Slide 1. - Name is Dr Margaret Brocx I am an Adjunct Associate Professor in Environmental and Conservation Sciences at Murdoch University.

Both by Honours Degree and PhD qualifications are in the Disciple of Geoheritage, and like Professor Semeniuk, I am recognised as a Geoheritage Expert.

Some of my affiliations are listed below.

As the Member for Oceania, I represent Australia on the International Union for the Conservation of nature Geoheritage Specialist Group

As the Geoheritage expert for the Geological Society of Australia, I hold the positions of National Convenor and State Convenor for Geological Heritage.

As the Continental Coordinator for the International Association for Promoting Geoethics, I speak to the ethical, social and cultural implications of geoscience knowledge, education, research, practice and communication, providing a point of intersection for Geosciences, Sociology, Philosophy and Economy.

Geoethics is a tool to influence the awareness of society regarding problems related to geo-resources and geo-environment.

I am not being paid by any group to attend today, I am here today because it is the role in my unpaid affiliations to provide advice on evidence -based geoheritage values, and to promote Geoethics.

I do have other affiliations as founding and ongoing executive membership of Wetlands Research Association and Geoheritage Australasia.

Slide 2. I have over 30 publications that I have authored and co-authored in the Discipline of Geoheritage, including this publication titled *Geoheritage-from Global Perspectives to Local Principles for Planning and management*, published in 2008 by the WA Museum, and sold by the WA Museum Bookshop.

Slide 3. The Yalgorup Plain- and why I am here.
These are some photographs taken last week. The land adjacent to the proposed quarry has limestone cropping out at the surface and clearly is a wetland.

Slide 4. Here I have a made a list of stakeholders in the development Proposal.

I am not here to represent any of the stakeholders listed, I am here to speak to the Geoheritage Significance of the Yalgorup Plain, and why, given the high conservation values that will be adversely impacted by the proposed quarry, it is not an appropriate development/land usage at this location.

Slide 5. The VCSRG was Commissioned to write a report on the natural values of the Yalgorup Plain by the then DEC in 2009. There are also publications in 1996 and 2001. The comprehensive geoheritage and wetland values are well described in great detail.

Slide 6 In Geological terms the Yalgorup Plain is underlain by limestone plain, and northern stranded part of Leschenault Inlet. Over time, the northern end of the Leschenault Inlet has filled with mud, so the Yalgorup Plain has been somewhat separated, or stranded, from the Leschenault Inlet.

It is the perfect sequence, or record, of the natural history of the Yalgorup Plain, that is, evidence the changes in sea level rise, and the marine and terrestrial environment (and its biodiversity) over 4 glacial (ice ages) and interglacial periods from millions of years ago until today, that makes this area so geologically and hydrologically complex, and why the Yalgorup Plain is so unique.

I don't go into detail, but this diagram, at the landscape scale, shows how scientific research, reported on by Professor Semeniuk, was able to reconstruct the changes to the coastline, due to climate change, up until today.

Slide 7. At another level of detail, the study of the stratigraphy, or order and relative position of past and present landforms, has revealed not one but five different limestones and quartz sand.

Slide 8. These geological features, and accompanying complex hydrology, are what makes The Yalgorup Plain area and surrounding region geologically significant for a range of natural history features, ranging from Earth Science features to ecosystem features, to biodiversity aspects.

Slide 9. This slide summarises the adverse environmental impacts that the proposed Quarry will have on the natural values of not only the quarry area, but on the Yalgorup Plain as a unit of geoheritage significance.

Slide 10. This information is from the Shire of Harvey Website on Heritage guidelines. These guidelines are founded on International Conventions and a Bilateral Agreement between the Commonwealth and the States and Territories to identify and protect sites of Natural Heritage

Under Geological World Heritage Criteria, the Yalgorup Plain is a page in the geoarchive of the history of the Earth. It demonstrates globally unique products of active and past process that include coastal and marine processes

Under Australian Heritage Criteria, the Yalgorup Plain has "outstanding heritage value to the Nation because of the place's importance in the course, or pattern, of Australia's natural history"

The Yalgorup Plain area and surrounding region geologically is significant for a range of natural history features, ranging from Earth Science features to ecosystem features to biodiversity aspects.

The Yalgorup Plain thus represents the best-preserved sequence of Pleistocene landforms, some 2.5 million years – 12,000 years ago derived from coastal sedimentation in Western Australia over 4 glacial and interglacial periods, and the best preserved series of marine prograded Pleistocene limestone system in

Western Australia. There is no equivalent of the sequence of prograding accreting limestone of various Pleistocene ages as manifest on the Yalgorup Plain elsewhere in Australia, or the world.

Slide 11. I put it to you that under State and Federal Guidelines, where natural heritage is a matter of national importance, the values of the Yalgorup Plain should be celebrated, and conserved.