IERM CONVENTION

"For the Cradle to Grave Scenario" to be of any meaning, we as humans need to look after our Green Spaces

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Introduction

This paper will focus on surface mining and the environment with the focus on saving the environment.

Some important issues need to be understood when dealing with the environment and mining.

Cradle to Grave

This is an environmental assessment of the impact of a product through its entire life cycle, from mining to the eventual disposal

Cradle to Gate

This is an environmental assessment of the impact of a mineral from its mining state to the moment it leaves the mining area. This therefore omits the impact of transport to consumer, product use and its eventual disposal.

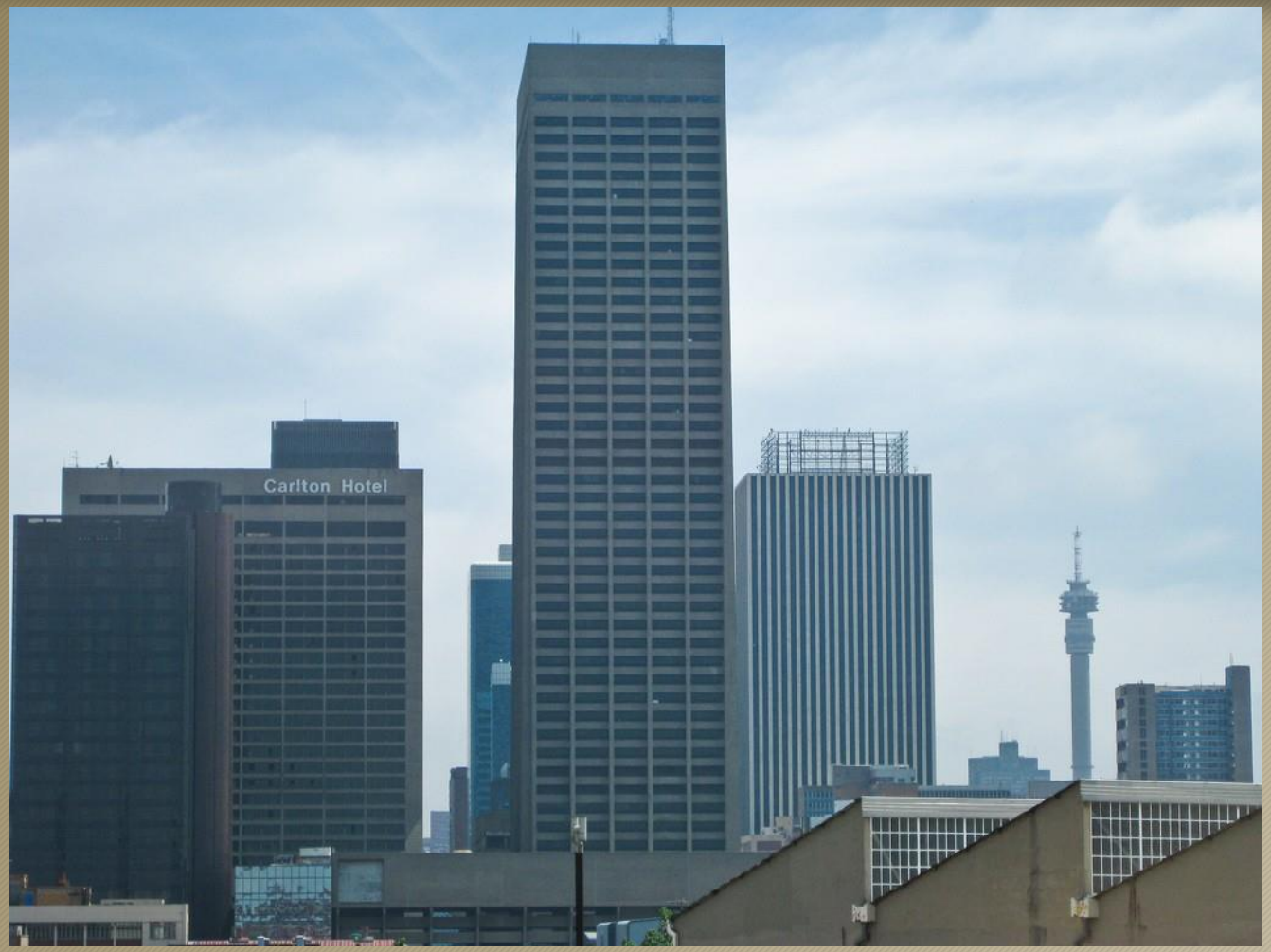
Cradle to Cradle

This is the same as cradle to grave, except the final disposal phase is replaced with a recycling process. This will therefore produce either a new identical product, or a different useable product.

Southern Africa Quarry Map

Southern Africa Quarry

High Rise Building



Highway

Rubble Crushing - Recycling

Recycled Aggregates

Recycled aggregates are generally concrete obtained from demolition sites which are crushed down and used again in other building projects. This can also relate to crushed asphalt, bricks and blocks, all of which reduce the need for extraction of new materials.

Secondary Aggregates

Secondary aggregates are materials which can be used as aggregate but are the waste product of another process. An example of this could be the waste rock from china clay extraction which is not the primary reasons for the extraction but as useable materials in its own right and furnace bottom ash.

The Big Users of the Material

Concrete industry in South Africa comprises:

- Cement manufacturers,
- Aggregate producers,
- Admixture suppliers,
- Cement extender (fly ash) and slag) suppliers,
- Readymix
- Concrete product manufacturers
- Designers of structural concrete
- Building and Civil Engineering Contractors
- Small –scale cement and concrete product consumers

What is a quarry

What is a quarry

Quarries provide sources of aggregate materials such as stone, gravel and sand used in construction or maintenance activities.
Pit operations include activities such as mechanical excavating, sorting, crushing, screening and washing.
Heavy equipment and vehicles are used to transport materials around the site and from pit to construction/maintenance sites.

Quarries typically follow a lifespan from initial site clearing and vegetation removal to pit reclamation and abandonment.

Environmental Issues at Quarries

Primary environmental issues relating to quarries are associated within routine highway maintenance activities.

It should be noted that site specific conditions might present additional issues you will need to address in planning and undertaking of the works.

Environmental Impacts

- Ensue that the environmental impacts of mineral extraction are mitigated to acceptable levels through the highest standards of operational working, including minimizing operational use of energy, reducing emissions and the need for, and impacts of long distance mineral transport.

- Work closely with environmental and heritage interests to ensure that assets and landscapes of acknowledged importance are conversed appropriately and opportunities to improve knowledge of the historic environment are taken where possible.

Environmental Impacts

Ensure that all former mineral working sites are restored as soon as possible to beneficial after-uses and have adequate provision for after-care, in consultation with stakeholders, while enhancing biodiversity, natural capital and geodiversity.

Planning & Environmental Regulations

- Cooperate fully and openly with others to ensure that forecasts and strategic plans meet society's need for minerals and assist in strengthening the monitoring, publication and promotions of data on the economic contribution to the industry

- Support proper consideration of the three elements of sustainable development – social, economic and environmental – in planning for minerals supply.

Planning & Environmental Regulations

- Promote the need for planning decisions to have primacy over environmental permitting and improve the interface between these two aspects of regulation because planning takes account of social and economic factors as well as the environment.

Public Understanding

- Promote understanding of the need for minerals, their use in society and contribution to social development through community engagement, education and training by direct contacts and monitoring, publication and promotion of the economic and environmental contributions of SA mineral extraction.

- Develop the mineral heritage of SA in collaboration with relevant stakeholders to provide a national network of active and historic mineral sites for education, heritage and research purposes.

Public Understanding

- Promote improved links and better understanding between the industry and local communities, schools, universities and research organisation’s.

Conclusion

The balance between the benefits of minerals extraction and the associated impacts on the environment and society – the difficulty in finding environmentally acceptable mineral sites occurs nationwide but the industry has a good reputation for restoration and an ability to create new landscapes that are of value. Importing minerals transfers the impacts of extraction and carbon emissions to other countries.