and Pollution Control Act (WMPC Act)*

5.5.4 Applicable Standards and Guidelines

- Australian Standards
- Other International Standards where Australia does not have a relevant Standard Codes of Practice
- NT Government Publications and Guidelines
- Australian and New Zealand Environmental and Conservation Council Publications (ANZECC)
- National Environment Protection (Ambient Air Quality) Measure 1998
- National Environment Protection (Diesel Vehicle Emissions) Measure 2001
- Northern Territory Department of Infrastructure Guide Notes

5.5.5 Procedures, Instructions and Forms

- AP Plant Safety Checklist
- AP Incident and Investigation Procedure and Forms.

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- QHSE-Reg-05-A Incident Register
- AP Permit to Work_Excavations_Trenches
- Job Safety and Environment Analysis-A
- QHSE-Reg 01-A 2013 Corrective Preventive Actions Reg
- QHSE-For 08-A Hazard & Corrective Action Report-A
- QHSE-For 15-A_SWMS_009_Back Yard Dig
- QHSE-Pro 12-A Audit & Inspection Procedure-A
- QHSE-Reg 09-A Inspection & Audit Schedule

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Table 8 Air Quality Management Sub Plan

Strategy	Rationale	Action	Responsibility	KPI	Monitoring	Nonconformance/ Corrective action
Manage dust generated from earth moving equipment, vehicles and soil stockpiles.	To minimise localized air pollution and disturbance to community. Soil covering nearby vegetation.	<p>Site Worker to keep stockpiles covered or wet when not covered. On dry windy days, wet exposed soil to suppress dust.</p> <p>Project Manager: Coordinate site workers, timing of works and waste management.</p> <p>All Site workers: Wear facemasks and respirators when creating dust or pouring soil into trenches.</p> <p>Application of good housekeeping practices – use of water trucks, sprinklers or hoses</p> <p>Use of extraction/blower units if required</p> <p>Spotters to suppress dust with water spray as needed.</p> <p>Maintain a complaints Register.</p>	<p>Site Supervisor</p> <p>Enforce use of SWMS or Work Instructions.</p> <p>Discipline those not following rules</p>	<p>Management/ Supervisors to enforce procedures.</p> <p>Discipline those not following rules</p>	<p>Job Safety and Environmental Analysis is completed for each job and submitted to Principal.</p> <p>Development of a SWMS.</p>	<p>Review of management procedures to obtain permits/ license and approvals.</p> <p>Ensure all workers understand the procedures. Upon receipt of comply the Site Supervisor will contact the Projects Officer who will then liaise with Principal to resolve issue.</p>
Ensure vehicles are regularly serviced to minimise air pollutants.	To minimise localized air pollution and disturbance to community.	Ensure all vehicles are regularly serviced to minimise air pollutants form exhausts.	<p>Site Supervisor</p> <p>Enforce use of SWMS or Work Instructions.</p> <p>Discipline those not following rules</p>	<p>Management/ Supervisors to enforce procedures.</p> <p>Discipline those not following rules</p>	<p>Job Safety and Environmental Analysis is completed for each job and submitted to Principal.</p> <p>Development of a SWMS.</p>	

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Strategy	Rationale	Action	Responsibility	KPI	Monitoring	Nonconformance/ Corrective action
Manage all Emergency environmental Incidents	To maintain compliance with relevant legislation	ENVIRONMENTAL INCIDENT – The NT EPA Pollution hotline is required to be contact within 24 hours and an incident report provided. Follow up investigations as required and in consultation with Authorities.	Management Emergency procedures developed and incorporated into EMP. Supervisor Incident Response and emergency procedures communicate, tested and reviewed regularly	Management/ Supervisors to enforce procedures. Discipline those not following rules	Follow AP Incident and Investigation procedures and Forms as required.	

5.5.6 Reporting

The Site Supervisor is to document all nonconformance's, incidents, corrective actions and complaints.

The Site Supervisor is to keep a register of all nonconformance's, corrective actions, incidents, and complaints.

5.6 Water Management Sub Plan

5.6.1 Issue

The main activity and greatest risk to the projects involves water management and includes the effective management of waste water and clean water to ensure cross contamination is prevented.

The effective removal of contaminated/polluted water from tanks, pipelines and trenches to prevent the risk of biohazard exposure.

Effective management procedures to separate and manage the clean and polluted water sources and decontaminate potentially contaminated materials to prevent cross contamination.

Ensuring effective containment of polluted water so as not to contaminate soil, surface and groundwater systems.

5.6.2 Objectives

- To ensure all relevant Permits and Approvals are completed prior to the activity.
- To actively manage cross contamination of clean and polluted water.
- To capture polluted waste water before entering offsite discharge.
- Manage biohazards exposure.
- Manage hydrocarbon/chemical containment and bunding.

5.6.3 Relevant Legislation

- *Territory Parks and Wildlife Conservation Act (TPWC Act)*
- *Waste Management and Pollution Control Act (WMPC Act)*
- *Environmental Assessment Act*
- *Environmental Offences and Penalties Act*
- *Soil Conservation and Land Utilization Act*
- *Water Act*

5.6.4 Applicable Standards and Guidelines

- Australian Standards
- Other International Standards where Australia does not have a relevant Standard Codes of Practice
- NT Government Publications
- Australian and New Zealand Environmental and Conservation Council Publications (ANZECC)
- Northern Territory Department of Infrastructure Guide Notes

5.6.5 Procedures, Instructions and Forms

- AP Incident and Investigation Procedure and Forms.
- QHSE-For 15-A_SWMS_003_Replace-Repair Water Main-Water Service
- QHSE-For 15-A_SWMS_004_Cleaning out Water Mains
- QHSE-For 15-A_SWMS_005_Cleaning out Sewer Mains
- QHSE-For 15-A_SWMS_007_Change Water Meter-Water Meter Assembly
- QHSE-For 15-A_SWMS_008_Replace Manhole-Gattic Covers
- QHSE-For 15-A_SWMS_013_Replace or Install Section Valve-A
- QHSE-For 15-A_SWMS_002_Replace -Repair Sewage Service
- QHSE-Reg-05-A Incident Register
- QHSE-For 15-A_SWMS_001_Clean and-or De-Sludge Water Tank
- Job Safety and Environment Analysis-A
- QHSE-Pro 14-A Health Surveillance-A
- QHSE-Reg 01-A 2013 Corrective Preventive Actions Reg
- QHSE-For 08-A Hazard & Corrective Action Report-A
- QHSE-Reg 15-A Vacuum Truck Disinfection Register
- QHSE-Reg 16-A Disinfection Register
- QHSE-Pro 12-A Audit & Inspection Procedure-A
- QHSE-Reg 09-A Inspection & Audit Schedule

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Table 9 Water Management Sub Plan

Strategy	Rationale	Action	Responsibility	KPI	Monitoring	Nonconformance/ Corrective action
Manage contaminated dewatered water from hole/trench	Risk to public safety, land surface degradation Draining into nearby creeks, water bodies Soils and vegetation	Contaminated dewatered water removed by sludge tanks and sent to licensed/approved waste water facility.	Supervisor Enforce use of SWMS or Work Instructions. Discipline those not following rules	Management/ Supervisors to enforce procedures. Discipline those not following rules	Job Safety and Environmental Analysis is completed for each job and submitted to Principal. Development of a SWMS.	Review of management procedures to obtain permits/ license and approvals. Ensure all workers understand the procedures. Upon receipt of comply the Site Supervisor will contact the Projects Officer who will then liaise with Principal to resolve issue.
Manage cross contamination between clean water and sewage work	Contamination to clean water, systems and infrastructure.	Ensure adequate approved disinfectant and potable water available. Thoroughly clean buckets, pumps, tool and equipment at the end of each shift with potable water to remove all soil and contaminants. Spray all tools and equipment with approved disinfectant and allow to air dry.	Supervisor Enforce use of SWMS or Work Instructions. Discipline those not following rules	Management/ Supervisors to enforce procedures. Discipline those not following rules	Job Safety and Environmental Analysis is completed for each job and submitted to Principal. Development of a SWMS.	
Manage raw sewage interaction and discharge	Contamination to soil, surface and groundwater.	Where practicable remove sewage and contaminated water/soil from site by de-watering, draining etc. Use safe work methods in avoiding contact with water and soil Wash down all tools with antiseptic chlorine solution and rinse with fresh clean water. Spills may affect sensitive areas and ensure all spills are contained. Spill containment and clean-up kits to be carried for all sewage works.	Supervisor Enforce use of SWMS or Work Instructions. Discipline those not following rules	Management/ Supervisors to enforce procedures. Discipline those not following rules	Follow AP Incident and Investigation procedures and Forms as required.	

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Strategy	Rationale	Action	Responsibility	KPI	Monitoring	Nonconformance/ Corrective action
		Disinfectant to be used on spills with water dilution. Appropriate PPE for handling contaminated soil, tools and equipment.				

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Strategy	Rationale	Action	Responsibility	KPI	Monitoring	Nonconformance/ Corrective action
Manage draining contents of tank and contaminating nearby soil and water	Discharge to nearby creeks and water bodies. Soil contamination	Liaison with PWC prior to confirm responsibilities for removal of tank water.	Management SWMS developed Supervisor Ensure SWMS is complied with and reviewed upon any changes	Management/ Supervisors to enforce procedures. Discipline those not following rules	Follow AP Incident and Investigation procedures and Forms as required.	
Manage for biohazards exposure from contaminated water.	Discharge to open drains/gutters. Soil contamination. Surface and Groundwater contamination.	Clean water available for washing and decontamination. Approved PPE - gloves, eye protection, protective clothing. Replace all damaged or illegible signage. Rubbish and waste materials will be removed from site as they are generated and not to be stored on or within the access ways of the site Materials and plant will be safely stored within the boundary fence and only in the designated put-down areas. Site supervisor will monitor housekeeping practices Housekeeping information will be given to employees and any additional subcontractors at pre-start meetings/discussions.	Senior Manager / Manager To ensure housekeeping conducted by workshop personnel as soon as possible	Management/ Supervisors to enforce procedures. Discipline those not following rules	Follow AP Incident and Investigation procedures and Forms as required.	

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Strategy	Rationale	Action	Responsibility	KPI	Monitoring	Nonconformance/ Corrective action
Manage all Emergency environmental Incidents	To maintain compliance with relevant legislation	ENVIRONMENTAL INCIDENT – The NT EPA Pollution hotline is required to be contact within 24 hours and an incident report provided. Follow up investigations as required and in consultation with Authorities.	Management Emergency procedures developed and incorporated into EMP. Supervisor Incident Response and emergency procedures communicate, tested and reviewed regularly	Management/ Supervisors to enforce procedures. Discipline those not following rules	Follow AP Incident and Investigation procedures and Forms as required.	

5.6.6 Reporting

The Site Supervisor is to document all nonconformance's, incidents, corrective actions and complaints.

The Site Supervisor is to keep a register of all nonconformance's, corrective actions, incidents, and complaints.

5.7 Noise and Vibration Sub Plan

5.7.1 Issue

The main activity involved with noise and vibration includes noise generation from earth moving, plant and equipment and cutting at the work site and the affect to community/residents.

Affected residents/community are required to be notified when works are likely to cause vibration or offensive noise to impact on the public. Works occur from 7am to 5pm Monday to Saturday, unless there is a call- out.

A complaints register is maintained to record all issues communicated from general public and stakeholders.

5.7.2 Objectives

- To manage noise generation within operating hours.
- Ensure community concerns for noise issues are addressed.

5.7.3 Relevant Legislation

- *Waste Management and Pollution Control Act (WMPC Act)*
- *Environmental Assessment Act*
- *Environmental Offences and Penalties Act*

5.7.4 Applicable Standards and Guidelines

- Australian Standards
- Other International Standards where Australia does not have a relevant Standard Codes of Practice
- NT Government Publications and Guidelines
- Australian and New Zealand Environmental and Conservation Council Publications (ANZECC)
- Northern Territory Department of Infrastructure Guide Notes

5.7.5 Procedures, Instructions and Forms

- AP Incident and Investigation Procedure and Forms.
- QHSE-Reg-05-A Incident Register
- QHSE-Pro 14-A Health Surveillance-A
- QHSE-Reg 01-A 2013 Corrective Preventive Actions Reg
- QHSE-For 08-A Hazard & Corrective Action Report-A
- QHSE-Pro 12-A Audit & Inspection Procedure-A
- QHSE-Reg 09-A Inspection & Audit Schedule

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Table 10 Noise and Vibration Management Sub Plan

Strategy	Rationale	Action	Responsibility	KPI	Monitoring	Nonconformance/ Corrective action
<p>Manage for noise generation for earthmoving plant and equipment to nearby community.</p> <p>Noise generation from steel cutting.</p> <p>Noise generation from equipment at AP Depot</p>	Disturbance to nearby residents by plant and equipment generated noise.	<p>Minimise noise and vibration, particularly outside.</p> <p>Minimise noise and vibration, particularly outside normal working hours.</p> <p>All works to be completed during normal contractual hours. See contract, but generally 7am to 5pm Monday to Saturday.</p> <p>Ensure nearby residents/community are aware of activity.</p> <p>Plant & equipment maintained and inspected daily for defects.</p> <p>Locate workers away from noise source.</p> <p>Maintain a complaints register.</p>	<p>Senior Manager / Manager</p> <p>To ensure rectification work completed as soon as possible</p>	<p>Management/ Supervisors to enforce procedures.</p> <p>Discipline those not following rules</p>	<p>Job Safety and Environmental Analysis is completed for each job and submitted to Principal.</p> <p>Development of a SWMS.</p>	<p>Review of management procedures to obtain permits/ license and approvals.</p> <p>Ensure all workers understand the procedures. Upon receipt of comply the Site Supervisor will contact the Projects Officer who will then liaise with Principal to resolve issue.</p>
Manage all Emergency environmental Incidents	To maintain compliance with relevant legislation	ENVIRONMENTAL INCIDENT – The NT EPA Pollution hotline is required to be contact within 24 hours and an incident report provided. Follow up investigations as required and in consultation with Authorities.	<p>Management</p> <p>Emergency procedures developed and incorporated into EMP.</p> <p>Supervisor</p> <p>Incident Response and emergency procedures communicate, tested and reviewed regularly</p>	<p>Management/ Supervisors to enforce procedures.</p> <p>Discipline those not following rules</p>	Follow AP Incident and Investigation procedures and Forms as required.	

5.7.6 Reporting

The Site Supervisor is to document all nonconformance's, incidents, corrective actions and complaints.

The Site Supervisor is to keep a register of all nonconformance's, corrective actions, incidents, and complaints.

5.8 Waste Management Sub Plan

5.8.1 Issue

The main activity involved with waste management is the disposal of waste, source separation, windblown rubbish and its affect to public areas including water ways and the oversupply of materials creating unnecessary waste on work site.

On completion of a project all materials including rubbish are to be removed. Waste items are to be source separate for recycling where appropriate or reused or recycled.

5.8.2 Objectives

- To minimise and manage on site wastage.
- Ensure good housekeeping at all work sites.

5.8.3 Relevant Legislation

- *Waste Management and Pollution Control Act (WMPC Act)*
- *Environmental Assessment Act*
- *Environmental Offences and Penalties Act*

5.8.4 Applicable Standards and Guidelines

- Australian Standards
- Other International Standards where Australia does not have a relevant Standard Codes of Practice
- NT Government Publications
- Australian and New Zealand Environmental and Conservation Council Publications (ANZECC)
- Northern Territory Department of Infrastructure Guide Notes

5.8.5 Procedures, Instructions and Forms

- AP Incident and Investigation Procedure and Forms.
- QHSE-Reg-05-A Incident Register
- QHSE-Pro 14-A Health Surveillance-A
- QHSE-Reg 01-A 2013 Corrective Preventive Actions Reg
- QHSE-For 08-A Hazard & Corrective Action Report-A
- QHSE-Pro 12-A Audit & Inspection Procedure-A
- QHSE-Reg 09-A Inspection & Audit Schedule

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Table 11 Waste Management Sub Plan

Strategy	Rationale	Action	Responsibility	KPI	Monitoring	Nonconformance/ Corrective action
Oversupply of material to site creating unnecessary stockpiles of materials and wastes	Unnecessary waste	Project Manager: Order materials only for job site.	Supervisor To ensure work requirements/materials required. Work Instructions.	Quantities of waste recorded during site inspections.	Job Safety and Environmental Analysis is completed for each job and submitted to Principal. Development of a SWMS.	Review of management procedures to obtain permits/ license and approvals. Ensure all workers understand the procedures. Upon receipt of comply the Site Supervisor will contact the Projects Officer who will then liaise with Principal to resolve issue.
Windblown and strewn rubbish	Local waterways; public and private parks and gardens	Ensure project areas are cleaned up at the end of each day and bins are emptied and tidied down as required.	Management SWMS developed Supervisor Ensure SWMS is complied with and reviewed upon any changes			
Water wastage hoses.	Prevent water wastage.	Site Worker: Use hand-triggered hose to minimize water wastage.	Management SWMS developed Supervisor Ensure SWMS is complied with and reviewed upon any changes			

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Strategy	Rationale	Action	Responsibility	KPI	Monitoring	Nonconformance/ Corrective action
Inappropriate disposal of waste, no source separation of recyclables materials at AP Depot	Unnecessary waste	Removal of all wastes will be to the Darwin Licensed waste facility. Bins are place at the project site. Rubbish and waste materials will be removed from site as they are generated and not to be stored on or within the access ways of the site.	Senior Manager / Manager Ensure waste and recyclables are separated. To ensure housekeeping conducted by workshop personnel as soon as possible			
Manage all Emergency environmental Incidents	To maintain compliance with relevant legislation	ENVIRONMENTAL INCIDENT – The NT EPA Pollution hotline is required to be contact within 24 hours and an incident report provided. Follow up investigations as required and in consultation with Authorities.	Management Emergency procedures developed and incorporated into EMP. Supervisor Incident Response and emergency procedures communicate, tested and reviewed regularly	Management/ Supervisors to enforce procedures. Discipline those not following rules	Follow AP Incident and Investigation procedures and Forms as required.	

5.8.6 Reporting

The Site Supervisor is to document all nonconformance's, incidents, corrective actions and complaints.

The Site Supervisor is to keep a register of all nonconformance's, corrective actions, incidents, and complaints.

5.9 Community Consultation Management Sub Plan

5.9.1 Issue

The main activity involved with community consultation and communication involves informing the community/business/residents of works to be done and traffic control.

A complaints register is maintained to measure effectiveness and gaps of management and action is required to review and potentially remedy the issues.

For traffic control the objective is to ensure no major disruption is caused to normal site traffic.

5.9.2 Objectives

- To minimise the impact of activities that will affect normal site traffic movements.
- and manage on site wastage.

5.9.3 Relevant Legislation

- *Environmental Assessment Act*
- *Environmental Offences and Penalties Act*
- *Waste Management and Pollution Control Act (WMPC Act)*

5.9.4 Applicable Standards and Guidelines

- Australian Standards
- Other International Standards where Australia does not have a relevant Standard Codes of Practice
- NT Government Publications and Guidelines
- Australian and New Zealand Environmental and Conservation Council Publications (ANZECC)
- Northern Territory Department of Infrastructure Guide Notes

5.9.5 Procedures, Instructions and Forms

- QHSE-Pro 04-A Consultation & Communication-A
- QHSE-For 07-A Site Traffic Management Plan-A
- QHSE-Reg 01-A 2013 Corrective Preventive Actions Register

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Table 12 Community Consultation Management Sub Plan

Strategy	Rationale	Action	Responsibility	KPI	Monitoring	Nonconformance/ Corrective action
Prevent employees from dog interaction/attack.	Animal lost/killed. Employee wounded.	Ensure communication/leaflet to residents giving at least 24 hours' notice of required activity.	Senior Manager / Supervisor Enforce use of SWMS or Work Instructions. Discipline those not following rules	Number of dog attacks, incidents	Follow AP Incident and Investigation procedures and Forms as required.	Review of management procedures to obtain permits/ license and approvals. Ensure all workers understand the procedures. Upon receipt of comply the Site Supervisor will contact the Projects Officer who will then liaise with Principal to resolve issue.
Manage for short term road closures and changes to traffic flow causing localized traffic congestion.	To manage effective traffic control	Inform local businesses and the community of short term road diversions and changes to traffic conditions prior to commencement of works. Ensure all necessary permits are obtained prior to road closures, installation of traffic controls	Management SWMS developed Supervisor Ensure SWMS /Permits completed, review upon any changes	Number of Community complaints	Follow-up of complaints.	
To document and manage all communications	To ensure stakeholder issues are identified and addressed	AP to maintain a complaints register at the depot site office and action items.	Management To maintain complaints register	Number of complaints recorded and addressed	Follow-up of complaints.	
Manage all Emergency environmental Incidents	To maintain compliance with relevant legislation	ENVIRONMENTAL INCIDENT – The NT EPA Pollution hotline is required to be contact within 24 hours and an incident report provided. Follow up investigations as required and in consultation with Authorities.	Management Emergency procedures developed and incorporated into EMP. Supervisor Incident Response and emergency procedures communicate, tested and reviewed regularly	Management/ Supervisors to enforce procedures. Discipline those not following rules	Follow AP Incident and Investigation procedures and Forms as required.	

5.9.6 Reporting

The Site Supervisor is to document all nonconformance's, incidents, corrective actions and complaints.

The Site Supervisor is to keep a register of all nonconformance's, corrective actions, incidents, and complaints.

5.10 Hazardous Materials Management Sub Plan

5.10.1 Issue

The main activity involved with hazardous materials is the storage and handling of hydrocarbons, spill control and clean-up and effective bunding.

Asbestos management is done by a dedicated contractor specialized for the removal of asbestos containing materials. Once Alawa Plumbing contractors are made aware of the material, the area is tagged and barricaded off.

5.10.2 Objectives

- To manage the storage and handling of hazardous materials.
- Spill control is effectively managed.

5.10.3 Relevant Legislation

- *Dangerous Goods Act*
- *Environmental Offences and Penalties Act*
- *Waste Management and Pollution Control Act (WMPC Act)*

5.10.4 Applicable Standards and Guidelines

- Australian Standards
- Other International Standards where Australia does not have a relevant Standard
- Codes of Practice
- NT Government Publications
- Australian and New Zealand Environmental and Conservation Council Publications (ANZECC)
- Northern Territory Department of Infrastructure Guide Notes

5.10.5 Procedures, Instructions and Forms

- QHSE-Pro 11-A Hazardous Substances-A
- QHSE-Reg 03-A Hazard Register
- QHSE-Reg 09-A Inspection & Audit Schedule
- QHSE-For 15-A_SWMS_003a_Replace-Repair AC Water Main-Water Service
- QHSE-For 15-A_SWMS_003b_Cut and Remove Section AC Water Service

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Table 13 Hazardous Materials Management Sub Plan

Strategy	Rationale	Action	Responsibility	KPI	Monitoring	Nonconformance/ Corrective action
To prevent hydrocarbon spills and leaks to ground from split hoses/ unbundled leaking containers at work sites and workshop	To manage soil and water contamination	<p>Ensure all containers are sealed and where relevant banded.</p> <p>All staff trained in spill containment and clean-up.</p> <p>Work site and workshop/yard to carry a hydrocarbon spill kit or a spill kit available at the project site and are checked daily and re-filled as required.</p>	<p>Senior Manager / Site Supervisor</p> <p>Ensure work sites and workshop maintained and have adequate storage and maintained spill kits.</p> <p>To ensure housekeeping conducted by workshop personnel as soon as possible</p>	Inspection Reports and hydrocarbon spills and incident reports	Follow AP Incident and Investigation procedures and Forms as required	<p>Review of management procedures to obtain permits/ license and approvals.</p> <p>Ensure all workers understand the procedures. Upon receipt of comply the Site Supervisor will contact the Projects Officer who will then liaise with Principal to resolve issue.</p>
Hazardous material handling and storage at the Depot	To manage soil and water contamination.	<p>A copy of a register of hazardous substances used on site will be available from the site supervisor</p> <p>MSDS for all substances to be used will be recorded in the register including all subcontractor related hazardous substances and MSDS</p> <p>A work method statement for hazardous substances will be prepared when substances are to be used on site</p> <p>All containers for hazardous substances shall be correctly labeled</p> <p>Workers to be trained and competent to work with hazardous substance</p>	<p>Management</p> <p>SWMS developed</p> <p>Senior Manager / Manager</p> <p>Ensure workshop hazardous materials storage are installed and functional.</p> <p>To ensure housekeeping conducted by workshop personnel routinely.</p>	Inspection reports and spill incident reports	Follow AP Incident and Investigation procedures and Forms as required	

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Strategy	Rationale	Action	Responsibility	KPI	Monitoring	Nonconformance/ Corrective action
			Supervisor Ensure SWMS is completed, review upon any changes			
Pipe containing Asbestos containing material	Human ingestion of friable air borne fibres. AC fibres contamination to open ground.	Supervisor to ensure area clear and barricaded and sign posted. Use pipe cutter to manufacturers specs. Remove AC in accordance with the AP asbestos removal and disposal procedure. SWMS and work plan supplied by contractor conducting asbestos removal work. Contractor to advise when all asbestos from repair area is removed before re-entering.	Supervisor Enforce use of SWMS or Work Instructions. Discipline those not following rules	Inspection Reports	Follow AP Incident and Investigation procedures and Forms as required	
Manage all Emergency environmental Incidents	To maintain compliance with relevant legislation	ENVIRONMENTAL INCIDENT – The NT EPA Pollution hotline is required to be contact within 24 hours and an incident report provided. Follow up investigations as required and in consultation with Authorities.	Management Emergency procedures developed and incorporated into EMP. Supervisor Incident Response and emergency procedures communicate, tested and reviewed regularly	Management/ Supervisors to enforce procedures. Discipline those not following rules	Follow AP Incident and Investigation procedures and Forms as required.	

5.10.6 Reporting

The Site Supervisor is to document all nonconformance's, incidents, corrective actions and complaints.

The Site Supervisor is to keep a register of all nonconformance's, corrective actions, incidents, and complaints.

5.11 Environmental Management, Communications and Training Sub Plan

5.11.1 Issue

Environmental awareness, education and training is required to be provided to all AP workers. All employees need to be made aware of this environmental Management Plan and their environmental responsibilities at the works site. Site inductions are a starting point to introduce environmental awareness, followed by conducting the routine JSEA, SWMS, Incident Response Training, i.e. spill control.

5.11.2 Objectives

- Environmental awareness training to be provided to all workers.

5.11.3 Relevant Legislation

NA

5.11.4 Applicable Standards and Guidelines

- Australian Standards
- Other International Standards where Australia does not have a relevant Standard Codes of Practice
- NT Government Publications
- Australian and New Zealand Environmental and Conservation Council Publications (ANZECC)
- Northern Territory Department of Infrastructure Guide Notes

5.11.5 Procedures, Instructions and Forms

- QHSE-For 16-A Training and Competency Log-A
- QHSE-Pro 03-A Training & Competency-A
- QHSE-Pro 04-A Consultation & Communication Register-A
- QHSE-For 11-A Emergency Drill Record-A

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Table 14 Environmental Management, Communications and Training Sub Plan

Strategy	Rationale	Action	Responsibility	KPI	Monitoring	Nonconformance/ Corrective action
To ensure all employees have environmental awareness training	Staff are aware of company environmental responsibilities	Conduct environmental awareness training for all AP employees	Management Environmental training is completed by all employees.	Completed environmental training	Training and competency log	Review of management commitments and priorities.

5.11.6 Reporting

The Site Supervisor is to document all nonconformance's, incidents, corrective actions and complaints.

The Site Supervisor is to keep a register of all nonconformance's, corrective actions, incidents, and complaints.

5.12 Cultural Heritage Sub Plan

5.12.1 Issue

Cultural heritage includes anthropological and archeological aspects for Aboriginal and European heritage.

The main issues around ensuring cultural heritage is managed effectively for these works is to ensure all necessary permits and approvals are obtained and understood prior to commencement of works.

Cultural heritage awareness training for all employees is critical to ensure areas are protected and respected to the satisfaction of traditional owners, the community and key stakeholders.

The Northern Territory maintains a high degree of cultural heritage including Indigenous culture in which the Aboriginal Areas Protection Authority regulates the *Sacred Sites Act*. *The Native Title Act* is unlikely to apply in this project requirements, however the Northern Land Council is the representing body which regulates this Act.

The Heritage Act is regulated by the NT Government and includes aboriginal and European activities.

A Communications Register is required to log all communications relating to cultural heritage issues

5.12.2 Objectives

- Cultural Heritage awareness training to be provided to all employees.
- To effectively capture environmental correspondence and communications.
- To ensure all relevant Permits and Approvals are completed prior to the activity.

5.12.3 Relevant Legislation

- *Sacred Sites Act*
- *Heritage Act*
- *Native Title Act*
- *Environmental Assessment Act*

5.12.4 Applicable Standards and Guidelines

- Australian Standards
- Other International Standards where Australia does not have a relevant Standard Codes of Practice
- NT Government Publications

- Australian and New Zealand Environmental and Conservation Council Publications (ANZECC)
- Northern Territory Department of Infrastructure Guide Notes

5.12.5 Procedures, Instructions and Forms

- QHSE-For 16-A Training and Competency Log-A
- QHSE-Pro 03-A Training & Competency-A
- QHSE-Pro 04-A Consultation & Communication Register-A
- QHSE-For 11-A Emergency Drill Record-A

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Table 15 Cultural Heritage Sub Plan

Strategy	Rationale	Action	Responsibility	KPI	Monitoring	Nonconformance/ Corrective action
Ensure there are adequate/correct environmental permits/licenses in place for the project.	Loss of areas with potential anthropological/ ecological significance and disgruntle residents/community.	Obtain all the necessary permits for excavations. Ensure all necessary Permits are gained prior to removal of vegetation. Consultation with residents regarding the vegetation to be removed.	Senior Manager To ensure relevant permits and obtained and understood prior to works commence. Supervisor Enforce use of SWMS or Work Instructions. Discipline those not following rules	Register of all licenses and permits obtained for the project and held at the Alawa Plumbing Depot site office.	Job Safety and Environmental Analysis is completed for each job and submitted to Principal. Development of a SWMS.	Review of management procedures to obtain permits/ license and approvals. Ensure all workers understand the procedures required. Upon receipt of comply the Site Supervisor will contact the Projects Officer who will then liaise with Principal to resolve issue.
To ensure all employees have cultural awareness training	Staff are aware of company cultural heritage responsibilities.	Conduct cultural awareness training for all AP employees. Sites which have cultural heritage features or limitations, employees will be provided with a map indicating buffer/no go zones.	Management Cultural awareness training is completed by all employees.	Completed cultural awareness training.	Training and competency log	Review of management commitments and priorities.
To document performance feedback	Information used to review and improve environmental systems.	Create a correspondence folder to record all cultural awareness and environmental related matters including performance feedback, complaints, communications with stakeholders	Management To maintain a register and update as required.	An up to date register of related information.	Review of Register and feedback	

5.12.6 Reporting

The Site Supervisor is to document all nonconformance's, incidents, corrective actions and complaints.

The Site Supervisor is to keep a register of all nonconformance's, corrective actions, incidents, and complaints.

6 Monitoring, Measurements and Reporting

6.1 Audits and Inspections

Alawa Plumbing will perform regular inspections of the site works using the Audit and Inspection Procedure and Internal audit field template as detailed in Appendix D. These Inspections will be conducted monthly by a Third Party Consultant. The Consultant will provide a report on the findings and improvement recommendations where required.

Alawa Plumbing management will confirm the findings and update into the risk assessment/registers to ensure the risk assessment process is continually reviewed and updated to reflect changes to the works site and business.

The Alawa Plumbing Site supervisor will be responsible for the day to day environmental responsibilities of each project work site. The third Party Consultant and Site Supervisor and Alawa Plumbing Management will liaise regularly on environmental matters to be addressed. The third Party Consultant will offer advise where required and consult with PWC Environmental staff to ensure matters are addressed to PWC satisfaction.

Alawa Plumbing will commit to participating in external audits with PWC and will ensure an Alawa Plumbing appropriate staff representative (Site Supervisor) and the third Party Environmental Consultant will be available for these audits.

6.2 Reporting

Internal Reporting

All Third Party Consultant environmental audits and Inspection Reports will be provided to the Alawa Plumbing Management for review.

The Site Supervisor for the Projects is responsible to ensure daily checks are completed and any environmental issues are to be raised to Alawa Plumbing Management.

External Reporting

Alawa Plumbing will provide PWC with all formal and internal audits, inspection and checklist reports and incident reports on request.

7 Incident Response and Investigation

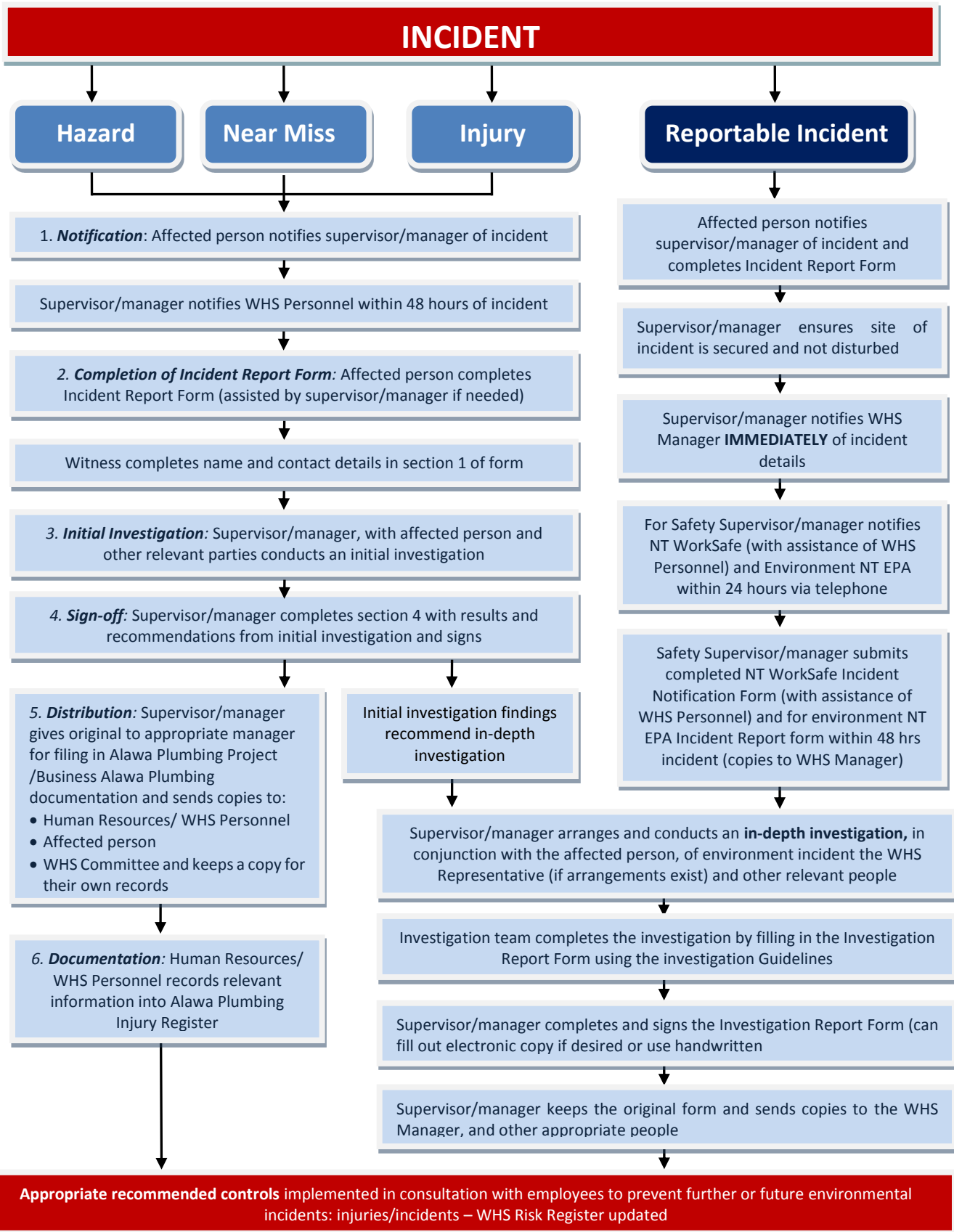
7.1 Incident Response and Investigation

For all Environmental Incidents, Alawa Plumbing will use the Incident and Investigation Report Procedure and Form and Draft Sewage Spill Procedure as detailed in Appendix E. The Incident Flow Chart below details Alawa Plumbing's Procedures for an Environmental or Safety Incident.

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Alawa Plumbing will contact the Third Party Consultant to seek advice on environmental related issues.

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7.2 Emergency Contact Register

Alawa Plumbing maintains an Emergency Procedure and emergency equipment form.

Table 15 Emergency Contact Register

Organisation	Contact Person	Contact Details
Project Manager	Nestoras Makrylos	0408 894 783
Office Manager	Soula Makrylos	(08) 89 278752 / 0408 833 768
Third Party Environment Consultant	Sally Horsnell	0455 669 600
Darwin City Council		(08) 89 300300
NT EPA Pollution Hotline		1800 064 567 pollutionhotline@nt.gov.au
Power Water Corporation		1800 245 092
Dial before you dig		1100
Ambulance		000
Fire		000
Police		000

8 Appendices

Appendix A

Alawa Plumbing Environment Policy

Appendix B

Alawa Plumbing Environment Risk Register

Appendix C

ECAAS Certification and Training Body for ISO 14001