



Ensham

R E S O U R C E S

Planning for

Open Cut Floodplain Mining

Presentation to
Fitzroy Basin Association
CQ Mining Forum

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Floodplain Mining Issues

Key Issues

1. Surface water
2. Groundwater
3. Riparian vegetation
4. Cultural heritage
5. Floodplain rehabilitation & land capability impacts



Floodplain Mining Issues

Surface Water Impacts – Issues & Management

Flooding of mine workings

- Risk-based approach for determining appropriate flood immunity level/protection works
- Risk-based geotechnical design of mining excavations near watercourses

Upstream flooding of neighbours

- Requires detailed flood study to determine extent
- Can be reduced by mine design
- Consultation with landholders to address impacts



Floodplain Mining Issues

Surface Water Impacts – Issues & Management cont.

Potential loss of surface water

- Hydrogeological setting needs to confirm surface water/groundwater interaction
- Needs to be addressed in development of mining strategy – potential constraint to mining operations
- Mitigation may be necessary

Erosion of watercourses and floodplain

- Flood study to assess velocity changes
- Rehabilitation work designed to address any erosion risk



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Surface Water Impacts – Issues & Management cont.

Sedimentation of downstream waterways

- Managed via erosion and sediment controls including runoff collection and sediment dams



Floodplain Mining Issues

Groundwater Impacts – Issues & Management

Loss of groundwater resources

- Requires detailed groundwater modelling to determine extent
- Can be reduced by mine design – potential mining constraint

Post-mining re-establishment of water table

- Potential contamination of groundwater and/or surface water
- Potential contaminants need to be identified and assessed
- Modelling of groundwater recovery and assessment of potential for mixing with other aquifers or discharge to surface water



Floodplain Mining Issues

Riparian Vegetation – Issues & Management

Riparian vegetation can be of high conservation value

- Thorough ecological field survey and impact assessment
- Avoid clearing, where feasible
- Implement clearing procedure to manage clearing impacts
- Development of management plans to protect and manage vegetation and significant species



Floodplain Mining Issues

Cultural Heritage – Issues & Management

Riparian and floodplain areas can have significant cultural heritage value

- Involvement of relevant Aboriginal group representatives in accordance with *Aboriginal Cultural Heritage Act 2003*
- Thorough field survey and impact assessment
- Management of impacts in accordance with a Cultural Heritage Management Plan



Floodplain Mining Issues

Rehabilitation & Land Capability – Issues & Management

Post-mining landform designs need to be suitable for the long term

- Long term stability is a key consideration in rehabilitation design
- Impact of extreme flood events need to be considered in development of floodplain final landform

Floodplain areas can include productive agricultural land

- Rehabilitation design needs to maximise post-mining land suitability



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Thank You