

**SUBMISSION TO THE RESOURCE PLANNING and DEVELOPMENT
COMMISSION 5th July 2009**

Executive Commissioner
Resource Planning and Development Commission
3rd floor, 144 Macquarie Street
Hobart TAS 7000

Dear Sir

The following is intended to expand upon some of the objections which I summarised in my letter to the Commission on 6th April 2009 (Representation 535)

Having trained in the specialty of Public Health Medicine and working as a Medical Advisor and General Practitioner, I wish to raise certain concerns about the proposed Lauderdale Quay development by Walker Corporation and would like to comment on aspects of the Draft Integrated Impact Statement (DIIS) which has been submitted to the Resource Planning and Development Commission for assessment.

My initial letter to the RPDC expressed a broad range of objections. However, I appreciate that the RPDC assessment process relies upon expert advice and will therefore confine my comments to matters which I consider to be public health-related and therefore on which I believe I hold some expertise.

By way of background I would like to explain that Public Health Medicine is not limited to matters of infectious diseases, as is commonly perceived, but encompasses a broad range of subjects including epidemiology, preventative medicine and health promotion, environmental health and infectious diseases, medical sociology, health economics, and health services planning and evaluation. Many of these subjects constitute specialties in their own right (e.g. infectious disease medicine) and many encompass sub-specialties within their remit. (e.g. toxicology). I do not claim to match the authority of any such specialist. The principle role of Public Health Medicine is to have an overarching view of environmental and social impacts on the health of populations, as opposed to individuals, and thereby address the wide range of factors which affect the health of communities at large.

For the purposes of this submission I consider "community" to relate to the existing residents of the Lauderdale locality and South Arm peninsula directly impacted by the project works and environmental engineering, as well as the construction workers and future residents of Lauderdale Quay, and any others who might suffer deleterious consequences arising from the proposed development.

My principal objection in the DIIS is that it does not address the public health in any integrated or direct fashion nor acknowledge this as a paramount issue.

The Final Scope Guidelines require that the DIIS "*must include a review and evaluation of potential effects of the project on human health*". Further that the proponent "*must identify existing and potential health impacts*".

However, the DIIS seems only concerned, mostly in a dismissive fashion, with the expedient of addressing acceptable levels of potentially offending physical and chemical agents, rather than also acknowledging and addressing explicitly the ultimate health consequences which might arise from unforeseen or accidental breach of these levels.

1 Heavy Metal Pollution and poisoning

- 1) The existence and effects of long-standing heavy metal pollution in the Derwent Estuary are well described and documented and have been repeatedly raised since the development was originally proposed. Numerous State Government agency reports (e.g. Derwent Estuary Program, State of the Derwent Report), and Ministerial Statements (e.g. Bryan Green, Minister DIWE, November 2003), have stressed the need to address this “major environmental issue” over the last few decades.
- 2) The direct health consequences of this pollution were graphically demonstrated in early 1970 by the recognition that acute illness followed the ingestion of commercially cultivated shellfish. The closure of oyster beds in Ralphs Bay was mandated following the Bloom Report (1975) which demonstrated that these symptoms were the direct consequence of elevated levels of heavy metals in the estuarine waters and these pollutant levels were amongst the highest in the world.
- 3) In general, acute heavy metal poisoning results from ingestion and presents as rapid-onset vomiting and diarrhoea, abdominal pains, headache. In extreme cases these symptoms can progress to seizures, coma and ultimately death.
- 4) More commonly cumulative, low level absorption occurs. Mercury and lead poisoning generally result in negative reproductive effects, such as sperm and DNA damage, birth defects and miscarriages. Disruption to the nervous system and brain damage is also characteristic, sometimes manifested as behavioural disturbances in children, including learning difficulties, aggression, impulsive behaviour and hyperactivity. In addition zinc poisoning can cause vascular damage and allergic reactions, resulting in skin rashes, tiredness and headaches.
- 5) It is instructive to note that low levels of many heavy metals, especially lead, once thought to be within safe limits are now known to be harmful.
- 6) Despite significant progress in reducing the heavy metals in industrial discharges, recent research by Nyrstar (Environmental Management Plan 2007-8) has indicated an increased level of Mercury in fish over the last 17 years. This illustrates the stubborn resistance of the Derwent Estuary to recover.

I am concerned that the fundamental issue of risk to the public health is being diverted by technical debate regarding whether and to what degree the proposal, through dredging and construction disturbance will further mobilise heavy metals.

The inescapable and simple fact remains that the project can only exacerbate, not ameliorate, heavy metal levels in the estuarine waters. This would clearly increase the consequent risks to health arising from accidental or chronic low level ingestion and completely contradicts the meticulous and expensive investment of recent years in the river’s rehabilitation.

2 Dust

The Scope Guidelines state as follows:

Section 5.2.7 - Dust

*“Evaluate the potential for **dust**, including **airborne heavy metals**, to cause **nuisance and health effects** during the construction phase of the project and outline control measures to prevent dust emissions across the boundary of land owned or controlled by the proponent”.*

- 1) Despite their preamble (Appendix N Air Quality and Odour: 2.2.1) which only describes the health-related consequences of particulate matter emissions in general terms, the

report goes on to ignore “health impacts” in favour of concentrating on “nuisance impacts”, as follows (2.2.2):

“The preceding sections are concerned in large part with the health impacts of particulate matter. Nuisance impacts also need to be considered, mainly in relation to dust.....”

- 2) In analysing (non-background) dust and particulate sources and emissions (5.3) the report dismisses significant dust dispersal on the assumption of persistent moisture in the excavated material:

“Dry excavation will occur within Ralph’s Bay once the Temporary Bund has been constructed. However, excavation within the temporary bund will be on marine sediments with high moisture content and is unlikely to generate significant dust emissions. For this reason, general material handling (excavation, loading, unloading) has not been included in the emissions estimation.”

- 3) The report does however concede that *“it is expected that the sands in the upper excavation would dry out reasonable quickly and the silts may disassociate from the sands when dry.*

- 4) In conclusion the report does confirm the potential for dust dispersal, as follows:

“A dust control strategy should be implemented at the site to minimise potential emissions, particularly during adverse weather conditions when excessive amounts of dust could be generated. Adverse weather conditions from a dust perspective include moderate to strong winds blowing in the direction of the shoreline.” (e.g. residential Lauderdale)

- 5) The limitations of the report are borne out by the proponent’s own “Net Benefit Assessment (Appendix Z) as follows:-

*The air quality goals in the study by Heggies Pty Ltd (2008a) were based on nuisance levels rather than health implication levels. As such, the results of the modelling are interpreted as the consequence of impacts on air quality, dust and odour being **minor**....*

It would therefore appear that this report (Appendix N Air Quality and Odour) does not properly meet the Scope Guidelines.

- 6) It is of concern that specific mention of silicates (SiO₂), and their potential to cause silicosis, have not been mentioned expressly as these will presumably be present in the excavated material.

Silicosis is an untreatable respiratory disease resulting from the inhalation of airborne crystalline silica dust. The disease generally has a chronic form which develops after long exposure to low levels of dust, although an acute condition can develop after much shorter duration and heavier exposure.

- 7) It is instructive to note that a motion in NSW State Parliament was recently passed (23.06.2009) postponing approval of the proposed Somersby sand mine amid concerns of the wider dispersal of silica-containing dust than previously modelled, especially in view of the proximity of a local school.

3 Mosquitoes

- 1) The DIIS asserts that *“the overall impact of the Lauderdale Quay development upon the prevalence of mosquitoes in the locality is likely to be neutral and no adverse public health impacts are anticipated”*

- 2) The DIIS (Appendix F Socio-Economic Impact Assessment) does however concede that “appropriate monitoring and controls will be required during the construction phase of development to ensure that any temporary breeding habitats are managed to prevent mosquito breeding”
- 3) In the light of concern by local medical practitioners, including a distinguished retired microbiologist, the potential for mosquito breeding deserves more detailed local specialist analysis.
- 4) The proposed environmental offset of improved flushing of East Marsh Lagoon requires more detailed entomological consideration as some sources suggest that rehabilitation of this area may result in the regeneration of local salt-marsh flora and conditions more suitable to mosquito breeding.
- 5) Ross River virus to Ross River Fever is an arbovirus infection which can produce fever, headache, aches and pains, and rash. The infection usually resolves within 6 weeks although some sufferers may suffer prolonged symptoms of depression and fatigue for up to 6 months.

4 Tip Leachate

- 1) The health implications of potential leaching from the old Lauderdale tip site are insufficiently explored. It is my understanding that previous studies (? Mines Department 1992) investigating ground water bores have reported leaching.
- 2) Some international research studies have found excess risks of certain types of cancer, congenital abnormalities and low birth weight in residents living near landfill sites. Risks up to 2-3 times higher have been reported. Some researchers have also described immune system suppression in residents living close to landfill sites.
- 3) Because of uncertainty regarding specific chemical exposure, the complexity of analysis and confounding variables, the research consensus is that further study is required.
- 4) The DIIS (Appendix M3 Groundwater Impact Assessment) carries the significant caveat that “*movement of the leachate into the marine environment under present conditions appears unlikely.*” *The report does not explore what conditions might facilitate such movement.*
- 5) The proximity of the Lauderdale tip to the proposed development (less than 500m) and the marine environment may be relevant factors in increasing potential exposure of residents to contaminants.
- 6) The Lauderdale tip had no original clay underliner and no vertical seal was introduced at the below-ground perimeter when it was decommissioned. This would suggest an increased potential for lateral movement of leachate.
- 7) Having been established in early 1970s, and although ostensibly regulated by the DOE since around 1973, it was not effectively controlled until the 1990s. In particular there was no perimeter fence until the 1980s and the site was accessible to the public day and night.
- 8) Recycling and precautionary management of toxic waste was not originally offered or enforced. There have been anecdotal local reports of routine dumping of a wide variety of potentially toxic chemicals.
- 9) Because of the huge volume of waste deposited in the Lauderdale tip over 30 years, its uncertain chemical constituents, and doubts about leaching and the future stability of the

site in the light of proposed environmental change and rising sea-levels, perceptions as well as pollutants may undermine the commercial prospects of the development.

5 Noise

- 1) The health impact of noise has not been explored in the DIIS.
- 2) The DIIS confirms that noise will be excessive at times during construction.

As the construction program progresses, noise is predicted to be frequently between 10 and 20 dBA above the background noise level at most receivers. This would exceed limits determined in accordance with the NSW EPA long-term noise criteria. Such excesses may be unavoidable for a development of this magnitude. (12.1 Appendix O Noise and Vibration Assessment)

- 3) Environmental noise is a form of air pollution and is a threat to health and well-being.

Health impacts from noise derive in a number of ways. The WHO has documented seven categories of adverse health effects of noise pollution on humans: hearing impairment, interference with spoken communication, sleep disturbance, cardiovascular disturbances, disturbance in mental health, impaired task performance, negative social behaviour and annoyance reactions.

Noise can result in physical stress to the circulatory, respiratory and digestive systems. Continued exposure to noise can cause headache, fatigue and elevated blood pressure. Noise has also been shown to interfere with children's learning.

- 4) Stressful effects often depend on qualities of the sound rather than its absolute decibel value.
- 5) Low-volume but persistent unwanted sounds can have significant cumulative impact on mental health and stress levels, thereby degrading residential, social, working, and learning environments.
- 6) Considering the nature and duration of noise sources during the project (e.g. pile driving) the DIIS appears dismissive of the health consequences of this pollution.
- 7) The DIIS' noise minimisation strategies are unconvincing, especially given the extraordinary timelines of the construction project, e.g. *"maintain positive relations with nearby residents by way of informing residents of potentially noisy events, provide a nominated person to appropriatelyhandle complaints, and treat all complaints with appropriate gravitas"*!

6 Social impacts

- 1) Healthy happy communities develop through evolution, not invasion.
- 2) Unfortunately the local perception of the Community Consultation process was that it was primarily a marketing strategy.
- 3) The Community Consultation Report (Appendix D) is little more than a reiteration of promotional and media material used during the campaign.
- 4) In epidemiological terms, the Community Feedback Survey undertaken by Walker is fundamentally flawed. A response rate of less than 23% from a self-selected population of respondents, in the context of a glossy marketing campaign principally promoting the

benefits, directly administered by agents of the proponents, and in which responses had to be identified to be valid, does not constitute a representative analysis as would, say, an independent, randomised population study.

The substantial number of voluntary expressions opposed to this development on environmental and social grounds, fundamental alteration to the scenic character of a neighbourhood and personal loss of “sense of place”, offers more compelling evidence.

- 5) Given the fundamental human values threatened by the nature and scale of this development, as opposed to the promise of parklands, cycle ways, and marina homes well-beyond the financial means of existing local residents, it is probable that, in the event of project approval, the risk of community division and social injury to those opposed to the project will outweigh the risk of social injury to those in favour of the project should it be rejected.
- 6) It is possible that community resentment arising from the protracted construction period and the ‘prestige’ nature of the new estate will arouse community divisions consistent with the ‘gated estate’ phenomena in other western societies.
- 7) The significant impact on these profound environmental values are trivialised by the recommendation of “welcoming strategies” and “newsletters”. These are unlikely to ameliorate the environmental and amenity loss suffered by those who have chosen to live in the area because of its unique character.
- 8) The psychological harm suffered by those who feel dispossessed of their environmental values will translate into poorer health outcomes for the community.

Conclusion

All major projects carry risk. The extraordinary feature of this project is the exceptionally wide array of risks it holds.

Canal estate developments have previously been accompanied by unexpected consequences. The development of the Port Geographe marina in Busselton WA is an example, where repeated work is having to be undertaken to remove a build up of sea grass on a groin. Furthermore the sea grass is emitting Hydrogen Sulphide in levels which are considered to be a potential health risk. Recent studies have also revealed levels of Mercury and Arsenic in the canal water which did not precede the development. (Environmental Health Section – Busselton Shire).

Many of the risks inherent in the Lauderdale Quay proposal have the potential to impact on human health and these health risk do not appear to have been adequately or explicitly addressed in the DIIS.

In particular, no consideration appears to have been made of the aggregated health-related impact on the community - each topic is considered only on an individual basis. In other words, the influence on the local community of the combined effects of noise, dust, traffic, odour, social divisions, loss of amenity etc., is not addressed, nor is there consideration of cumulative impacts arising from all these factors over such an exceptionally long project period.

It is revealing and disappointing that despite the explicit Health Impact requirements of the Final Scope Guidelines, only 8 pages of 420 (6 devoted to mosquito studies) in the DIIS main text address potential health impacts on the local community. There is no appendix specifically addressing Public Health in a holistic manner and there are no medically qualified commentators or referees cited in the study panel or DIIS resource.

This proposal merits a more considered and precautionary approach on health grounds alone.

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