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11 January 2019

Dear Harry,

Re: Hanson Glebe Island Concrete Batching Plant - Response to Submissions – Air Quality

This letter provides a summary of the submissions received from regulatory stakeholders and the community in response to the public exhibition of the subject development proposal.

Issues raised that relate to the air quality discipline are reproduced in bold italics, with a response provided to each in the text below.

I trust that the below responses are adequate to address the concerns raised. Do not hesitate to contact the undersigned if you would like any additional information.

Yours sincerely

Damon Roddis
Partner – Air Quality and Greenhouse

1.1 NSW Environment Protection Authority

The EPA review of the air assessment supports the conclusion that dust impacts on surrounding sensitive receptors caused by construction works are generally negligible and low.

Noted.

The EPA review of the air assessment supports the conclusion that particulate matter, Nitrogen Dioxide, and Sulphur Dioxide caused by facility operations, vehicle exhaust, and berthed ships shall not exceed the EPA air quality criteria as defined in the Approved Methods for Modelling and Assessment of Air Pollutants in NSW (EPA 2017).

Noted.

The EPA acknowledges that 1 January 2020 has been set as the global implementation date under MARPOL for a significant reduction in the sulphur content of the fuel oil used by ships, from 3.5% to 0.5%. The EPA recommends that Hanson commit to an interim requirement for ships berthing at the Concrete Batching Plant to use low sulfur until 1 January 2020 (should operations commence before this date), unless the ship operator can demonstrate that this is not technically feasible for a particular ship.

Shipping to the Hanson CBP is not anticipated prior to 1 January 2020.

1.2 Inner West Council

Council requests that the air and noise pollution impacts from both light and heavy vehicles and water vessels associated with the operation of the facility be minimised by requiring them to meet the highest emission standards.

Hanson has committed to the use of low sulphur fuels (<0.5% sulphur) for all water vessels servicing the facility under their operational control.

Hanson's vehicle fleet is modern and new purchases meet current national emission standards.

1.3 City of Sydney

The implementation of mitigation measures and ongoing monitoring should be included as part of any approval.

Hanson agree that air quality mitigation measures and ongoing monitoring of facility performance should be included as conditions of approval.

1.4 The Glebe Society

The major impact on air quality will come during the movement of the concrete and aggregate from ships or onto trucks if it is not stringently managed. The Glebe Society recommends that stringent requirements are imposed to ensure that raw materials associated with the facility

are effectively covered or otherwise contained at all stages in the process of transport, processing and loading and unloading so that particles do not escape into the air.

The following mitigation is proposed as relates to aggregate handling:

- Receival bins located inside enclosed building to minimise exposure to wind
- Enclosed conveyors and transfer points to move aggregate to holding hoppers
- Fully enclosed holding hoppers

1.5 Evolve Strata

In its operational stage, the plant will cause an increase in dust and other emissions. The air quality report clearly concedes that for evolve* residents the predicated pollution levels will exceed maximum allowed levels. This is unacceptable and the proposal should be rejected on that basis alone.

Air quality modelling predictions demonstrate compliance with all of the impact assessment criteria for all relevant averaging periods at all nearby sensitive receptors.

There is no prospect of ship to shore power, meaning that the vessels will have to run their generators whilst berthed. In addition to the noise effects of this there will be fumes emanating from the vessels whilst berthed. Clause 5.4 of the EIS deals with air quality and concedes that there will be three emission sources, including from berthed ships, but states that they will be within acceptable limits. However, there will be emissions contemporaneously from both the MUF and the ships adjacent to it. The EIS and the Air Quality Assessment suggest that such emissions should be assessed separately and considered acceptable provided that emissions from each both fall within acceptable limits. Such an approach seems to be at odds with the fact that both facilities will run contemporaneously with associated shipping such that cumulative effect should be taken into account.

From time to time, ships have been berthed at GI 1 or GI 2 over the last 10 years. Residents of evolve* have been affected by the fumes emanating from such vessels. Such effect will increase substantially if vessels are berthed almost on a continuous basis.

Post-2020, there is a legislative requirement for all shipping servicing the Hanson and MUF facilities to use low sulphur fuels (<0.5% sulphur). This will result in reduced emissions of both sulphur dioxide and particulate matter that has not currently been accounted for in the air quality assessment (i.e. current statement of impacts from shipping is considered conservative).

1.6 Pyrmont Action Group

Air Quality data has been measured during 2015 and 2016 from the EPA's Rozelle monitoring station, however these measurements are likely to be unreliable due to the proximity of vegetation. Given that Pyrmont residences are closest to the site, and that wind conditions, often extreme due to funnelling between high−rise towers and cliffs, differ from those at

Rozelle, we urge the immediate installation of a new monitoring station in the vicinity of the corner of Bowman and Bank Streets, Pyrmont in order to collect new and more relevant baseline data against which to assess the likely Air Quality impact on those who live close to Glebe Island.

Hanson agree that air quality mitigation measures and ongoing monitoring of facility performance should be included as conditions of approval.

Of particular concern is the possible adverse amenity impact from the emission of Sulphur dioxide from ships moored at Glebe Island during delivery of raw materials. It is noted that Federal government standards already require ships to use 0.1% Sulphur fuel while they are docked but allow 3% fuel while ships are in transit. However, standards foreshadowed by the Australian Maritime Standards regulatory body stipulates that from 2020 the maximum allowable Sulphur content in fuel will be reduced from 3% to 0.5% across Australia, in line with a global regulation set by the International Maritime Organisation. These new standards should apply to ships delivering raw materials to Glebe Island from the commencement of operations at both the concrete !patching plant and the MUF.

Post-2020, there is a legislative requirement for all shipping servicing the Hanson and MUF facilities to use low sulphur fuels (<0.5% sulphur). This will result in reduced emissions of both sulphur dioxide and particulate matter that has not currently been accounted for in the air quality assessment (i.e. current statement of impacts from shipping is considered conservative).

Hanson should clarify the level of particulate emissions from aggregate delivery ships, and take steps to mitigate adverse impacts.

Emissions from ships have been assumed to include emissions from the auxiliary engine and auxiliary boiler while the ship is at berth at GLB1.

The following mitigation is proposed as relates to aggregate handling:

- Receival bins located inside enclosed building to minimise exposure to wind
- Enclosed conveyors and transfer points to move aggregate to holding hoppers
- Fully enclosed holding hoppers

1.7 Mr Robert Garnsey

Hanson's Air Quality Report (by Pacific Environment) submitted with their EIS has Table 6-1 showing a total of 9,062 movements arising from the development on a Peak Day and 965 truck movements on a Normal day.

This is followed by a graph immediately below the truck numbers labelled "Hourly truck profile for the peak operational day scenario". It actually looks more like the "Normal day" numbers - in which case it has been wrongly labelled.

Figure 6-1 does indeed reflect Normal Day values. This does not however have any implication for the assessment approach or outcomes, since, as referenced in the text, it is provided to show the profile of anticipated hourly vehicle movements (the shape of the profile remains the same for either Normal or Peak simulations).

Discrepancy in truck numbers between the Air Quality report which has counted not only Hanson vehicles, but those of Hanson's customers, and the Final EIS Report (5.8.2)

Vehicle movements adopted within the Air Assessment have been provided to simulate the worst-case operational impacts with respect to air quality.

1.8 Todoroski Air Sciences

Choice of model in context of unlikely representative meteorological data availability

The reviewer suggests that an alternative model should be selected based on the site's 'coastal location'. Glebe Island is in no way a coastal location, and neither are its adjacent inner-west residential suburbs of Pyrmont and Rozelle. It is acknowledged that the OEH Rozelle meteorological data do not meet the siting requirements of AS 2923—1987 (Guide for measurement of horizontal wind for air quality applications). However, the data represents a long-term local data set in the vicinity of the facility, shows winds from all directions under all seasons, and importantly, shows calm wind speeds (i.e. winds <0.5m/s) in excess of 20% year-on-year. On this basis, it is considered that both the meteorological data and the dispersion model selected are fit for purpose (the purpose being to conservatively evaluate potential off-site PM impacts from a relatively minor source, dominated by non-buoyant fugitive sources, with line of sight from source to receptor).

Omission in the modelling of site dust emissions and potentially significant ship main engine emissions

The reviewer claims that air assessment states "the building will be ventilated to ensure that the inside of the building complies with WHS air quality standards, filters will be applied to the ventilation system to ensure the expelled air is able to meet EPA standards". The air assessment makes no such statement, and it is unclear why the reviewer has included this commentary. No such commitment has been provided for the purposes of assessment. In any event, it is not anticipated that any additional PM emission source associated with post-filtration air from the building would make a material difference to the air assessment outcomes. As noted in Section 6.4 of the air assessment, Emissions from the main engine have not been included as this would only be engaged intermittently, and on approach / departure from the site. Consistent with other similar assessments completed within Sydney Harbour, it is thus considered beyond the geographic scope of the assessment of the Project.

A detailed emissions inventory needs to be provided

The emission inventory developed for the project is covered in appropriate and sufficient detail for the purposes of technical review within Section 6.

How vehicle exhaust emissions were calculated/ derived should be set out

The approach to vehicle exhaust emission estimation is provided in sufficient detail for the purposes of technical review within Section 6.3 of the air assessment.

Clarify if and how emissions associated with raw aggregates dispatched from the site have been taken into account

As noted in Section 2.2.1.3 of the air assessment, Aggregates not used in the batching of concrete on the Site will be dispatched from the storage silos by conveyor directly for loading to an aggregate truck for dispatch to another concrete batching plant. These truck movements are accounted for within the stated truck movement numbers.

Clarify the apparently incorrect truck numbers in Table 6-2 of the AQA

Truck numbers are not incorrect; rather, within the table 6-2, a maximum of 24 Peak operational days have been assumed, and the Peak trucks per day have been multiplied by this value. For Normal trucks per day, the annual truck values have been derived by multiplying by 365. It is noted that, in any event, no assessment of Peak day impacts has been provided on an annual basis, since this is not a reasonable scenario for assessment.

Potential underestimation of impact at elevated receptor locations

As noted in Table A-1, several discrete receptor locations have been awarded significant elevation (e.g. Balmain Public School; 42m AHD). Assessment at these elevated receptor locations will adequately capture the potential for elevated impacts at nearby receptors.

Selection of background data, and apparent omission of some site emissions, and existing industry, shipping and residential pollutant levels in the cumulative assessment

As noted within the assessment, and acknowledged by the reviewer, existing operations nearby are accounted for in the background air quality measurements referenced. The reviewer has queried the use of Rozelle monitoring data over WBCT data; ultimately the former has been referenced since it represents a much larger, yet representative, data set, indicative of background air quality. ERM maintains the WBCT monitoring station and provides monthly reports in the public domain that include instrument performance relative to OEH Rozelle. Mindful of this information, it is not anticipated that the outcomes of the air quality assessment will be materially affected through using this alternative data source. As the reviewer concludes; “in general, concrete batching plants can operate with relatively low emissions, the project is well located relative to residential receptors and thus it is likely that the requested information may confirm the project could operate without undue impact”.

1.9 NSW Department of Planning and Environment

Address the recommendations of the attached peer review by Todoroski Air Sciences of the Air Quality Assessment by Pacific Environment dated 15 March 2018 (AQA), in order to ensure the AQA to allow a full assessment of air quality impacts to be made.

Refer **Section 1.8** above.

Further consideration should be given to undertaking noise and dust monitoring at the head of Blackwattle Bay, and in Pyrmont at the closest building to the site, to support the modelling used in the AQA

Hanson agree that air quality mitigation measures and ongoing monitoring of facility performance should be included as conditions of approval.

Further consideration should be given to applying the new standards foreshadowed by the Australian Maritime Standards regulatory body for the maximum allowable sulphur content in fuel to all ships delivering raw materials to the site

Hanson has committed to the use of low sulphur fuels (<0.5% sulphur) for all water vessels servicing the facility under their operational control.