Weed Washdown Strategy

2021

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1. Introduction

Weeds have economic, environmental and social impacts. The Queensland State government state *"Invasive plants cost Queensland more than $600 million annually in lost production, land degradation and control costs. The spread of invasive plants threaten our agricultural industries, environment and social amenity."*[1]

An invasive plant is a plant species that has or is likely to have an adverse impact on a biosecurity consideration because of the introduction, spread or increase in population size of the species within an area.

If a weed is permitted to spread to their full potential, most weed species can impact extensive areas of land, affecting multiple local, state and territory jurisdictions, often multiple agricultural industries and a variety of significant environmental assets. For example, prickly acacia poses a serious threat to 20 to 30 million hectares of grazing land in Queensland, the Northern Territory and Western Australia (Australian Weeds Strategy 2017-2027).

One of the vectors in the spread of invasive weeds is through poor vehicle and machinery cleanliness and maintenance. Vehicles or machinery operating or moving through weed infestations can become contaminated with invasive plant material. This material can travel long distances on the vehicle or machinery to new locations.

There is a high risk that this plant material, soil or mud containing seeds, will fall from contaminated or dirty machinery or vehicles in agricultural production or environmentally sensitive areas where an invasive plant infestation may become a long-term and costly problem for the land manager to remediate.

To reduce the risk of weed spread of not only invasive weeds, but also soil borne pests and diseases, the wash down of a vehicle and machinery using washdown bays/areas are to be encouraged.

The purpose of this Washdown Strategy is to develop a consistent approach across Whitsunday Regional Council to the placement of washdown bays and cleaning of vehicles and machinery. It is acknowledged that the Council has washdown facilities at its own work depots which are not available to the public. The intent of this Washdown Strategy is to establish a Washdown Framework and Strategy for the general public. The objectives of this Strategy are to:

- outline washdown bay site selection process,
- describe the various types of washdown bay designs,
- outline the general washdown procedures, and,
- possible washdown bay sites across the Whitsunday Regional Council area.

2. Background

2.1 General Biosecurity Obligation

The Queensland *Biosecurity Act 2014* is the primary legislation that deals with the spread of biosecurity matter in Queensland. This legislation defines all persons have an obligation to take reasonable and practical measures to prevent or minimise the biosecurity risks associated with their activities or dealings with the carriers of invasive plants. A carrier is anything capable of moving reproductive material of biosecurity matter, such as invasive plant seeds, vegetative parts attached to, or contained in the thing from one place to another. All types of vehicle and machinery are capable of being carriers of invasive plants.

[1] https://www.daf.qld.gov.au/__data/assets/pdf_file/0011/58178/cleandown-procedures.pdf, 24/04/2020

2.2 Land Access Code

The *Land Access Code* 2016 is specifically relevant to the mineral resources and petroleum and gas sectors and includes mandatory conditions for these sectors to manage the spread of weeds when accessing private lands other than their own. The land access laws extend to most resource authorities granted under Queensland's resource Acts, including:

- *Mineral Resources Act 1989* – exploration permits and mineral development licenses1
- *Petroleum and Gas (Production and Safety) Act 2004* – all authorities
- *Petroleum Act 1923* – all authorities
- *Greenhouse Gas Storage Act 2009* – all authorities
- *Geothermal Energy Act 2010* – all authorities.

Under the Lands Access Code, a resource authority must (if asked) provide a landholder with a copy of the washdown record. There is no set format for a clean down record. In providing that record, a person may refer to this document to describe the measures taken to perform the clean down. A copy of the Land Access Code can be located at www.deedi.qld.gov.au.

3. Pathways (Vectors) for Weed Spread

A pathway can be described as any means or mechanism by which weed plants or seeds may be dispersed (Baker 2006). In the case of human directed activities, spread may be because of contaminated products, clothing, machinery or equipment. Below, in Table 1, dictates several different pathways for weed spread and surveillance sites for each vector. Vehicles and machinery driven or operated in certain areas of Queensland have a higher risk of becoming contaminated with the reproductive material of invasive plants. To view distribution maps of Queensland invasive plants, visit daf.qld.gov.au.

Table 1: *Pathways for the spread of weeds and surveillance areas*

Pathways for the spread of weeds within Australia		
Deliberate Spread by Humans		**Areas of surveillance**
1. Ornamental plant trade	Through nursery sales and escape of garden landscaping plants.	Escapee of garden in adjacent properties, Nurseries
2. Aquarium plant trade	Through sales at nurseries, pet shops and escape into waterways.	Escapee into waterways, Nurseries, pet shops
3. Medicinal plant trade	Plants propagated and sold in nurseries and among alternative medicine enthusiasts.	Nurseries
4. Food plant trade	Plants grown and promoted for food for humans.	
5. Fodder trade	Sales and planting of fodder plants for livestock grazing.	Feedlots, farm biosecurity paddocks and stockyards.
6. Revegetation and forestry	Planting for soil conservation and to produce timber.	Timber plantations, and re-vegetative plantings
Accidental Spread by Humans		
7. Human apparel and equipment	Attachment of seeds to clothes and footwear.	Attachment of seed to clothes, footwear, camping equipment, push bikes and saddle blankets
8. Machinery and vehicles	Attachment of seeds to passenger vehicles, slashers, farm equipment, boats, and earth moving equipment.	Inspection of washdown sites, parking bays, roadsides, camping grounds, etc.
9. Construction and landscaping materials	Contamination of gravel, soil, sand, mulch and turf.	Bulk material storage sites, piles of timber, steel, bricks, tiles and guttering.
10. Agricultural produce	Contamination of hay, grain and pasture seed.	Cleaning sites, silos, grain receival points
11. Research sites	Escape from research sites	Beyond the edges of research sites
12. Livestock movement	Through faeces or attached to livestock such as sheep, cattle, horses and goats.	Holding pens, stockyards, markets, loading/unloading facilities, feedlots, saleyards and transport vehicles. Waterpoints (on property).
13. Waste disposal	Unsafe dumping of garden refuse and aquarium plants.	Landfill sites
Natural Spread		
14. Birds & flying foxes	Through consumption and excretion of seeds and fruits.	Roosting sites.
15. Other animals	Through consumption and excretion of seeds and fruits, and external attachment to native and introduced wildlife.	
16. Wind	Distribution of wind-blown seeds.	Look 15-20m downwind from a known infestation
17. Water	Distribution of seeds or plant parts via waterways.	Waterways, where water pools (depressions and sweeping bends), flood plains.

3.1 Weed Spread Through Machinery and Vehicles

Research by Clifford (1959), conducted in Africa, confirmed the ability of motor vehicles to transport seeds. The first Australian study of this kind was conducted by Wace (1977). It revealed that cars can transport large numbers of seed from a diverse range of species. Barwick (1999) identifies several ways in which traffic contributes to weed spread. Speeding vehicles pick up seeds and other material that is carried temporarily in the air suction currents they generate. Seeds are also collected in mud on tyres, radiator grills and elsewhere. When seed-containing mud later falls off or is removed, it creates a seed reservoir from which further infestations can develop. Work vehicles engaged in maintenance of pavements, drains and vegetation were also identified as agents of weed spread and need to be regularly cleaned before moving from one area to another.

Good (1987) highlights the importance of vehicles and other machinery in spreading weeds within National Parks and conservation areas. According to Good (1987), weeds in National Parks are concentrated along access systems (roads, tracks), areas of high use. Park infrastructure sites are often used by utility companies, such as water and electricity. Unfortunately, many of these utility sites are areas of disturbed vegetation (e.g. power line easements) with generally higher weed presence, and traffic through these areas can spread the weeds to other parts.

Agricultural machinery is often implicated in the spread of weeds within and between agricultural districts. Evidence of weed spread by farm machinery is documented by Blanco-Moreno (*et al.* 2004), who showed that the dispersal of annual ryegrass (*Lolium rigidum)* was strongly affected by combine harvesters. The authors point out that this mechanism could potentially spread the species over great distances.

Parthenium Weed (*Parthenium hysterophorus*) is commonly observed along roads and tracks, has been attributed to the movement of harvesting machinery, cattle, hay, grain and vehicles (Parsons and Cuthbertson 2001). The spread of parthenium weed was mapped in Queensland for the years 1975, 1979 and 1981 (see Figure 1). The association between infestations and roads strongly suggests that vehicles have played a role in dispersing the seeds. Parthenium covers a much greater area now.

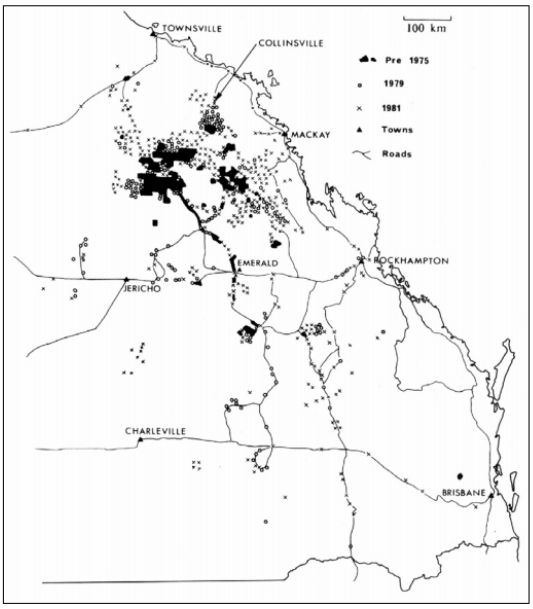

Figure 1: *Spread of Parthenium weed in Queensland (Auld et al. 1982)*

4. Prevention of Weeds

Prevention is the most effective method of dealing with weeds. Once a weed has entered an area and has become established, eradication is far more expensive, and it is likely that greater resources will be required to control its further spread and reduce its impact. The importance of weed spread prevention has grown with the recognition that the spread of most weeds occurs through similar pathways, such as the movement of goods, animals and vehicles contaminated with weed seeds.

4.1 Washdown Bays

The wash down of mechanical equipment is widely practised for aesthetic reasons, but also for operational efficiency, safe mechanical servicing, and preventing the spread of weeds and fungal diseases. A washdown facility is an area where farmers/contractors and the public can clean all vehicles and machinery entering or leaving a property/area.
According to DAF (2013) features of an effective washdown facility include:

- **Signposts** – should be clearly visible with simple instructions so that visitors to the property understand the biosecurity practices that are in place.
- **Positioning –** the facility should be in an open area, preferably close to entry/exist points of the property. Keep it as far away as possible from any production areas. Keep drainage from clean-down facility confined and away from access to drainage lines.
- **Size -** the size and the design of the facility should be determined by purpose and likelihood of usage, e.g. tourist vehicles, livestock trucks, caravans, etc.
- **Power and High-pressure water/compressed air cleaners –** should be accessible, as this will clean down quicker, easier and more effective. If power is not available, a petrol-powered pressure cleaner could be used instead.
- **Surface –** should be sealed with concrete or bitumen. Compacted gravel can be used but is harder to rinse down. If the surface is grassed, it will require extra vigilance and regular treatment of germinating weeds.
- **Sump or waste collection –** an area is recommended for water, dirt and any contaminants to drain into. It is important that this, and the surrounding area, is checked regularly and treated for weeds when necessary.

The size of the washdown facility should match the expected use and size of targeted vehicles. If 4wd vehicles are targeted for washdown, then there is no need for a large elaborate facility. Equally, if large vehicles and cattle trains are targeted for washdown, then the facility will need to be sized to cate for the length of the vehicle sand volumes of water that will be used.

5. Washdown Facilities Site Selection

The selection of an appropriate site for a wash down bay facility needs to take several physical, regulatory, economic, constructional, and operational aspects into consideration. These are discussed below. A site selection assessment process and form has been created to assist in the selection of suitable sites for washdown bays (Appendix 1). The size of the washdown bay should meet the needs of the proposed vehicle size.

5.1 Water

The volume and quality of water required for the wash down facilities will vary depending on the vehicle and machinery size, the configuration of the machinery to be cleaned down, levels of cleanliness required and water dispensing equipment, and the wash pad area.

5.2 Land

Land constraints must be taken into consideration when selecting the location for the wash down pad. Selection of an appropriate site may greatly decrease both construction and operational costs.

5.3 Local Area

The proposed facility location should be located close to the highway/major road to facilitate accessibility of all vehicles.

5.4 Access

The access considerations for site selection may include:

- Wash down facilities that are conveniently located close to major roads are more likely to be used by industry;
- Will require all weather access;
- Due to the all-weather access requirement, a wash down facility located on an existing gravel road will likely require a road upgrade;
- Access roads should be located to minimise erosion and the alteration of drainage lines;
- Access roads to the facility should be designed and constructed to minimise costs while providing easy access for the expected traffic under various conditions affecting the site.

5.5 Land Availability

The current and future land zoning of the subject property and surrounding land with the local government authority should be investigated. Property size is an important consideration. Ideally the subject property should be large enough to contain the washing facility and all other associated infrastructure including vehicle parking, waste treatment and any waste utilisation areas. Land buffers around facility complex prevent encroachment by other developments on nearby land and the land should be adequately sized to ensure that are for land buffers area available.

5.6 Siting and Construction

Consideration of the local landforms surrounding the facility:

- The type of wastewater disposal method that can be utilised;
- The suitability of the site for construction of service facilities;
- Surface water management and contamination risk;
- Flood risk; and soil erosion risk.

5.7 Soils

The range and distribution of soil types on a subject site should be confirmed during the site selection process. The surrounding soil types will influence the requirement for earthworks or gravel to establish foundations for the concrete pads, water tanks and access roads into the facility. Furthermore, the soil profile should be assessed to determine suitability for construction of wash pads and drainage works, as well as excavation of storage ponds if required.

5.8 Topography

A flat to slight (2.0-4.0%) fall across the site is ideal for the development of the facility. This minimises the requirement for pumping as water can be gravity fed through the site to a collection point.

5.9 Electricity

The type of equipment to be installed will determine the electricity requirements at the site. Wash down facilities may require single or three phase power to operate equipment such as water pumps, lighting, and air compressors. The use of mains power is the recommended option. Extension to power lines to a facility is cost prohibitive and therefore, the facility should be located as close as possible to existing power infrastructure. Where electricity is not available, petrol powered water pumps for the wash down may be a good option.

5.10 Community Amenity Issues

Design and siting of effective and efficient and effective truck wash facilities will occur in consultation with the community. Community amenity issues may arise from:

- Excessive noise – activities including equipment use and vehicle movement inherently generate noise. Careful route selection and suitable driving may assist to reduce traffic noise nuisance.
- Excessive dust generation – most dust is generated from traffic movements along unsealed roads or off gravelled wash down pads. Traffic dust can be reduced through road watering, using sealed routes and driving at suitable speeds.
- Attraction of flies and vermin – proper management of solid waste collection and disposal will avoid any potential problems with flies and vermin. Liquid waste disposal ponds with steep banks, flat bases and absence of vegetative growth do not provide suitable habitats.
- Odour nuisance – odour from mud scraped from sediment traps and treatment of wastewater may present problems for nearby receptors. This may be exacerbated in facilities with a heavy usage of cattle transport trucks as the manure that they can remove contains a high level of organic solids. The breakdown of organic solids can result in the release of offensive odours.

5.11 Flora and Fauna

Environmental impacts to flora and fauna, areas of remnant vegetation, wildlife movement corridors/habitats and natural wetlands should be avoided when selecting a site and waste disposal area. This also minimises the impact on the environment of unintentional escape of weed seeds.

5.12 Choosing a Mobile or Field Clean Down Site

Cleaning vehicles and machinery before moving them to a new area, including other parts of the same property or adjoining land and along roadsides, helps prevent the spread of invasive plants. However, you should choose a washdown site that will give the best possible results and should consult the landholder about its location.

- Consider primary weed targets for the area, likely vehicle and machinery spread vectors and their influence on washdown design requirements.
- Consider the site's run off. Ensure the site is away from watercourses and drains.
- Choose a relatively flat site to help prevent run-off and to ensure safety.
- Choose a site that is large enough for the vehicle size that will be used, ie. Cattle-trains or 4wds.
- Ensure the site can be easily identified as it will need to be monitored for outbreaks and notify landholders of its location.
- If possible, conduct small washdowns at the landholder's property (with permission) before leaving the property.

6. Whitsunday Washdown Facilities

6.1 Current Facilities

Throughout Queensland, washdown facilities area available for public or industry use. They are provided for cleaning vehicles and machinery to prevent spread of invasive plants and should be used whenever possible, as they are designed with environmental protection in mind. The Whitsunday Regional currently provides three public wash down facilities, two being at the Peter Faust Dam at Proserpine and the other at Darby Munro Park Collinsville.

Peter Faust Dam is the site of a *Mimosa pigra* infestation. While the infestation is under effective management and on track for eradication, the provision of washdown facilities further reduces risks of seed spread for this weed. Additionally, the facilities will reduce risk of weed spread associated with increased recreational use of the dam facilitated by new camping facilities.

The washdown facility at Collinsville is strategically located to reduce risks associated with parthenium weed and Weedy Sporobolus Grasses, particularly through movement of contractor equipment, machinery and vehicles linked to mining activity. The Collinsville washdown facility is a basic, demonstration module with a petrol driven water pump.

Figure 2: *Collinsville Manual Washdown Facility*

Figure 3: *Peter Faust Dam (Proserpine) Automated Washdown Facility*

6.2 Washdown Facility Strategy

The main vehicles which are at risk of transporting weed seed and weed plant material are small 4wd vehicles and cattle trains. The transport of cattle can spread weeds. The transport of cattle can spread weeds during transport along the roads and at the destination stock yards. The facilities needed to accommodate the larger cattle train trucks are large facilities which can cost between $500,000 and $1 million to build. Where large wash down facilities have been established, a substantial site maintenance program is needed to keep the sites clean and make sure weeds are managed. The large washdown facility maintenance costs can become a significant cost to local councils. The construction of large washdown facilities for cattle trains don't stop the gradual spread of weed seeds from the truck during transport. It is important however that the cattle train trucks are sufficiently washed down at their destination to reduce weed seed spread.

The washdown facilities for 4wd and smaller trucks can be smaller than those needed for cattle trains. There are a range of small vehicle wash down facility designs. There are now small vehicle washdown bays constructed as automatic package plants which cost less than $30,000 to purchase and install depending on the proposed location. The installation of a number of small vehicle washdown bays throughout the catchment may assist in reducing weed seed spread. The general strategy which the council will pursue is to develop a number of small vehicle washdown facilities through the region at strategic locations rather than constructing one large facility.

6.3 Investigation Sites

With higher demand and better appreciation of the risks within biosecurity, Whitsunday Regional Council has conducted an analysis of the region to identify potential washdown sites. The areas that have been identified as possible washdown locations are listed in table 2. The maps showing the location of the possible small vehicle washdown bay sites are located in the appendix of this report.

Site	Area – Location	Target Species/Purpose	Targeted Users
1	Mt Coolon	Parthenium - Weedy Sporobolus Grasses	Contractors Landholders Travellers
2	Collinsville – Mount Coolon Road -Emu Plains Road	Parthenium - Weedy Sporobolus Grasses	Contractors Landholders Travellers
3	Collinsville – Mount Coolon Road – Byerwen Road	Parthenium - Weedy Sporobolus Grasses	Contractors Landholders Travellers
4	Guthalungra – Day rest site	Exclusion of weeds into the region including Siam Weed	Contractors Travellers
5	Merinda – Rural Fire Brigade Lot	Prickly Acacia, Chinee Apple, Rubber Vine	Contractors Landholders Travellers
6	Bowen – Col Leather Sports Ground Cark Park	Prickly Acacia, Chinee Apple, Rubber Vine	Landholders
7	Bowen – Mullers Lagoon	Prickly Acacia, Chinee Apple, Rubber Vine	Contractors Landholders
8	Proserpine – next to dog pound	Sicklepod	Contractors Landholders Travellers
9	Collinsville – Strathmore Road. Located 5.6km along Strathmore Road	Parthenium - Weedy Sporobolus Grasses	Contractors Landholders Travellers

6.4 Washdown Certification

It is the landholders responsibly to ensure weed are not transported or moved. Landholders can ask contractors or visitors for evidence that they have washed down their vehicle before entering their property to reduce the risk of spreading weed. In the past “weed hygiene” declaration forms were sometimes used to demonstrate and declare that the vehicle did not have weed seeds. The presence of the weed hygiene declaration form did not however fully guarantee a 100% clean vehicle and relied on the vehicle owner to make this judgement.

To further reduce the incidence of weed spread, people could complete a “Weed Hygiene and Washdown Declaration Course” and become washdown certifiers or inspectors. People which had completed sufficient training could certify on weed hygiene declaration form that a washdown had complied with best practise. This process relies on sufficient people in the region with the skills to undertake the inspections and supervise the washdowns. The cost of this supervised and certified process can be costly and relies on the vehicle owner and the certifier being available at a mutually beneficial time.

The Whitsunday Regional Council encourages all vehicle owners to be responsible for the cleanliness of their own vehicles and to washdown their vehicles in accordance to best practise. The Council is not in a position to offer a supervised or certified washdown service. The council encourages landholders and contractors to keep photographs of washdown activities which are date stamped as evidence of washdown. It is considered best practise for contractors to keep a record of their washdown activities with appropriate data captured and checklists used. The Council has included useful washdown tips in this report.

7. General Washdown Procedures

7.1 Training

It is recommended that people responsible for cleaning down vehicles or machinery should undertake competency-based training and receive a satisfactory assessment. Competency-based training is provided by registered training organisations (RTO) through units such as AHCBIO201A-Inspect and clean machinery of plant, animal and soil material. General washdown procedures can be viewed in Appendix 11.3.

7.2 Safety

Ensure all safety precautions are taken. Please refer to the operating manual of the vehicle of machinery for specific safety instructions before cleaning.

- Place the vehicle or machinery in a safe position. It should be stable and immobile.
- Stop engine, apply the park brake, chock the wheels and lower all implements or secure/chock them if they need to be up for cleaning (eg. Slasher).
- Ensure the area is free of obstructions and objects that may cause injury (eg. Logs, power lines).
- Have a qualified operator present if parts of the vehicle/machinery need to be moved during cleaning.
- Move the vehicle or machinery with caution.

7.3 General Washdown Guidelines

The following points are general guidelines only:

- Examine the vehicle/machinery/equipment to determine areas that may require compressed air rather than water – do this first. Used compressed air to blow debris out of any area that could potentially include weeds such as the cabin, tool boxes, battery box, radiator and oil cooler cores. Some of these may be difficult to locate and access. Remove the necessary guards or belly plates to access these areas for cleaning.

- If the vehicle/equipment is heavily contaminated with soil/mud, remove this using a suitable shovel or bar.
- Where possible clean from the top down.
- Remove visible green material by hand and place in a bag for suitable for disposal according to relevant guidelines.
- Use a high pressure/volume cleaner on the remainder of the vehicle/mobile plant, working from the top down, soaking works best on the under carriage.
- Check all the areas have been cleaned. Clean again if required.
- Replace any guards or belly plates removed for the cleaning process.
- Before moving the vehicle, clean off the wash pad where the vehicle is to drive. Clean off boots prior to entering the vehicle.
- Move the vehicle directly off the wash bay, avoiding recontamination.
- Record he details of the cleaning on the appropriate forms or in the vehicle or machinery logbook.
- Present the vehicle or machinery to an inspector if required.

Remember that no washdown guidelines can detail all parts to check. This is because there are:

- Numerous different models and new models.
- Different attachments (eg. different types of blades on dozers)
- Different modifications, either in the factory or by previous owners
- Varying conditions of the machinery (eg. rusted parts allowing entry of contaminants into sections that are usually sealed).

Examine the item you are cleaning very carefully for any areas that could be contaminated, even if these are not listed in the guidelines, and clean them thoroughly.

8. Review and Evaluation

The Whitsunday Weed Washdown Strategy will be reviewed in conjunction with the Whitsunday Biosecurity Plan. In the absence of a Whitsunday Biosecurity Plan or Strategy the Washdown Strategy will be reviewed every four years by the Council in consultation with land management stakeholders.

9. Conclusion

It is far more cost effective to prevent weed incursions from occurring than it is to control and attempt to eradicate them. One of the dominant vectors for spreading weeds is through the movement of vehicles, machinery or equipment. The use of weed washdown facilities can be a useful tool to reduce the spread of weeds through a catchment. The placement of the wash-down facility is important. A washdown facility in the right location can be a useful piece of infrastructure which can reduce environmental and economic impacts associated with weeds.

Further implementation of these facilities within the region would allow public and contractors to travel less distances and would result in the reduction of weed spread within the region. The Council will develop project plans for each washdown facility location.

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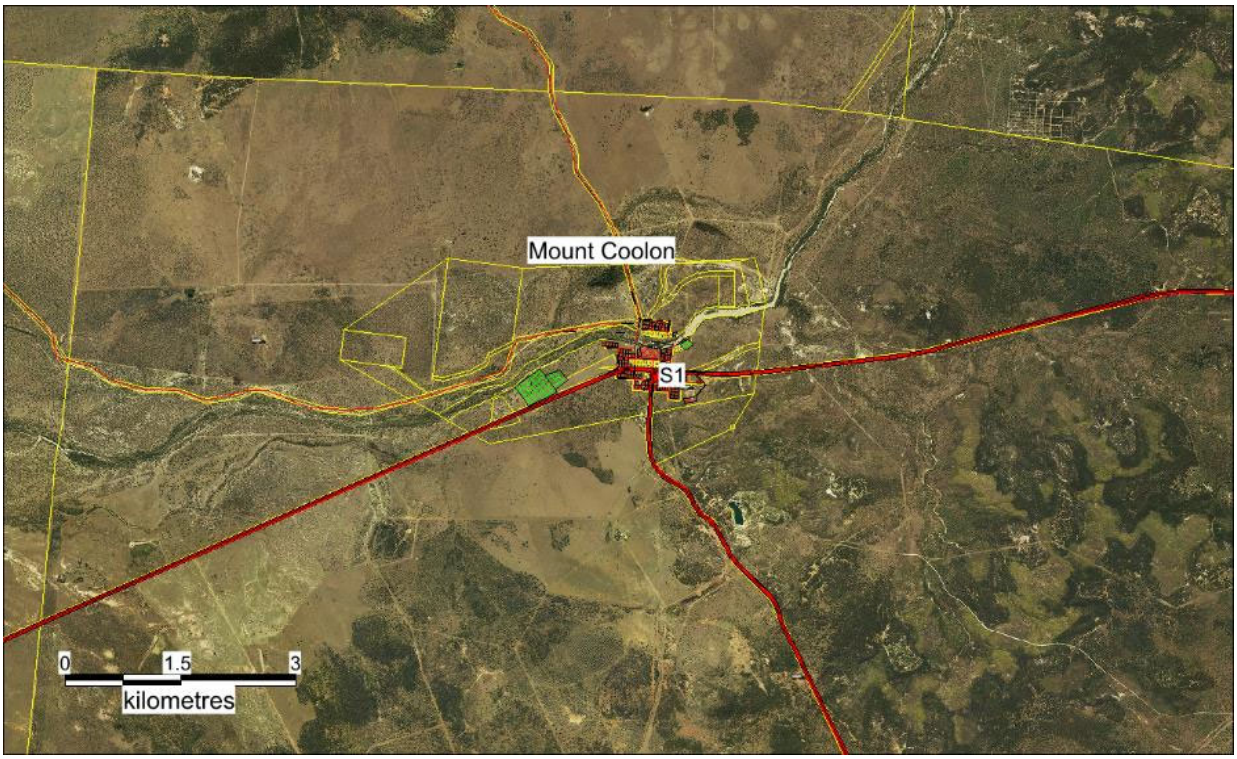
11. Appendix

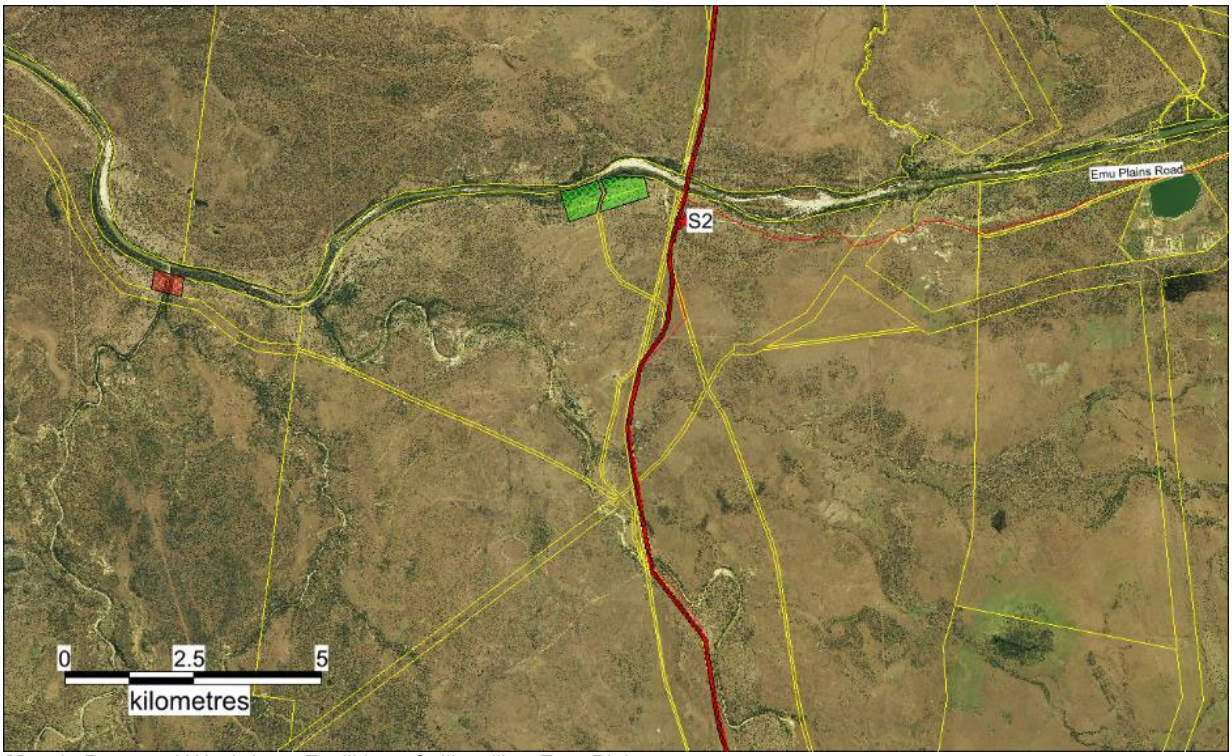
11.1 Site Selection Assessment

SITE SELECTION ASSESSMENT			
Area:	Address:	Priority Weed Targets:	
Section	**Criteria**		**Outcome**
Strategic Location (Regional)	Facility is located in an area that will meet the demands of a large catchment		
Strategic Location (Local)	Facility is located close to a major road		
Land Availability	There is sufficient land for the wash down bay and associated infrastructure		
Access- Location	Location will be used by target user group		
Access – All weather access	All weather access to location		
Access – Road Size	Access road can manage the appropriate size vehicles and machinery		
Access – Road line of site	Ample straight flat road in both directions		
Topography	Site is flat with slopes of <3.0%		
Soils	Soil profile for proposed washdown design.		
Water source	Source of water available		
Waste management	No ability to direct connect into the sewer, but there is ample irrigation area		
Power supply	Mains power is located adjacent to the property, or availability of pump to be installed.		
Flora & Fauna	Limited vegetation on-site		
Community Amenity	Dependent on purpose, located well away from town		
	OUTCOME – Acceptable, Not Acceptable or Information Required.		

11.2 Areas of Interest for Washdown Facilities

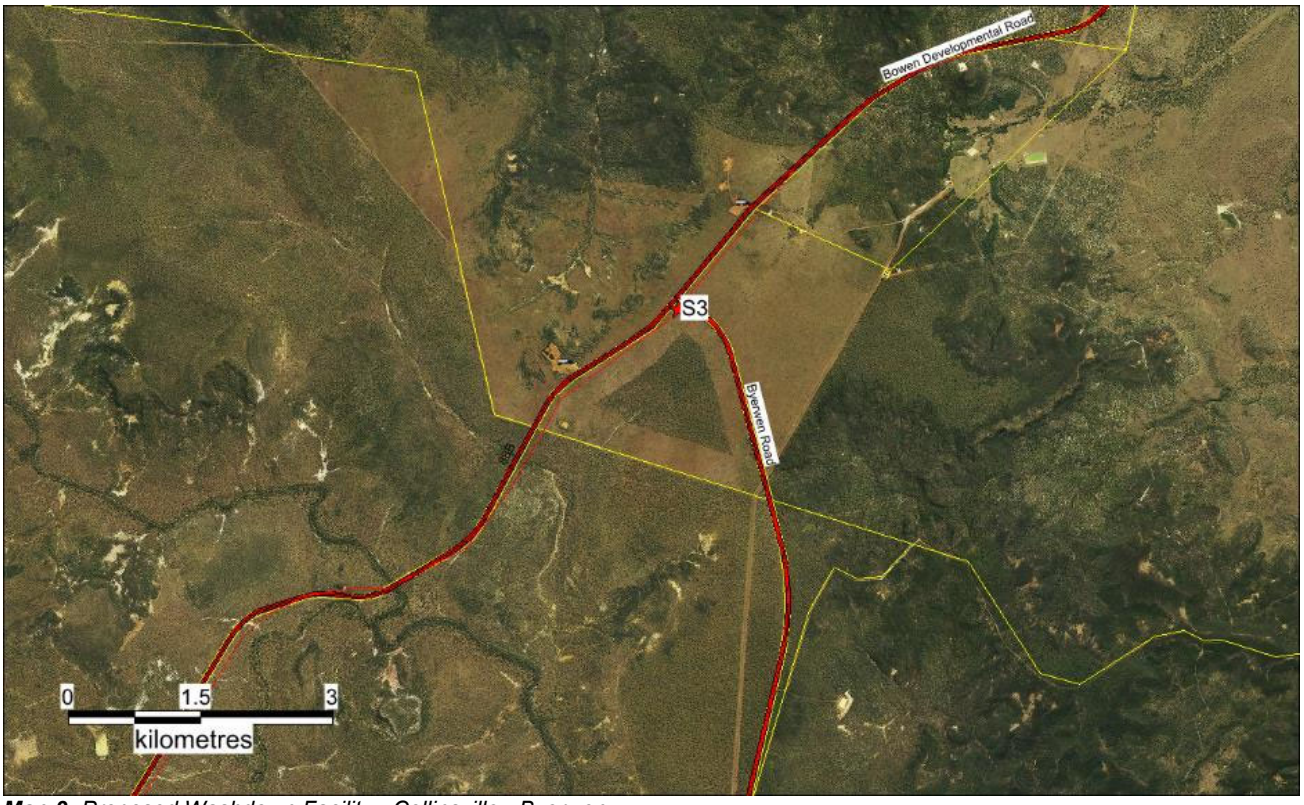


Map 1: *Proposed Washdown Facilities - Mt Coolon*

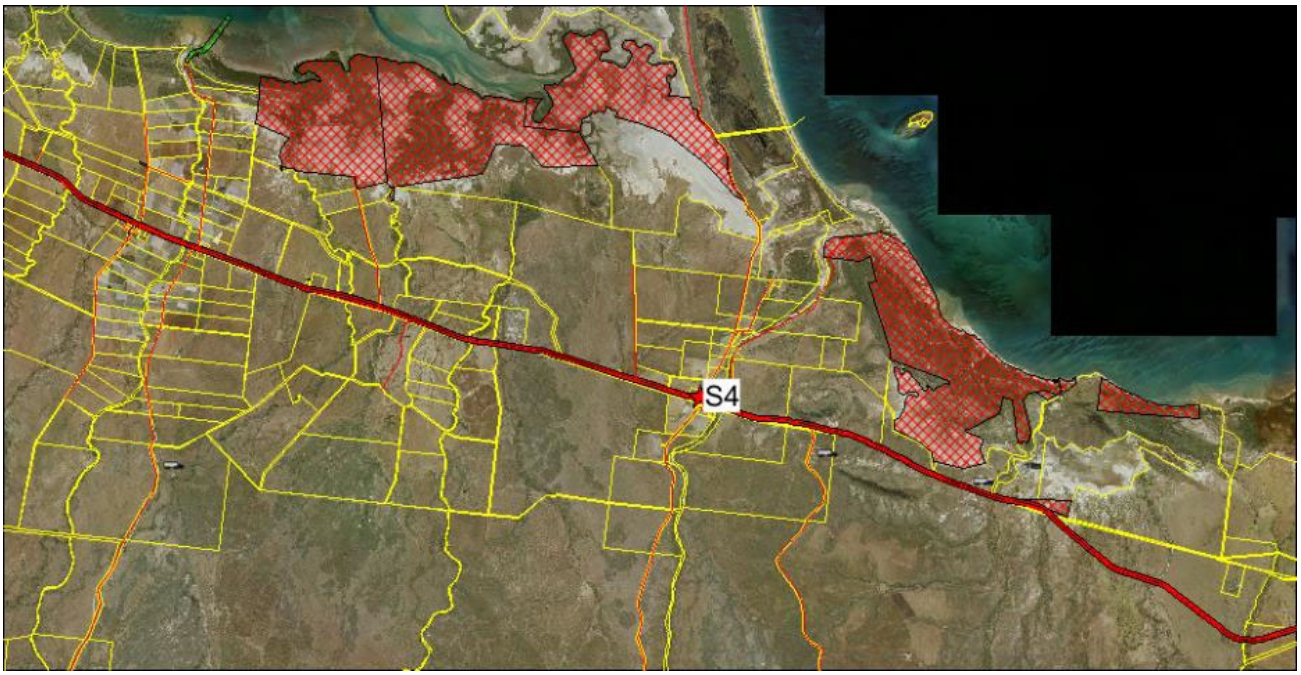


Map 2: *Proposed Washdown Facilities - Collinsville - Emu Plains*

Note: *Red Areas = State land – Green Areas = Council land*



Map 3: *Proposed Washdown Facility - Collinsville - Byerwen*

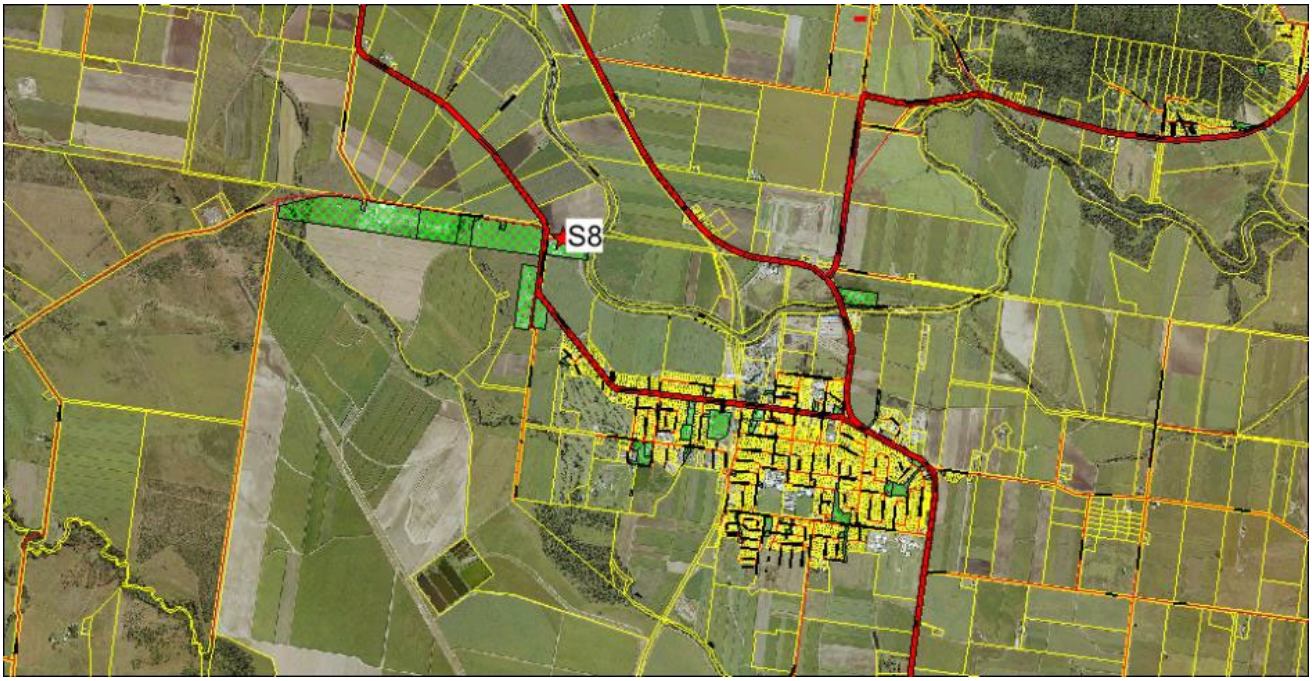


Map 4: *Proposed Washdown Facilities – Guthalungra*

Note: *Red Areas = State land – Green Areas = Council land*

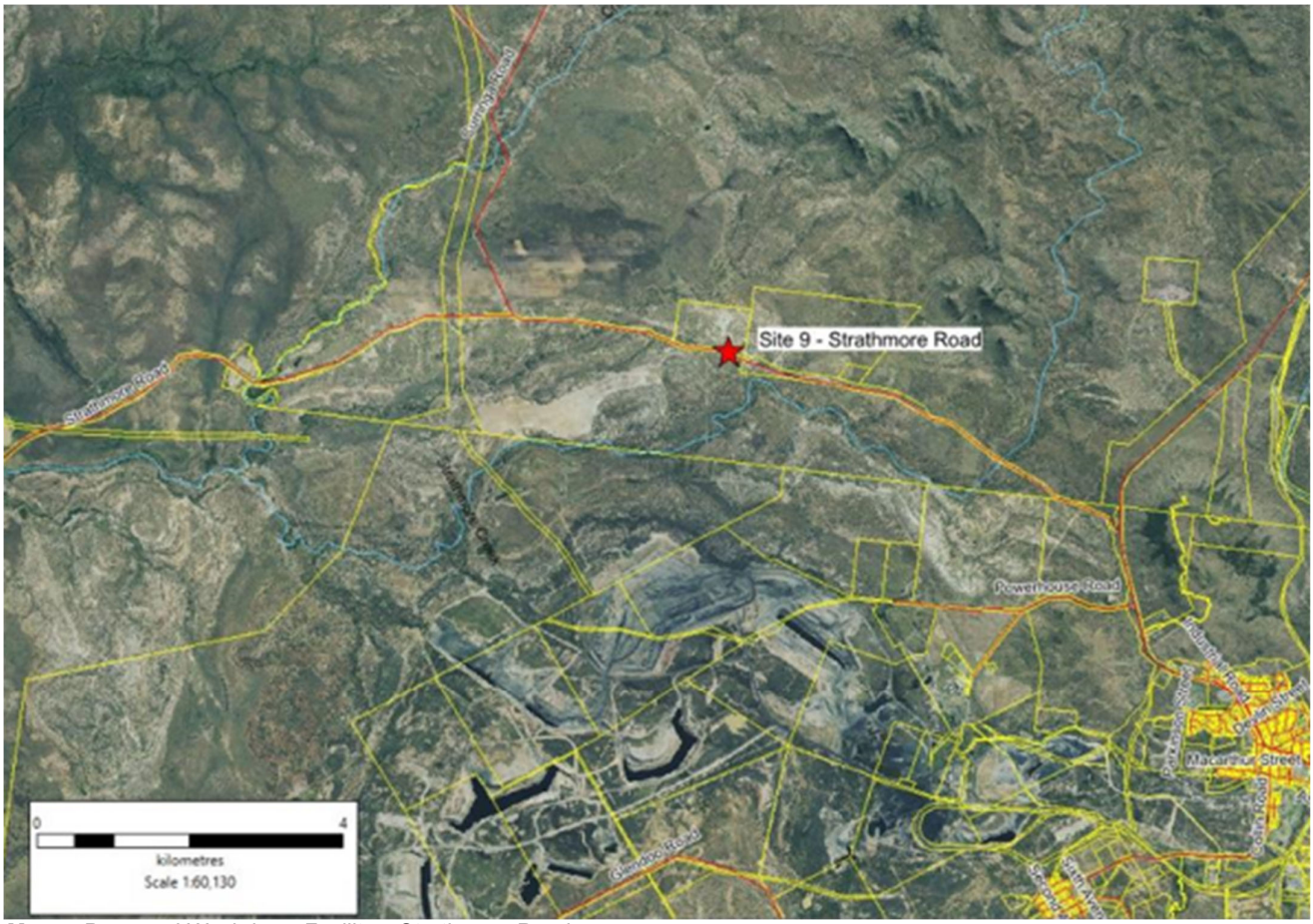
Map 5: *Proposed Washdown Facilities – Bowen*

Note: *Red Areas = State land – Green Areas = Council land*



Map 6: *Proposed Washdown Facilities – Proserpine*

Note: *Red Areas = State land – Green Areas = Council land*



Map 7: *Proposed Washdown Facility – Strathmore Road*

11.3 Basic Cleaning for All Vehicle Types

CAUTION: DO NOT use high-pressure water jets in compartments that house electronic components.

The basic cleaning requirements for all vehicles are given in Table 2. It is best to start cleaning at the top of the vehicle and work down to the ground.

Table 2: *Basic Cleaning Requirements for Vehicles - Adapted from Australian Defence Force Military Equipment & Personnel: Guidelines for Offshore Inspection*

Area	Actions
Air tanks	Clean these as for fuel tanks.
Air vents	Unscrew the air vents and blow them with compressed air. If filters are fitted, removed and clean them.
Battery	Remove the battery and clean underneath it.
Battery box	Clean the battery box.
Bodywork	Check all damaged bodywork. Remove any floor or body strips or mouldings that form lips where soil or plant material may become trapped, particularly on vehicle floor compartments.
Bumper and brush guard	Clean all hollow sections and attachment points.
Canopy	Remove the canopy and brush it, then clean it with compressed air or high-pressure water.
Canopy bows	Disassemble the canopy bows, then wipe or scrub them with brushes and water. Pay attention to locking catches, joints and hollow cross members.
Chassis	Clean the chassis with high pressure water using equipment with a flexible nozzle. Pay particular attention to small apertures, which may act as reservoirs for soil and plant material.
Dashboard	Used compressed air and dry paintbrushes to clean the dashboard.
Dual wheels	Take extra care cleaning vehicles fitted with dual bogie wheels. If contamination is detected, an inspector may ask for the outer wheel to be removed, cleaned and re-inspected.
Fender wells	Clean the access areas for tail-light wiring and other fender apertures that may collect soil and plant material.
Floor drain plugs	Remove all floor drain plugs to facilitate cleaning. Clean all drain plugs and apertures, paying particular attention to threaded areas.
Floor mats	Remove all floor mats or carpets and clean them.
Fuel tanks	If fuel tanks are strapped to the vehicle, clean them to remove contamination between the tank and the vehicle.
Insulation tape	Check all taped areas for contamination and replace the tape with new when necessary.
Interior	Remove all contamination with vacuum or compressed air equipment.
Interior panels, access panels	Where possible, remove all internal panels to allow cleaning of inner components.
Lights and reflectors	Remove all damaged lights (internal and external) and any lights where seals have not maintained their integrity, so that you can clean the light fittings.
Metal racks	Clean all box and tubular steel racks (which have openings) with high-pressure water.
Mirrors	Clean all mirror holders
Radiator (all types)	Clean the radiator with compressed air and follow this with a low-pressure high-volume water wash. You may need to use brushes or to pick seed material from between the veins on the radiator.
Ropes, straps and Velcro	Check and clean all ropes and straps and items containing Velcro. Extend ropes and straps to their full length when cleaning and check all attachment points, fixtures and tension devices

Rubber seals	Windscreens, doors, tailgate and other areas and clean or replace them as necessary.
Seatbelts	Clean and check all seatbelts, especially the catches where the seatbelts fasten. You may need to remove any sheaths or covers to adequately clean seatbelts.
Seat cushions	Clean the cushion covers.
Storage and tool compartments	Empty and clean all storage and tool compartments.
Support and cross members	Check and clean the transmission support members and other cross members.
Tools and equipment	Remove all items for cleaning. This may include jacks, wheel braces, etc. Wipe tool s clean.
Toolboxes	Empty and clean all toolboxes. If they are bolted to the floor tray, unfasten and remove them to check there is no debris trapped between the floor and the toolboxes.
Tyres	Clean the tyres, paying attention to the tread and any cuts or gashes.
Winch cable drum	Unwind the winch cable and clean the drum, cable and any attachments of any soil and plant material that is embedded in the components or grease.

Remember: the key to successful cleaning is more than just ticking off a checklist. You should be thorough, systematic and consistent. CHECK, CLEAN, RECHECK.