



Attachment R11

Weed Management Plan

May 2022

Vista Gold Australia Pty Ltd

Mount Todd Project Area





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1. Introduction

1.1 Purpose

This Plan forms part of the Environmental Management System (EMS) for the mine and is considered a working document. It will be updated following formal assessment by Department of Primary Industry and Resources (DPIR) as part of the mining authorisation process in 2020 and submitted as an updated plan May 2022 to Department of Industry, Tourism and Trade (DITT).

Key activities during construction and operations will disturb soils and vegetation, and have the potential to introduce or transfer weeds into or across the Mt Todd Project Area (MTPA). This Weed Management Plan (Weed MP) will be implemented to reduce the risk of spreading existing weeds and introducing new weed species.

The purpose of the Weed MP is to:

- Identify key risks / hot spot areas within the MTPA, including declared and/or environmental weed species;
- Identify measures to control and/or eradicate declared weeds and Weeds of National Significance (WONS) before, during and after construction;
- Identify measures to minimize or avoid the spread of environmental weeds;
- Identify key responsibilities for construction and operational personnel; and
- Detail a schedule for monitoring and evaluation, including review and update of the document and procedures.

1.2 Objective

The objective of the Weed MP is to guide the management of weeds throughout the Life of Mine (LOM) by:

- Comply with all legislated requirements and all relevant corporate requirements and policies;
- Make the MTPA physically safe for people to access/utilise and does not pose a human health risk;
- Leave the MTPA in a stable condition that minimises long-term environmental impacts, liabilities and maintenance;
- Rehabilitate disturbed land such that it is ecologically sustainable and generally reflects the surrounding ecology, or, where appropriate, the ecosystem relevant to an appropriate land use;
- Preventing the spread of declared weeds, Weeds of National Significance (WoNS) and/or environmental weeds;
- Preventing the introduction of new weed species across the MTPA;
- Controlling or eradicating existing weed populations (where appropriate); and
- Enhancing rehabilitation and landscaping success through weed management.



1.3 Associated management plans

This Plan specifically applies weeds, however consideration of the management of weeds is also addressed in several other sub-management plans including:

- Bushfire Management Plan
- Flora and Fauna Management Plan
- Waste Management Plan
- Mine Closure Plan.

1.4 Definition of a weed

For the purposes of this plan, a weed is defined as:

- A declared weed (i.e. weeds are declared under the NT Weeds Management Act); or
- A Weed of National significance or WONS (these species are agreed by Australian governments based on an assessment process that prioritises these weeds based on their invasiveness, potential for spread and environmental, social and economic impacts); or
- An environmental weed (weeds that are not declared under the Act, but represent a key threatening process for conservation values).

1.5 Legislation and Guidelines

1.5.1 Weed Management Act

Under the Northern Territory Weed Management Act 2001, it is the responsibility of the owners and occupiers of land to manage weeds on their land. If you manage or own land, you are required to:

- Take reasonable measures to prevent the land becoming infested with a declared weed;
- Take reasonable measures to prevent a declared weed spreading to other land; and
- Follow a statutory weed management plan for any weeds on your land.

There are three classes of declared weeds, based on the risk of harm they could cause and how difficult they are to control. They can be one class or a combination of these classes.

- Schedule Class A - To be Eradicated;
- Schedule Class B – Growth and Spread to be Controlled; and
- Schedule Class C – Not to be Introduced into the NT.

All Schedule Class A and B weeds in the Northern Territory are also scheduled as Class C weeds. All weeds that fall into the three classes must be controlled. It is a requirement within the Act that all land holders, land managers and land users must comply with the declaration classifications.

1.5.2 Other legislation, guidelines and plans

- Environment Protection and Biodiversity Conservation Act 1999;
- Territory Parks and Wildlife Conservation Act 2006;
- Australian Weeds Committee – Weeds of National Significance 2012;



- Australian Weeds Committee – The Australian Weeds Strategy;
- Northern Territory Government – Northern Territory Weed Management Handbook 2012;
- Department of Natural Resources, Environment, The Arts and Sport – Guidelines for Weed Data Collection in the Northern Territory;
- Department of Land Resource Management – Buffel Grass Management Guide for Central Australia;
- NTG Gamba Grass Weed Management Plan; and
- Threat Abatement Plan for the five listed grasses.

2. Existing Environment

Twelve species of introduced flora were recorded within the MTPA during survey carried out in 2011 and 2012 baseline wet season and dry season flora survey. These species include eight listed as Class A or B (or both). Weed species have been listed in [TABLE 2-1 WEED SPECIES IDENTIFIED AT THE MTPA](#).

Weeds are distributed along the interface between cleared areas and bushland. The interiors of the native vegetation are mostly weed free.

Mine activities during construction and operation may also result in the introduction of new weed species, and/or the spread of existing species to new areas around the mine site. Refer to [FIGURE 2-1 INTRODUCED FLORA OBSERVATIONS](#) for known weed locations. Many of these species, including Gamba grass (*Andropogon gayanus*) and Mission grass (*Pennisetum polystachion*) pose a risk to the environment, life and property, with particular refernec to the adjacent Yinberrie Hills Site of Conservation Significance. These species increase fuel loads and pose a significant potential fire risk.

Table 2-1 Weed Species identified at the MTPA

Species Name	Common Name	NT Schedule Class*	Priority for treatment
<i>Andropogon gayanus</i> <i>Declared weed and Weed of national significance</i>	Gamba Grass	A/B/C	1
<i>Calotropis procera</i>	Rubber Bush	B/C	1
<i>Cenchrus ciliaris</i>	Buffel Grass		2
<i>Cenchrus pedicellatus</i>	Mission Grass (Annual)		1
<i>Cenchrus polystachios</i>	Mission Grass (Perennial)	B/C	1
<i>Chloris gayana</i>	Rhodes Grass		2
<i>Crotalaria goreensis</i>	Gambia Pea		2
<i>Hibiscus sabdariffa</i>	Rosella		2
<i>Hyptis suaveolens</i>	Hyptis	B/C	1
<i>Melinis repens</i>	Red Natal Grass		3
<i>Passiflora foetida</i>	Stinking Passionfruit		2
<i>Stylosanthes hamata</i>	Carribbean Stylo		3

Note. # 1 is the highest priority weeds, and need to be sprayed during their active growing season, # 2 is second priority weeds, being treated after A, and # 3 are lowest priority weeds, and treated as required.

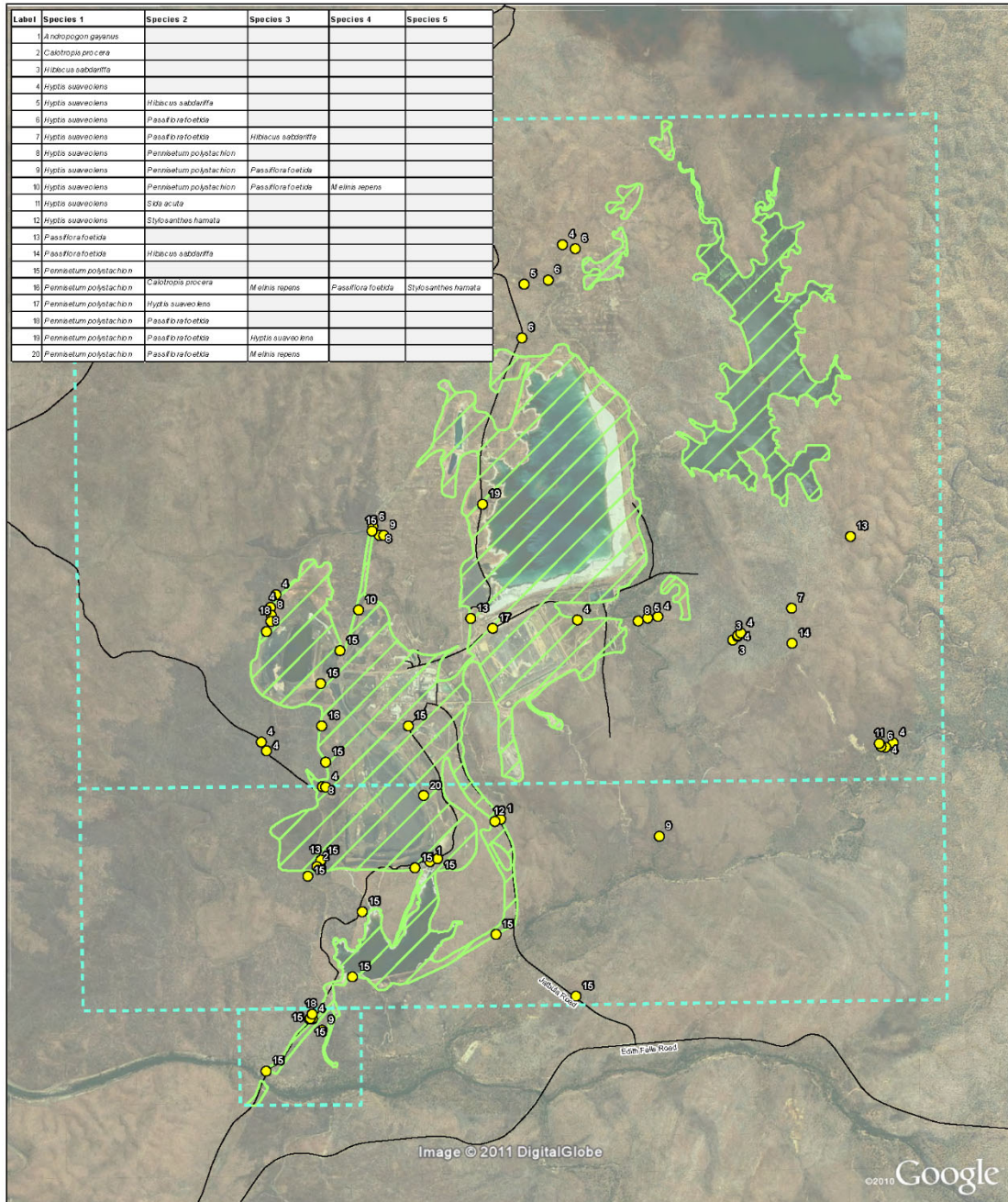


2.1 Environmental Impacts

The potential environmental impacts arising from the introduction and spread of weeds within the MTPA include:

- Modification of vegetation communities: weeds can prevent seed recruitment and out-compete native species for available resources. Changes to the floristics of communities can subsequently modify habitats for threatened fauna species and/or render the habitat less valuable to indigenous fauna.
- Alteration of fire regime: weeds can create additional fuel loads, which can lead to hotter and/or more frequent fire, which can in turn affect vegetation communities and threatened species habitat.
- Change in hydrology: weeds can be prolific in watercourses, which can alter stream flow and cause erosion.
- Revegetation and landscaping success: if weeds become established and prolific in areas subject to revegetation they can out-compete other planted species and prevent the regrowth of native plants.

Figure 2-1 Introduced Flora Observations



LEGEND

- Flora Survey Weeds
- Access Roads
- Mt Todd Mineral Leases
- Disturbed Area: Sporadic distribution of introduced species

Map Projection: Universal Transverse Mercator
Horizontal Datum: Geocentric Datum of Australia
Grid: Map Grid of Australia 1994, Zone 53

Vista Gold Australia Pty Ltd
Mt Todd Gold Project

**Introduced Flora
Observed on the Mine Site**

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Job Number 43-22632
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Figure 1-1

© 2013. Whilst every care has been taken to prepare this map, GHD, NRETA, Vista Gold and Google make no representations or warranties about its accuracy, reliability, completeness or suitability for any particular purpose and cannot accept liability and responsibility of any kind (whether in contract, tort or otherwise) for any damages, losses, expenses, and/or costs (including indirect or consequential damages) which may be incurred by any party as a result of the map being inaccurate, incomplete or unavailable in any way, and for any reason.
Data source: Google Earth Pro - Imagery Date: 10/11/2015; GHD - Access Roads; Flora Survey Weeds (2015); Disturbed Area (2012); Created by: CM

3. Weed Management

Vista Gold intends to operate the MTPA to industry best practice or better and follow Australian and International standards and guidelines for its activities where applicable. To manage weeds on the MTPA Vista Gold intends to undertake these following key activities.

- Weed Surveys;
- Weed Monitoring;
- Weed Mapping; and
- Weed Control (physical, mechanical and chemical).

3.1 Key activities, risks and indicators

The key activities and potential impacts to weeds are provided in [TABLE 3-1 KEY ACTIVITIES, RISKS AND IMPACTS](#)

The residual risk level identified is the risk remaining once management and mitigation measures are implemented.

Table 3-1 Key Activities, Risks and Impacts

Activity	Potential Environmental Impact	Residual Risk Level		
		Consequence	Likelihood	Risk
Introduction of weed species onto site and / or spread of existing weeds into new areas	Modify or inhibit ecological processes	Moderate	Unlikely	Low
	Reduce the diversity or modify the composition of plant species			
	Fragment or damage habitat important for the conservation of biological diversity			

3.2 Objective

Weed management objectives have been established and are detailed in [TABLE 3-2 WEED MANAGEMENT OBJECTIVES](#)



Table 3-2 Weed Management Objectives

Objective	Target	Indicator
No spread of existing Declared weeds within the Project area.	No significant change to the extent and distribution of Declared weeds within one year of completion of construction activities compared to the extent and distribution of weeds prior to construction.	Weed surveillance monitoring to show that existing Declared weeds have not proliferated through Project area or into adjoining vegetation.
Prevent the introduction of new Declared weed species across the Project.	Zero occurrences of new weeds.	No new species of weeds recorded in the Project area.

3.3 Mitigation Measures

Mitigation measures have been developed to minimise potential impacts associated with weeds within the Project area. The mitigation measures, timing and responsibilities are provided in [TABLE 3-3 MITIGATION MEASURES](#).



Table 3-3 Mitigation Measures

ID	Mitigation Measure	Timing	Responsibility
Site Induction			
WE1	Site inductions will include the following components for weed management: <ul style="list-style-type: none"> • Summary of known weed infestations at the MTPA; • Requirement to enter and exit MTPA through recognised vehicle access points; • Importance of not transporting weed seeds around the MTPA and region; • Weed removal required prior to vegetation clearing; • Areas to be cleared are to be flagged and approved through a Ground Disturbance Permit Procedure; and • All onsite personnel are to utilise existing/approved roads and tracks only. 	Site Induction	All personnel
General			
WE2	Imported fill will be certified weed-free prior to being utilised at the mine.	Construction and operation	Construction and Site Manager
WE3	All earthmoving equipment being delivered to MTPA will be required to be cleaned from point of origin before arrival to site.	At point of Origin.	All companies and personnel
WE4	Vehicles and equipment to be cleaned and washed down before entering rehabilitated, exploration or greenfield areas outside the current operational areas	At all times	All personnel
WE5	If works are being undertaken in an area known to contain WONS or Class A, B or C weeds, plant/equipment and vehicles are to be washed prior to vacating the areas.	At all times.	All personnel
WE6	Site vehicles, particularly those entering exploration leases and vehicles/machinery brought onto site should be weed free or cleaned at wash down facility if evidence of plant material observed.		



ID	Mitigation Measure	Timing	Responsibility
WE7	Weed areas will be mapped and identified for control		
WE8	A staged control program will be adopted for the management of weeds		
WE9	Restrict vehicles and mobile machinery to designated access tracks		
Vegetation Clearing			
WE10	Prior to clearing, a Ground Disturbance Permit is required and will be issued by the representative from the Environmental Team.	At all times	Environmental Personnel
WE11	Minimise ground disturbance within sensitive areas such as riparian zones.		
WE12	Weed removal as required prior to vegetation clearing so that vegetative material would be clean and able to be mulched and reused directly on site.		
WE13	Before any additional clearing outside of existing disturbances, the boundaries of the new disturbances will be flagged to prevent over clearing of the new areas.		
WE14	Vegetation and soil stockpiled from clearing activities will be monitored and chemical control undertaken should weeds be identified.		
Inspection and Monitoring			
WE15	Daily assessment of compliance with Ground Disturbance Permits.	Daily	Environmental Personnel
WE16	Weed monitoring (or following rain events) and application of chemical control as required. Monitoring and applications will be recorded in the Weed Register.	As per Weed Management Schedule	Environmental Personnel
WE17	Annual Weed monitoring and reporting to be completed by an appropriately experienced and qualified person. The annual weed monitoring will establish potential requirements for additional control measures.	Annually	Environmental Manager



ID	Mitigation Measure	Timing	Responsibility
Personnel, Vehicle and Equipment Hygiene			
WE18	Establishing vehicle access points across the mine site		
WE19	Washdown bays established at vehicle access points where vehicles and equipment are to be cleaned of mud, dirt and organic matter from underneath vehicle, in the cabin and/or load trays, followed by removal of excess material by high pressure air or water spray jets		
WE20	Establishing contract conditions directing contractors and/or suppliers to ensure earthmoving equipment, vehicles and other stationary equipment coming onto site is cleaned and clear of any free dirt prior to arriving onsite; and departing.		
WE21	The movement of vehicles, equipment and personnel between disturbed areas will be minimised as much as possible, to reduce the risk of spreading/introducing weeds		
Management Plan Review			
WE22	Annual Weed Management Plan performance review.	Annually	Environmental Manager



3.4 Trigger, Action and Response Plan

The Trigger, Action and Response Plan (TARP) outlines remedial actions and responses to the situation. The levels of incidents and TARP are provided in Table 3-4 *TRIGGER, ACTION AND RESPONSE PLAN*.

Table 3-4 Trigger, Action and Response Plan

Responsibility	Situation		
	Standard	Level 1	Level 2
	No introduction of weeds on the mine site or spread of weeds from current locations.	Trigger: Spread of environmental weeds to areas previously weed free.	Trigger: Introduction of Class A, B and C weeds and WoNS to areas previous weed free
Site Personnel	Comply with: <ul style="list-style-type: none"> • Site Induction requirements. • Personnel, Vehicle and Equipment Hygiene Procedures. • Ground Disturbance Permit Procedures. 		
Environmental Officer	<ul style="list-style-type: none"> • Ensure all employees and contractors are aware of all required procedures and systems for weed management and are provided with all required resources to implement the requirements effectively. • Assessment of compliance with Ground Disturbance Permits. • Weed surveillance monitoring and application of chemical control. • Ensure all employees and contractors are provided with appropriate clearance approvals and on-ground guidance prior 	<ul style="list-style-type: none"> • Undertake additional chemical control as required and increase frequency of surveillance monitoring. • Record monitoring and application of chemical control in the Weed Register. 	<ul style="list-style-type: none"> • Undertake additional chemical control as required and increase frequency to monthly surveillance monitoring. • Record monitoring and application of chemical control in the Weed Register. • Commission an appropriately experienced and qualified person to undertake weed surveillance survey and control across the mine site.



Responsibility	Situation		
	Standard	Level 1	Level 2
	No introduction of weeds on the mine site or spread of weeds from current locations.	Trigger: Spread of environmental weeds to areas previously weed free.	Trigger: Introduction of Class A, B and C weeds and WoNS to areas previous weed free
<p>to giving any ground disturbance instructions.</p> <ul style="list-style-type: none"> Complete weed surveillance monitoring and control by an appropriately experienced and qualified person as required and following Wet Season rains. 		<ul style="list-style-type: none"> Revise the Weed Management Plan following Environmental Manager approval of additional mitigation measures. Reportable to NT Weed Management Branch 	
Environmental Officer and Subcontractor	<p>Annual weed surveillance monitoring by an appropriately experienced and qualified person.</p> <p>Weed surveillance to be summarised within a report detailing controls, spread and additional management measures (if any).</p>		Undertake weed surveillance monitoring, assessment of Project activities and existing weed mitigation measures. Determine additional mitigation measures and provide a summary report.
Environmental Manger	Ensure that the Weed Management Plan is implemented by all Site Personnel.		<ul style="list-style-type: none"> Assess and implement Quarterly Surveillance Report mitigation measures. Facilitate the revision of the Environmental Management Plan and Weed Management Plan.
	Clearing undertaken in accordance with Ground Disturbance Permit.	Trigger: Clearing undertaken outside of established Ground Disturbance Permit approval but outside of sensitive areas (i.e restricted works areas).	Trigger: Clearing undertaken outside of established Ground Disturbance Permit approval and within sensitive areas (i.e restricted works areas).



Responsibility	Situation		
	Standard	Level 1	Level 2
	No introduction of weeds on the mine site or spread of weeds from current locations.	Trigger: Spread of environmental weeds to areas previously weed free.	Trigger: Introduction of Class A, B and C weeds and WoNS to areas previous weed free
Environmental Officer and Environmental Manager	<ul style="list-style-type: none"> Daily assessment of compliance with Ground Disturbance Permits. 	<ul style="list-style-type: none"> Commence investigation into the clearing works to determine root cause of over clearing. Establish the significance of over clearing and determine rehabilitation measures. Produce summary report within 1 week of the incident occurring. 	<ul style="list-style-type: none"> Commence investigation into the clearing works to determine root cause of over clearing. Establish the level/area of impact within the sensitive area. Produce summary report within 24 hours of the incident occurring.
Environmental Manager and General Manager	<ul style="list-style-type: none"> Ensure that the Weed Management Plan is implemented by all Site Personnel. 	<ul style="list-style-type: none"> Review summary report and undertake debriefing with site personnel. 	<ul style="list-style-type: none"> Review summary report and inform relevant stakeholders regarding over clearance. Review contractor / personnel performance and implement management measures.



3.5 Monitoring program

Monitoring is an essential component of any Weed MP as it provides a means of identifying the following:

- Changes in the extent of weed populations;
- Changes in the cover density of weed populations;
- Any new weed species that may become established;
- Documentation of any unexpected impacts of weed control activities (i.e. unplanned damage to native vegetation);
- Changes in the extent and condition of native vegetation;
- Changes in any conditions that have the potential to impact on site restoration works; and
- How well control methods are working.

The Weed MP will be adapted as needed to improve results and accommodate changing circumstances or changes in the local environment.

Ongoing monitoring and management of weeds, particularly in disturbed areas is a high priority. It is recommended that monitoring of the MTPA be undertaken throughout the year, especially after rain periods. The monitoring program will involve mapping the MTPA for the presence of weeds and revisiting information to evaluate if the weed management program is effective and any changes are required.

Weed data will be captured on field data sheets (an example is shown in Attachment A) and then transferred to the site's weed database. This information will be GIS compatible so that distribution maps can be generated for reporting requirements or control work if required.

Vista Gold or a designated subcontractor will undertake weed surveys of the site and produce a report and maps showing site weed infestations, which will provide a guide for weed control work for the coming season.

4. Reporting, Auditing and review

As part of an onsite environmental workplace inspection program Vista Gold will continue to conduct environmental workplace inspections on its and subcontractor work areas to assess environment performance and weed management will be part of the assessment;

- Records and related documents will be audited periodically to ensure that work that has been laid out in this plan has been undertaken and captured.
- Management documentation, for example plans and procedures, will be reviewed periodically to ensure that they remain applicable to current operations and compliant with Vista Gold’s requirements and that of the regulatory authorities;
- Updates in relation to weed management on site will be provided in Vista Gold’s monthly report as required.

Weed storage databases and related documents will be kept up to date and available for review and audit when required.

4.1 Specific control information

In order to achieve the desired outcome on site, it is of the highest priority to strategically integrate chemical, physical and ecological control methods on all operational areas to implement effective and cost efficient weed management (NRETA 2007, NTG 2016c). *TABLE 4-1 APPLICATION OF CONTROL OPTIONS* summaries the Application of Control Options.

Principles of effective weed management should involve:

- Preventing introduction;
- Preventing or suppressing reproduction;
- Preventing spread through dispersal of propagules;
- Eradicating new/isolated outbreaks; and
- Containment of established populations if eradication is not possible.

Table 4-1 Application of Control Options

Infestation size	Biological	Chemical	Mechanical	Physical	Ecological
Small with canopy cover of 1-10%	Not suitable unless isolated satellite infestation	Spot spraying by hand with a registered herbicide using back/hand pack	Not suitable	Grubbing and hand pulling (remove all roots and burn). Cut stump and herbicide application. Basal barking of isolated clumps of large woody plants.	Maintain natural vegetation ground cover as best as possible.

Infestation size	Biological	Chemical	Mechanical	Physical	Ecological
Medium with canopy cover of 11 to 50%	Suitable for biological control agent release.	Spot spraying with motorised spray equipment with a registered herbicide.	Chaining, ploughing or racking. Mechanical mulcher could be utilised.	Follow up treatment of spraying seedlings. Physical control could also be implemented.	Maintain vegetation buffers around infestations. Fire can be used to control regrowth and germination of seed bank.
High with cover of over 50%	Control agent survey for presence. Re-release if necessary and monitor.	Aerial spraying with a registered herbicide if there are no restrictions on activities.	Chaining, ploughing or racking followed by burning. Mechanical mulcher could be utilised.	Follow up treatment of spraying seedlings. Physical control could also be implemented.	Maintain vegetation buffers around infestations. Fire can be used to control regrowth and germination of seed bank.

4.1.1 Herbicide Control

Herbicides are commonly used for controlling weeds. An herbicide needs to be biologically active and toxic for it to be effective against the target plant.

Ranges of herbicides are registered for the control of weeds in the Northern Territory. Information is supplied on product labels regarding safety directions, rates and registered use. Read label carefully before using products and follow all directions. SDS sheets are available for all products at the point of sale (supplier) or on site via Chemalert.

There are many types of equipment and application techniques used for applying herbicides and there are also numerous types of herbicides available to manage weeds. Options of control should be determined by the size of the weed infestation. Two main classes of herbicides, which are available and readily used, are selective and non-selective herbicides.

Selective Herbicides

A selective herbicide should be used to control weeds where there is a high risk of native vegetation damage such as native bushland and rehabilitated sites. Generally, selective herbicides are used to control woody weeds where there is a risk of off target damage such as grassy ground cover. These herbicides must still be used at the correct rates, or off target, species could be impacted.

Non-Selective Herbicides

Non-selective herbicides should be used to control weeds in locations where there is a low risk of causing damage to native species or to areas where vegetation needs to be removed. Areas such as roadsides, airstrips/helipads, camps, fuel storage facilities, quarries, gravel pits and work areas. Generally, non-selective herbicides are glyphosate active products therefore off target damage to native vegetation can occur.

Wetting Agents

Additives can be added to herbicides such as wetting agents and these may also be toxic. These wetting agents help herbicides remain on plants so that the active constituents can be absorbed into the plants.



4.1.2 Physical Control

Physical control of weeds consist of grubbing with a shovel or pick, or pulling out weed species. Removing and bagging of seed heads to reduce seed banks, or the vacuuming of seeds that have accumulated on the ground. Physical control is labour intensive but practicable for small infestations or infestations in sensitive areas.

4.1.3 Ecological Control

Ecological functions can be used to manage weeds. Land Management technics incorporating vegetation buffers zones, revegetation and fire are effective tools for managing weeds.

Fire

Fire can be used as a tool for weed management but care has to be taken using this tool. It can be used to remove weed infestations or clear an area to encourage weed seed germination and allow for other types of control work. When using fire as a tool other factors need to be considered, such as; Wind, rain and time of season.

Vegetation buffers

Native vegetation as buffer zones around the extremities of weed infestations can be an effective tool as well and should be encouraged. By having minimal vegetation disturbance on the edges of weed infestations this halts the rapid expansion of weed infestations and produces a working edge from which to work from to reduce the infestation size. Native vegetation then has the opportunity to slowly recolonise the areas where control work has taken place, but this will only take place if continued follow-up work is conducted to allow the native vegetation to recolonise.

4.1.4 Mechanical Control

Heavy machinery can be used to manage weeds but in most cases, they can cause too much soil disturbance in doing so. On the other hand, soil disturbance will encourage the germination of a persistent seed bank and can be an effective management tool if it is followed up by control work.

Machinery can initially reduce the density of an infestation but in doing so can increase the area of the infestation., If no follow-up or inadequate control work is conducted in conjunction with mechanical control, the infestation will return to the same density but over a larger area.

Slashing with tractors is an effective way of managing open paddock/area weed infestations. Slashing must take place during the plants active growing phase but must be before plants have set seed to prevent the spread of seeds. If slashing is undertaken during seeding the machinery must be extensively cleaned before leaving the area.

4.1.5 Biological Control

Biological control is an option that is being used to control a number of weed species in the NT and throughout Australia. The weed species that are present on site are not suitable for biological control at this stage.

4.1.6 Integrated Control

Integrated control is a combination of weed control methods. It is an effective way of achieving long-term weed management outcomes. Integrated control methods could be implemented on the mine site where herbicide treatment and various mechanical and physical controls could be combined.



4.1.7 Timing and Environmental Conditions

The timing of control work is very important. Control needs to take place when plants are vigorously growing with healthy young growth present and before seeds set. This will insure that the plant will absorb the water/herbicide mix as it grows.

For annuals that are seeding, the best option is to remove seeds then dig up or hand remove plants. They have run their cycle and their system is starting to shut down and die. It is more labour intensive but it reduces the amount of herbicide used as well as the amount of herbicide released into the environment. Perennials should be sprayed when they are actively growing. During the drier months they will become water stressed due to the lack of water and will shut down into a dormant state until wet conditions return.

Control also needs to be followed up throughout the year in some form, to deplete the seed bank that has accumulated in the soil. Strict vegetation management is also very important to create competition to halt weed colonisation and aids in the control of weed species.

Use a combination of chemical control, physical and land management controls to target invasive weeds using the following priority hierarchy for the site:

- The first priority is the control of the four declared weeds (Gamba grass (*Andropogon gayanus*), Hyptis (*Hyptis suaveolens*), Mission grass (Perennial – *Cenchrus polystachios*), Rubber bush (*Calotropis procera*) as per the obligations under the Weeds Management Act, 2001. While Annual Mission Grass (*Cenchrus pedicellatus*) is not a declared weed it should be treated as such because of its invasive nature.
- The second priority is the control of Buffel Grass (*Cenchrus ciliaris*), Rhodes Grass (*Chloris gayana*), Gambia Pea (*Crotalaria goreensis*), due to their weedy nature along road ways and open areas. Also Stinking passionfruit (*Passiflora foetida*) which is a species of concern to the ecological integrity of the NT savannah ecosystems and the Rosella (*Hibiscus sabdariffa*) which is a species of concern to the ecological integrity of the Yinberrie Hills ecosystem.
- The remaining invasive weeds currently present on site pose little threat to the surrounding ecosystem but still should be monitored and treated as required.

Vista Gold or a designated subcontractor will undertake weed management activities as set out in a weed management activities schedule. Weed data collection and control work monitoring will continue throughout all phases of the project. It will also be relevant for the cleanup and progressive rehabilitation of areas no longer required and rehabilitation and closure of the site.



5. References

Department of Land Resources (DLRM) (2014), Northern Territory Weed Management Handbook, Weed Management Branch DLRM, Palmerston.

https://nt.gov.au/_data/assets/pdf_file/0004/233833/nt-weed-management-handbook.pdf.

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Rev 4	Brent Murdoch	John Rozelle		Brent Murdoch		23/05/2022



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