DOC17/212066; EF13/3039

Department of Planning and Environment
GPO Box 39
SYDNEY NSW 2001

Attention: Ms Genevieve Seed

Dear Ms Seed

State Significant Development (SSD 5899) – Brandy Hill Quarry – Hanson Construction Materials Pty Ltd - Environment Protection Authority Comments and Request for Further Information

Reference is made to the email from the Department of Planning and Environment (DPE) dated 28 February 2017, requesting Environment Protection Authority (EPA) comments on the document *Brandy Hill Quarry Expansion Project, Environmental Impact Statement (EIS), February 2017* and recommended conditions of approval for Brandy Hill Quarry located off Seaham Road, Seaham (the premises).

The EPA understands the development proposal includes:

- expanding the extraction area from 19.45 hectares to 78.5 hectares over 5 stages of the proposed expansion and continuing quarrying operations for a further 30 years;
- increasing extraction from 700,00 tonnes per annum (tpa) up to 1.5 million tpa of hard rock materials;
- relocation and construction of plant infrastructure (e.g. processing plant, pug mill, pre-coat plant, workshop, fuel storage) and administration buildings,
- construction of a concrete batching capable of producing 15,000m^3 per annum,
- construction of a concrete recycling plant capable of recycling up to 20,000 tpa of concrete washout waste,
- staged amendments to the water management system,
- amending quarrying operating hours;
- maintenance activities, product loading and product dispatch hours as 24 hours per day, 7 days per week;
- transporting quarry products off-site and receiving 20,000 tonnes of concrete waste for recycling via public roads; and
- clearing approximately 49 hectares of vegetation and progressively rehabilitating the site.

The EPA has reviewed the proposal for environmental matters relating to air, noise, surface water, chemicals and waste as described in the EIS and provides detailed comments in **Attachment A**.

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The EPA is currently unable to provide recommended conditions of approval due to inadequacies of the air and noise assessments. Accordingly the EPA has chosen to provide no recommended conditions of consent until these important issues are satisfactorily resolved. **Attachment A** outlines further information required to enable the EPA to adequately assess the project.

If you require any further information regarding this matter please contact Rebecca Akhurst on (02) 4908 6807.

Yours sincerely

P. Jamieson 7-4-17

PETER JAMIESON
Head Regional Operations Unit - Hunter
Environment Protection Authority

Contact officer: REBECCA AKHURST
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Enclosure Attachment A – EPA comments and Further Information Request – Brandy Hill Quarry Expansion Project (SSD 5899) Environmental Impact Statement (EIS) February 2017

ATTACHMENT A

EPA comments and Further Information Request – Brandy Hill Quarry Expansion Project (SSD 5899) Environmental Impact Statement (EIS) February 2017

AIR

The air quality assessment (AQA) has been undertaken in general accordance to the *Approved Methods for Modelling and Assessment of Air Pollutants in NSW* (2016).

The main emissions to air from quarrying operations are caused by wind-borne dust, vehicle usage, materials handling and transfers. The pollutants assessed in the AQA include: total suspended particles (TSP), particulate matter less than 10 µm (PM_{10}), particulate matter less than 2.5 µm ($PM_{2.5}$), respirable crystalline silica (RCS) and dust deposition.

The predicted impacts of TSP, RCS and dust deposition are in compliance with EPA criteria. There are predicted exceedances of the 24-hour average PM_{10}, 24-hour average $PM_{2.5}$ and annual average $PM_{2.5}$ criteria. In addition, there is likely to be exceedances of the new annual average PM_{10} criterion of 25 µg/m^3 at the sensitive receptors assessed once the AQA is revised to reference Approved Methods (2016).

A number of issues were identified in the AQA and are summarised below:

- Assessment of annual average PM_{10} is based on outdated impact assessment criterion.
- Lack of demonstration that the meteorological modelling is representative of the local area.
- There is inadequate information and justification for assumptions made in the estimation of emissions.
- Predicted PM_{10} and $PM_{2.5}$ impacts are above the EPA criteria.
- Blast impacts does not appear to have been adequately addressed.

1. Particulates criteria

On 20 January 2017, the *Approved Methods for Modelling and Assessment of Air Pollutants in NSW (2016)* was gazetted with revised particulate criteria adopting the National Environment Protection (Ambient Air Quality) Measure standards. The revision included adoption of a reduced annual average PM_{10} criterion of 25 µg/m^3 from the previous criterion of 30 µg/m^3. In addition, the *Approved Methods (2016)* adopted the 24-hour average and annual average $PM_{2.5}$ criterion of 25 µg/m^3 and 8 µg/m^3, respectively.

EPA reviews any AQA submitted after the gazettal date against the Approved Methods (2016). In Table 4-1 of the AQA, the previous annual average criterion of 30 µg/m^3 is specified instead of the revised criterion. It should also be noted that the $PM_{2.5}$ criteria are now adopted into the Approved Methods in Table 4-1.

The EPA requests the proponent revise the AQA to assess PM_{10} and $PM_{2.5}$ impacts against the *Approved Methods for Modelling and Assessment of Air Pollutants in NSW (2016).*

2. Meteorological Data

The AQA states that there were no site specific meteorological data available for consideration. Therefore, the meteorological setup using the CALMET modelling system did not include observations but instead used TAPM generated data as input.

TAPM data extracted at the Bureau of Meteorology Paterson Automatic Weather Station (AWS) was compared with monitored data at Paterson AWS located approximately 9 km northwest of the project. Wind roses at 9 am and 3 pm from TAPM and Paterson AWS were presented in the AQA. The differences between the two data sets were explained as due to the topological differences between

the two sites. The quarry site is described as "*in a 'bowl' with the mountains on the west, north and east*". The AQA states that any differences in the wind fields will be addressed in the CALMET model.

Comparison with CALMET data was not possible as the CALMET grid did not extend to the Paterson AWS site. The size of the CALMET grid is not specified in the AQA. The TERRAD value was specified to be 3km. However, no wind fields are presented in the report to show that the terrain effects around the project site have been adequately addressed by CALMET.

EPA requests the proponent provide evaluation to demonstrate that the prognostic model adequately captures the terrain and meteorological effects of the project area. The model setup should also be clearly detailed in the AQA.

3. Emission Estimation

Emissions from 4 scenarios including existing operations and Stage 1, Stage 2 and Stage 4 of the proposed operations were estimated and modelled. The AQA does not provide explanation for the 3 stages selected out of the proposed 5 stages of expansion discussed in the AQA. It is unclear if the scenarios modelled captures the potential worst case emissions over the life of the project (e.g. year with largest exposed area and/or longest haul road).

Emission factors and emission equations used are detailed in Appendix B of the AQA. However, not all emission estimations are discussed in detail. The information not provided in the emission estimation include:

- The total wind erosion area exposed in each scenario;
- The actual emission factors used for crushing and screening;
- Proposed throughput for the equipment items for each scenario;
- Source locations for emissions other than hauling and processing (e.g. blasting, loading, etc);
- Details of emissions from mobile plant and concrete recycling plant (e.g. equipment items, throughput, etc); and
- Details of product truck movement including number of trucks and distance travelled.

The estimated emissions for wind erosion are the same for all 4 scenarios modelled. This does not appear to take into account the expanded extraction area from 19.45 hectares to 78.5 hectares as part of the proposed project.

Appendix B also specifies that the construction of the southern bund will occur in stages 1 and 2 but there does not appear to be hauling to the southern bund during Stage 1 (Figure B-2-14-1 of Appendix B).

It is noted that the AQA states extraction and processing of material have been modelled as 24 hours per day whilst construction of the bund has been modelled as 12 hours per day.

The EPA requests the proponent provides all information and assumptions used in estimating emissions from the proposed operations. The scenarios assessed should be justified and include the worst case emissions over the life of the project.

4. PM_{10} Impacts

Background concentrations for cumulative analysis was obtained from the OEH Beresfield station. Concentrations above the 24-hour average PM_{10} criterion of 50 $\mu g/m^3$ in the background data were removed. There was no rationale provided for removing data from the background dataset. The contemporaneous method was used in assessing 24-hour average PM_{10}.

The results of the cumulative 24-hour average PM_{10} assessment indicates that there is likely to be exceedances of EPA criterion as a result of the proposed project. A summary of the predicted 24-hour average PM_{10} impacts is shown in the table below.

Scenario	Number of receptors exceeding EPA criterion	Maximum predicted incremental impact at a receptor	Maximum predicted cumulative impact at a receptor
Current	1	19.4 µg/m³	50.4 µg/m³
Stage 1	8	40.8 µg/m³	68.0 µg/m³
Stage 2	9	43.6 µg/m³	70.8 µg/m³
Stage 4	3	18.5 µg/m³	53.1 µg/m³

An annual average background of 20.9 µg/m³ was assumed in the cumulative impact assessment. This value excludes any exceedances of the 24-hour average criterion from the background dataset. As discussed in Point 1, annual average PM_{10} impacts must be assessed against the criterion in the Approved Methods (2016). Based on Table 9-6, there will be predicted exceedances of the annual average PM_{10} criterion of 25 µg/m³ at some receptors.

Based on the predicted 24-hour average and annual average PM_{10} impacts at nearby sensitive receptors, EPA recommends additional mitigation measures for dust impacts should be included in the proposed project. Mitigation measures should include a reactive management strategy based on real time continuous PM_{10} monitoring at suitable location(s). It is the EPA's intention to require real time continuous PM_{10} monitoring as part of the environment protection licence requirements. Any additional mitigation measures identified should be included in the AQA.

5. $PM_{2.5}$ Impacts

In Section 9.4.1 – Maximum Concentration, at one of the receptors the current scenario has higher 24-hour average $PM_{2.5}$ impacts compared to Stage 1. The AQA states that this may be due to shorter haulage in Stage 1. Additionally, a number of receptors are predicted to have higher impacts for the current scenario compared to Stage 1 in Section 9.4.1 - Maximum Incremental Contemporaneous Results (Table 9-8 and Table 9-9).

It is noted that in Tables 8-2, 8-3 and 8-4 of the AQA, the estimated emissions from haul truck movement is lower for the current scenario compared to Stage 1. The overall emissions from the current scenario is also lower compared to Stage 1. Therefore, there appears to be a discrepancy in the higher impacts predicted for the current scenario compared to Stage 1 that may not be associated with haulage alone.

Table 9-7 of the AQA shows there are 3 sensitive receptors predicted to experience exceedances of the 24-hour average $PM_{2.5}$ criterion due to the proposed Stage 4 operations and background.

The highest predicted annual average $PM_{2.5}$ impact is 1.1 µg/m³ during Stage 2. Background annual average $PM_{2.5}$ concentration was taken to be 8.1 µg/m³ from the OEH Beresfield station. There are predicted exceedances of the annual average $PM_{2.5}$ criterion due to the high background levels.

EPA requests the proponent clarify the predicted impacts for 24-hour average $PM_{2.5}$ for the current and Stage 1 scenarios.

The Approved Methods states "*a licensee must demonstrate that no additional exceedances of the impact assessment criteria will occur as a result of the proposed activity and that best management practices will be implemented to minimise emissions of air pollutants as far as is practical*". Where exceedances of EPA criteria have been identified, additional mitigation measures should be considered and assessed.

6. Blast Impacts on Air Quality

The proponent states that blast requirements (i.e. quantity of explosive usage and number of blasts) will not change from current blast operations. The AQA compares project blast emissions to the

human NOx and CO emissions from the 2008 NSW EPA emissions inventory[1] for the Seaham area. Based on the comparison, the AQA concludes an increase in NOx or CO emissions is not expected. However, the NSW EPA emissions inventory is not specific to the Hanson site and does not provide a breakdown of emissions from specific facilities.

Comparison of emissions does not demonstrate the likely impact at sensitive receptors as it does not take into account source location, receptor location, meteorology and local terrain. Therefore, blast impacts on nearby sensitive receptors as a result of the proposed project have not been adequately addressed.

In consideration of the fact that the annual throughput of the facility is proposed to increase and the footprint of the quarry will also increase, it appears unlikely that blast requirements will remain the same. Table 5.1.1 in the EIS indicates there will be an increase in blast frequency. The EPA requests the proponent clarify the proposed blast requirements and assess potential blast impacts on nearby sensitive receptors.

NOISE AND BLASTING

1. Road Traffic Noise Levels

The EPA attended a public meeting regarding this proposal in 2013. There was considerable community concern regarding proposed increases in heavy vehicle traffic. The proposal therefore needs to be very clear as to increases in traffic.

The EPA notes from both the Executive Summary and Table 5.6:3 that the "Proposed Traffic Generation Increase" is listed as 524 vehicle trips per day. The EPA could not find in the EIS where the total number of vehicles from the quarry is stated.

The proponent needs to clarify if the 524 vehicle trips per day (and peak 66 vehicles per hour) is the total estimated increase in number of vehicle trips based on the proposed quarry or the total number vehicles.

The EPA notes from the "Conclusion" to Appendix 8 "Traffic Impact Assessment" that the total traffic generation from the site is expected to be 904 vehicle trips per day.

The EPA has assessed Appendix 9 "Noise Impact Assessment". There appears to be inconsistencies between the data presented in the "Traffic Impact Assessment" and the "Noise Impact Assessment":

1 (a) The "Traffic Impact Assessment" states the existing site contributes 380 trips per day.
(b) The "Noise Impact Assessment" when assessing traffic noise notes in Table 16 the existing site contributes 240 (truck) trips per day.

2 (a) The "Traffic Impact Assessment" states that the total traffic generation from the site is expected to be 904 vehicle trips per day.
(b) The "Noise Impact Assessment" when assessing traffic noise states (in contrast) "*the potential traffic generated from the proposed extension quarry has not been confirmed at this stage....*"

Inconsistencies between the "Noise Impact Assessment" and the "Traffic Impact Assessment" need to be resolved.

[1] http://www.epa.nsw.gov.au/air/airemissionsapp/airemissionswebtool.aspx

The "Noise Impact Assessment" when assessing traffic noise states "*Vipac has assessed the potential quarry traffic noise impact for the proposed Brandy Hill Quarry extension by determining the allowable maximum number of truck movements that can be accommodated on Brandy Hill Drive before the overall road traffic noise levels exceed the applicable noise criteria....*"

The "Noise Impact Assessment" goes on to state "*...the noise prediction modelling results indicate that it would be acceptable for a total of 584 truck movements inclusive of the existing truck movements of 214 to occur during daytime on Brandy Hill Drive, without exceeding the applicable noise criteria....*"

However, the "Traffic Impact Assessment" states that the total traffic generation from the site is expected to be 904 vehicle trips per day. Based on this assessment, it would appear the traffic from the proposal would result in exceedances of the traffic noise criteria.

The EIS is potentially misleading. It refers to 524 vehicle trips per day a number of times. The EIS similarly makes multiple mention that provided trucks are kept to 584 during the day-time (and 78 during the night-time) the traffic noise criteria will be met. The EIS makes no reference (that we can see) to the actual predicted number of vehicle movements from the quarry, which Appendix 8 "Traffic Impact Assessment" states is 904 vehicle trips per day. Without careful delving into the appendices the community could be misled into thinking that traffic noise impacts will meet the noise criteria, when available evidence suggests they will not.

There needs to be a reassessment of traffic noise impacts from the proposal. Accurate traffic predictions from a Traffic Impact Assessment need to be used to assess traffic noise impacts. There needs to be clear and unambiguous statements made as to the impact of the proposal in terms of traffic and whether the proposal will (or will not) comply with the guidelines in the NSW Road Noise Policy. Feasible and reasonable noise mitigation measures need to be proposed as is appropriate.

The EPA notes from both the Executive Summary and Table 5.6:3 "Proposed Traffic Generation Increase" that "Peak Hour Vehicles" is listed as 66 vehicle trips per hour. On page 201 of the EIS the existing traffic peak is noted as 84 vehicles per hour. The EPA further notes from Table 5.6:3 that (in small font) the total "Peak Hour Vehicles" from the proposed quarry is 150 vehicle trips per hour (66 + 84).

There needs to be clear and unambiguous statements made as to the predicted maximum number of vehicles per hour that will travel along Brandy Hill Drive, should the proposal be approved.

At the above-mentioned public meeting in 2013 the clear impression given to the EPA from residents is that Martins Creek Quarry trucks was an issue, particularly for Brandy Hill Drive residents. Martins Creek Quarry has its own expansion proposals before DPE. The estimate of trucks from the proposed Martins Creek Quarry does not appear to have been given a firm quantitative assessment and based on resident feedback in 2013 the EPA suggests it is more than the 8 trucks (16 movements) per day estimated on page 209 of the EIS.

More accurate estimates of trucks from Martins Creek Quarry using Brandy Hill Drive need to be factored into the traffic impact assessment and subsequently the traffic noise assessment.

Poor road repair (eg potholes) can lead to increases in noise from heavy vehicles. If the roads used by heavy vehicles fall into disrepair the noise predictions from vehicles are likely to be underestimates. The EPA notes the statement in the EIS that heavy vehicle traffic on the local road network around the site is currently in the order of 14% to 25% of total traffic.

Given the large number of heavy vehicles currently using public roads in the area and the predicted large increase as a result of this proposal the EPA suggests DPE give consideration to how adequate maintenance of local roads used by Brandy Hill Quarry heavy vehicles will be maintained over the proposed 30 year life of the extended quarry such that the roads do not fall into disrepair and exacerbate noise issues for residents.

The noise impact assessment predicted that road noise L_{max} levels will increase by 2 dBA. However, provided the type of vehicles and road surface do not change, the L_{max} level from road traffic should not change.

The proponent needs to explain why they predict the L_{max} levels from road traffic noise to increase.

The noise impact assessment also assumed a 20 dBA noise reduction across the façade, to compare predicted road traffic noise levels to the sleep disturbance criteria mentioned in the NSW Road Noise Policy. This is unusually high and should be explained: the noise reduction by a typical façade, with a slightly open window for ventilation, is generally assumed to be 10 dBA.

The proponent needs to justify the use of 20dBA noise reduction from outside to inside, rather than the 10dBA usually used by convention in NSW.

2. Sleep Disturbance

The noise impact assessment did not include an assessment of the possible sleep disturbance impacts of activities on the quarry site during the night-time.

The proponent should provide an operational sleep disturbance assessment in accordance with the Industrial Noise Policy and associated Application Notes.

3. Construction noise

The interim construction noise guideline does not apply to construction associated with mining or quarrying, but "construction" of the project can be managed to meet the project specific noise levels from the Industrial Noise Policy

Construction is proposed from 5am to 8pm, Monday to Friday and 5am to 5pm Saturday, outside the recommended standard hours in the Interim Construction Noise Guideline. However the guideline does not apply to construction associated with mining or quarrying, and the proposed "construction" activities can be managed to meet the project specific noise levels in accordance with the Industrial Noise Policy. If the project is approved EPA will likely apply noise licence limits derived from application of the Industrial Noise Policy that apply to "construction" activities as well as operational activities.

4. Noise Mitigation

The EIS proposes an 18 metre high "screening bund" to manage visual impacts. Such a bund may also have operational noise benefits, but it is not clear whether it was included in the noise modelling.

The proponent needs to:

- clarify whether the "screening bund" has been included in the noise modelling,
- demonstrate that all feasible and reasonable noise mitigation measures were included in the project's noise model,
- identify whether there are any other feasible and reasonable noise mitigation measures that the proponent can implement.

5. Blasting

Blasting is proposed 8am to 5pm, Monday to Friday.

The existing Environment Protection Licence 1879 for Brandy Hill Quarry permits blasting during the hours of 9am to 5pm, Monday to Saturday, which is in accord with the technical guidance for blasting detailed in ANZECC (1990).

Blasting should only be permitted during the hours of 9am to 5pm, Monday to Saturday, unless justification is provided for starting at 8am.

The proponent needs to justify blasting from 8am or blast only from 9am.

6. Background Noise Level

The proponent needs to further explain the measured rating background levels, particularly at location N03.

The site was operating during measurement of rating background levels for the project. The INP requires that noise from an existing development be excluded from background noise measurements for assessing a modification to that development. Noise from existing operations, including traffic generated by the development, would have been included in the measured rating background levels.

The proponent needs to remeasure the background levels excluding noise from the existing development, or adjust the measured levels to account for the contribution from the existing development, or justify why no such adjustment is necessary, to the satisfaction of the EPA.

The noise impact assessment stated that insect noise was most likely to be responsible for evening and night time rating background noise levels, but also stated that attended noise measurements were not done during the evening or night time. Rating background levels were measured in spring, when animal and insect noise may be more prevalent than in other seasons.

The proponent needs to provide rating background levels for seasons other than spring, when fauna noise is likely to be absent.

Some monitoring locations were closer to other industrial sources, or roads, than other residences. For example, location N03 was closer to Clarence Town Drive (about 30 m north) and the chicken sheds (about 190 m south east), than the residences it was assumed to be representative of, particularly R13 and R14.

The only receivers where the noise impact assessment predicted operational noise above $L_{eq(15min)}$ 35 dBA were R13, R14, R15 and R16.

To further explain the rating background levels measured at location N03 and why they can be considered representative of other residences to the west, the proponent needs to:

- Explain whether any noise from the chicken farm was noted during attended monitoring, for example, was the "noise from birds" actually noise from chickens?

- Explain why it was appropriate to monitor background noise levels in spring, when the noise impact assessment stated they expected noise from animals and insects which wouldn't be as prominent in other seasons?
- Estimate the contribution of the chicken farm.
- Provide a reasonable estimate of the rating background level at receivers to the west of location N03, excluding noise from operation of the chicken farm including noise from fans, motors and other plant and equipment and the chickens.
- Justify the distance of the monitoring location to the road, and estimate the contribution of traffic noise to rating background levels.

The EPA does not accept the rating background levels without further information. The proponent needs to:

- Explain what impact existing site operations, including traffic generation, had on the measured rating background levels.
- Provide assessment background levels and period L_{eq}s for each period of every day, at each monitoring location.
- Provide plots of noise and weather parameters measured at each location, with a maximum of 24 hours to a page, instead of the eight days to a page provided in the EIS.

WASTE

The EIS states the proponent's intention to construct and operate a new concrete batching plant, capable of producing 15,000 m^3 per annum. The proposal is also to receive up to 20,000 tonnes per annum of concrete washout material for recycling. This recycled concrete product will be used primarily in road base products to reduce the amount of raw materials usage and reduce landfill waste.

Minimal detail is provided in relation to the recycling of concrete material within the EIS.

Further detail in relation to the following aspects will assist assessment of the proposal and development of recommended conditions of approval:

- The location and procedure for storing concrete waste;
- Details of the recycling process;
- Assessment of the risks to human health and the environment ; and
- Details of appropriate control measures proposed (e.g. liquid waste generated by storing and processing concrete washout will be different to storage and processing of solid concrete waste).

The EPA notes the concrete batching plant is planned to be installed within 10 years depending upon growth in the area (p1).

The EPA notes the proposed pit expansion extends into the area currently housing processing plant infrastructure. This area includes the pre-coat plant and fuel storages and may contain legacy contaminated waste.

The following information is required to assist assessment of the proposal:

- Explanation of any likely contamination from hydrocarbon spills at the premises;
- Classification of any likely waste from legacy contamination, including the pre-coat area;
- Details of proposed measures to manage any legacy contaminated waste prior to quarrying the area.

Beginning 1 August 2015, facilities that store, recover or process waste have been liable for the waste levy and are required to record and report movements of waste to the EPA. Brandy Hill Quarry,

operating under Environment Protection Licence 1879, will be levy liable if approval is granted for the receiving and processing of up to 20,000 tonnes of concrete wash-out waste for recycling. If approval is granted, the proponent will need to take several actions to comply with the waste levy requirements. For further information about these requirements please refer to www.epa.nsw.gov.au/wastechanges

SURFACE WATER MANAGEMENT

The EPA notes the following aspects of the water management system as discussed in the EIS:

- Water surplus for all stages of the proposal with annual average discharge volumes ranging from a minimum of 181 ML/year in Stage 1 to a maximum of 1031 ML/year in Stage 5.
- Changes to the size and location of sediment basins will be required over the 5 stages of the proposal to meet sizing requirements and enable pit expansion.
- Sediment basins have been sized and designed to achieve a water quality of TSS less than 50mg/L prior to discharge.
- The site discharge points and performance criteria for discharges to waters under Environment Protection Licence No 1879 are intended to remain unchanged.
- Discharges to Deadmans Creek are to occur from the pit Sedimentation Basins and Polishing Dam 3 during Stages 1 and 2, and the Storage Dam in Stages 3-5.
- Discharges will only occur if Environment Protection Licence conditions are met and when all site water storages are at capacity.
- Site discharges are recommended to occur only on wet days to emulate existing natural flows.
- Concentrations of TSS, TP and TN are predicted to reduce under proposed conditions, however salinity is predicted to increase by up to 18% from 937mg/L in existing discharges to 1,105mg/L in Stage 5.
- Water is to be reused on site for plant and road dust suppression, product moisture conditioning and maintenance, vehicle/loader wash down and concrete batching plant demands.

The Water Impact Assessment (Appendix 13 of the EIS) is unclear as to the sediment basin design type. Pages 23-26 details basin design types and notes 'Type F' is appropriate where site specific information is unavailable and 'Type C' design appropriate where sediment material is naturally settleable. Page 23 states "*site evidence in the existing basins is that the site sediments are readily settleable*". However in a previous *Water Management System Review and Plan* provided to the EPA it is stated that the waters on-site are likely to contain dispersive sediments. Page 56 states "*Proposed basins are operated as Type F* basins". An assessment of the adequacy of existing sediment basins in section 3.3.5 (p26) states the combined volume of existing Sediment Basins 1 and 2 and Polishing Basin 3 is adequate provided the sediment type for the site is Type C, however if the sediment type is Type F then the existing basins would be inadequate.

Clarification of the sediment basin design (i.e. 'Type C' or 'Type F' or 'Type D') for each of the existing sediment basins (i.e. northern, eastern, basins 1, 2 and polishing basin 3) and the proposed sediment basins is required. If the existing or proposed basins are designed as Type C the proponent will need to provide justification that this is an appropriate design criterion.

The EIS does not provide a length of management time period for the sedimentation basins, particularly Type C sedimentation basins.

The length of the management period for each of the sediment basins needs to be specified.

Rainfall monitoring is required to determine compliance with sedimentation basin design criteria. Basins designed to a 90th percentile five-day design storm will require daily rainfall monitoring.

The EIS does not specify the type of rainfall monitoring proposed. If the proposal is approved, the EPA intends to require applicable rainfall monitoring requirements at the relevant frequency to determine compliance with sediment basin design criteria.

The premises currently operates in water surplus and the proposal will see a progressive increase of surplus water across all stages of the proposal with annual average discharge volumes ranging from a minimum of 181 ML/year in Stage 1 (current) to a maximum of 1031 ML/year in Stage 5. The EPA predicts this surplus will decrease when a reassessment of air impacts as discussed above, is completed (ie there will likely need to be more water applied for dust suppression). The EIS does not identify the predicted average annual sediment basin overflow frequency (e.g. 2-4 spills/year).

The proponent should specify the average annual overflow frequency from each sediment basin during the life of the project to more clearly represent the number of overflow events likely to occur annually.

The proponent needs to detail measures that will be put in place to ensure the increased discharges will not cause increased erosion in downstream watercourses.

The EPA notes the site effluent disposal system will be updated during plant relocation in Stage 4 (p319). The effluent disposal system must be appropriately sized and managed to prevent pollution of waters.

OTHER

Pre-coat plant

The EPA is aware that the existing pre-coat plant at the premises does not meet best practice. The EIS provides very little in the way of detail about the proposed pre-coat plant. The EIS identifies 50,000L of Precoat Supa 30 to be stored in on-ground tanks (p292). Pre-coat plants present risks associated with pollution of waters and land if not managed appropriately.

Given the potential for a range of impacts from this aspect of plant infrastructure, the EPA requests the following information to enable an adequate assessment of the impacts:

- Specification of the pre-coat plant capacity;
- Specification of individual pre-coat tank capacities;
- Clarification as to the whether the pre-coat materials are to run at elevated temperatures;
- Details of all proposed environmental controls (e.g. concrete hardstand, bunding, sump, dedicated roofed area, odour control from potential emissions, waste disposal);
- Details of how the pre-coat loading area controls will comply with the relevant Australian Standards;
- Details of the surface water management system specifically for the pre-coat area;
- Demonstrate how the proposed pre-coat plant meets best practice.

Pesticide and Chemical storage

The Statement of Commitments (p318) makes reference to pesticide storage and heavy metal storage. The storage and use of all pesticides at the premises must comply with requirements under the *Pesticide Act 1999* and *Pesticide Regulation 2009.* All chemical and fuel storage areas should meet best practice, including relevant bunding requirements.