



# Clearing Permit Decision Report

## 1. Application details

### 1.1. Permit application details

Permit application No.: 4461/1  
Permit type: Purpose Permit

### 1.2. Proponent details

Proponent's name: Saracen Gold Mines Pty Ltd

### 1.3. Property details

Property: Miscellaneous Licence 39/216  
Local Government Area: Shire of Menzies  
Colloquial name: Red October Haul Road Project

### 1.4. Application

Clearing Area (ha)	No. Trees	Method of Clearing	For the purpose of:
200		Mechanical Removal	Haul Road and Associated Infrastructure

### 1.5. Decision on application

Decision on Permit Application: Grant  
Decision Date: 1 September 2011

## 2. Site Information

### 2.1. Existing environment and information

#### 2.1.1. Description of the native vegetation under application

##### Vegetation Description

Beard vegetation associations have been mapped for the whole of Western Australia. Two Beard vegetation associations have been mapped within the application area (GIS Database):

**Beard vegetation association 18:** low woodland; Mulga (*Acacia aneura*); and

**Beard vegetation association 400:** succulent steppe with open low woodland; Mulga over Bluebush.

A Level 1 flora and vegetation survey was conducted over a 300 metre by 400 kilometre survey area associated with the proposed haul road in Spring 2010 (Alexander Holm and Associates, 2011a). The following vegetation communities were recorded as occurring within the application area:

##### Vegetation unit 1: Low rises on metamorphic rocks

Very scattered to scattered (Projected Foliage Cover (PFC) 5 - 15%) tall shrublands 4 - 6 metres dominated by *Acacia caesaneura*, *Acacia quadrimarginea*, *Acacia ramulosa* with undershrubs *Ptilotus obovatus*, *Eremophila glandulifera*, *Scaevola spinescens* and *Maireana* spp. or scattered (PFC about 20%) mixed height (0.3 - 3 metres) shrublands dominated by *Dodonaea lobulata*, *Acacia hemi* and *Ptilotus obovatus* with occasional trees of *Acacia incurvaneura*.

##### Vegetation unit 2: Low Breakaways and associated footslopes

Crests - very scattered (PFC about 5%) mixed shrublands to 4m of *Acacia sibirica*, *Casuarina pauper*, *Dodonaea lobulata*, *Eremophila scoparia*, *Eremophila latrobei* ssp. *glabra* and *Maireana* spp. with occasional small trees of *Eucalyptus celastroides* spp. *celastroides*, *Eucalyptus lesouefii*.  
Lower slopes - only isolated shrubs (PFC <2.5%), much bare ground.

##### Vegetation unit 3: Loamy plains with acacia shrublands

Very scattered to moderately close (PFC 10 - 50%, occasionally more where vegetation is clumped or groved) tall shrublands to about 8 metres dominated by *Acacia caesaneura* and/or *Acacia incurvaneura* with numerous undershrubs commonly *Acacia ligulata*, *Acacia tetragonophylla*, *Acacia burkittii*, *Ptilotus obovatus*, *Senna artemisioides* spp. *petiolaris*, *Rhagodia eremaea*, *Scaevola spinescens*, *Solanum lasiophyllum*, *Eremophila glandulifera* and other *Eremophila* spp.

##### Vegetation unit 4: Hardpan plains

Very scattered to moderately close (PFC 5 - 25%) tall (4 - 9 metres) shrublands dominated by *Acacia incurvaneura* and *Acacia caesaneura*, also *Acacia burkittii*; common low shrubs are *Ptilotus obovatus*, *Ptilotus schwartzii*, *Eremophila metallicorum*, *Eremophila glandulifera*, *Maireana planifolia*, *Senna artemisioides* spp. *petiolaris*, *Rhagodia eremaea*, *Spartothamnella teucrifolia* and *Solanum lasiophyllum*.

##### Vegetation unit 5: Gravelly Plains

Very scattered to scattered (PFC <5 - 20%) tall (4 - 6 metres) shrublands dominated by *Acacia incurvaneura* and *Acacia ramulosa* var. *ramulosa* with low shrubs *Ptilotus obovatus*, *Ptilotus schwartzii*, *Eremophila glandulifera*, *Eremophila latrobei* spp. *glabra* and *Solanum lasiophyllum*. Occasionally mixed height shrublands (<1 - 2 metres) dominated by *Maireana georgei*, *Maireana triptera* other *Maireana* spp. and *Ptilotus obovatus* with isolated taller

shrubs such as *Acacia ramulosa* spp. *ramulosa* and *Hakea preissii*.

**Vegetation unit 6: Calcareous Plains**

Very scattered to scattered (PFC 5 – 20%) low to mid height (0.5 – 1.5 metres) shrublands dominated by *Maireana sedifolia*, *Senna artemisioides* spp. *petiolaris* and *Ptilotus obovatus*, occasionally with an overstorey of *Casuarina pauper* small trees to about 6m; other isolated shrubs include *Acacia incurvaneura*, *Acacia ligulata* and *Solanum lasiophyllum*.

**Vegetation unit 7: Saline stony plains with Myall**

Very scattered (PFC 5 – 10%) low (<1 metre) shrublands frequently dominated by *Frankenia setose* with a prominent overstorey of *Acacia papyrocarpa* (Myall) trees to about 8 metres; other common shrubs are *Maireana pyramidata*, *Maireana georgei*, *Maireana triptera*, *Maireana tomentosa*, *Atriplex vesicaria*, *Cratystylis subspinescens* and *Eremophila* sp..

**Vegetation unit 8: Saline Stony Plains**

Very scattered (PFC 5 – 10%) low (<1 metre) shrublands dominated by *Maireana pyramidata*, *Maireana georgei* and *Maireana triptera*; others include *Frankenia* spp., *Atriplex* spp., *Ptilotus obovatus*, *Cratystylis subspinescens* and *Hakea preissii*.

**Vegetation unit 9: Highly saline stony plains**

Very scattered to scattered (PFC 5 – 15%) low (<1m) shrublands dominated by *Tecticornia halocnemoides*, *Tecticornia disarticulata* (Samphires); minor components of numerous other mostly halophytic shrubs such as *Maireana platycarpa*, *Maireana atkinsiana*, *Maireana glomerifolia*, *Maireana tomentosa*, *Atriplex vesicaria*, *Disphyma crassifolium* and *Eremophila* sp. Less frequently low shrublands dominated by *Atriplex vesicaria* or co-dominated by mixed halophytic shrubs *Maireana atkinsiana*, *Maireana glomerifolia*, *Maireana tomentosa*, *Atriplex vesicaria*, *Frankenia setosa* and *Disphyma crassifolium*.

**Vegetation unit 10: Alluvial Plains**

Close (PFC 40 – 50%) tall shrublands to 7 metres dominated by *Acacia tetragonophylla* with numerous other tall shrubs and well developed mid and low layers. Very common other shrubs are *Acacia incurvaneura*, *Acacia crapedocarpa*, *Acacia pteroneura*, *Acacia burkittii*, *Eremophila metallicorum* and *Senna cardiosperma*; also *Ptilotus divaricartus* var. *divaricartus*, *Ptilotus obovatus*, *Eremophila decipiens* ssp. *decipiens*, *Rhagodia eremaea* and *Enchylaena tomentosa*.

**Vegetation unit 11: Sandy Banks**

Scattered (PFC about 15%) woodlands of *Acacia caesaneura* to 8 metres over low shrubs *Maireana pyramidata*, *Maireana triptera*, *Gunniopsis quadrifida*, *Rhagodia drummondii* and *Enchylaena tomentosa*, or low shrublands of same species with occasional *Acacia caesaneura* and *Hakea preissii*.

**Vegetation unit 12: Drainage foci – halophytic domain**

Closed (PFC up to 100%) tall shrublands/ woodlands up to about 10 metres of *Pittosporum phylliraeoides*, *Acacia tetragonophylla*, *Acacia pteroneura*, *Exocarpus aphyllus*, *Dodonaea lobulata*, *Eremophila decipiens* ssp. *decipiens*, *Hakea preissii* and other shrubs.

**Vegetation unit 13: Drainage**

Moderately close to closed (PFC 30 – 80%) tall shrublands or woodlands to 10 metres dominated by *Acacia incurvaneura* and/ or *Acacia caesaneura* with poorly developed or no lower layers; other isolated common shrubs are *Grevillea stenobotrya*, *Acacia tetragonophylla*, *Eremophila gilesii* spp. *variabilis*, *Eremophila glandulifera*, *Rhagodia eremaea*, *Ptilotus obovatus* and *Maireana planifolia*. Occasionally less dense *Acacias* (PFC 15 – 20%).

**Vegetation unit 14: Drainage tracts with creeklines**

Moderately close to closed (PFC 20 – 80%) tall shrublands (6 – 10 metres) of *Acacia incurvaneura*, *Acacia tetragonophylla*, *Acacia burkittii* with numerous mid and low shrubs *Eremophila metallicorum*, *Senna cardiosperma*, *Rhagodia eremaea* and *Enchylaena tomentosa*. Occasionally the low shrub layers are dominated by *Maireana pyramidata*, *Maireana triptera* and *Maireana georgei*. Rarely moderately close (PFC about 30%) mid height shrublands (1 to 2 metres) dominated by *Acacia burkittii* with undershrubs such as *Ptilotus obovatus*, *Maireana pyramidata*, *Rhagodia eremaea* and *Senna* spp.

**Vegetation unit 14: Saline drainage tracts**

Very scattered to scattered (PFC 5 – 15%) low (<1 metre) shrublands dominated by *Atriplex*, *Maireana*, *Frankenia* and *Tecticornia* spp. or *Tecticornia* spp.

**Vegetation unit 15: Creeklines with eucalypt woodlands**

Closed (PFC up to 100%) Eucalypt woodlands up to 10 metres of *Eucalyptus lesouefii* with numerous undershrubs such as *Eremophila decipiens* spp. *decipiens*, *Eucalyptus youngii* spp. *youngii*, *Ptilotus divaricartus* var. *divaricartus*, *Cratystylis subspinescens* and *Ptilotus obovatus*.

**Clearing Description**

Saracen Gold Mines Pty Ltd (Saracen) proposes to clear up to 200 hectares of native vegetation. The application area is located approximately 85 kilometres east of Kookynie (GIS Database).

The purpose of the proposed clearing is to construct a haul road and associated infrastructure (Saracen, 2011). Topsoil and vegetation will be stockpiled for rehabilitation purposes (Saracen, 2011).

**Vegetation Condition**

Good: Structure significantly altered by multiple disturbance; retains basic structure/ability to regenerate (Keighery, 1994);

to

Excellent: Vegetation structure intact; disturbance affecting individual species, weeds non-aggressive (Keighery, 1994).

**Comment**

The vegetation condition rating is derived from a flora and vegetation survey conducted by Alexander Holm and

Associates in Spring 2010.

Disturbance is primarily the result of pastoral activities and mineral exploration (Alexander Holm and Associates, 2011a).

### 3. Assessment of application against clearing principles

#### (a) Native vegetation should not be cleared if it comprises a high level of biological diversity.

##### Comments

##### Proposal is at variance to this Principle

The application area is located within the Eastern Murchison subregion of the Murchison Interim Biogeographic Regionalisation of Australia (IBRA) bioregion (GIS Database). The Eastern Murchison subregion is described by CALM (2002) as being rich and diverse in both its flora and fauna, however, most species are wide ranging and usually occur in at least one, and often several, adjoining subregions.

A flora and vegetation survey of the application area and surrounding area (measuring 40 kilometres long by 30 metres wide) was conducted by Alexander Holm and Associates in Spring 2010. This survey recorded a total of 278 flora species representing 43 families (Alexander Holm and Associates, 2011a). This level of diversity is reported by Alexander Holm and Associates (2011a) as being an average diversity for the north-east Goldfields region.

Alexander Holm and Associates (2011a) reports that one of the vegetation units within the application area (Vegetation Unit 7) is regionally restricted and near the western extremity of the distribution range for *Acacia papyrocarpa* (Myall). Saracen (2011) has stated that the haul road will be positioned to minimise impacts on this vegetation community. Vegetation mapping provided by Alexander Holm and Associates (2011a) shows that a section of this vegetation unit will need to be impacted by the proposed haul road, however, the majority of this vegetation unit occurs outside of the Miscellaneous Licence and outside of the proposed haul road footprint.

No Threatened Ecological Communities, Priority Ecological Communities, Declared Rare Flora or Priority Flora were identified during the flora and vegetation survey of the application area (Alexander Holm and Associates, 2011a). During the survey Alexander Holm and Associates (2011a) recorded four occurrences of *Arthropodium* sp. Goldfields (H. Pringle 2188) which has previously been collected from three locations in Western Australia and is likely to be considered a 'Priority' species. This species has been lodged with the Department of Environment and Conservation for registration as a new species (Alexander Holm and Associates, 2011a). A.A. Mitchell (as cited in Alexander Holmes and Associates, 2011b) comments that 'this species is very hard to see because of its rosette forming habitat and brief life of its fine flowering stems, whose flowers are not showy'. Alexander Holm and Associates (2011b) considers it highly likely that *Arthropodium* sp. Goldfields is present in drainage tracts within Mulga dominated landscapes throughout the north-east Goldfields. Saracen (2011) has stated that they will try to minimise impacts to known locations of *Arthropodium* sp., however, avoidance of one of these sites may be difficult. One of the known locations of this species lies outside of the Miscellaneous Licence and so will not be impacted by the proposed clearing. Potential impacts to unidentified flora species as a result of the proposed clearing may be minimised by the implementation of a flora management condition.

Seven weed species have been recorded within the survey area (Alexander Holm and Associates, 2011a). The presence of weed species lowers the biodiversity value of the area. It is important to ensure that the proposed clearing activities do not spread or introduce weed species to non-infested areas. Potential impacts to biodiversity as a result of the proposed clearing may be minimised by the implementation of a weed management condition.

A search of DEC's NatureMap database indicates that the proposed clearing area is potentially high in bird and reptile diversity (DEC, 2011). Coffey Environments conducted a Level 1 fauna survey of the proposed haul road in November 2010. It is Coffey Environments' (2011) view that the species of mammals, reptiles, birds and invertebrates present or likely to be recorded along the proposed haul road would most likely be well represented or visit other similarly vegetated areas in the region. Therefore, Coffey Environments (2011) concludes that vegetation clearing associated with the construction of the haul road is unlikely to have a significant impact on the biodiversity value at the genetic, species and ecosystem levels in this region.

Based on the above, the proposed clearing is at variance to this Principle.

##### Methodology

Alexander Holm and Associates (2011a)  
Alexnader Holm and Associates (2011b)  
CALM (2002)  
Coffey Environments (2011)  
DEC (2011)  
Saracen (2011)  
GIS Database:  
- IBRA WA (Regions - Subregions)

**(b) Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a significant habitat for fauna indigenous to Western Australia.**

**Comments Proposal may be at variance to this Principle**

Coffey Environments conducted a Level 1 fauna survey of the application area in November 2010. Four fauna habitats were mapped within the application area (Coffey Environments, 2011):

- *Acacia* (Mulga) shrubland that vary in density and substrate;
- Drainage lines (with and without Eucalypts);
- Low breakaways; and
- Stony plains.

No Malleefowl nests (current or moribund) were located during on-foot surveys, however, one adult bird was sighted in dense Mulga woodland (Coffey Environments, 2011). It is the opinion of Coffey Environments (2011), that although Malleefowl may occasionally be recorded within the project area, they would only construct mounds in dense habitat which is not dominant along the proposed haul road corridor.

Coffey Environments (2011) reports the habitats within the application area as being typical of those found widely distributed throughout the region. If possible, Saracen (2011) will move the haul road footprint so as to avoid breakaway habitat.

Although the proposed clearing may have some localised impacts upon fauna species and cause some fragmentation of habitat, the proposed clearing is unlikely to have a major impact on significant habitat for any fauna species.

Based on the above, the proposed clearing may be at variance to this Principle.

**Methodology** Coffey Environments (2011)  
Saracen (2011)

**(c) Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, rare flora.**

**Comments Proposal is not likely to be at variance to this Principle**

A flora and vegetation survey was conducted by Alexander Holm and Associates over the application area in Spring 2010.

No Declared Rare Flora species were recorded within the application area during the flora and vegetation survey (Alexander Holm and Associates, 2011a).

Based on the above, the proposed clearing is not likely to be at variance to this Principle.

**Methodology** Alexander Holm and Associates (2011a)

**(d) Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of a threatened ecological community.**

**Comments Proposal is not likely to be at variance to this Principle**

There are no known Threatened Ecological Communities (TECs) within the area applied to clear (GIS Database). There are no known TECs within 200 kilometres of the application area (GIS Database).

Alexander Holm and Associates (2011a) reports that no TECs were identified within the application area during the flora and vegetation survey.

Based on the above, the proposed clearing is not likely to be at variance to this Principle.

**Methodology** Alexander Holm and Associates (2011a)  
GIS Database:  
- Threatened Ecological Sites Buffered

**(e) Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared.**

**Comments Proposal is not at variance to this Principle**

The application area falls within the Murchison Interim Biogeographic Regionalisation of Australia (IBRA) bioregion (GIS Database). Shepherd (2009) reports that approximately 100% of the pre-European vegetation still exists within the Murchison bioregion (see table below). The vegetation within the application area is recorded as the following Beard vegetation associations (Shepherd, 2009):

**Beard vegetation association 18:** low woodland; Mulga (*Acacia aneura*); and  
**Beard vegetation association 400:** succulent steppe with low woodland; Mulga over Bluebush.

According to Shepherd (2009) approximately 100% of these vegetation associations still exist within the bioregion (see table below).

The vegetation within the application area is not a remnant of native vegetation within an area that has been extensively cleared.

	Pre-European area (ha)*	Current extent (ha)*	Remaining %*	Conservation Status**	Pre-European % in IUCN Class I-IV Reserves
IBRA Bioregion - Murchison	28,120,587	28,120,587	~100	Least Concern	~1
Beard vegetation associations - State					
18	19,892,305	19,890,275	~99.9	Least Concern	~2
400	190,824	190,824	~100	Least Concern	
Beard vegetation associations - Bioregion					
18	12,403,172	12,403,172	~100	Least Concern	~0.37
400	190,824	190,824	~100	Least Concern	

\* Shepherd (2009)

\*\* Department of Natural Resources and Environment (2002)

Based on the above, the proposed clearing is not at variance to this Principle.

**Methodology** Department of Natural Resources and Environment  
 Shepherd (2009)  
 GIS Database:  
 - IBRA WA (Regions – Subregions)

**(f) Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland.**

**Comments Proposal is at variance to this Principle**

According to available databases there are no permanent watercourses or wetlands within the application area, however, there are several minor ephemeral watercourses (GIS Database). Alexander Holm and Associates (2011a) reports that five vegetation units within the application area are associated with drainage areas:

- **Vegetation unit 12:** Drainage foci – halophytic domain;
- **Vegetation unit 13:** Drainage;
- **Vegetation unit 14:** Drainage tracts with creeklines;
- **Vegetation unit 14:** Saline drainage tracts; and
- **Vegetation unit 15:** Creeklines with eucalypt woodlands.

Saracen (2011) will construct floodways where the proposed haul road crosses incised channels, and will construct the haul road with a low profile to allow sheet flow after major rain events where it crosses drainage tracts. Saracen (2011) states that where sheet flow is modified by the haul road, surface water flows will be diverted into nearby creeklines. Disturbance to drainage foci will be minimised by not locating borrow pits or topsoil stockpiles within the drainage foci.

Although vegetation associated with watercourses will be removed at the river crossings, the above commitments will help minimise impacts to vegetation communities associated with drainage areas downstream.

Based on the above, the proposed clearing is at variance to this Principle.

**Methodology** Alexander Holm and Associates (2011a)  
 Saracen (2011)  
 GIS Database:  
 - Hydrography, linear

**(g) Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation.**

**Comments Proposal may be at variance to this Principle**

The application area is located within the Brooking, Gundockerta, Hootanui, Jundee, Monk, Rainbow, Steer and Yilgangi land systems (GIS Database).

The Brooking land system is reported by Pringle et al. (1994) as being resistant to soil erosion.

Pringle et al. (1994) states that the Gundockerta land system generally consists of extensive, gently undulating, calcareous, stony plains, supporting Bluebush shrublands. Where not protected by a stony mantle, saline plains and adjacent lower alluvial tracks are susceptible to water erosion, particularly in areas where perennial shrub cover is substantially reduced and / or the soil surface is disturbed (Pringle et al., 1994).

The Hootanui land system consists of breakaways, hills and ridges with extensive saline gravelly and stony lower plains, supporting scattered halophytic low shrublands (Pringle et al., 1994). Narrow drainage tracts and breakaway footslopes of this land system are susceptible to water erosion in areas where perennial shrub cover is substantially reduced or the soil surface is disturbed (Pringle et al., 1994).

Pringle et al. (1994) reports that the Jundee land system consists of hardpan plains with ironstone gravel mantles, supporting mulga shrublands. Impedance to natural sheet flows in this land system can initiate soil erosion and cause water starvation and consequent loss of vigour in vegetation down slope (Pringle et al., 1994).

The Monk land system consists of hardpan plains with occasionally sandy banks, supporting Mulga tall shrublands and Wanderrie grasses (Pringle et al., 1994). Drainage tracts are mildly susceptible to water erosion; this system is susceptible to water starvation and consequent loss of vigour in vegetation if natural water flow is impeded (Pringle et al., 1994).

The Rainbow land system is reported by Pringle et al. (1994) as consisting of hardpan plains supporting Mulga shrublands. This system is generally not susceptible to soil erosion, however, impedance of sheet flow can initiate soil erosion and cause water starvation and consequent loss of vigour in vegetation down slope (Pringle et al., 1994).

The Steer land system consists of gravelly alluvial plains with halophytic shrublands (Pringle et al., 1994). This land system is generally not susceptible to erosion, partly as a consequence of protective stone and gravel soil mantles (Pringle et al., 1994). Unprotected areas on alluvial plains and more particularly, on drainage floors are susceptible to water erosion (Pringle et al., 1994).

Pringle et al. (1994) reports the Yilgangi land system as consisting of low breakaways with saline, gravelly lower plains, supporting predominantly halophytic shrublands. The breakaway footslopes, saline alluvial plains and narrow drainage zones of this system have fragile soils and are susceptible to water erosion (Pringle et al., 1994).

Saracen (2011) will construct floodways where the proposed haul road crosses incised channels, and will construct the haul road with a low profile to allow sheet flow after major rain events where it crosses drainage tracts. Saracen (2011) states that where sheet flow is modified by the haul road, surface water flows will be diverted into nearby creeklines. Disturbance to drainage foci will be minimised by not locating borrow pits or topsoil stockpiles within the drainage foci. Although there may be some increased soil erosion and sediment load in sheet flow, the above commitments will help minimise impacts to drainage areas and vegetation communities down slope. Further potential soil erosion as a result of the proposed clearing may be minimised by the implementation of a staged clearing condition.

Based on the above, the proposed clearing may be at variance to this Principle.

**Methodology** Pringle et al. (1994)  
Saracen (2011)  
GIS Database:  
- Rangelands land system mapping

**(h) Native vegetation should not be cleared if the clearing of the vegetation is likely to have an impact on the environmental values of any adjacent or nearby conservation area.**

**Comments Proposal is not likely to be at variance to this Principle**

The proposed clearing is not located within any conservation areas (GIS Database). The nearest Department of Environment and Conservation managed land is the Goongarrie National Park located approximately 85 kilometres south-west of the application area (GIS Database).

Based on the above, the proposed clearing is not likely to be at variance to this Principle.

**Methodology** GIS Database:  
- DEC Tenure

**(i) Native vegetation should not be cleared if the clearing of the vegetation is likely to cause deterioration in the quality of surface or underground water.**

**Comments Proposal may be at variance to this Principle**

The application area is not located within a Public Drinking Water Source Area (GIS Database). The groundwater in the region varies from almost fresh to hypersaline and is approximately 30 to 60 metres below ground level (Alexander Holm and Associates, 2011a; Saracen, 2011). The removal of 200 hectares of vegetation is unlikely to cause deterioration of underground water quality.

The application area is located within an arid to semi-arid region. No permanent waterbodies or watercourses occur within the application area, however, there are several minor ephemeral watercourses that transect the application area (GIS Database). Surface water runoff is only likely to occur during and immediately following significant rainfall events. Under these conditions runoff and sheet flow could exacerbate soil erosion.

Saracen (2011) has a Surface Water Management Plan and Haul Road Management Plan in place to help minimise impacts and changes to surface water flows. Saracen (2011) has committed to constructing floodways where the haul road crosses incised channels. The haul road will be constructed with a low profile to allow sheet flow after major rain events where it crosses drainage tracts and where sheet flows are modified by the haul road, surface water flows will be diverted into nearby creek lines (Saracen, 2011).

Based on the above, the proposed clearing may be at variance to this Principle.

**Methodology** Alexander Holm and Associates (2011a)  
Saracen (2011)  
GIS Database:  
- Hydrography, linear  
- Public Drinking Water Source Areas (PDWSAs)

**(j) Native vegetation should not be cleared if clearing the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding.**

**Comments Proposal is not likely to be at variance to this Principle**

The application area is located within an arid to semi-arid region where the evaporation rate greatly exceeds the average annual rainfall (Alexander Holm and Associates, 2011a). According to available databases there are no permanent watercourses mapped within the application area, however, there are several minor ephemeral watercourses within the application area (GIS Database). These drainage lines are expected to be dry for most of the year and would likely only flow immediately following significant rainfall events that originate from the north-west primarily during January to March (Alexander Holm and Associates, 2011a).

Considering that the proposed clearing of 200 hectares is spread across a 40 kilometre by 30 metre haul road corridor, it is not considered likely that the proposed clearing will increase the incidence or intensity of flooding.

Based on the above, the proposed clearing is not likely to be at variance to this Principle.

**Methodology** Alexander Holm and Associates (2011a)  
GIS Database:  
- Hydrography, linear

**Planning instrument, Native Title, Previous EPA decision or other matter.**

**Comments**

There is one Native Title claim (WC10/18) over the area under application (GIS Database). This claim has been registered with the Native Title Tribunal on behalf of the claimant group. However, the mining tenure has been granted in accordance with the future act regime of the *Native Title Act 1993*, and the nature of the act (i.e. the proposed clearing activity) has been provided for in that process. Therefore, the granting of a clearing permit is not a future act under the *Native Title Act 1993*.

According to available databases there are no registered Aboriginal Sites of Significance within the application area (GIS Database). It is the proponent's responsibility to comply with the *Aboriginal Heritage Act 1972* and ensure that no Aboriginal Sites of Significance are damaged through the clearing process.

It is noted that the proposed clearing may impact on a protected matter under the *Environment Protection and Biodiversity Conservation Act 1999* (the *EPBC Act*). The proponent may be required to refer the project to the (Federal) Department of Sustainability, Environment, Water, Population and Communities (SEWPAC) for environmental impact assessment under the *EPBC Act*. The proponent is advised to contact SEWPAC for further information regarding notification and referral responsibilities under the *EPBC Act*.

It is the proponent's responsibility to liaise with the Department of Environment and Conservation and the Department of Water to determine whether a Works Approval, Water Licence, Bed and Banks permit or any other licences or approvals are required for the proposed works.

The clearing permit was advertised by the Department of Mines and Petroleum on 11 July 2011, inviting

submissions from the public. No submissions were received.

**Methodology** GIS Database:  
- Aboriginal Sites of Significance  
- Native Title Claims

#### 4. References

- Alexander Holm and Associates (2011a) Environmental Assessment: Proposed Haul Road Butcher Well to Safari. Prepared for Saracen Gold Mines Pty Ltd. Unpublished report. Alexander Holm and Associates, Western Australia.
- Alexander Holm and Associates (2011b) A risk assessment on impacts of proposed clearing on *Arthropodium* sp. Goldfields (H. Pringle 2188 for: Saracen Gold Mines Pty Ltd. Unpublished report. Alexander Holm and Associates, Natural Resource Management Services, Western Australia.
- CALM (2002) A Biodiversity Audit of Western Australia's 53 Biogeographic Subregions in 2002. Department of Conservation and Land Management, Western Australia.
- Coffey Environments (2011) Level 1 Fauna Survey, Safari to Red October Haul Road, Saracen Gold. Prepared for Saracen Gold Mines Pty Ltd. Unpublished report. Coffey Environments Australia Pty Ltd, Western Australia.
- DEC (2011) NatureMap: Mapping Western Australia's Biodiversity. Department of Environment and Conservation. URL: <http://naturemap.dec.wa.gov.au/>.
- Department of Natural Resources and Environment (2002) Biodiversity Action Planning. Action planning for native biodiversity at multiple scales; catchment bioregional, landscape, local. Department of Natural Resources and Environment, Victoria.
- Keighery, B.J. (1994) Bushland Plant Survey: A Guide to Plant Community Survey for the Community. Wildflower Society of WA (Inc). Nedlands, Western Australia.
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#### 5. Glossary

##### Acronyms:

<b>BoM</b>	Bureau of Meteorology, Australian Government
<b>CALM</b>	Department of Conservation and Land Management (now DEC), Western Australia
<b>DAFWA</b>	Department of Agriculture and Food, Western Australia
<b>DEC</b>	Department of Environment and Conservation, Western Australia
<b>DEH</b>	Department of Environment and Heritage (federal based in Canberra) previously Environment Australia
<b>DEP</b>	Department of Environment Protection (now DEC), Western Australia
<b>DIA</b>	Department of Indigenous Affairs
<b>DLI</b>	Department of Land Information, Western Australia
<b>DMP</b>	Department of Mines and Petroleum, Western Australia
<b>DoE</b>	Department of Environment (now DEC), Western Australia
<b>DoIR</b>	Department of Industry and Resources (now DMP), Western Australia
<b>DOLA</b>	Department of Land Administration, Western Australia
<b>DoW</b>	Department of Water
<b>EP Act</b>	Environmental Protection Act 1986, Western Australia
<b>EPBC Act</b>	Environment Protection and Biodiversity Conservation Act 1999 (Federal Act)
<b>GIS</b>	Geographical Information System
<b>ha</b>	Hectare (10,000 square metres)
<b>IBRA</b>	Interim Biogeographic Regionalisation for Australia
<b>IUCN</b>	International Union for the Conservation of Nature and Natural Resources – commonly known as the World Conservation Union
<b>RIWI Act</b>	Rights in Water and Irrigation Act 1914, Western Australia
<b>s.17</b>	Section 17 of the Environment Protection Act 1986, Western Australia
<b>TEC</b>	Threatened Ecological Community

##### Definitions:

{Atkins, K (2005). *Declared rare and priority flora list for Western Australia, 22 February 2005*. Department of Conservation and Land Management, Como, Western Australia} :-

- P1** **Priority One - Poorly Known taxa:** taxa which are known from one or a few (generally <5) populations which are under threat, either due to small population size, or being on lands under immediate threat, e.g. road verges, urban areas, farmland, active mineral leases, etc., or the plants are under threat, e.g. from disease, grazing by feral animals, etc. May include taxa with threatened populations on protected lands. Such taxa are under consideration for declaration as 'rare flora', but are in urgent need of further survey.
- P2** **Priority Two - Poorly Known taxa:** taxa which are known from one or a few (generally <5) populations, at



least some of which are not believed to be under immediate threat (i.e. not currently endangered). Such taxa are under consideration for declaration as 'rare flora', but are in urgent need of further survey.

- P3 Priority Three - Poorly Known taxa:** taxa which are known from several populations, at least some of which are not believed to be under immediate threat (i.e. not currently endangered). Such taxa are under consideration for declaration as 'rare flora', but are in need of further survey.
- P4 Priority Four – Rare taxa:** taxa which are considered to have been adequately surveyed and which, whilst being rare (in Australia), are not currently threatened by any identifiable factors. These taxa require monitoring every 5–10 years.
- R Declared Rare Flora – Extant taxa (= Threatened Flora = Endangered + Vulnerable):** taxa which have been adequately searched for, and are deemed to be in the wild either rare, in danger of extinction, or otherwise in need of special protection, and have been gazetted as such, following approval by the Minister for the Environment, after recommendation by the State's Endangered Flora Consultative Committee.
- X Declared Rare Flora - Presumed Extinct taxa:** taxa which have not been collected, or otherwise verified, over the past 50 years despite thorough searching, or of which all known wild populations have been destroyed more recently, and have been gazetted as such, following approval by the Minister for the Environment, after recommendation by the State's Endangered Flora Consultative Committee.

**{Wildlife Conservation (Specially Protected Fauna) Notice 2005} [Wildlife Conservation Act 1950] :-**

- Schedule 1 Schedule 1 – Fauna that is rare or likely to become extinct:** being fauna that is rare or likely to become extinct, are declared to be fauna that is need of special protection.
- Schedule 2 Schedule 2 – Fauna that is presumed to be extinct:** being fauna that is presumed to be extinct, are declared to be fauna that is need of special protection.
- Schedule 3 Schedule 3 – Birds protected under an international agreement:** being birds that are subject to an agreement between the governments of Australia and Japan relating to the protection of migratory birds and birds in danger of extinction, are declared to be fauna that is need of special protection.
- Schedule 4 Schedule 4 – Other specially protected fauna:** being fauna that is declared to be fauna that is in need of special protection, otherwise than for the reasons mentioned in Schedules 1, 2 or 3.

**{CALM (2005). Priority Codes for Fauna. Department of Conservation and Land Management, Como, Western Australia} :-**

- P1 Priority One: Taxa with few, poorly known populations on threatened lands:** Taxa which are known from few specimens or sight records from one or a few localities on lands not managed for conservation, e.g. agricultural or pastoral lands, urban areas, active mineral leases. The taxon needs urgent survey and evaluation of conservation status before consideration can be given to declaration as threatened fauna.
- P2 Priority Two: Taxa with few, poorly known populations on conservation lands:** Taxa which are known from few specimens or sight records from one or a few localities on lands not under immediate threat of habitat destruction or degradation, e.g. national parks, conservation parks, nature reserves, State forest, vacant Crown land, water reserves, etc. The taxon needs urgent survey and evaluation of conservation status before consideration can be given to declaration as threatened fauna.
- P3 Priority Three: Taxa with several, poorly known populations, some on conservation lands:** Taxa which are known from few specimens or sight records from several localities, some of which are on lands not under immediate threat of habitat destruction or degradation. The taxon needs urgent survey and evaluation of conservation status before consideration can be given to declaration as threatened fauna.
- P4 Priority Four: Taxa in need of monitoring:** Taxa which are considered to have been adequately surveyed, or for which sufficient knowledge is available, and which are considered not currently threatened or in need of special protection, but could be if present circumstances change. These taxa are usually represented on conservation lands.
- P5 Priority Five: Taxa in need of monitoring:** Taxa which are not considered threatened but are subject to a specific conservation program, the cessation of which would result in the species becoming threatened within five years.

**Categories of threatened species (Environment Protection and Biodiversity Conservation Act 1999)**

- EX Extinct:** A native species for which there is no reasonable doubt that the last member of the species has died.
- EX(W) Extinct in the wild:** A native species which:  
(a) is known only to survive in cultivation, in captivity or as a naturalised population well outside its past range; or  
(b) has not been recorded in its known and/or expected habitat, at appropriate seasons, anywhere in its past range, despite exhaustive surveys over a time frame appropriate to its life cycle and form.
- CR Critically Endangered:** A native species which is facing an extremely high risk of extinction in the wild in the immediate future, as determined in accordance with the prescribed criteria.
- EN Endangered:** A native species which:  
(a) is not critically endangered; and  
(b) is facing a very high risk of extinction in the wild in the near future, as determined in accordance with the prescribed criteria.

**VU**

**Vulnerable:** A native species which:

- (a) is not critically endangered or endangered; and
- (b) is facing a high risk of extinction in the wild in the medium-term future, as determined in accordance with the prescribed criteria.

**CD**

**Conservation Dependent:** A native species which is the focus of a specific conservation program, the cessation of which would result in the species becoming vulnerable, endangered or critically endangered within a period of 5 years.