

390

# Busselton Mineral Sands Deposit

## Cable Sands (WA) Pty Ltd



Report and Recommendations  
of the  
Environmental Protection Authority

BUSSELTON MINERAL SANDS DEPOSIT

CABLE SANDS (WA) PTY LTD

Report and Recommendations  
of the  
Environmental Protection Authority

Environmental Protection Authority  
Perth, Western Australia

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i      SUMMARY AND RECOMMENDATIONS

Cable Sands (WA) Pty Ltd has submitted a proposal to mine a deposit of mineral sands approximately 5 kilometres to the east of Busselton and near the junction of the Vasse and Bussell Highways.

The orebody, called the Busselton Deposit by the Company, consists of four strandlines and is located on old established pastures on private property which support scattered trees and some shelter belts.

The proposal is to mine by a cut and fill method. Because the orebody is very shallow it will be possible to rehabilitate very closely behind the moving mining front. Rehabilitation is identified as the major environmental issue.

The objectives of rehabilitation are to restore mined areas to landforms which are compatible with those of the region and to stabilise the surface with productive pastures so as to return the area to its long-term land use of grazing and agriculture to the landowner's requirements. Trees will be planted to provide shelter for stock and for landscaping purposes.

In considering the company's initial proposal to mine the Busselton Deposit, the Authority determined that the potential for environmental impact was such that the proposal would require formal assessment under Part IV of the Environmental Protection Act, 1986 and that the level of assessment would be Notice of Intent.

Upon assessment of the Notice of Intent that was submitted by the Company the Authority has determined that the proposed mining of the Busselton Deposit would be environmentally acceptable and make the following recommendations.

RECOMMENDATION 1

The Environmental Protection Authority concludes that the mining of mineral sands as proposed in the Notice of Intent is environmentally acceptable, and recommends that it proceed subject to the proponents commitments and the recommendations of this report.

RECOMMENDATION 2

The Environmental Protection Authority recommends that the proponent monitor the mining operations and transport of heavy mineral concentrates for the project, to the satisfaction of the Environmental Protection Authority and the Department of Mines, and immediately notify those agencies if any impacts are identified. The proponent should take immediate measures to ameliorate any undesirable impacts to the satisfaction of the Environmental Protection Authority and the Department of Mines. Reports of monitoring results should be submitted to both agencies annually.

## 1. BACKGROUND

Cable Sands (WA) Pty Ltd has submitted a proposal to mine a deposit of mineral sands, known as the Busselton Deposit, approximately 5 kilometres east of Busselton. The resource comprises 450,000 tonnes of the heavy minerals ilmenite, leucoxene, rutile, zircon, monazite and xenotime.

The deposit is located on privately owned land held under pre-1899 titles and the right to mine has been negotiated with all owners.

## 2. PROPOSAL

The proposal is to commence mining when the Company's present operations at Minninup are being decommissioned. The Primary Separation Plant used at Minninup will be transferred to the Busselton Deposit and converted back from a floating plant behind a dredge to a land based plant for a dry mining method using conventional earthmoving machinery such as scrapers, loaders and bulldozers. All heavy mineral concentrate will be transported by road transport to Cable Sands existing Secondary Separation Plant at North Shore, Bunbury. Mining would commence in 1990 and be completed by late 1993.

## 3. ENVIRONMENTAL ASSESSMENT

In considering the Company's initial proposal to upgrade the mining facilities the Authority determined that the proposal would require formal assessment under Part IV of the Environmental Protection Act, 1986 and that the level of assessment would be Notice of Intent.

## 4. ENVIRONMENTAL ISSUES

In its assessment of the proposal the Authority generally recognised that the mining of mineral sands is an established short-term land use in the region and that several nearby properties have been mined in the past and subsequently restored to their long-term land uses of grazing and cropping. Other land use in the area includes a small abattoir, two sawmills and a cemetery. The Notice of Intent was circulated to the Shire of Busselton for their comments and approval (Appendix 4).

Land rehabilitation is recognised as the most important environmental aspect of the project. The Company has stated that its objectives for land rehabilitation will be to:

- . save all topsoil;
- . restore mined areas and other affected areas to landforms which are compatible with the surrounding terrain;
- . cover the restored landforms with the original topsoil;
- . stabilise the restored and topsoiled landforms with permanent pastures which within the region will become recognised for their productivity; and
- . establish trees and shrubs which will provide shelter for stock and which will improve the aesthetics of the restored landforms so that these will be in harmony with the surrounding landscape.

Scale 1:50 000

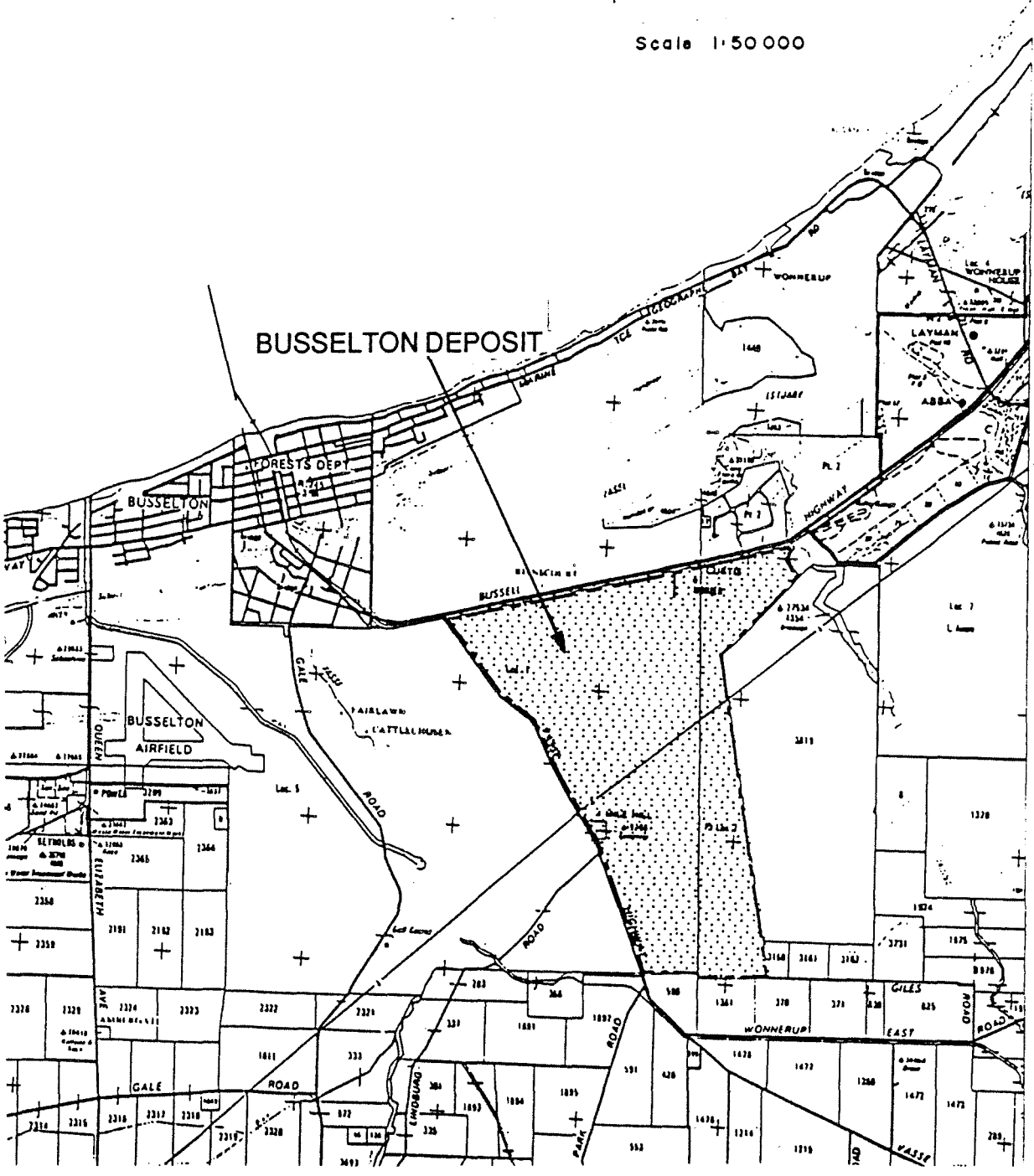


Figure 1. Locality Diagram (From NOI, Cable Sands, WA)

Rehabilitation will be undertaken on a continuous basis with pasture being established during the winter months. All areas which have been restored prior to winter will be fertilised and seeded during April - June to establish permanent pastures.

Trees will be established in the winter immediately after the first season of pasture establishment. Species will include those which are typical for the region and known to provide good shelter for stock, and they will be established in greater numbers than existed prior to mining.

Road access to the mine will be via the Vasse Highway. Trucks will transport the stockpiled heavy mineral concentrates from the mine site to the Company's Secondary Separation Plant at North Shore in Bunbury. The route will be along Bussell Highway to the beginning of the Old Coast Road and on to Koombana Drive. All loads will be covered during transportation and the route has been discussed with the local Shires.

Radiation issues were also considered by the Authority. It has been established that the radiation associated with the orebody is primarily due to its monazite fraction within the mineralization of the orebody. This monazite will be removed during processing and consequently the post-mining radiation levels will approximate local background levels which are substantially below the limits for public exposure.

The Company has liaised closely with adjacent land owners, land users and the Shires of Busselton and Capel in the preliminary phases of the proposal. In addition, the Company has agreed to a number of conditions proposed by the Shire of Busselton (Appendix 4).

## 5. CONCLUSION

Upon assessment of the Cable Sands (WA) Pty Ltd proposal the Authority has concluded that the proposed mineral sand mining of the Busselton Deposit would be environmentally acceptable and makes the following recommendations:

### RECOMMENDATION 1

The Environmental Protection Authority concludes that the mining of mineral sands as proposed in the Notice of Intent is environmentally acceptable, and recommends that it proceed subject to the proponents commitments and the recommendations of this report.

### RECOMMENDATION 2

The Environmental Protection Authority recommends that the proponent monitor the mining operations and transport of heavy mineral concentrates for the project, to the satisfaction of the Environmental Protection Authority and the Department of Mines, and immediately notify those agencies if any impacts are identified. The proponent should take immediate measures to ameliorate any undesirable impacts to the satisfaction of the Environmental Protection Authority and the Department of Mines. Reports of monitoring results should be submitted to both agencies annually.



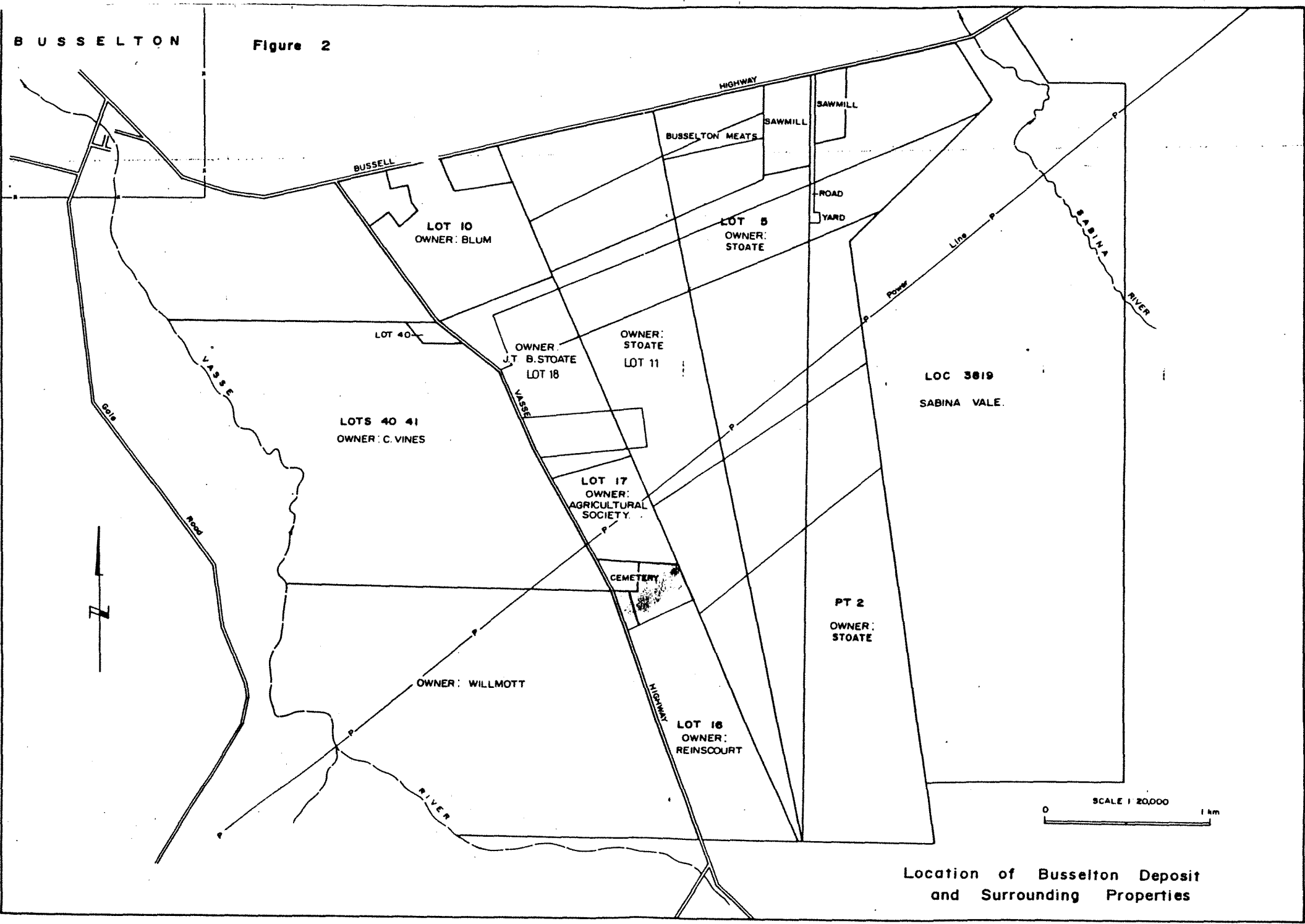
**SUMMARY OF ISSUED RAISED IN SUBMISSIONS**

1. A waste water treatment plant associated with a sheepskin pickling plant has works approval for establishment on Lot 10 Vasse Highway (cnr Bussell Highway). Will there be any interaction/effect?
2. Where are the nearest occupied residences to this proposed mine?
3. Who has rights to mine on Lot 10? Lot 18 is listed to be mined but Figure 16 doesn't show the strandlines on this Lot.
4. What sort of effects have been discussed in reaching the agreements discussed under S3.4.2?
5. Is it because a suitable arrangement couldn't be achieved with the owners of Lot 10 that it is not being mined? What if agreement is not reached?
6. What about owners of Lots 40, 41 etc; do they reside on this land?
7. What is the order of mining the strandlines? Are they approximately concurrent?
8. Will topsoil always be a 6 weeks stockpile?
9. Are there any screening works, grinding and milling works?
10. How will the Heavy Metal Concentrate stockpile be stabilised?
11. Will there be a water truck on site?
12. Is the adjacent abattoir an export abattoir?
13. What is the proposed level of fertiliser application, given the proximity of the Vasse Estuary?
14. Where is Amber Farm? When was it mined?

**Replies to questions of 30 May 1989 by EPA re Busselton Project**

1. No, there will be no effect or interaction. Lot 10 belongs to a Mr Blum and if the proposed sheepskin pickling plant is on the corner of this property which is nearest to the proposed mining, then the pickling plant is about 1km from the nearest part of the orebody on Stoate's land.
2. (a) Mr John Brockman, the manager of Mr Stoate, lives in a house which is owned by Mr Stoate, and this house is located off the orebody on Lot 18. A compensation agreement has been negotiated with Mr Stoate.  
  
(b) Mill houses on Lot 3 to the east of Busselton Meats Pty Ltd. Residents and owners of these houses have all been notified of Cable Sands' mining proposal. This was part of the extractive industry application process, and no objections were received from any of the residents.
3. The mineral rights to Lot 10 are owned by Westralian Sands Limited. Lot 18 will be mined, and an altered Figure 16 is enclosed to show mineralisation.
4. The Compensation Agreement addresses:
  - (a) Mining
  - (b) Water supplies
  - (c) Establishment of mining facilities
  - (d) Tailings disposal
  - (e) Slimes disposal
  - (f) Restoration of mined areas and landscaping
  - (g) Restoration of tailings and slime areas
  - (h) Owners use of areas not affected by mining or mining infrastructure
  - (i) Protection of livestock
  - (j) Owners indemnity
  - (k) Compliance with all Acts, Statutes and Regulations
  - (l) Removal and replacement of all topsoil
  - (m) Replacement or reinstatement of any improvements
  - (n) Compensation
5. Westralian Sands Limited have an agreement with the owners of Lot 10. Cable Sands is prepared to discuss with Westralian Sands the possibility of Cable Sands mining this deposit, but it will not affect Cable Sands' operations if Westralian Sands Limited is not agreeable to this.
6. (a) There is an occupied house on Lot 40, and it is approximately 100m west of the Vasse Highway.  
  
(b) There is an occupied house on Lot 41, and it is approximately 400m to the west of the cemetery.

7. The strandlines, due to their grade and the distances between them, will not be mined concurrently although there will be some overlapping.
8. No, only during the initial six weeks of commencing mining will topsoil be stored.
9. There are no grinding or milling processes. There is some limited screening to remove oversize material such as rocks, roots and tree stumps from the ore before it is fed into the separation plant. All oversize material which is not required or is not suitable for internal road construction or maintenance is returned to the bottom of the excavated pits.
10. There are no provisions other than to keep the surface moist. The addition of additives will affect the secondary separation. The stockpile of heavy minerals will not present a dust problem because of the high specific gravity of the minerals and the moisture content of the concentrate.
11. Yes, during the dry summer periods a water truck will be on site for the purpose of dust control.
12. No, the adjacent abattoir is not an export abattoir.
13. 250kg of fertilizer per hectare per year for two years. This will be a mixture of superphosphate and rock phosphate as is marketed to minimise the leaching of plant nutrients from the applied fertilizer to the groundwater.
14. Amber Farm refers to Sussex Locations 2191, 2192, 2193, 2324, 2323, 2322 and part of Location 5 located at Ambergate which is approximately 5km south of the town of Busselton. Mining finished on Amber Farm in 1981.



Location of Busseton Deposit and Surrounding Properties

## PROPOSERS COMMITMENTS TO ENVIRONMENTAL MANAGEMENT

Cable Sands agrees to the following commitments and is prepared to accept them as conditions of mining.

1. Cable Sands will comply with the relevant statutory requirements of the State of Western Australia and the Commonwealth of Australia.
2. Cable Sands will continue to operate in accordance with the Code of Practice on Radiation Protection in the Mining and Processing of Mineral Sands, and monitor and report to the authorities as requested by the Department of Mines.
3. Mined land will be restored to permanent pastures in consultation with the landowners. Trees will be established for stock shelter and for regional landscaping purposes.
4. After mining and primary separation of the minerals from the sand and clay, the clay will be incorporated into the sand, especially in the surface horizon of the new soil profile to enhance the water retention capacity of the sands.
5. All topsoil will be saved and returned to the restored landforms as a final layer.
6. Rehabilitation will follow the mining front closely and be fully integrated with production.
7. Groundwater will not be contaminated.
8. Cable Sands will continue to liaise closely with the Shire of Busselton to keep the Shire fully informed on issues of interest to them. This applies especially to funeral arrangements because of the proximity of the cemetery to the proposed operations, to ensure that funerals are not disrupted by mining operations.
9. Cable Sands will inform the Department of Mines and the Western Australian Museum immediately in the event of finding material of archaeological interest or sites of cultural importance to Aboriginal people. The Company will abide by the Aboriginal Heritage Act.
10. Dust and noise levels will be kept to a minimum.
11. A report will be submitted annually to the Department of Mines outlining mining progress, rehabilitation, radiation monitoring and dust and noise control. This report will be confidential.

**SHIRE OF BUSSELTON**

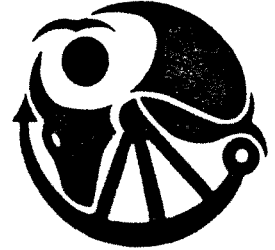
SOUTHERN DRIVE, BUSSELTON, W.A. 6280

Telephone (097) 52 1011 and (097) 52 1243

Office Hours: Monday to Friday 9 a.m. to 4 p.m.

All Communications to the Shire Clerk

P.O. BOX 84, BUSSELTON, W.A. 6280



Date: 23.5.89   No: 2778	
Manager	
Control Dept.	
Production Dept.	
Admin. Manager	
Project Eng.	
Maint. Eng.	
Mechanics	
Mining Supt.	
Mill Dept.	
Shipping/Stats	
Chemist/OH & S	
Survey/Drafting	
Workshop/Store	
Exploration/Geo.	
Recep./Typist	
Ph/Copy	File: 18th May, 1989

Our Ref:..... E.C.6.3 .....

Your Ref:..... .....

Enquiries Mr. C. Burwood .....

Manager,  
Mr F. J. Gee,  
Cable Sands Pty. Ltd.,  
P.O. Box 133,  
Bunbury 6230

Dear Sir,

RE: MINERAL SANDS MINING AND PROCESSING OPERATION - LOT 16, 18, 11, 5, PART LOT 2 AND PORTION OF SUSSEX LOCATION 1, BUSSELL AND VASSE HIGHWAYS, YALYALUP

I refer to your application for approval to commence development under Town Planning Scheme No. 5, the issue of an extractive industry licence and the issue of relevant building and health licences to enable mineral sands mining on the abovementioned locations.

Council gave due consideration to the proposal at its last meeting held on the 10th May, 1989 whereby it resolved to grant Approval to Commence Development under Town Planning Scheme No. 5; agree to issue an extractive industry licence by virtue of the Extractive Industry Bylaws No. 9 and agree to the issue of the necessary building and health licences to enable mineral sands mining on portions lot 5, 11, 16, 18 of Sussex location 1, part Sussex location 1 and part Sussex location 2, Vasse and Bussell Highways from the term of the 9th May, 1989 to and including the 30th December, 1994, subject to the following conditions:

1. The issue of a building licence and compliance with the Uniform Building Bylaws for all structures.
2. Compliance with all health requirements.
3. The issue of an extractive industries licence, renewable in twelve (12) months.
4. Compliance with Local Government Model Bylaws (extractive industries) No. 9.
5. All rehabilitation work being carried out in accordance with the 'Notice Of Intent To Mine' and the advice given on the extractive industry licence application.
6. Written approval to carry out mining in the drainage district from W.A.W.A. being submitted to Council and compliance with any conditions specified by W.A.W.A. prior to commencement of the activity.

7. The application covers land within the Busselton Drainage District, and the provisions of the Land Drainage Act and the Rights in Water and Irrigation Act will apply to all activities. No activity should be carried out that will adversely affect the drainage within the area.
8. No activity shall be carried out that will adversely affect groundwater or surface water quality or quantity.
9. With each annual renewal of the Extracture Industries licence, Council will require a report on the progress of the rehabilitation of the area.
10. No excavation occurring within 20m of adjoining land not owned by the applicant, unless the adjoining owner is agreeable.
11. No excavation occurring within 40m of any road reserve containing a constructed road.
12. The cross-sectional area of drains in the area should not be reduced in any way.
13. The grades or alignments of drains in the area should not be altered without written approval from W.A.W.A.
14. Overflow or stained or polluted water from the site into the drainage systems is prohibited unless otherwise authorised.
15. Any entrance and existing treatment deemed necessary for traffic safety, convenience and control at the intersection of Bussell Highway and the access road being provided at the company's cost to the satisfaction and specification of the Shire Engineer and Main Roads Department. All works also to be maintained at your cost or as agreed with adjoining landowners.
16. Warning signs being provided and located to the satisfaction of the Shire Engineer and Main Roads Department on Bussell Highway advising of trucks entering and leaving the property.
17. Negotiations being carried out with the adjoining industries with a view to bitumen sealing of the access road if an agreement can be reached on contributions.
18. The mine being managed in such a way as to reduce noise, nuisance to any nearby residences and whilst services are being conducted at the 4 Mile Hill Cemetery. In this respect, Council is prepared to give one day's notice if a contact person can be nominated.

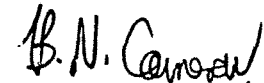
In respect to conditions 15 and 16 above, you are advised to contact the Shire Engineer to discuss the necessary requirements. Also in respect to conditions 1 and 2, the plans and applications you have submitted have been passed onto the Shire Building Surveyor and Health Surveyor and in this respect you are advised to contact them in approximately two weeks with a view to obtaining the licences and paying relevant fees.

The extracture industry licence referred to in condition 3 is attached hereto.

Furthermore, Council has resolved to advise your company that it strongly suggests that the access road be bitumenised in association with the other users of the road, and that the matter needs to be resolved between all parties concerned. In respect to the construction of the road, the Shire is not prepared to contribute to the costs incurred.

I trust the above is to your satisfaction.

Yours faithfully,



B. N. CAMERON  
SHIRE CLERK



SHIRE OF BUSSELTON

License to Excavate within the Shire of Busselton pursuant to the Local Government Model Bylaws (Extractive Industries) No. 9.

WHEREAS CABLE SANDS W.A. PTY. LTD.  
(Full Christian Names and Surnames)

of P.O. BOX 133, BUNBURY W.A. 6230  
(Full private address)

in the State of Western Australia MINERAL SANDS MINER  
(Occupation)

being (a) ~~the owner shown by the Rate Book, (a) Registered Proprietor, Purchaser under contract of Sale~~ (a) Occupier

(a) Cross out those not applicable of ALL THAT piece of land being As per the attached Annexure

.....  
(Location, Lot No. and Title Description)

applied on the 31st day of March 1989 to the Shire of Busselton for a License to excavate upon the said land in the position and to a maximum area and in accordance with the contours levels and sizes in the plan attached to his Application and has paid to the said Shire of Busselton a fee of \$ 25.00

The said Shire of Busselton HEREBY GRANTS to the said.....  
CABLE SANDS W.A. PTY. LTD

a License to excavate upon the said land according to the said plan in accordance with the above Bylaws from the 9th day of May 1989 to the 30th day of December 1994 only.

THIS License must be renewed annually and is liable to cancellation at any time without compensation for infringement of any Bylaws governing the same or the breach of any condition under which it is issued.

The issue of the License shall not in anyway render the said Shire of Busselton liable for damage or liability to any member of the Public which shall be the sole responsibility of the Licensee.

DATED this 9<sup>th</sup> day of May 1989

For ~~SHIRE OF~~ SHIRE OF ~~BUSSELTON~~ BUSSELTON the Shire of Busselton.

M Shire Clerk  
.....

A N N E X U R E

<u>LOCATION</u>	<u>VOL</u>	<u>FOL</u>
Pt Sussex 1 Lot 5	416	169A
Pt Sussex 1 -	1271	236
Pt Sussex 1 Lot 11	926	132
Pt Sussex 1 Lot 16	1219	346
Pt Sussex 1 Lot 18	1219	345
Pt Sussex 2 -	126	148A

# CABLE SANDS (W.A.) PTY. LTD

Incorporated in WA  
NORTH SHORE, BUNBURY, 6200 WESTERN AUSTRALIA

TELEPHONE (097) 21 4111  
TELEX: KATHBUN A402054  
FAX: (097) 21 1765

MANAGERS OF THE CABLE SANDS PROJECT  
(A joint venture between Picon Exploration Pty. Ltd.: 50%  
and Ampol Mining Pty. Ltd.: 50%)

Correspondence  
BOX 133  
BUNBURY, WA  
WESTERN AUSTRALIA

GFD/mm:B20 C21

31 May 1989

The Shire Clerk  
Busselton Shire Council  
Southern Drive  
BUSSELTON WA 6280

Attn. Mr. Barry Cameron

Dear Sir,

SUBJECT: PROPOSED MINING OPERATIONS - SUSSEX LOC.1

We acknowledge your information on the projected mining relocation and the relevant approvals and conditions related thereto.

Attached are -

- (i) Our cheque No.594049 for \$229.00 being payment of Building Licence Fees. We await confirmation of Health Department approvals.
- (ii) Copy of correspondence from the W.A.W.A. in relation to drainage matters.
- (iii) Copy of correspondence from the Main Roads Department requirements on the entry points to the minesite road.
- (iv) Discussions have been initiated with Monier in regard to the access road and the upgrading and sealing. We also acknowledge your quotation to carry out the necessary road works, a decision on which will be made following discussions with Monier.
- (v) It is a requirement that Cable Sands operates under the Mines Regulations Act as part of the normal mining procedures, and as such, annual reporting on operations and subsequent restoration/rehabilitation is part of this programme.
- (vi) A contact person, in relation to your advice on timing of funeral services at the 4 Mile Hill cemetery, would be the receptionist at our main office in Bunbury (097 214111) who will advise the relevant personnel for the Busselton minesite.

.. /2

Page 2.

(vii) Adjacent landowners have been contacted as set out in our earlier correspondence.

We wish to extend our thanks to you and your Shire Officers for the courteous attention to our requests and discussions with regard to this programme.

Yours faithfully,  
CABLE SANDS (WA) PTY LTD



F.J. Gee  
Manager