

Key issues raised by CAD Mapping				
Discussion Topic	Concerns/Discussion	Responding/supporting statements	Action to be taken	Responsible Person if action is required
	<p>specialist report on the potential biological impacts associated with abalone ranching along the Northern Cape coast. Trans Hex Operations (Pty) Ltd (Trans Hex) was asked to comment on that process though, but no comments were received.</p>		<p>monitoring compliance on site.</p>	
<ul style="list-style-type: none"> • Collaborations and information sharing 	<p>A form of co-existence for Abalone activities to continue is crucial.</p> <p>The areas where mining would not cause destruction of habitat would be the target areas by DCA. So there is a request that the mine plan and the aquaculture activities be synchronised. The co-existence would be successfully achieved if, for the areas that WCR would not find appealing, the mining schedules with specific targeted areas, would be shared and then the aquaculture team would also present their plans and schedules. The maps would be used as a basis of decision</p>	<p>The maps overlaid with information, where WCR would be mining and the abalone ranching seeding sites, was shared with GL and a copy of the maps provided to him. VM indicated that he would convey the outcomes of the meeting to ST who would see a way to open the communication channels between WCR and DCA.</p>	<p>Share information to facilitate co-existence opportunity identification and agree on what will be shared and WCR and DCA to indicate way forward in this regard.</p>	<p>WCR and Myezo</p>

Key issues raised by CAD Mapping				
Discussion Topic	Concerns/Discussion	Responding/supporting statements	Action to be taken	Responsible Person if action is required
	making based on which areas show overlap and therefore the security team would make decision on the possibilities for co-existence. This meeting could not negotiate those matters because they are outside of the EIA delegation team mandate.			
<ul style="list-style-type: none"> Terms of Reference 	GL indicated that Point 4 of the suggestion on the ToR (see list under response in the next column) was put as a worst case scenario, to say should there be no opportunities for co-existence, then it would need to be checked, where else would abalone activities be able to survive and still thrive.	BF indicated that suggestions as outlined below on the ToR, were discussed with WCR and were welcome. Since the legal framework for the basis of the aquaculture activities and impact would nevertheless be required as part of the EIA specialist input. This was not spelt out on the ToR because it was part of the regulatory requirements to be addressed in the report and was expected on the specialist reporting requirements.	Point four (4) of the suggested ToR from DCA will not form part of final ToRs.	Myezo

Key issues raised by CAD Mapping				
Discussion Topic	Concerns/Discussion	Responding/supporting statements	Action to be taken	Responsible Person if action is required
		<ol style="list-style-type: none"> 1. A legal review of applicable legislation, with a specific focus on user and access rights 2. A review of suggested access arrangements 3. A cost comparison of seeding abalone from land vs boat based seeding 4. Identification of alternative areas for ranching in the Northern Cape Province and an assessment of the likelihood that these areas could be zoned for abalone ranching 		
Way Forward		The outcomes of the meeting will be discussed with DAFF, who have requested that a feedback meeting be held with them. This will be scheduled	Myezo to set up a meeting with DAFF for feedback on the issues discussed at the meeting. (Note: This meeting was subsequently held on 03 June 2016).	Myezo

Discussion Topic	Key issues raised by CAD Mapping			Responsible Person if action is required
	Concerns/Discussion	Responding/supporting statements	Action to be taken	
		for the week of 30 May 2016, based on DAFF availability.		

7. Way forward

The specialist terms of reference will be commissioned as discussed.

The outcomes of the meeting will be discussed with DAFF, who have requested that a feedback meeting be held with them. This will be scheduled for the week of the 30th June 2016 based on DAFF's availability. DAFF representative, Michelle Pretorius (MP) had also indicated that there is a scheduled meeting mid-June between the two directorates from DAFF and DMR, to deal with this matter from the regulatory framework and to solicit co-existence opportunities. The outcomes of the meeting between WCR and DCA would be required during these planned regulatory and governance meeting.

8. Closure

BF closed the meeting and thanked the attendees for their input. The outcomes of the meeting would be circulated to attendees.

Attachment 1: Attendance Register




Abbreviations

- ADTs: Articulated Dump Trucks
- DMS: Dense Media Separator
- EA: Environmental Authorisation
- KFR: Kleinzee Final Recovery
- KNC: Koingaas Complex
- RAC: RE:CM and Calible Limited
- SBC: Samsons Bak Complex
- THO: Trans Hex Operations (Pty) Ltd
- WCR: West Coast Resources (Pty) Ltd


Background on the proposed mining operations

- WCR is owned by THO, RAC, Government of South Africa, Dika Investment Holdings (Pty) Ltd and Namaqualand Diamond Trust Fund
- Trans Hex oversees and manages operations of WCR
- WCR is re-establishing diamond mining in Koingaas area under the existing EA of July 2012


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- WCR has existing converted mining rights and prospecting rights over the area
- The mining rights comprise of existing rights, covering KNC and SBC

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Map of the Koingnaas mining right area



DRILL LOCATIONS, BOREHOLE FENCES AND MINE SITES

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Adjacent farms



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Open cast mining methods

1. Virgin blast

2. Tapped stripping

3. Overburden peeling

4. Trench Drive, Load & Haul

5. Shovelings

6. Gro Drive & Blast

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.....Continuation

7. Overburden Drill & Blast

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Surf zone mining


- Small scale operation that has been ongoing in the KNC and SBC
- Approved under the current authorizations
- Undertaken by diver-operated suction hoses,
- Hoses feed diamondiferous gravels to shore-based pumping units comprising a tractor, modified to drive acentripetal pump and a rotary classifier

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Beach mining

- Beach mining operations of mineralized gravel deposits has been on-going for many years
- These gravel deposits are found in various places between the LWM and HWM along the coast
- WCR are currently continuing with these approved activities above the LWM on a limited scale
- Illustration 2 and 3, provides an example of typical beach mining operations


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Typical beach mining operations




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Typical beach mining operations




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Processing Infrastructure

- Koingnaas Mine will start with construction of a new 200 tph screening and scrubbing plant at Michell's Bay
- The plant will feed the -12+1.6 mm fraction to the existing 50 tph Michell's Bay DMS plant
- Concentrate from the DMS will be treated through the KFR at Kleinzee
- A second 200 tph screening plant may be deployed if required
- Additional mobile scalping screens and Finlay type screens may also be required and will be deployed as necessary


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...Continuation

- Process flow charts for the 200 tph scrubbing and screening plant and existing DMS Michell's Bay plants are indicated under Appendix 4
- Existing and proposed future slimes dam locations for the Koingnaas Mining area are shown in Appendix 4.2 of scoping report


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....Continuation

- At beach mining sites, ADT's will transport the gravel to a nearby scalping and screening plant, fed by seawater
- At the scalping and screening plant, the gravel may be fed directly to the feeding screen or stockpiled and fed by front-end loader to the screen
- Sand and seawater will be released back to the sea


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Rehabilitation

- Conducted concurrent to mining activities
- Generally carried out by:
 - back-dumping into mined-out areas,
 - flattening steep-sided overburden dumps and dangerous benches, and
 - covering the resulting surface with topsoil
 - various soil treatments, seeding and netting are carried out in some cases


Regional infrastructure


- KNC and SBC mining areas are accessed via existing public roads
- The three most used are secondary roads from Springbok to Kleinsee, Port Nolloth to Kleinsee and Garies to Koingnaas
- The District Municipality maintains these roads
- A 60 km tar road links Koingnaas and Kleinsee
- Most of the roads in these towns are tarred
- A 40 km gravel road connects Kleinsee to Komaggas


Existing mine infrastructure

- Most infrastructure requirements are already in place in Koingnaas
- Infrastructure at each mine site and processing operation comprises of:
 - electric power supply
 - roads
 - potable, fresh and seawater supplies
 - fuel supply and storage
 - workshops

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Listed and specified activities



West Coast Resources


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Triggering activities associated with mining

Beach- and offshore channel mining

- Beach and offshore channel mining operations of mineralized gravel deposits between the low and high water marks
- Historic results will be particularly on the extensions of high-grade fluvial channels crossing the surf-zone to deeper water environments
- Areas targeted for mining are shown in Figure d-1




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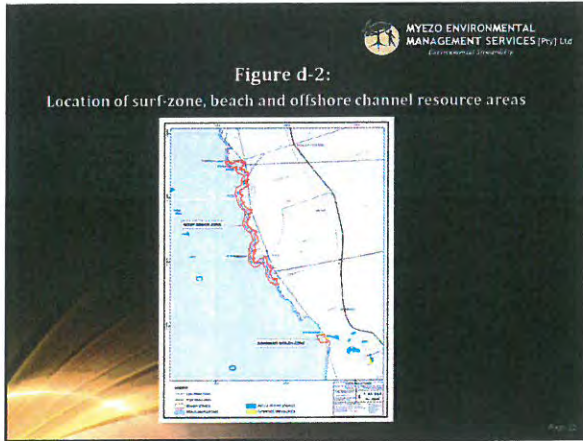
Triggering activities associated with mining

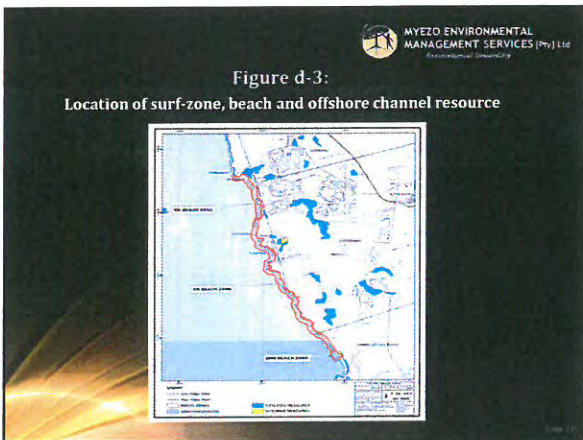
Beach- and offshore channel mining

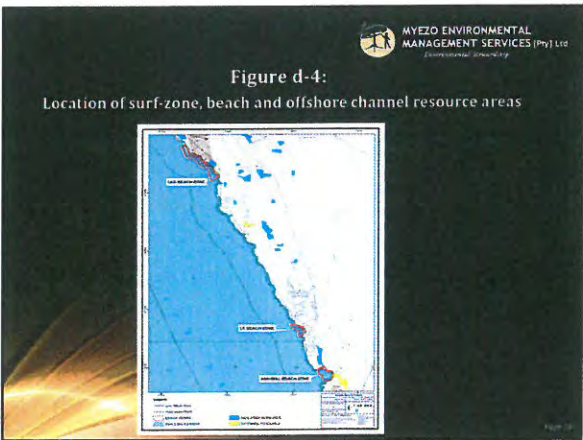
- Figure d-2, d-3, d-4, show the location of the surf zone, beach and offshore channel resource areas
- The mine block representation can be viewed in Appendix 5: Figures d-11 to Figures d-18, which illustrates scheduled mine blocks




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Approaches
Two types of approaches are as follows.:


- Temporary accretion of the beach in the immediate vicinity of the mining target using overburden material available on the beach or from adjacent onland mining sites; or
- Construction of a rock berm or coffer dam using non-native rocks and boulders sourced from rock stockpiles near Koiingnaas

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68/69 design

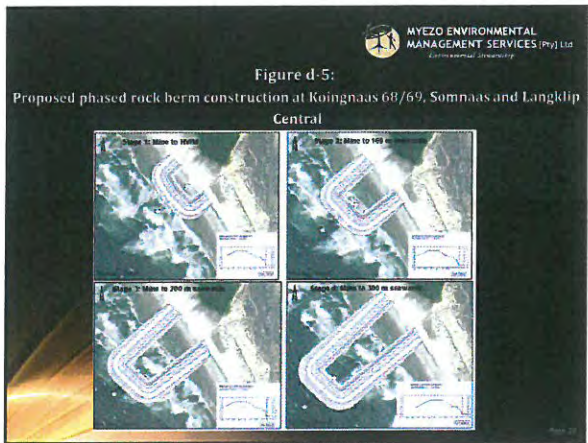
- Rock berms or coffer dams are the only feasible alternative to effectively reclaiming a mining area located beyond the LWM
- Procedure for construction of a protective rock berm:
 - a rock berm is built by progressively end-tipping rock- and boulder core material from trucks perpendicular to the oncoming waves and shoreline. Dozers and excavators subsequently shape the profile and dress the slope with a suitable armour layer of larger rocks
 - The berms extend from above the storm HWM into the surf zone until the seaward extent of the mining block is reached and a shore-parallel berm is constructed linking the two shore-perpendicular berms

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....Continuation

- Once the berm is in place and the mining block is enclosed, overburden stripping and gravel extraction can be undertaken using conventional open-cast mining approaches
- Once the area has been mined out, the rock berm would be progressively extended offshore to enclose the next mining block, potentially enabling mining up to 300 m seawards of the LWM

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Estimated rock volumes required for the various construction phases

Construction Phase	Estimated rock volume (m³)
Stage 1	65 000
Stage 2	135 000
Stage 3	216 000
Stage 4	256 000

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Mitchell's Bay (Rooiwal Bay) design

- Small protected bay located north of the Spoeg River
- The mouth of the bay is some 700 m across
- The bay hosts a narrow sandy beach backed by steep soil cliff and a shallow reef in the mouth
- An irregular, deep, channel reaching at least 20 m depth is present in the northern part of the bay and a second depression occurs in the southern part of the bay
- One of the proposed mining approaches implemented to access the diamond deposits on the seabed and adjacent beaches, involves accretion of the beach using overburden sands stripped from adjacent mine block LKB-04 on-land

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.....Continuation

- Mining of the accreted area would liberate further material that can be placed into the sea to gain additional accretion
- Three stages of beach accretion are being considered, with the shoreline moving seawards by 150 m during each successive stage (Figure d-6) Sand volumes required for each stage comprised 1.3 million, 2.5 million and 5.9 million cubic metres, respectively for 150 m, 300 m and 450 m accretion



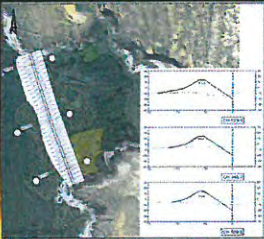
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Figure d-6:
Three phases of proposed shoreline accretion within Mitchell's Bay



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Figure d-7:
Layout and sections for a proposed dynamically stable rock berm for the closure of Mitchell's Bay



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Generic design

- A more generic design involving either statistically stable rock berms, or these in combination with dynamically stable berms, is being considered for other potential mining sites characterised by either a rocky shoreline or a shoreline of mixed sand and rock
- The generic design is proposed for the Noup, Visbeen, Koingnaas Langklip Central and Langklip target areas

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Figure d-8:
Layout of a generic rock berm with a conventional statistically stable armour slope

Parameter	Value
BERM WIDTH	100m
BERM LENGTH	100m
BERM HEIGHT	10m
BERM SLOPE	1:1
BERM TOE	10m
BERM CROWN	10m
BERM BASE	10m


WSP

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Figure d-9:
Layout of an alternative generic design using a conventional statistically stable groyne in combination with a dynamic re-shaping shore-parallel berm


Parameter	Value
GROYNE WIDTH	100m
GROYNE LENGTH	100m
GROYNE HEIGHT	10m
GROYNE SLOPE	1:1
GROYNE TOE	10m
GROYNE CROWN	10m
GROYNE BASE	10m


WSP

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Sites for slimes disposal


- Existing mining voids in mined out areas were identified in central areas where processing plants would be placed over the life of the operation
- The bedrock profiles in each of these areas were checked to ensure that the bedrock slope dipped towards the coast and that the site was within 1 km from the coastline
- These attributes ensure that any seepage of seawater associated with the slimes would end up back in the ocean
- There are no fresh water sources, other than rain water in the region of the selected slimes sites



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Sites for slimes disposal

- Placing of the fine fraction of the waste below natural ground level or behind existing overburden dumps reduces windblown dust
- No chemicals are used in the beneficiation process
- The material is mainly transported quartzite, with no AMD potential
- A detailed civil engineering design was completed for each of the sites
- The proposed slimes facilities are indicated in Figure d-10




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Sites for slimes disposal







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Applicable legislation and guidelines

APPLICABLE LEGISLATION AND GUIDELINES USED TO COMPILE THE REPORT	REFERENCE WHERE APPLIED
Mineral and Petroleum Resources Development Amendment Act, (Act No. 49 of 2008) (MPRDA).	An application for environmental authorisation has been lodged with DMR.
Mineral and Petroleum Resources Development Act, (Act No. 28 of 2002).	Financial provision has been calculated and is indicated in the Quantum Report, which is included in the Environmental Impact Assessment Report.
National Environmental Management Act, (Act No. 107 of 1998)	An application for environmental authorisation has been lodged with DMR
National Environmental Management Act, (Act No. 107 of 1998); Environmental Impact Assessment Regulations, 2014.	An application for environmental authorisation has been lodged with DMR The applicable listed activities are discussed in Section d (i) of the Scoping Report.


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Applicable legislation and guidelines

National Environmental Management Laws Amendment Act, (Act No. 107 of 1998)	An application for environmental authorisation has been lodged with DMR.
National Environmental Management Waste Act, 2008 (Act No. 59 of 2008) List of Waste Management Activities: Govt Notice No. 921 of 29 Nov 2013 as amended by Government Notice No. R332 of 2 May 2014 and as also amended by Govt. Notice No. R633 of 24 July 2015.	An application for environmental authorisation has been lodged with DMR. The applicable listed activities are included in Section d (i) of the Scoping Report.

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Applicable legislation and guidelines

National Environmental Management : Air Quality Act (Act No. 39 of 2004).	The provisions of the Act have been included in the compilation of mitigation measures in Section h (vii) and (i) (ix).
National Environmental Management : Air Quality Amendment Act (Act No. 20 of 2014).	
National Environmental Management : Air Quality Act (Act No. 39 of 2004); National Ambient Air Quality Standards, 2009.	
National Environmental Management : Air Quality Act (Act No. 39 of 2004); National Dust Control Regulations, 2013.	
National Environmental Management : Biodiversity Act (Act No. 10 of 2004).	The provisions of the Act and Regulations have been used in the compilation of mitigation measures in Section h (vii) and (i) (ix).

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Applicable legislation and guidelines

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National Environmental Management: Biodiversity Act (Alien and Invasive Species Regulations, 2014).	The mitigation measures section considers that alien invasive species management.
National Environmental Management: Biodiversity Act (Publication of national list of invasive alien species).	
National Environmental Management: Integrated Coastal Management Act, (Act No. 24 of 2008)	An application for environmental authorization has been lodged with DMR. The applicable listed activities are included in Section d (f) of the Scoping Report. The provisions of the Act have also been used in the compilation of mitigation measures in Section h (vii) and (i) (ix).
National Environmental Management: Integrated Coastal Management Amendment Act, (Act No. 36 of 2014).	

Applicable legislation and guidelines

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Northern Cape Nature Conservation Act, (Act No. 9 of 2009).	The Biodiversity assessments will consider this legislation.
National Development Plan: Operation Phakisa.	The National Development Plan goals and objectives have been considered in the development of socio-economic strategies.
Environmental Management Framework and Strategic Environmental Management Plan for Namakwa District Municipality, 2011.	These frameworks will be considered in the assessments and development of mitigation measures.

Figure h-2:
Current slimes dam alternative sites of which six are preferred (A, C, H, G, D and E)

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The map displays a coastal area with several potential dam sites marked. Six sites are specifically highlighted as preferred: A, C, H, G, D, and E. The map also shows the coastline, some infrastructure, and a legend at the bottom left.


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Details of the public participation process followed

To date the activities outlined below were executed:

- Pre-consultation meetings held with competent and commenting authorities:
 - DMR on 09 March 2015
 - DAFF on 14 September 2015
 - DENC on 15 September 2015
 - DEA: Oceans and Coasts on 18 September 2015
- An advert was placed on the Namakwalander newspaper on 04 March 2016
- Site notices were erected on site and other strategic places on 04 March 2016


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...Continuation

- Due to suspected technical glitches on the newspaper printing process, re-advertisement process was done
- Site notices were re-erected on site and other strategic places on 11 March 2016
- Copies of the scoping report were sent to authorities on 16 March 2016, via email web link
- Copies of scoping report were placed for review by stakeholders
 - Koiningaas Mine Office
 - Springbok Library
 - WCR Offices


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Summary of issues raised by I&APs

- Overlap of proposed mining activities with proposed MPAs and with Operation Phakisa
- Potential conflict with abalone ranching rights holders regarding water quality and habitat loss, particularly those companies that have already started seeding juveniles
- Increased turbidity near mining site(s) may compromise water quality at the seawater intakes to land-based abalone farms. The impacts of suspended sediment plumes and elevated turbidity as a result of mining operations need to be assessed
- Increased turbidity near mining site(s) may impact filter feeders
- Requirements for discharge permits regarding discharges to the sea (particularly from diver-assisted shore units) is unclear


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....Continuation

- Blasting in the marine environment should be avoided and materials used for the construction of berms re-used as much as possible
- Concern regarding the introduction of non-native material onto the beach during berm construction
- Concern regarding the disturbance to marine habitats and associated biota through mining in subtidal areas. The impacts associated with coffer dam construction vs. accretion need to be carefully considered
- As seal colonies are unique habitats within the project area these should be mapped, and information available at DAFF and DEA should be used


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....Continuation

- Quantitative marine baseline studies focussing on the specific mining sites need to be undertaken
- Provide DEA with information on the experimental design of baseline and monitoring studies prior to commencement of surveys
- WCR to give consideration to co-ordination of monitoring programmes with DEA and sharing of research information. Baseline and monitoring studies should focus both on rocky habitats (including an assessment on the impacts on reef structure) as well as sandy beach habitats.
- The recovery of these habitats following mining needs to be understood from the perspective of species recruitment and colonisation.


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....Continuation

- Monitoring programmes should be co-ordinated to ensure an upfront understanding of sensitive habitats in the project area, with subsequent avoidance of these in the mine plans
- WCR to give consideration to implementing a SEA approach in partnership with other role players in the area so as to gain a broader understanding of the coastline rather than focusing on the project specific sites
- Decommissioning and closure is required of old mining sites no longer used; As active rehabilitation below LWM is not practicable there is a concerns that wave action may not be sufficient to ensure natural rehabilitation of berms.


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....Continuation

- Impacts of mining activities on abalone ranching community and the economic effect of such impact on the regional socio-economic contribution of this mariculture economic activity.
- It is believed that it would be unlikely that the DCA abalone ranching initiative would be viable if DCA were excluded from the majority of the suitable seeding sites in NC Zone 4 for significant periods of time.
- It is believed that the DCA abalone ranching initiative would not be viable if there is significant habitat destruction and/or if seeded abalone is destroyed through mining operations.


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....Continuation

- Ensuring that rehabilitation objectives are met
- Ensuring that the land claim aspects within the application area are understood and dealt with according to the proper process guided by the administrative and legislative requirements
- Ensuring transparency in communication with stakeholder and that human rights are upheld
- It is believed that WCR does not conduct EIA and this must be done and the company must propose management measures that will mitigate against the negative environmental impacts

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....Continuation

- WCR to look for opportunities to support community livelihoods
- Post mining land use considerations must be done in collaboration/consultation with the community
- The pre-consultative meeting with regulatory authority, to discuss design and process approaches and possible interactions with aquaculture industry were acknowledged and appreciated
- Potential conflict with aquaculture, abalone ranching rights holders is a concern

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....Continuation

- Promotion of dialogue between ranching rights holders and WCR should be done.
- Establishment of efforts to co-exist with the abalone ranching rights holders in the study area are key
- Recognition of the current investments into the pilot projects, of which some are registered as operation Phakisa Projects, and opportunities presented by this aquaculture investment, to increase jobs, food security and revenue for the country is required
- Socio economic study to address the potential water quality threat to the land based abalone facilities and ranching rights holders should be considered

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Potential impacts


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Specialist cost summary table


Please see the link below for the Table.
[\WCR\Scoping TOR\Specialist TOR\Summary of TOR Costs\W&SCE-Specialists-Summary of Specialist Costs \(17 May 2016\) Rev 1.siv](#)


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Potential impacts
Please see the link below for the table.


[WWSCE_Impacts \(23 May 2016\) Rev 1.xls.docx](#)




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Monitoring and auditing


- Environmental management measures developed for all the identified impacts will be implemented and incorporated into the plant daily activities
- The effectiveness of management measures in mitigating the impacts will be monitored
- Compliance with environmental conditions of approval will be assessed through undertaking of performance audits




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Monitoring and auditing

- It will be checked that closure objectives are clearly defined and that monitoring data collected will be meaningful at closure and that management measure are monitored timorously to minimise environmental liabilities at closure




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Proposed methodology for monitoring of sandy beaches, rocky shores and sub-tidal reefs

- The monitoring study will consider both physical and biological parameters at reference sites some distance from the mining sites and at sites targeted for colliery mining or beach accretion
- It is recommended that the respective sites be selected following a site visit and in close collaboration with both the mine planners and DEA: Oceans & Coast
- Conducted on an annual basis starting a minimum of two years prior to that in which mining commences, and continuing until all impacted communities have recovered to acceptable levels as defined in the monitoring program requirements outlined above.


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Proposed methodology for monitoring of sandy beaches, rocky shores and sub-tidal reefs

- The intertidal beach and rocky-shore surveys are planned to be undertaken over a spring tide period when the tides are low enough to permit access to the low shore
- Surveys will be considered to be scheduled over spring tides when the height of the low tides above chart datum


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Sandy Beach Macrofauna


- Beach faunal community sampling would be carried out using established sandy-beach sampling techniques
- Ten stations would be positioned along each transect line at equal horizontal intervals across the beach face
- All macrofauna retained in the sieves would be preserved in 96% alcohol, and identified to the lowest taxonomic level possible
- A variety of physical parameters will also be measured at each site
- Sediment samples will be collected from Station 1 (the drift line), Station 5 (mid-shore) and Station 10 (spring low water mark).

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Sandy Beach Macrofauna


- Graphic methods will be used to obtain the mean particle diameter, sorting and skewness of the sediments
- These physical data will be used to calculate the dimensionless fall velocity or Dean's value, and to rate each site in terms of wave exposure

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Rocky Intertidal Macro-benthos


- The macro-benthos of rocky intertidal areas would be sampled in six 0.5-m² quadrats
- The quadrats are divided into a regular 50x50 mm grid pattern giving 171 intersecting points in a 1 x 0.5 m frame
- Data on mean percent cover and abundance for the community as a whole, individual species and trophic groups would then be compared

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Shallow Sub-tidal Reefs

- Experienced scientific divers, will be used to conduct the underwater benthic assessments
- Dive sites will be selected in three depth zones namely, 1-5 m, 5-10 and 10-15 metres below mean sea level
- At each dive site, two divers will each conduct 5 point counts at 5-m intervals along transects across the seabed
- Within a 2-m diameter circle at each point, the seabed type and structure will be recorded
- To minimise individual dive time at the depths surveyed, and maximise the number and coverage of dives over the survey area, quantitative benthic quadrats will not be attempted

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Shallow Sub-tidal Reefs

- Various benthic studies have indicated that there is considerable redundancy in the species which characterise the composition of benthic communities.
- This redundancy often allows analysis at higher taxonomic levels, rather than at species level, without weakening the results
- The successful completion of the shallow sub-tidal surveys will be dependent on sea conditions.
- Typically, a wave height of <1.5 m is required for confident and accurate underwater data collection

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Figure h-8: Schematic representation of the West Coast intertidal beach zonation

Zonation	Typical Flora	Typical Fauna
Upper Beach		
Lower Beach		
Shoreline		
Intertidal		

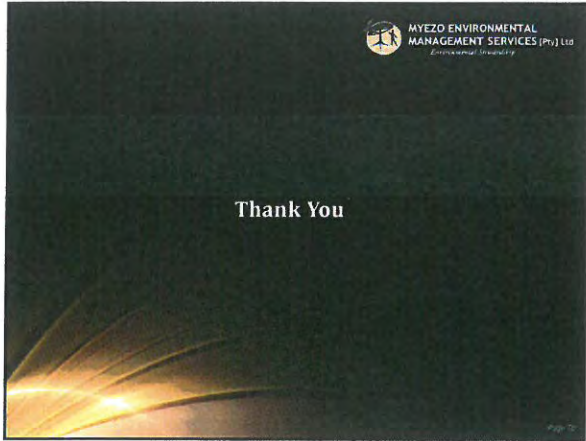
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Figure: H14: Land use map



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Appendix h-5.3.7: PCC



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WEST COAST RESOURCES-KOINGAAS AND SAMSONS BAK COMPLEXES-ENVIRONMENTAL IMPACT ASSESSMENT TAKEHOLDER CONSULTATION PRESENTATION ABOUT THE EIA, IN SUPPORT OF AN APPLICATION FOR ENVIRONMENTAL AUTHORISATION AS PART OF AN AMENDMENT OF A MINING RIGHT HELD BY WEST COAST RESOURCES (P/PTY) LTD OVER THE KOINGAAS AND SAMSONS BAK COMPLEXES

Document Name: WKSCE-PI-Meetings-Presentation (PCC)
Date: 28 June 2016

Abbreviations



- ADTs: Articulated Dump Trucks
- DMS: Dense Media Separator
- EA: Environmental Authorisation
- KFR: Kleinsee Final Recovery
- KNC: Koingaas Complex
- RAC: RE:CM and Calible Limited
- SBC: Samsons Bak Complex
- Trans Hex: Trans Hex Operations (Pty) Ltd
- WCR: West Coast Resources (Pty) Ltd

Purpose of the meeting



- To provide feedback on the EIA and EMP to the PCC
- Discuss the suggested solutions and recommendations
- Fine tune the Draft EIA to incorporate the suggestions

Agenda

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- Background on the project
- Environmental Impact Assessment process followed
- Issues raised by stakeholders
- Specialist studies undertaken
- Impacts identified and proposed mitigation measures
- Discussions
- Commenting period and way Forward

West Coast Resources

Background on the proposed mining operations

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- WCR merger - Trans Hex, RAC, Government of South Africa, Dika Investment Holdings (Pty) Ltd and Namaqualand Diamond Trust Fund (IDC funded transaction)
- WCR is re-establishing diamond mining in Koingnaas area under the existing EA of July 2012 (KNC and SRC)
- WCR has an option to acquire the rights that are still held by De Beers over the Buffels Marine Complex.
- Prospecting data extend over 50 years and as such gives a level of confidence on the identified resources and targeted reserves.
- The converted rights of 2012 were fully transferred to WCR through Section 11 of Mineral and Petroleum Resources Development Act (MPRDA) in 2014.
- Trans Hex (40% shareholder) oversees and manages operations on behalf of WCR except the resources that would require support structures which would extend further below the low water mark

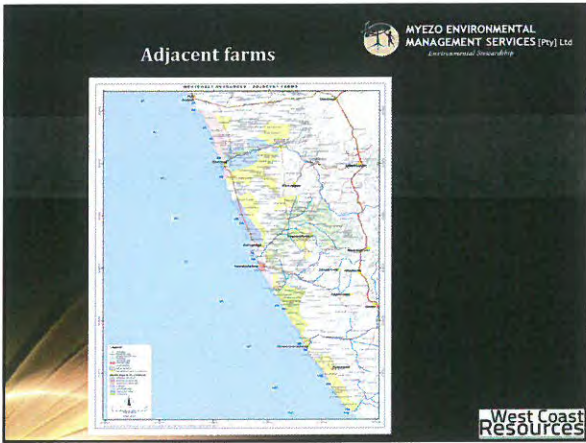
West Coast Resources

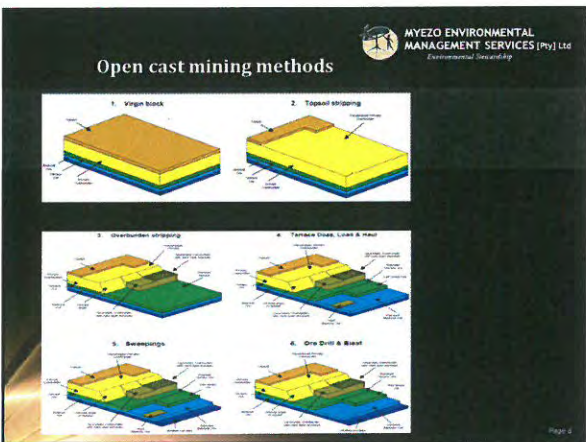
Map of the Koingnaas mining right area

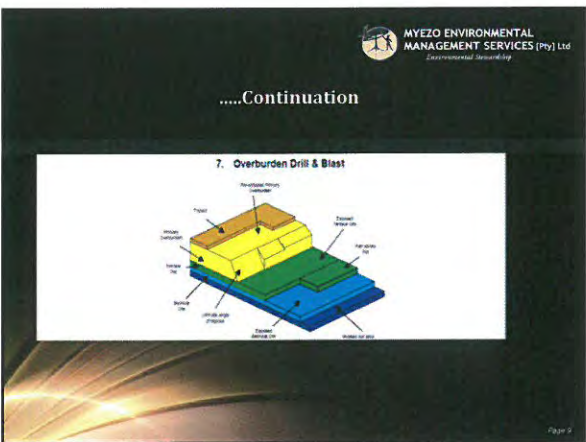
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West Coast Resources











Surf zone mining


- Small scale operation that has been ongoing in the KNC and SBC (up to the LWM)
- Approved under the current authorizations
- Undertaken by diver-operated suction hoses,
- Hoses feed diamondiferous gravels to shore-based pumping units comprising a tractor, modified to drive acentripetal pump and a rotary classifier



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Beach mining

- Beach mining operations of mineralized gravel deposits has been on-going for many years
- These gravel deposits are found in various places between the LWM and HWM along the coast
- WCR are currently continuing with these approved activities above the LWM on a limited scale
- Illustration 2 and 3, provides an example of typical beach mining operations


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Typical beach mining operations




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Typical beach mining operations



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Processing

- Open sand beaches are characterised by natural high energy wave action - large volumes of sand are moved from the beach to deeper water during winter storms and brought back onshore during milder weather conditions.
 - Beaches has been shown to replenish themselves as experienced in similar coastal environments and proven by previous specialist studies
 - Olifants River (Study done by Dr Andrea Pulfrich).
 - monitoring programme - eight beaches had been sampled.
 - CSIR studies had noted that benthic communities recover - after about 5 yrs
- The stretch (size) of each of the beaches along the coast to be mined are about 300 m for 68/69 to 600 m at Mitchell's Bay.
- The coffer dams extend out into the sea, a distance of about 200m.

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Processing Infrastructure

- Koignas Mine will start with construction of a new 200 tph screening and scrubbing plant at Mitchell's Bay
- The plant will feed the -12+1.6 mm fraction to the existing 50 tph Mitchell's Bay DMS plant
- Concentrate from the DMS will be treated through the KFR at Kleinzee
- A second 200 tph screening plant may be deployed if required
- Additional mobile scalping screens and Finlay type screens may also be required and will be deployed as necessary
- Slimes dams (Proposed and existing)

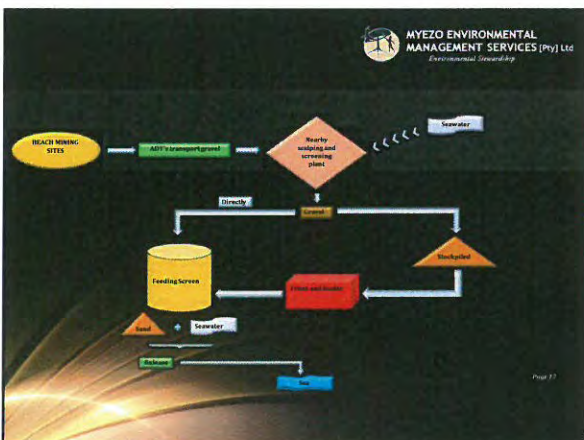
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.....Continuation

- At beach mining sites, ADT's will transport the gravel to a nearby scalping and screening plant, fed by seawater
- At the scalping and screening plant, the gravel may be fed directly to the feeding screen or stockpiled and fed by front-end loader to the screen
- Sand and seawater will be released back to the sea

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Rehabilitation


- Conducted concurrent to mining activities
- Generally carried out by:
 - back-dumping into mined-out areas,
 - flattening steep-sided overburden dumps and dangerous benches, and
 - covering the resulting surface with topsoil
 - various soil treatments, seeding and netting are carried out in some cases

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Regional infrastructure

- KNC and SBC mining areas are accessed via existing public roads
- The three most used are secondary roads from Springbok to Kleinsee, Port Nolloth to Kleinsee and Garies to Koingnaas
- The District Municipality maintains these roads
- A 60 km tar road links Koingnaas and Kleinsee
- Most of the roads in these towns are tarred
- A 40 km gravel road connects Kleinsee to Komaggas


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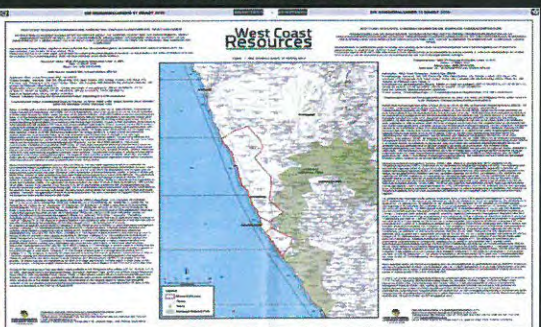
Existing mine infrastructure


- Most infrastructure requirements are already in place in Koingnaas
- Infrastructure at each mine site and processing operation comprises of:
 - electric power supply
 - roads
 - potable, fresh and seawater supplies
 - fuel supply and storage
 - workshops


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Listed and specified activities



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Triggering activities associated with mining

Beach- and offshore channel mining

- Beach and offshore channel mining operations of mineralized gravel deposits between the low and high water marks
- Historic results will be particularly on the extensions of high-grade fluvial channels crossing the surf-zone to deeper water environments

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Triggering activities associated with mining


Beach- and offshore channel mining

- FIGURES

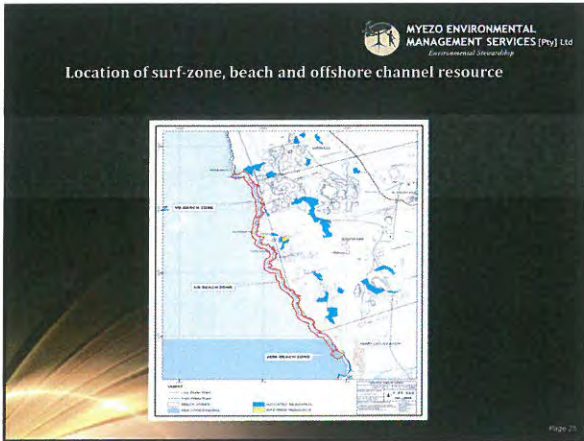
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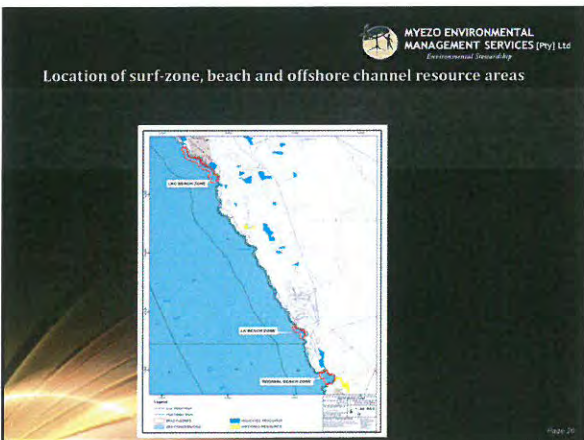
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Location of surf-zone, beach and offshore channel resource areas



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Approaches

Two types of approaches are as follows:

- Temporary accretion of the beach in the immediate vicinity of the mining target using overburden material available on the beach or from adjacent onland mining sites; or
- Construction of a rock berm or coffer dam using non-native rocks and boulders sourced from rock stockpiles near Koingaas

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68/69 design

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- Rock berms or coffer dams are the only feasible alternative to effectively mine area located beyond the LWM
- Procedure for construction of a protective rock berm:
 - a rock berm is built by progressively end-tipping rock- and boulder core material from trucks perpendicular to the oncoming waves and shoreline. Dozers and excavators subsequently shape the profile and dress the slope with a suitable armour layer of larger rocks
 - The berms extend from above the storm HWM into the surf zone until the seaward extent of the mining block is reached and a shore-parallel berm is constructed linking the two shore-perpendicular berms

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...Continuation

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- Once the berm is in place and the mining block is enclosed, overburden stripping and gravel extraction can be undertaken using conventional open-cast mining approaches
- Once the area has been mined out, the rock berm would be progressively extended offshore to enclose the next mining block, potentially enabling mining from 200m - 300 m seawards of the LWM

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Figure d-5:
Proposed phased rock berm construction at Koiingnaas 68/69, Somnaas and Langklip Central

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Estimated rock volumes required for the various construction phases

Construction phase	Estimated requirements (m ³)
Stage 1	85 000
Stage 2	135 000
Stage 3	216 000
Stage 4	356 000

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Mitchell's Bay (Rooiwal Bay) design

- Small bay located north of the Spoeg River
- The mouth of the bay is some 700 m across
- The bay hosts a narrow sandy beach backed by steep soil cliff and a shallow reef in the mouth
- An irregular, deep, channel reaching at least 20 m depth is present in the northern part of the bay and a second depression occurs in the southern part of the bay
- One of the proposed mining approaches implemented to access the diamond deposits on the seabed and adjacent beaches, involves accretion of the beach using overburden sands stripped from adjacent mine block LKB-04 on-land

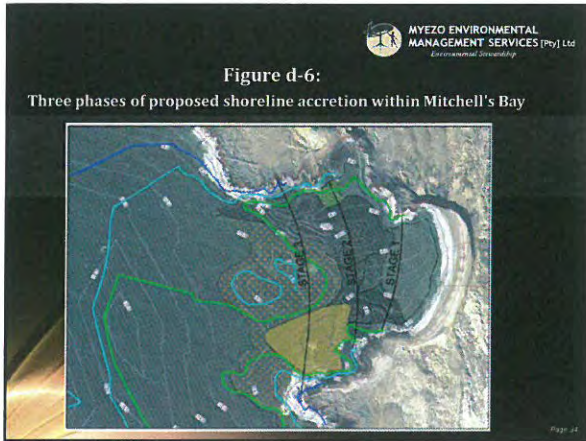
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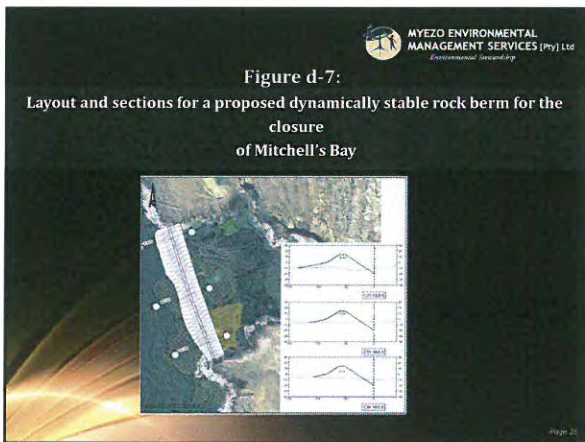
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.....Continuation

- Mining of the accreted area would liberate further material that can be placed into the sea to gain additional accretion
- Three stages of beach accretion are being considered, with the shoreline moving seawards by 150 m during each successive stage -Sand volumes required for each stage comprised 1.3 million, 2.5 million and 5.9 million cubic metres, respectively for 150 m, 300 m and 450 m accretion

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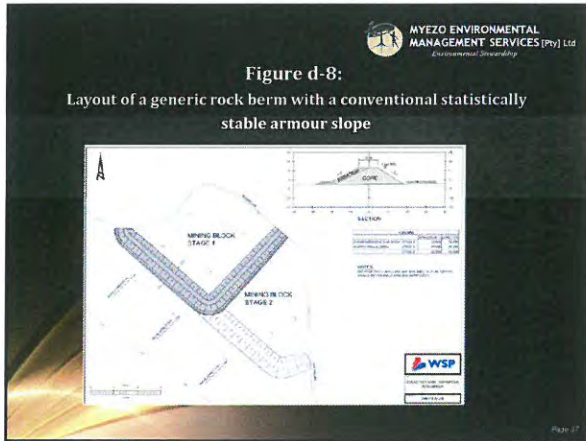


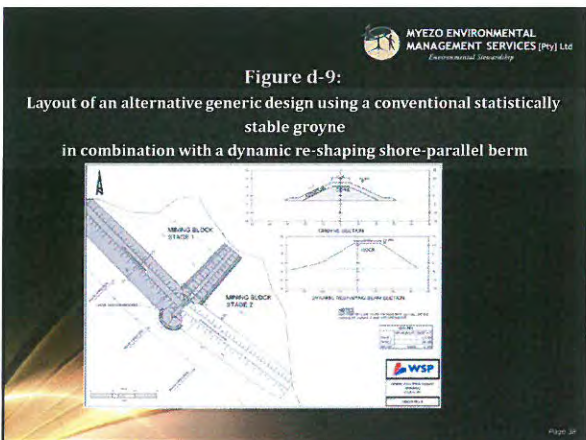
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Generic design

- A more generic design involving either statistically stable rock berms, or these in combination with dynamically stable berms, is being considered for other potential mining sites characterised by either a rocky shoreline or a shoreline of mixed sand and rock
- The generic design is proposed for the Noup, Visbeen, Koingnaas, Langklip Central and Langklip target areas

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Sites for slimes disposal

- Existing mining voids in mined out areas were identified in central areas where processing plants would be placed over the life of the operation
- The bedrock profiles in each of these areas were checked to ensure that the bedrock slope dipped towards the coast and that the site was within 1 km from the coastline
- These attributes ensure that any seepage of seawater associated with the slimes would end up back in the ocean
- There are no fresh water sources, other than rain water in the region of the selected slimes sites

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