



## **TRAFFIC MANAGEMENT PLAN**

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**Document Owner**

Sustainability Manager

**Document Approver**

Project Director

**Revision History**

Version No.	Date Published	Details
1.0	13/06/2017	First draft
2.0	23/06/2017	Management Review
3.0	03/07/2017	HMCV Draft

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## Definition of Terms

ACR	Annual Compliance Report
BOM	Australian Government – Bureau of Meteorology
CHR	Channelised Right Turn
DPTI	Department for Planning Transport and Infrastructure, South Australia
dB	Decibel – a unit of measurement used to express noise (or sound) level.
dB(A)	Units of the A-weighted noise level.
DSD	Department of State Development, South Australia
EFS	Extended Feasibility Study announced by Rex Minerals in May 2015
EML	Extractive Minerals Lease 6439
EMS	Environmental Management System
HMCV	Hillside Mine Community Voice
IS14001:2004	Environmental management systems – Requirements with guidance for use
LoM	Life of Mine
ML	Mineral Lease 6438
MPL	Miscellaneous Purpose Licence 146 (infrastructure corridor)
TMP	Traffic Management Plan
YP	Yorke Peninsula
YPC	Yorke Peninsula Council

## **1. INTRODUCTION**

Rex Minerals Limited plans to develop and operate the Hillside Mine, situated 12 kilometres south of the township of Ardrossan. Conventional open cut mining techniques will be employed using trucks and excavators to deliver ore to a processing plant that will produce a copper concentrate.

This Plan provides a description of the measures to be implemented by the Hillside Mine to manage the traffic impacts to and from the Hillside Mine and comply with the conditions outlined within the ML, EML and MPL conditions and other statutory requirements.

### **1.1 ENVIRONMENTAL MANAGEMENT SYSTEM**

Rex Minerals is committed to minimising the impact of its operations on the local environment and community, and is developing a comprehensive Environmental Management System (EMS), that will be based on the International Standard 14001:2004. This TMP is a component of the Hillside Mine EMS.

### **1.2 OBJECTIVES**

The objective of this Plan is to provide the framework for:

- ensuring compliance with all relevant statutory requirements;
- Rex Minerals Policies and Standards;
- implementing tools and practices to manage and minimise the impact of traffic on the environment;
- providing details on traffic management responsibilities; and
- maintaining an effective response mechanism to deal with issues and complaints.

## **2. TRAFFIC CONDITIONS**

The following Hillside Mine ML (Second Schedule) conditions relate to traffic.

### **Traffic**

- 29 The Tenement Holder must ensure all road and intersection upgrades are conducted in accordance with technical standards provided in writing by the Department for Planning Transport and Infrastructure.

## **3. TRAFFIC OUTCOMES**

The following Hillside Mine ML (Sixth Schedule) clauses relate to traffic.

### **Traffic Outcomes**

- 40 The Tenement Holder must, in construction and operation, ensure that no public impacts off the Land are caused by, noise, dust and/or dragout to and from the Land associated with mine related traffic.
- 41 The Tenement Holder must, in constructing and operating this Mineral Lease, ensure that there are no traffic accidents involving the public at mine access points that could have been reasonably prevented by the Tenement Holder.

#### 4. BASELINE MEASUREMENTS AND MODELLING

Baseline traffic monitoring was undertaken by an independent consultant for the proposed Hillside Mine in conjunction with Rex Minerals.

Economic activity on the Yorke Peninsula (YP) is dominated by primary production (predominantly agriculture, with some existing mining activity) and tourism. The region likely to be most affected by the Hillside Mine is along the Yorke and St Vincent Highways between Ardrossan to the north and the township of Pine Point to the south. This stretch of highways sees significant seasonal variation in traffic loads, with light vehicle traffic increasing substantially throughout the summer months and on holiday weekends as tourist numbers increase; and heavy vehicle traffic peaking between October and March as grain is transported from properties across the YP to receiver and storage facilities at Ardrossan, and down to Port Giles for distribution.

Traffic monitoring on the unsealed secondary roads around the site was conducted between May and October 2012 and shows that in addition to traffic numbers being significantly lower than on the major roads, the traffic mix is also markedly different with typically only 70-75% of traffic made up of light vehicles. Sandy Church Road receives approximately 39 vehicles per day with a higher proportion of heavy vehicles (over 8%).

The Hillside Mine EFS (Rex Minerals, May 2015) estimated a construction workforce of 550 people and an estimated operational production workforce of about 500 people. During the construction period the annualised vehicle movements are anticipated to be similar to the operation production phase. However, it will include short isolated periods for the delivery of large components of the processing plant and buildings by heavy vehicles.

Based on a workforce of 500-550 people, the estimated increased traffic movements per day to and from the Hillside Mine are outlined in Table 1.

**Table 1: Vehicle movements per day from and to the Hillside Mine**

Traffic Type	Vehicle Movements (per day)		
	Light Vehicles	Medium Vehicles	Heavy Vehicles
Passenger	260		
Buses		16	
Delivery Trucks		4	
Concentrate Trucks			14
Blasting Agent Trucks			2
Fuel Trucks			10
<b>TOTAL</b>	<b>260</b>	<b>20</b>	<b>26</b>

The majority of medium and heavy vehicles movements associated with the Hillside Mine will occur north of the Sandy Church Road and Yorke Highway intersection. It is estimated that two thirds of the light vehicles movements associated with the Hillside Mine will travel north and one third will travel south of this intersection.

## **5. UNCERTAINTY ASSESSMENT**

Key assumptions made in predicting the traffic movements due to the Hillside Mine operations and in recommending management controls are:

- The survey period is representative of future traffic movements.
- General site deliveries are handled through a central depot.

## **6. KEY RISKS**

The potential traffic impacts associated with the Hillside Mine are outlined below:

- Dust and/or drag out reducing visibility on Sandy Church Road and Yorke Highway.
- Drag out causing a traffic hazard on Sandy Church Road and Yorke Highway.
- Spread of noxious weeds from vehicles external to the Hillside Mine.
- Without the planned road upgrades and intersections outlined in Appendix 1, there could be an:
  - Increase in motor vehicle accidents at the intersection of the Hillside Mine access road and Sandy Church Road.
  - Increase in motor vehicle accidents at the intersection of Sandy Church Road and Yorke Highway.
  - Increase in motor vehicle accidents at the intersection of Pine Point Road and Redding Road.
- Excessive vehicle speed within the Hillside Mine site.

Other risks identified include:

- The drag out and dust from the western section of the non-sealed Sandy Church Road from local traffic will impact the Hillside Mine traffic.
- Public nuisance due to changes in the road network resulting from road diversions and closures.
- Timing of the Road Realignment proposed for Pine Point Road (diversion).

## **7. TRAFFIC CONTROL MEASURES**

Management controls will be implemented throughout the life of the mine to mitigate potential traffic impacts. These controls are detailed in the following sections.

### **7.1 PRO-ACTIVE**

The real-time continuous meteorological monitoring system in conjunction with BOM forecasts will be used by the Hillside Mine management to notify relevant personnel when weather could affect traffic outcomes.

### **7.2 MITIGATION MEASURES**

Table 2 describes the control measures to mitigate risk of the potential impacts from the Hillside Mine traffic activities and summarises the responsibilities that have been documented within this Plan. This includes (but is not limited to) the following measures to the extent practicable:

**Table 2: Traffic control measures and responsibilities**

<b>Traffic control measures</b>	<b>Responsibility</b>	<b>Timing</b>
<b>Pre-planning for traffic activities</b>		
Road upgrades, realignments and intersections to be implemented in accordance with technical standards provided in writing by the DPTI (Appendix 1).	Operations Manager	As required
Permitting in place for transport of mobile and fixed plant equipment to and from the Hillside Mine.	Operations Manager	As required
Scheduling the transport of mobile and fixed plant equipment to and from the Hillside Mine during construction and operations during off peak seasons and times.	Operations Manager	As required
Traffic control personnel to manage heavy vehicles on access roads.	Operations Manager	As required
Planned cleaning schedule of the Hillside Mine access road and Sandy Church Road with street sweepers.	Operations Manager	Ongoing
Permanent entry/exit security boom gates, lighting and signage including stop, giveaway and speed control.	Sustainability Manager	Ongoing
Schedule deliveries to minimise heavy vehicle operation during peak traffic periods and at night.	Operations Manager	Ongoing
Minimise the increase in light vehicle traffic by transporting shift workers and staff to and from Hillside using a bus service.	Operations Manager	Ongoing
Design the plant and other components to remain within DPTI load size limits where possible.	Plant Operations Manager	As required
Transport copper concentrate to port by enclosed containers on road trucks.	Plant Operations Manager	As required
Seal access road to decrease any potential drag out from entry/exit from the mine site.	Operations Manager	As required
<b>Operational response processes</b>		
Operate in accordance with this TMP and implement procedures contained within this Plan.	All employees	Ongoing
Receiving, reporting and responding to any complaints in relation to traffic activities through the 24-hour community response line.	Sustainability Manager	Ongoing
In the event of traffic incidents and accidents, the situation should be reported to the Operations Manager.	Operations Manager	Ongoing
Vehicle cleaning procedures using the vehicle wash down bay at the Hillside Mine.	Mining Manager	Ongoing
Site induction for all site personnel, contractors and visitors.	Sustainability Manager	Ongoing
All vehicle operators to hold the appropriate drivers licence.	Human Resources Manager	Ongoing
Random alcohol and other drug testing.	Sustainability Manager	Ongoing
Ensure that all employees and contractors are given adequate vehicle and traffic training/briefings in environmental awareness, legal responsibilities, and traffic regulations.	Sustainability Manager	Ongoing
Disiplinary measures for site personnel and contractors for traffic offences, behaviours or breaching company policies and procedures. Both internal and external to the Hillside Mine.	Operations Manager	As required
Random vehicle speed testing.	Sustainability Manager	Ongoing

Temporary signage for site and road maintenance.	Sustainability Manager	Ongoing
Signage and publication of road changes and detours resulting from road changes and closures.	Sustainability Manager	Ongoing
Utilisation of street sweepers to remove carryover sediment from sealed mine and public roads.	Operations Manager	As required
Dust suppression sealant on non-sealed mine roads.	Mining Manager	As required
Any corrective action as an operational response will be recorded and reported to the Senior Environment Advisor who is to keep a record of all significant proactive and reactive actions. The Community Relations Advisor must be informed of any complaint and details must be recorded in the complaints register in addition to response and actions taken.	Sustainability Manager	Ongoing
In the event that activities at the Hillside Mine cause a hazard and cannot be controlled by the management plans, Rex Minerals will implement traffic management procedures to prevent traffic accidents involving the public at mine access points.	Operations Manager	As required

## 8. CONSULTATION

This Plan is being prepared in consultation with the DSD, DPTI, YP Council, the HMCV consultation group and directly with local landowners.

## 9. RESPONSE PROCEDURES

### 9.1 OPERATIONAL RESPONSE PROCESS

Operational response procedures for traffic, air quality (dust) and noise are handled in accordance with the respective Management Plans.

### 9.2 EXCEEDANCE PROTOCOL

The exceedance of air quality (dust) and noise conditions for traffic are handled in accordance the respective Air Quality and Noise Management Plans.

### 9.3 COMMUNITY RESPONSE PROCESS

All complaints received in relation to the Hillside Mine operations will be responded to in accordance with the established Hillside Mine procedure for complaints. This procedure details the obligations of the Hillside Mine in regard to receiving, handling, responding to, and recording details of all community complaints. Upon receipt of a complaint from the community, preliminary investigations will commence as soon as practicable to determine the likely causes of the complaint using information such as the prevailing meteorological conditions, the nature of activities taking place and recent monitoring results. A response will be provided as soon as practicable, which may include the provision of relevant monitoring data.

Every effort will be made to ensure that concerns are addressed in a manner that facilitates a mutually acceptable outcome for both the complainant and Rex Minerals.

Rex Minerals will record all community complaints into the site event management database in accordance with the Hillside Mine procedure for complaints. The database will include reporting, incident/event notification, close out action tracking, inspections, and audits.

## **10. MONITORING PROGRAM**

Data from the monitoring program will be used to determine the impact of the Hillside Mine on the surrounding environment and community and includes:

- Visual inspections of the mine access road and vehicles as they approach the security boom gate will be undertaken to ensure there is no dragout to and from the Hillside Mine access road.
- Control measures implemented will be recorded including hours of operation of the street sweeper and the number of denied vehicles entering or exiting the Hillside Mine site due to dragout.
- Traffic incidents/accidents will be recorded as required by the EMS.

Monitoring of the air quality (dust) and noise from traffic movements are outlined in Section 10 of the Air Quality and Noise Management Plans.

## **11. REPORTING**

The Hillside Mine will report on the performance of the TMP in the ACR and provide regular updates to members of the HMCV consultation group. The ACR will be provided to the HMCV and made available for public information on the Rex Minerals website.

## **12. PERFORMANCE INDICATORS**

The following performance indicators will be measured against the ML conditions:

- Compliance with relevant vehicle procedures (eg. cleaning) at the Hillside Mine.
- Minimisation of traffic related complaints as evidenced by trends in the frequency and extent of complaints.
- Compliance with this Plan, as indicated by internal and statutory reporting.

## **13. CONTINUAL IMPROVEMENT**

The Hillside Mine will strive to continually improve on the mine's environmental performance by applying the principles of best practice to mining operations, including where cost-effective and practicable, the adoption of new best practice technologies and improved traffic control measures. Progress will be monitored using the above noted performance indicators.

## **14. REVIEW**

This Plan will be reviewed, and if necessary revised, to the satisfaction of the DSD and in consultation with relevant government agencies, in accordance with the requirements relating to PEPR review, update and approval:

- following changes to project approval or licence conditions relating to traffic management or monitoring;
- following any significant traffic related incident;
- when a relevant/significant improvement has been identified;
- for necessary or any unforeseen changes to traffic movements;
- where a risk assessment identifies the requirement to alter the Plan;
- annually.

## **15. REFERENCES**

Rex Minerals Ltd, Hillside Mine Mineral Lease Application, August 2013

Government of South Australia, Mineral Lease 6438, 16 September 2014

Rex Minerals Ltd, Extended Feasibility Study (EFS), May 2015

Traffic assessment for Rex Minerals Hillside Copper Mine Yorke Peninsula, March 2013

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## 16. APPENDICES

### Appendix 1: Proposed modifications to road network

The size and location of the proposed mine development (as shown below in Figure 1) will require a number of modifications to roads in the vicinity of the site which can be summarised as:

- Realignment of the coastal section of Yorke Highway/St Vincent Highway to be outside the blast exclusion zone surrounding the pit.
- Closure and relocation of the inland section of the Yorke Highway.
- Upgrading sections of Sandy Church and Pine Point Roads.

The engineering group, Tonkin Consulting, was engaged to prepare options for road modifications to meet the project design requirements in accordance with the DPTI technical standards for road and intersection upgrades. Following presentation of these options to both the community and YPC, it was agreed that it would be preferable to re-route the inland section of the Yorke Highway along an upgraded Pine Point Road rather than along Sandy Church Road or further south along Black Bobs Road.

Following on from this decision, a coastal alignment of the Yorke Highway/St Vincent Highway diversion (Figure 1) was selected as it minimises the impact on coastal properties, provides maximum separation from the buffer zone, avoids significant road works required to extend Pine Point Road and cross a deep gully just north of Pine Point, and it provides excellent coastal views which are anticipated to be beneficial for tourism.

The Pine Point Road is currently an unsealed minor road that joins the St Vincent Highway at a simple T-intersection. Grading of the road to maintain a passable surface throughout its life to date has resulted in the road surface now being below the surrounding landscape. To bring Pine Point Road up to the standard that will be required for it to adequately replace the inland section of the Yorke Highway, the section between the St Vincent Highway and Yorke Highway will be raised so that it sits 0.3m-0.5m above the surrounding land, the surface will be sealed, and the intersection with the St Vincent Highway realigned, regraded and upgraded to CHR to meet design criteria for a 110km/h roadway. Safe connection with the Yorke Highway will require construction of a new section of road at the western end of Pine Point Road. To avoid impacts on sensitive vegetation communities and adjacent properties, a curvilinear road design has been selected, with sealed apron T-junctions providing connections with Redding Road.

The Sandy Church Road is proposed to serve as the main access road to the mine site and will need to be upgraded to adequately serve this purpose. The current T-junction with the Yorke Highway has sight-line limitations to both the north and south created by localised crests which will need to be re-profiled to increase the sight distance to above the 300m required for a road design speed of 110km/h. The intersection will also be upgraded to a CHR, and the section of the road between the plant entrance and the junction with the Yorke Highway will be sealed to improve its durability under the increased traffic load that will result from mine operations.

Hillside Copper Mine  
 Traffic Management Plan  
 Program for Environment Protection and Rehabilitation (PEPR)



Figure 1: Road works proposed for the Hillside Mine

## Appendix 2: Correspondence Records

Key relevant communications with DSD, DPTI and the community relating to this management plan are detailed below.

Date	Communication with	Action or Outcomes
14/06/2017	DPTI	Meeting held with Rex Minerals to update on the status of the Hillside Mine and check on any road design and modification limitations.
03/07/2017	HMCV	Draft TMP tabled at the meeting

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### Appendix 3: Traffic Management Plan Requirements Checklist

Condition	Requirement	Section
<b>Rex Minerals Hillside Mine Mineral Lease Conditions (ML 6438) Second Schedule</b>		
<b>Traffic</b>		
29.	The Tenement Holder must ensure all road and intersection upgrades are conducted in accordance with technical standards provided in writing by the Department for Planning Transport and Infrastructure.	2, 7.2, Appendix 1
<b>Rex Minerals Hillside Mine Mineral Lease Conditions (ML 6438) Sixth Schedule</b>		
<b>Traffic Outcome</b>		
40.	The Tenement Holder must, in construction and operation, ensure that no public impacts off the Land are caused by, noise, dust and/or dragout to and from the Land associated with mine related traffic.	3,7.2,10,12, Appendix 1
41.	The Tenement Holder must, in constructing and operating this Mineral Lease, ensure that there are no traffic accidents involving the public at mine access points that could have been reasonably prevented by the Tenement Holder.	

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