LAPPC PERMIT APPLICATION
to Operate a Roadstone Coating Plant

Blackwater Quarry, Blackwater Road, Newport, Isle of Wight, P030 3BX

Application Prepared on Behalf of:
Wight Building Materials Limited

Report Date:
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This Report was prepared by PDE Consulting Limited on behalf of Wight Building Materials Limited
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DRAWING NO. DRAWING TITLE SCALE
M12.165(a).D.07 Site Layout Plan 1:1000 @ A3

APPENDICES

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1. INTRODUCTION

1.1. PDE Consulting Limited (the ‘Agent’) has been commissioned by Wight Building Materials Limited (the ‘Operator’) to prepare and submit to the Isle of Wight Council an environmental permit application for a new roadstone coating plant to be located at Blackwater Quarry (the ‘Site’) near Newport on the Isle of Wight.

1.2. A site layout plan is presented as Drawing Number M12.165(a).D.07.

1.3. The Site is presently used for the manufacture of coated roadstone. The use is characterised by large scale manufacturing plant and equipment, stockpiles of aggregates, buildings and ancillary facilities.

1.4. The plant will be run alongside the existing roadstone coating plant (Permit Reference No: 3.5/1/03/1) for a short period of time during the commission phase. The new plant will utilise recycled asphalt and planings during the manufacturing process, and it will have a multi fuel burner with the capacity to be operated using recovered fuel oil (RFO).

1.5. This Local Authority Pollution Prevention and Control (LAPPC) permit application for operation of a roadstone coating plant is being made under Section 3.5 Part B (e) of Schedule 1 to the Environmental Permitting (England and Wales) Regulations 2010. The application is consistent with the requirements of the Process Guidance Note for roadstone coating.1

1.6. This technical report provides details of the plant process to support the Part B application form. The completed application form is presented in Appendix 1.

1.7. An environmental permit will be obtained from the Environment Agency also for the keeping and treating of non-hazardous wastes (recycled road planings).

The Operator

1.8. Wight Building Materials Limited (WBML) is a joint venture company formed between Eurovia Group Limited and Aggregate Industries UK Limited. Though Bardon Vectis, Aggregate Industries have been based on the island for more than 30 years and the majority of those operations have been vested into the joint venture company.

1.9. The permitted plant is part of the infrastructure to be established in order for the Applicant to be able to meet the demand for road construction and improvement projects on the Isle of Wight for the next 25 years in association with the highways improvement and maintenance PFI contract.

Planning Permission

1.10. Planning permission application reference number P/00902/12 - TCP/31126 was issued by Isle of Wight Council on 16 May 2013 for:

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‘Replacement asphalt plant including re-positioned cold-feed hoppers and increase in maximum stack height to 26.5m’.

1.11. An application was submitted by PDE in November 2013 to Isle of Wight Council to allow a variation of the planning conditions to allow for an alternative asphalt plant to be erected to the one originally proposed which is better suited to the needs of the highways improvement and maintenance PFI contract awarded in 2012.

1.12. For all material purposes, the asphalt plant proposed by the new planning application is the same as that approved by planning permission P/00902/12 - TCP/31126. There are some subtle differences between the two such as a reduction in the number of cold feed hoppers, a modest increase to the stack height to 28m, the addition of an additional bitumen tank and a slight re-aligning of the plant itself but the process and the productive capacity of the plant remain as previously approved.

1.13. Additionally, it gives the Applicant the opportunity of using an alternative fuel supply (RFO) to the one originally envisaged should it choose to pursue other fuel supply options.

1.14. A variation to the planning permission was issued on 29 January 2014 (application reference P/01515/13-TCP31126/A).

1.15. In accordance with condition 14 of the varied planning permission:

‘The existing asphalt plant and all associated equipment at the site shall be removed within six months of the date of the asphalt plant hereby approved becoming operational’.

1.16. A copy of the planning permission documents is included in Appendix 2.
2. SITE DETAILS

Site Location and Setting

2.1. The Site, outlined red on the attached drawings, extends to approximately 0.95 hectares and is located within the central area of Blackwater Quarry (‘the Quarry’), an existing operational mineral extraction and waste management site with a long established history of such activities. Main access to the Site is obtained via the main Quarry access which comprises a section of hard surfaced haul road running from the public highway to a variety of locations within the Quarry, of which the Site forms part.

2.2. The Quarry is located approximately 3km south east of Newport, off the A3020 Blackwater Road. The Quarry comprises one of the main active mineral (sand and gravel) extraction sites on the island and it also forms an operational hub for some other satellite operations.

2.3. In addition to the mineral extraction activities, the Quarry manages, treats and disposes of waste and it has ancillary facilities located within it which comprises a cold asphalt plant, concrete plants and a block works, a recycling centre, workshops and limited amount of other commercial activities.

2.4. Located near the centre of the Island, the Quarry enjoys excellent road transport links to all major settlements.

2.5. The majority of the neighbouring land is farmland and woodland. The nearest residential property is Stone Farm, located approximately 270m to the west of the application Site. Pyle Cottages are located 390m east of the Site and Longdown is located 350m south.

Geology

2.6. The Site is directly underlain by Ferruginous Sands (up to 120 m in thickness) belonging to the Lower Greensand (Cretaceous). The Site is located upon the northern limb of an anticline, with the strata dipping north at around 15-25 degrees (according to closest BGS observations).

2.7. At depth, the Ferruginous Sands are underlain by the Atherfield Clay.

2.8. “Older River Terrace Deposits” (formerly Plateau Gravel) are quarried to the north of the application site. The gravels are underlain by the Upper Chalk.

Hydrogeology

2.9. The EA classifies all aquifers as controlled waters but divides them into three categories: principal aquifer; secondary aquifer and unproductive strata. The groundwater vulnerability map indicates that the strata underlying the site comprise a Principal aquifer.

2.10. Principal aquifers are layers of rock or drift deposits that have high intergranular and/or fracture permeability, meaning they usually provide a high level of water storage. They may support water supply and/or river base flow on a strategic scale. In most cases, principal aquifers are aquifers previously designated as major aquifer.

2.11. The EA has defined Source Protection Zones (inner, outer, total catchment and special interest) for groundwater sources such as springs, wells and boreholes used for public
drinking water supply. These zones provide an indication of the risk of contamination from any activities that might cause pollution in the area. The site is located within a source protection zone 2 (SPZ2) or outer protection zone.

2.12. The outer protection zone is defined by a 400 day travel time from a point below the water table. The previous methodology gave an option to define SPZ2 as the minimum recharge area required to support 25 per cent of the protected yield. This option is no longer available in defining new SPZs and instead this zone has a minimum radius of 250 or 500 metres around the source, depending on the size of the abstraction.

2.13. EA mapping indicates that the local aquifer has “intermediate vulnerability”.

2.14. The site is located within an SPZ2, as such there will be no public abstractions. The nearest SPZ1 zones are located approximately 390m to the west and approximately 480m south of the area boundary.

2.15. The nearest private abstraction licence down-gradient of the Site is at Blackwater some 450 m west of the Site. The abstraction is from the Lower Greensand Aquifer.

2.16. The applicant operates a licensed groundwater abstraction (abstraction license No 12/101/3/G/19) approximately 460 m south west of the Site at Stone Farm (NGR SZ 50878592) which provides process water for Blackwater Quarry’s mineral processing plant. The licensed quantity equates to 455 m$^3$/day for industrial use and private water supply.

**Hydrology**

2.17. There are no waterbodies within the boundary of the Site. Silt lagoons are located on the adjacent quarry site.

2.18. There are no known licensed or private surface water abstractions within a 250 m radius of the Site.

2.19. The River Medina is located approximately 620m east of the Site’s boundary at Blackwater and flows from south to north.

2.20. The receiving watercourse (the River Medina): Based upon the most recent data (2009), the EA indicates that the water chemistry in this stretch of the River is at Grade A (Very Good): suitable for all abstractions and for salmonid/cyprinid fisheries; supporting natural ecosystems). The biological classification is not given.

2.21. The Site is located in an area not-prone to risk of flooding. The Site entrance is at 420 m standoff to the north of the closest stretch of floodplain.

2.22. A “significant” water pollution incident noted on the Environment Agency website to the south of the Site in March 2007.
3. THE INSTALLATION

Description of plant and process

3.1. The plant will be designed and built to meet the most stringent standards of process guidance note PG3/15(12). Modern asphalt plants are designed and built to ensure that the process flow of hot aggregates going forward from the dryer through screening, weighing and mixing sections are contained within encapsulated dust tight enclosures and maintained under suction from the plant exhaust and collection plant to control emissions at source.

3.2. The proposed new asphalt plant will be a Phoenix Starmix SM2000L, capable of producing 160t of asphalt per hour.

3.3. The following process description should be read in conjunction with the plant layout (Drawing No M12.165(a),D.002) and the manufacturers illustrative brochure (Appendix 3) showing cutaway views of the process.

3.4. The production of asphalt involves:

- The importation by road in HGV’s and storage of aggregates, waste road planings and sand;
- The importation of cement, limestone dust and bitumen and their storage in sealed tanks;
- The erection of loading hoppers, conveyors, a rotary dryer, screen, mixing unit, dust extraction systems, product storage bins and ancillary equipment to be used in the manufacture of asphalt; and
- Ancillary facilities including the onward transfer of asphalt via the highway network.

Delivery and Storage of Raw Materials

3.5. Aggregates and raw material such as bitumen, cement and limestone dust shall be imported to the island via the existing ferry services using tankers with a carrying capacity of 30 tonnes. Waste road planings from the refurbishment of the Islands road network shall be delivered to the Site in HGV’s.

3.6. On arriving at the Site, the aggregates will be weighed via the incoming weighbridge and then transported to purpose built concrete aggregate storage bays in the adjacent quarry until they are required to be used in the asphalt plant. Some specialist sands may be imported to the Application Area this way in addition to the aggregates and stored in dedicated bays in the same manner and it is likely that these bays shall have to be covered.

3.7. As for the existing plant, a covered, 3-walled and roofed storage area for material ≤ 3mm is provided which has a capacity of 500 Tonnes. This capacity is reached when the level of the material reaches the cross bolts on the walls of the enclosure. External storage is permitted to cater for unexpected fluctuation in demand.

3.8. Waste road planings in HGV’s will be weighed via the incoming weighbridge and then transported to the nearby yard that houses the Foambase plant for pre-treatment.
(screened and crushed). HGV’s will transfer the treated planings to the hot asphalt plant where they will be temporarily stored in the open prior to use.

3.9. On arriving at the Site, bitumen, cement and limestone dust shall be offloaded from the tankers into silos. In terms of storage capacity, it is envisaged that up to 160 tonnes of bitumen shall be stored and a similar amount of dust or cement in four purpose built silos. For production control purposes, the silos are sited within close proximity to the asphalt plant.

3.10. Imported filler powders and cement powders, typically 30 to 100 microns, may only be delivered in bulk tankers and stored within a sealed silo vessel having appropriate level indication, venting and protection systems to a shut off valve. The venting filter will be designed to contain emissions to below 10mg/m$^3$.

3.11. Reclaimed filler powders arising from the plant terminal fabric filter, typically 30 to 100 microns, may only be transferred from the plant into a dedicated reclaimed filler silo and handling system designed to maximise reuse into the product on a weight basis at the plant mixer. Fugitive releases will be prevented with Best Available Technique (BAT) standard silo control systems.

3.12. Whilst each silo will be fitted with its own protection system, the truck mounted protection system will ensure that excess transfer air from the tanker at the end of a delivery will not be released through the silo. Deliveries of imported filler or cement powders will be overseen by an authorised person who will record the time of arrival and leaving site.

3.13. A range of bitumen grades received in bulk tankers at the acceptable temperature, may only be delivered into dedicated heated and protected storage tanks.

3.14. The temperature of the bitumen storage tanks shall not be permitted to exceed the maximum temperatures shown in Table 1 for each grade as defined by British Standard BS 3690.

<table>
<thead>
<tr>
<th>Grade</th>
<th>Maximum Handling and storage Temperature °C</th>
</tr>
</thead>
<tbody>
<tr>
<td>200 pen</td>
<td>190</td>
</tr>
<tr>
<td>100 pen</td>
<td>200</td>
</tr>
<tr>
<td>50 pen</td>
<td>200</td>
</tr>
</tbody>
</table>

3.15. Any special bitumens kept on site at grades not specified by BS 3690 shall be stored in compliance with the manufacturers recommendations which shall be kept available for inspection on site.

Asphalt Production Process

3.16. With respect to the asphalt production process, it demands the combination of a number of aggregates/ waste planings, sand and a filler such as stone dust, in the correct proportions, heated, and finally coated with a binder which is normally bitumen. The temperature of the finished product must be sufficient to be workable after transport to the final destination and it typically is dispatched from the asphalt plant at a temperature in the range of 100 - 200 degrees Celsius.
3.17. In the first instance, aggregates/waste planings are removed from the storage bays and loaded into the cold feed hoppers, via a loading shovel travelling up a small ramp, until required for use in the asphalt plant. The loading shovel shall be fitted with a white noise reversing siren and reversing camera.

3.18. The cold feed bins are covered so as to prevent any wind whipping of dust during the loading process and the yard area will be subject to dust suppression sprays as and when required to prevent dust egress from the Site.

3.19. The cold feed bins accurately meter out the different quantities required in any particular asphalt mix and, once weighed, the mixture is transported via a covered conveyor to the rotary drying drum. The rotary dryer is 2.2m in diameter and 8.0 m long and has a capacity of 180 tpa.

3.20. The purpose of the drying drum is to dry and heat the aggregates/waste planings and sand by tumbling them through hot air. In the case of this development, the fuel source will be fuel oil or RFO. It is of particular importance to treat the sand in this way as it is a key ingredient of most roadstone but it generally has a high and inconsistent water content. Heating the sand to reduce the water content is a large part of the energy cost of heating the aggregate which, in turn, is a significant part of the overall cost of operation.

3.21. The water content of sand also varies considerably, especially when stored outdoors, and since sand takes the form of small grains, with a high surface area per unit volume, and binder attaches to the surface of the aggregates, the amount of dry sand in the mix is particularly critical to the overall blend. At this stage, the water vapour is removed from the drying drum and, once it has been passed through a series of filters, it is removed and emitted from the asphalt plant via the exhaust stack.

3.22. Heated fine particles within the drying drum are extracted at this stage and filtered, prior to temporary storage within the filler silo. Aggregates/waste planings and sands do contain fine particles and it is essential that these constituents are removed so that a correct weight of single sized aggregates/waste planings can be calculated for each component within the asphalt mix. Dust collection from the dryer is via a bag unit and skimmer with a capacity of 72,590 m$^3$/h. The outlet from the bag filter unit discharges to a stack 28 metres in height.

3.23. Having been heated and dried, the mixture is then transferred, via a bucket elevator to a screen deck, housed at the top of the main structure of the asphalt plant. At this stage, oversize materials are removed from the heated mixture and the product within specification is transferred to a small number of heated storage bins beneath the screen deck. Oversize materials are removed from the asphalt plant and re-used.

3.24. The next stage of the asphalt production process is the mixing stage. In the case of the proposed plant, it will be a batch mixer with a paddle mixer drive. Each of the hot bins releases a certain amount of aggregate/waste planings into the weigh hopper, then it is discharged into the mixing drum beneath. Once in the mixing drum, filler is added back into the mix and then binder is added. Temperatures of the mixer are transmitted to the control room. Ducting extracts particulate laden air from the mixer to the bag filter unit.

3.25. Binder/bitumen is added from the two bitumen storage tanks depending upon the required mix. The bitumen comes in different grades (pen) which have different characteristics which have an effect on the workability of hot asphalt and the stiffness of the asphalt when cooled. Lower pen values are harder wearing so asphalt wearing courses are typically 35-
50 pen, base courses will be higher, typically 200 or 300 pen and the asphalt plant may combine binder of different grades to achieve a grade between those held on site.

3.26. Having been mixed the asphalt must be kept heated to avoid setting before it is loaded on to road going HGV's. It is commonly stored in large electrically heated insulated stainless steel bins, from which it is weighed into delivery vehicles. In the case of the proposed asphalt plant it is proposed that four 50 tonne bins are provided. When an HGV is correctly positioned beneath the appropriate hot storage bin, the correct material is weighed and discharged into the vehicle which, in turn, is weighed on the outgoing weighbridge and then it is dispatched from the works. HGV's entering and leaving the Site shall do so from Arctic Road and Newport Road and the wider public highway.

3.27. Precise control is a necessity with the production process and the process is controlled from an office using industrialised computer control. Routine on-site laboratory analysis also ensures strict quality control.

Use of Recovered Fuel Oil

3.28. RFO or processed fuel oil (PFO) used in the plant will fully conform to the Quality Protocol (QP)², for RFO which sets out the end of waste criteria for the production and use of processed fuel oil from waste lubricating oil.

3.29. The RFO will conform with the standard for a residual oil equivalent defined as follows in Appendix C (C2) of the QP:

‘The primary requirement for a PFO non-waste residual oil equivalent fuel is to meet the parameters set out in British Standard (BS2869:2006) for (as appropriate) Class E or F or G fuels, with the exception of viscosity and ash content. In addition to these parameters the residual oil equivalent must also be analysed for total halogens (expressed as Chlorine), PCB content and certain specified metals’.

3.30. Compliance with the QP does not guarantee the acceptability of the fuel for all applications especially where the combustion residues may become part of the product being produced for example by direct heating. It remains the responsibility of the process operator to ensure that any contaminants which may be transferred from the fuel used do not pose an unacceptable environmental or health risk.

3.31. The air quality assessment presented in Appendix 5 takes into account the use of RFO and predicted emissions are compared to the relevant Emission Limit Values stated in the Waste Incineration Directive (WID).

Emissions Monitoring

3.32. A summary of the potential emissions to air are presented in Table 2.

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### Table 2: Summary of Release Points

<table>
<thead>
<tr>
<th>Release point and abatement technique</th>
<th>Prescribed substances</th>
<th>Release to air assessment</th>
<th>Concentration expected</th>
<th>Release condition</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Site and stockpiles</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Haul roads and areas of hard standing. Dust suppression measures employed and good housekeeping.</td>
<td>Dust particulate</td>
<td>No visible emissions beyond site boundary.</td>
<td>Negligible</td>
<td>Fugitive</td>
</tr>
<tr>
<td>Single sized aggregate stored in stockpiles. &lt;3mm fines in covered bays. Suppression sprays-sweeping.</td>
<td>Dust particulate</td>
<td>Aggregates 2% to 3% moisture. Sand with 8%. Contained during loading. Protected against wind. No visible emissions beyond site boundary.</td>
<td>Negligible</td>
<td>Fugitive</td>
</tr>
<tr>
<td>Feed hoppers are covered. Covered feed conveyers. Suppression.</td>
<td>Dust particulate</td>
<td>Contained during loading. Protected against wind.</td>
<td>Negligible</td>
<td>Fugitive</td>
</tr>
<tr>
<td>Crushed asphalt storage area</td>
<td>Dust particulate</td>
<td>Contained during loading. No visible emissions beyond site boundary.</td>
<td>Negligible</td>
<td>Fugitive</td>
</tr>
<tr>
<td><strong>Hot asphalt plant</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Screening and weighing encapsulated to filtration plant,</td>
<td>Dust particulate</td>
<td>Encapsulated at source, vented and contained within sheeted building.</td>
<td>Negligible</td>
<td>Fugitive</td>
</tr>
<tr>
<td>Overflow from hot bins sealed to overflow chute and collection hopper.</td>
<td>Dust particulate</td>
<td>Overflow discharges in loading area under plant. Dust suppression on discharge.</td>
<td>Negligible</td>
<td>Fugitive</td>
</tr>
<tr>
<td>Releases to air controlled by reverse air filter and 28m high chimney.</td>
<td>Dust particulate.</td>
<td>Particulate. 50mg/m3 0.1% wt/wt sulphur in fuel</td>
<td>To main chimney</td>
<td>Fugitive</td>
</tr>
<tr>
<td>Sealed reclaimed filler silo. Vented to main filter. Imported filler silo sealed vented and protected.</td>
<td>Reclaimed filler.</td>
<td>Returned to product by elevator or removed wet. Contained, vented, over pressure and high level trip system. Tanker with own relief valve.</td>
<td>Negligible</td>
<td>Point source</td>
</tr>
<tr>
<td></td>
<td>Limestone - Cement powders.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>&lt;10mg/m3</td>
<td></td>
</tr>
<tr>
<td>Mixer discharge to product storage or direct load out.</td>
<td>Final products and dry materials.</td>
<td>Controlled by water sprays when necessary from discharge hopper.</td>
<td>Negligible</td>
<td>Fugitive</td>
</tr>
<tr>
<td>Hot mixed product storage Hoppers with load cells for direct loading and temperature.</td>
<td>Hot asphalt products temp controlled well below fuming.</td>
<td>Coated products. below fuming temperature. Load out contained under building.</td>
<td>Negligible</td>
<td>Fugitive</td>
</tr>
</tbody>
</table>
3.1. A specification for the plant is presented in Appendix 3. A specification for the RFO is presented in Appendix 4.
4. SIGNIFICANT ENVIRONMENT EFFECTS

4.1. For the proposed plant installation, the Secretary of State’s Guidance note covering roadstone coating\(^1\) provides statutory guidance to both operators and regulators regarding BAT standards.

4.2. PG3/15(12) states that particulate matter may arise from all parts of the process where dried mineral aggregates are processed and handled. In addition the process may also give rise to fugitive releases of particulate matter from ancillary activities such as unloading from bulk tipping vehicles, aggregate storage and conveyer transfer, handling and transfer by site vehicles, roadways and filling of silos.

4.3. In response to statutory guidance, due regard has been given to BAT standards in order to appropriately control, prevent and reduce releases to the environment.

4.4. The site is not located within an AQMZ and the other operations on site, including the existing asphalt plant, in the control of WBML have no history of complaints.

4.5. In accordance with the requirements of the existing permit, WBML shall operate the new plant in such a manner as to prevent to prevent emission of particulate matter and odour across the installation boundary. The plant shall be operated in such a manner as to prevent nuisance to any neighbouring premises.

Dust

4.6. Emissions from combustion processes shall, in normal operation, be free from visible smoke and in any case shall not exceed the equivalent of Ringelmann Shade 1 as described in British Standard BS 2742:1969.

4.7. There are a number of mitigation measures that have been incorporated within the designs and plans for the proposed operations that are recognised as good practice within the industry, specifically:

- Any fugitive dust generated from the proposed operations are likely to be of relatively large particle size and are, therefore, likely to be deposited close to the emission sources;
- An adequate supply of water for spray equipment is maintained to ensure that the rate of application would be sufficient for the purpose of wetting the ground to minimise dust emissions on internal haul roads and access roads;
- Periodic wash down of access and haul roads and other hard standing areas to prevent the re-suspension of dust by the action of moving vehicles;
- If deemed necessary a dust suppressant chemical can be added into the water which is used for washing the vehicles to further reduce dust emissions;
- Dusty operations will be avoided during periods of high winds blowing towards sensitive receptors;
- A conveyor cover and covered transfer point reduces fugitive dust emissions to the air;
- Suppression sprays will be made available around the storage areas to treat fugitive emissions at source;
- The cold feed bins are covered so as to prevent any wind whipping of dust during the loading process;
- All process buildings should be cleaned regularly to minimise fugitive emissions;
- The cement silo trailer will be fitted with high level indication and alarms. The silo will be fully enclosed and vented to air through a proprietary silo venting filter, interlocked to ensure that the filter is in operation before being filled by a road tanker;
- Deliveries of imported cement powders and other fillers will only be made using bulk tankers having on-board pressure relieve and filtration systems. Whilst the silos will be fitted with their own protection system, the truck mounted protection system will ensure that excess transfer air from the tanker at the end of a delivery will not be released through the silo;
- Roadways in normal use and any other area where there is regular movement of vehicles shall be hard surfaced and kept clean, in order to prevent or minimise dust emissions;
- All new buildings housing processing machinery should be externally clad with materials that can be readily cleaned; and
- A high standard of housekeeping should be maintained.

4.8. The use of water sprays on haul roads has been documented as a very effective dust control measure, being able to reduce dust emissions by over 90% depending upon the degree of wetting and the frequency of application.

Air Emissions

4.9. Due to the current plant’s age and specification, the proposed plant will significantly improve the dust generation and the local air quality due to it being a more modern, efficient and technologically advanced plant. It follows that the current limits adhered to within the existing permit will be further improved upon by the construction and operation of a replacement plant.

4.10. White Young Green (WYG), a specialist consultancy, were appointed by PDE to undertake a quantitative air quality assessment of the proposed new plant which is presented in Appendix 5.

4.11. The assessment concludes that based on the assumptions and specifications detailed within the report, the proposed development will not result in any exceedances of the relevant Air Quality Objectives for pollutants described by the WID.

4.12. The predicted magnitude of impact is imperceptible and their significance of predicted impacts is therefore expected to be ‘negligible’, in accordance with the stated methodology. Impacts associated with the proposed development are therefore not considered to be contrary to local planning policy with respect to air quality.

Odour

4.13. PG3/15 (12) section 5.1 lists potential odour sources from typical asphalt coating plants that are clearly unacceptable for both environmental and production reasons, namely:
- Bitumen handling and storage;
Handling hot bitumen or coated roadstone;
Poor combustion of fuel oil;
Reclaimed asphalt when heated - more so if it contains tar products and especially at high moisture content; and
Some additives may emit perceptible odours.

Fugitive odour emissions

4.14. Odours of a local fugitive nature can arise from overheated bitumen fumes escaping from tank vents or from overheated coated product fumes when loading into road vehicles and subsequent transport from site. In the past, it has also been known to introduce wrong additives into the product also giving rise to odour problems. Such odours can be detected within the site and the immediate locality, but such problems are due to one or a known number of sequential overheating problems that, when corrected, will quickly eradicate the problem at source.

4.15. Overheating of bitumen in the final coated mixed product is also unacceptable causing serious deterioration of the final product. Essentially, modern plants producing large quantities of asphalt materials operate within a PC driven mandatory Quality Assurance control regime together with appropriate back up control techniques that prevent unacceptable out of temperature specification problems that would scrap the product. This strict control regime serves to prevent the vast majority of odours at source. Proprietary premixed modified bitumen is now universally used.

4.16. Bitumen odours will be prevented by keeping maximum handling and heating temperatures within the limits set in PG 3/15(12).

4.17. Road planings containing coal tar shall not be treated in the plant. WBML have a facility with the larger Quarry complex for treating coal tar bound road planings in a cold mix plant.

Quantitative odour emissions from the stack

4.18. Odorous emissions have in the past also been known to occur within the confines of the manufacturing process when the product was overheated within the plant mixer handling the final product. The subsequent odours were drawn into the exhaust and filtration plant and subsequently released to atmosphere through the chimney into the wider area for dispersal. Similarly, this was often the case when firing on ageing dryer burners operating under restricted combustion air flows giving rise to poor fuel atomisation and combustion conditions. This resulted in subsequent blue smoke and odorous emissions. Poor combustion problems at the burner also allowed various stages of un-burnt fuel to be deposited on the product and within the plant internals and filtration plant where it lingered.

4.19. These types of problem will be eliminated by modern burner design and PC driven control systems that prevent burner start up unless all operational parameters in terms of air to fuel ratio, fuel supply pressures and adequate excess air, for complete combustion are met during the whole of its operating turn down cycle. Failure to meet these parameters during start up or shut down will initiate a burner flame lock out and subsequently the remainder of the plant being sequentially shut down until the problem is rectified. With these BAT solutions in place, it is expected that there will be no reasonable cause for nuisance from odours.
Noise

4.20. The planning application which gave rise to planning permission reference P/00902/12 - TCP/31126 included within it a Noise Assessment of the proposed development and a consultancy was appointed to compare sound power levels of the existing asphalt plant with a more modern equivalent, based on a similar plant to that proposed operated by the Applicant in Crawley.

4.21. The assessment concluded that a replacement asphalt plant of similar design to the Ammann plant measured at Crawley would result in lower noise levels.

4.22. It was calculated that all receiver locations would benefit by up to 4 dB(A) reduction when compared to the existing plant and it is reasonable to expect the same situation should the asphalt plant presently proposed be constructed.

4.23. The loading shovel for the cold feed hopper shall be fitted with a white noise reversing siren.

Habitats

4.24. http://magic.defra.gov.uk/ was consulted to check for European Sites, Ramsar or Sites of Special Scientific Interest (SSSI) within 1 km of the application Site.

4.25. The Site itself does not lie within any of these designated areas and there are none within 1 km of the site.

4.26. The nearest designated sites are Shide Quarry SSSI and Arreton Down SSSI - both Isle of Wight, Calcereous Grassland areas – situated 1.8km to the northwest and just over 2km to the northeast of the application Site respectively.

4.27. The nearest protected site is Shide Quarry SSSI and Local Nature Reserve (LNR), which is a deep pit sunk into an escarpment of Upper Chalk. The vegetation is of considerable biological interest, including a variable micro-habitat provided by water rising at the foot of the east face.

4.28. It is stated in the Hydrogeological Risk Assessment, produced to support the planning application that the intervening geology, in particular the Gault Clay, means that there is no hydraulic connection with the groundwater system beneath the Site and Shide Quarry SSSI.

4.29. Arreton Down SSSI comprises the largest remaining area of chalk grassland on the central chalk ridge of the Isle of Wight. It is a grazed, south-facing slope with a species-rich sward and important populations of several locally distributed chalk downland butterflies.

4.30. Based on the distance from Site and the mitigation measures in place, and the interest features of the SSSI’s, it is considered that there is no mechanism whereby emissions from the Site, could impact these two SSSI’s.
5. ENVIRONMENTAL MANAGEMENT PROCEDURES AND POLICY

5.1. WBML will operate the installation in accordance with an environmental management system (EMS) which is accredited to ISO14001.

5.2. The installation will have a plant control room with a number of operating staff, comprising mixing plant controllers, patrol operators and a mechanical shovel driver. Operational staff are supported by numerous fleet drivers, maintenance contractors and suppliers of components and consumable spares.

5.3. Staff at all levels will receive training in their duties relating to control of the process and emissions to air. Particular emphasis should be given to training for start up, shut down and abnormal conditions.

5.4. Effective control of emissions requires the maintenance and proper use of equipment, the proper supervision of process operations, good housekeeping standards and, where appropriate, checking for visible emissions. Effective preventative maintenance shall be employed on all plant and the equipment concerned with the control of emissions to the air.

5.5. A PC driven control system will monitor all operational aspects of the process and the current status will be displayed on one or more colour monitors in the plant control room.

5.6. Alarms will be also initiated, both visually and audibly in the control room and remotely. In addition, a data logging system will continuously record all operational aspects of the plant including a fault log.

5.7. With the appropriate techniques in place, the mechanical integrity of the process will be assured and uncontrolled emissions across the site boundary from the plant process most unlikely. However, a contingency plan will include:

- Essential repairs to vital equipment associated with the control of emissions will be carried out as a matter of priority and urgency. WBML will ensure that essential spares for compliance with the Permit will be available at site or on the shelf of a known stockist;
- Should the emissions persist then the offending section of the plant will be shut down until the appropriate repairs have been carried out;
- In the unlikely event that such failures give rise to unacceptable emissions across the site boundary, then the plant process will be shut down until the problem is solved and the incident reported to the Isle of Wight Council;
- Full details, such as the date, time, duration, extent and nature of all such occurrences shall be recorded by the process operator in writing in the log book. Details of the remedial action taken shall be similarly recorded.
# DRAWINGS

<table>
<thead>
<tr>
<th>DRAWING NO.</th>
<th>DRAWING TITLE</th>
<th>SCALE</th>
</tr>
</thead>
<tbody>
<tr>
<td>M12.165(a).D.07</td>
<td>Site Layout Plan</td>
<td>1:1000 @ A3</td>
</tr>
</tbody>
</table>
APPENDIX 1

Part B Application Form
Application for a permit for a roadstone coating installation

Local Authority Pollution Prevention and Control
Pollution Prevention and Control Act, 1999
Environmental Permitting (England and Wales) Regulations 2010

Introduction

When to use this form
Use this form if you are applying for a permit to a Local Authority to operate a roadstone coating installation as defined in Schedule 1 to the Environmental Permitting Regulations.

The appropriate fee must be enclosed with the application to enable it to be processed further.
When complete, send the form and the fee and any additional information to:

Environmental Health
Planning and Regulatory Services
Isle of Wight Council
Jubilee Stores
The Quay
Newport
Isle of Wight
PO30 2EH

If you need help and advice
We have made the application form as straightforward as possible, but please get in touch with us at the local authority address given above if you need any advice on how to set out the information we need.

For the purposes of Section H of the form, a relevant offence is any conviction for an offence relating to the environment or environmental regulation.

LAPPC application form: to be completed by the operator

<table>
<thead>
<tr>
<th>For Local Authority use</th>
<th>Application reference</th>
<th>Officer reference</th>
<th>Date received</th>
</tr>
</thead>
</table>

A1 Name and address of the installation (not required for mobile plant)

<table>
<thead>
<tr>
<th>Blackwater Quarry</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blackwater Road</td>
</tr>
<tr>
<td>Newport</td>
</tr>
<tr>
<td>Isle of Wight P030 3BX</td>
</tr>
</tbody>
</table>

Postcode: P030 3BX  Telephone: 01983 524822

A2 Details of any existing environmental permit or consent (for waste operations, include planning permission for the site, plus established use certificates, a certificate of lawful existing use, or evidence why the General Permitted Development Order applies.

The existing plant is operated in accordance with environmental permit number 3.5/1/03/2. The new plant will replace the existing plant.

A3 Operator details (The ‘operator’ = the person who it is proposed will have control over the installation in accordance with the permit (if granted).)

Name: Wight Building Materials Limited

Trading name, if different:

Registered office address:
Bardon Hall
Copt Oak Road
Markfield
Leicestershire
LE67 9PJ

Principal office address, if different:
Blackwater Quarry
Blackwater Road
Newport
Isle of Wight
PO30 3BX

Company registration number: 08549517
A4 **Any holding company?**

Is the operator a subsidiary of a holding company within the meaning of section 1159 of the Companies Act 2006? If “yes” please fill in details of the ultimate holding company.

<table>
<thead>
<tr>
<th>No</th>
<th>Yes</th>
</tr>
</thead>
</table>

Name:

Trading name, if different:

Registered office address;

Principal office address, if different:

Company registration number:

---

A5 **Who can we contact about your application?** *It will help to have someone who we can contact directly with any questions about your application. The person you name should have the authority to act on behalf of the operator - This can be an agent or consultant.*

Name and position: **Suzanne Walsh. Principal Consultant**

**PDE Consulting Ltd, The Alaska Building, Sitka Drive, Shrewsbury Business Park, Shrewsbury, SY2 6LG**

Telephone: **01743 361918/ 07889 602895**

Email: **suzanne@pdeconsulting.co.uk**
B  The installation

B1  What activities are, or will be, carried on at the installation? Please include “directly associated activities” (this term is explained in Annex III in Part B of the general guidance manual).

a)  are you coating roadstone  ☒ Yes ☐ No
b)  are you recycling asphalt pavement  ☒ Yes ☐ No
c)  are you recycling asphalt pavement containing coal tar  ☐ Yes ☒ No
d)  any other activities? please specify:  ☐ Yes ☒ No

If you have answered ‘yes’ to B1d and specified mobile plant, this activity is not suitable for a simple permit.

B2  Why is the application being made?

☒  new installation
☐  change to existing installation means it now needs a permit

B3  Site maps – please provide:

- A location map with a red line round the boundary of the installation
  Document reference: Refer to Application Report

- A site plan or plans showing where all the relevant activities are on site:
  a)  where the processing plant will be installed
  b)  the areas and buildings/structures designated for materials/ waste storage and the type of storage
  c)  the conveyors and transfer points
  d)  any directly associated activities or waste operations.

  To save applying for permit variations, you can also show where on site you might want to use for storage etc in the future.
  Document reference: Refer to Application Report

B4  Are there any sites of special scientific interest (SSSIs) or European protected sites nearer than any of the following distances to the proposed installation?

- 2km - where anyone of the installation burners is over 20MW net thermal rated input

- 1km - otherwise  ☐ Yes ☒ No

If ‘yes’, is the installation likely to have a significant effect on these sites and, if so, please write on a separate sheet or enclose a relevant document explaining what the implications are for the purposes of the Conservation (Natural Habitats etc) Regulations 1994 (see appendix 2 of Annex XVII of the general guidance manual)
B5 Will emissions from the activity potentially have significant environmental effects (including nuisance)?

☒ Yes ☐ No

If ‘yes’: list the potential significant local environmental effects (including nuisance) of the foreseeable emissions

Document Reference: Refer to Appendix 4 of Application Report for Air Quality Assessment

- please enclose a copy of any environmental impact assessment which has been carried out for the installation under planning legislation or for any other purpose.

Document Reference: n/a

C The details

C1 Does your installation have arrestment equipment, with external discharge points, not serving silos or dryers with an airflow of: (Tick all that apply)

a) over 300m³/minute: ☐ Yes ☒ No
b) under 300m³/minute and over 100m³/minute:  ☐ Yes ☒ No
c) under 100 m³/minute: ☐ Yes ☒ No

C2 Do you have continuous monitors to show compliance with a numerical limit in Table 1 of the simple permit? [informs condition 2]

☐ Yes ☒ No

If yes, do the continuous monitors have alarms which are: (tick all that apply) [informs condition 2]

a) visible? ☐ Yes ☐ No
b) audible? ☐ Yes ☐ No
c) alarm activation recorded automatically? ☐ Yes ☐ No
d) is a trigger level set? ☐ Yes ☒ No

At what percentage of the emission limit is the value set? ……………………% 

Have you undertaken isokinetic sampling at least once to demonstrate compliance with the numerical limit in Table 1?

☐ Yes ☒ No

C3 Is odour arrestment equipment installed? [informs condition 2]

☐ Yes ☒ No
If yes please describe it

____________________________________________________________________
____________________________________________________________________

Note: “dusty material” should be taken to be any material which can be wind-entrained. It excludes, for example, >3mm material and scalpings.

C4 Which of the following will the fillers and binders be stored in:
(tick all that apply)

<table>
<thead>
<tr>
<th></th>
<th>fillers</th>
<th>binders</th>
</tr>
</thead>
<tbody>
<tr>
<td>silo</td>
<td></td>
<td></td>
</tr>
<tr>
<td>bulk storage tank</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>within a building</td>
<td></td>
<td></td>
</tr>
<tr>
<td>in fully-enclosed containers/packaging</td>
<td></td>
<td></td>
</tr>
<tr>
<td>other - please specify</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

C5 Do you have pneumatic transfer of materials?

☒ Yes ☐ No

If yes, will displaced air from pneumatic loading and unloading of fillers be:
(tick all that apply)

a) vented to arrestment plant ☐

b) back-vented to the delivery tanker ☒

c) other - please specify ☐

C6 Do you have alarms to warn of overfilling of fillers and bitumen?

☒ Yes ☐ No

C7 Will displaced air from pumping bitumen from tankers be:
(tick all that apply)

a) vented to arrestment plant ☐

b) other - please specify ☒ As C5

C8 Do deliveries of fillers and bitumen automatically stop for:

<table>
<thead>
<tr>
<th></th>
<th>Fillers</th>
<th>binders</th>
</tr>
</thead>
<tbody>
<tr>
<td>over-filling</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>over-pressurisation</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>
If yes, does the displaced air pass through abatement plant prior to emission to air?  
[informs condition 9]

a) fillers  ☑ Yes ☐ No

b) binders  ☑ Yes ☐ No

C9  For aggregates and recycled asphalt:  
[informs condition 4]

Is the plant in a quarry?  ☑ Yes ☐ No

If no, does most stone arrive by road?  ☐ Yes ☐ No

C10  Do you have any quarry roads as part of the installation?  
[informs condition 13]

☐ Yes ☑ No

C11  For materials not dealt with in condition 4-7, what facilities will be provided to store any dusty material and waste?  
(tick all that apply)  
[informs condition 10]

a) hopper wind-protected on at least 3 sides  ☑ applies to fine sands only

b) storage bay without suppression & stockpiles lower than retaining walls  ☐

c) storage bay with suppression  ☐

d) fully-enclosed stores  ☐

e) other - please specify: __________________________________________

C12  Will any material be stored in the open (unenclosed) other than material wholly comprised of one or more of the following: >3mm material, sand, scalpings, road sub base (MOT) material that has been conditioned before deposit, conditioned crusher-run or blended material?  
[informs condition 10]

☐ Yes ☑ No

C13  Do you have belt conveyors?  
[informs condition 11]

☑ Yes ☐ No

If yes, which of the following facilities will be provided to convey any dusty material and waste?  
(tick all that apply)  
[informs condition 11]

a) deep trough ground-level conveyor  ☐

b) fully-enclosed conveyor  ☑

c) pneumatic handling system  ☐

d) bucket elevator  ☑

e) wind boards  ☐

f) other – please specify: __________________________________________
C14 Which of the following methods will be used to minimise emissions at belt conveyor transfer points, including free fall of material? (tick all that apply) [informs condition 11]

a) enclosed ☒

b) enclosed and ducted to arrestment equipment □

c) fitted with a chute □

d) other - please specify: __________________________________________

C15 Which of the following techniques will be used to clean belt conveyors (tick all that apply) [informs condition 11]

a) belt scrapers ☒

b) catch plates ☒

c) other techniques for keeping the return belt clean and collecting the material removed by the cleaning - please specify: __________________________________________

C16 How will potentially dusty materials (including any raw materials, finished products and waste) arrive at or leave the site? (tick all that apply) [informs Condition 12]

<table>
<thead>
<tr>
<th></th>
<th>Raw Materials</th>
<th>Finished Products</th>
<th>Waste</th>
</tr>
</thead>
<tbody>
<tr>
<td>Road</td>
<td>✓</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>Rail</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

C17 How will potentially dusty materials, (including any raw material, finished products and waste) be transported within the site (tick all relevant) [informs condition 14]

a) tanker □

b) fully-enclosed transport □

c) ‘canopied’ rail wagons □

d) sheeted transport □

e) water suppression applied to the transported material ☒

f) aqueous polymer suppression applied to the transported material □

g) bagged □

h) other – please specify: __________________________________________
C18 Which techniques will you use to ensure that vehicles do not track material onto the highway? [informs condition 12]

a) body and wheel wash  □ Yes □ No
b) wheel wash  □ Yes □ No
c) hose and brush  □ Yes □ No
d) sufficient distance to the site boundary on sealed road before leaving site  ☒ Yes □ No
e) Other, please describe: __________________________________________

C19 Are any of your mixing buildings semi-enclosed? [informs condition 15]

a) all are enclosed  ☒ Yes □ No
b) at least one is semi-enclosed  □ Yes □ No

C20 Do you use any of the following fuels? (tick all that apply) [informs stack height]

a) heavy fuel oil  □
b) gas oil  ☒
c) gas  □
d) processed fuel oil that complies with the quality protocol  ☒
e) other waste derived fuel  □
f) other (give details): ____________________________________________

What is the rated thermal input of dryers? Please specify:

16,600 kw

C20 Do you have environmental management procedures and policy? [informs condition 3, 16, 17]

☒ Yes □ No
D  **Anything else**

Please tell us anything else you would like us to take account of.

Document Reference  ______ Refer to Application Report

E  **Application fee**

You must enclose the relevant fee with your application.

If your application is successful you will also have to pay an annual subsistence charge, so please say who you want invoices to be sent to.

Wight Building Materials Limited  
Blackwater Quarry  
Blackwater Road  
Newport  
Isle of Wight  
PO30 3BX
F Protection of information

F1 Any confidential or national security info in your application?

If there is any information in your application you think should be kept off the public register for confidentiality or national security reasons, please say what and why. General guidance manual chapter 8 advises on what may be excluded. (Do not include any national security information in your application. Send it, plus the omitted information, to the Secretary of State or Welsh Ministers who will decide what, if anything, can be made public.)

Document Reference ________________________________

F2 Please note: data protection

The information you give will be used by the Council to process your application. It will be placed on the relevant public register and used to monitor compliance with the permit conditions. We may also use and or disclose any of the information you give us in order to:

- consult with the public, public bodies and other organisations,
- carry out statistical analysis, research and development on environmental issues,
- provide public register information to enquirers,
- make sure you keep to the conditions of your permit and deal with any matters relating to your permit
- investigate possible breaches of environmental law and take any resulting action,
- prevent breaches of environmental law,
- offer you documents or services relating to environmental matters,
- respond to requests for information under the Freedom of Information Act 2000 and the Environmental Information Regulations 2004 (if the Data Protection Act allows)
- assess customer service satisfaction and improve our service.

We may pass on the information to agents/representatives who we ask to do any of these things on our behalf.

F3 Please note: it is an offence to provide false etc information

It is an offence under regulation 38 of the EP Regulations, for the purpose of obtaining a permit (for yourself or anyone else), to:

- make a false statement which you know to be false or misleading in a material particular,
- recklessly make a statement which is false or misleading in a material particular
- intentionally to make a false entry in any record required to be kept under any environmental permit condition
- with intent to deceive, to forge or use a document issued or required for any purpose under any environmental permit condition.

If you make a false statement

- we may prosecute you, and
- if you are convicted, you are liable to a fine or imprisonment (or both).
H Declarations A and B for signing, please

These declarations should be signed by the person listed in answer to question A3. Where more than one person is identified as the operator, all should sign. Where a company or other body corporate is the operator, an authorised person should sign and provide evidence of authority from the board.

Declaration A: I/We certify

EITHER – As evidence of my/our competence to operate this installation in accordance with the EP Regulations, no offences have been committed in the previous five years relating to the environment or environmental regulation.

OR - The following offences have been committed in the previous five years which may be relevant to my/our competence to operating this installation in accordance with the regulations:

__________________________

Signature: __________________________ Name: __________
Position: Director and Board Member Date: 13-3-14

Declaration B: I/We certify that the information in this application is correct. I/We apply for a permit in respect of the particulars described in this application (including the listed supporting documentation) I/We have supplied. (Please note that each individual operator must sign the declaration themselves, even if an agent is acting on their behalf.)

Signature: __________________________ Name: __________
Position: Director and Board Member Date: 13-3-14

Signature: __________________________ Name: __________
Position: __________________________ Date: __________

APPENDIX 2

Planning Permission
Isle of Wight Council

The Town and Country Planning Act 1990

Planning Permission

Application reference number: P/00902/12 - TCP/31126
Parish: Arreton

Applicant: Aggregate Industries Uk Ltd
Bardon Hall
Copt Oak Road
Markfield
Leicestershire
LE67 9PJ

Agent: Mr T Hudson
Aggregate Industries Uk Ltd
Marston House
Marston Bigot
Frome
Somerset
BA11 5DU

Description: Replacement asphalt plant including re-positioned cold-feed hoppers and increase in maximum stack height to 26.5m

Location: Blackwater Quarry, part of Bardon Vectis Ltd, St. Georges Down, Blackwater, Newport, Isle Of Wight, PO30

The Isle of Wight Council hereby give notice of the decision made on 16/05/2013 for planning permission for the development described above and in accordance with the application, plans and any other associated information submitted.

Conditions

1 The development hereby permitted shall be begun before the expiration of 3 years from date of this permission.

Reason: To comply with Section 91 of the Town and Country Planning Act 1990.

2 The development hereby permitted shall be carried out in complete accordance with the details shown on the submitted plans, numbered below, except where varied by any other conditions of this permission.

972/PL1
972/PL3
972/PL4
972/PL7
972/PL8

10365357 Rev F
W.061/4 (Junction Radii)

Reason: For the avoidance of doubt and to ensure the satisfactory implementation of the development in accordance with policies DM2 (Design Quality for New Development) and DM11 (Landscape, Seascape, Biodiversity and Geodiversity) of the Island Plan Core Strategy.
Notwithstanding the details shown on drawing number 972/PL7, no development shall take place until details of the proposed scheme of additional landscaping and tree planting surrounding the development has been submitted to and agreed in writing by the Local Planning Authority. Such details shall be in accordance with the principles of drawing 972/PL7 and shall include planting plans, written specifications, schedules of plants noting species, plant sizes and proposed numbers/densities. The approved planting scheme shall be carried out in the first planting season following the commencement of the approved development and any trees or plants which within a period of 5 years from the commencement of the development die, are removed or become seriously damaged or diseased shall be replaced in the next planting season with others of similar size and species, unless the Local Planning Authority gives written consent to any variation.

Reason: To ensure the appearance of the development is satisfactory and to comply with the requirements of policies SP5 (Environment), DM2 (Design Quality for New Development) and DM12 (Landscape, Seascape, Biodiversity and Geodiversity) of the Island Plan Core Strategy.

No development including site clearance shall commence on the site until trees and other planting shown to be retained in this permission have been protected by fencing or another agreed barrier. Any fencing shall conform to the following specification:

- Barriers shall consist of a scaffold framework as shown in figure 2 of BS 5837 (2005). Comprising of vertical and horizontal framework braced to resist impact, with vertical tubes spaced at a maximum of 3 m intervals. Onto this weld mesh panels are to be securely fixed. Such fencing or barrier shall be maintained throughout the course of the works on the site, during which period the following restrictions shall apply:
  - (a) No placement or storage of material;
  - (b) No placement or storage of fuels or chemicals.
  - (c) No placement or storage of excavated soil.
  - (d) No lighting of bonfires.
  - (e) No physical damage to bark or branches.
  - (f) No changes to natural ground drainage in the area.
  - (g) No changes in ground levels.
  - (h) No digging of trenches for services, drains or sewers.
  - (i) Any trenches required in close proximity shall be hand dug ensuring all major roots are left undamaged.

Reason: To ensure the appearance of the development is satisfactory, to prevent damage to nearby trees and to comply with the requirements of policies SP5 (Environment), DM2 (Design Quality for New Development) and DM12 (Landscape, Seascape, Biodiversity and Geodiversity) of the Island Plan Core Strategy.

The recommendations outlined within the Ecology Assessment report (Natural Enterprise, June 2012) shall be implemented in full within the first planting season following the commencement of the development.

Reason: In the interests of the ecological value and visual amenity of the area and to comply with the requirements of policies SP5 (Environment), DM2 (Design Quality for New Development) and DM12 (Landscape, Seascape, Biodiversity and Geodiversity) of the Island Plan Core Strategy.
No development shall take place until details of the dimensions, means of construction and site levels for an impermeable hard standing to underlay the site of development hereby approved have been submitted to and agreed in writing by the Local Planning Authority. The information shall include details of a drainage system for the collection of surface water from the site as well as details of the proposed silt trap and hydrocarbon filters, any new drainage infrastructure and the points at which the means of drainage will connect to the existing drainage ditch that is located alongside the entrance road to the site. Details should also include surveys of the existing drainage system to ensure that existing pipework is in a suitable condition and of a specification to manage predicted flows from the development. The drainage system and hard standing shall follow the principles outlined within submitted Hydrogeological Risk Assessment dated May 2012. Development shall be carried out in accordance with the agreed details and shall be retained and maintained thereafter.

**Reason:** To ensure that the site is suitably drained, to protect ground water and watercourses from pollution and to comply with policies SP5 (Environment), DM2 (Design Quality for New Development), DM12 (Landscape, Seascape, Biodiversity and Geodiversity) and DM14 (Flood Risk) of the Island Plan Core Strategy.

Any storage vessel used for the storage of oil, fuel, bitumen, flux oils and other additives/chemicals shall be placed or installed within an impermeable bund capable of holding at least 110% of the vessels capacity. All fill, draw and overflow pipes shall be properly housed within the bunded area to avoid spillage. The storage vessel, impermeable container and pipes shall be maintained for the life of the development hereby permitted.

**Reason:** To minimise the risk of pollution to nearby watercourses, ground water and neighbouring land and to comply with policies DM2 (Design Quality for New Development) and DM14 (Flood Risk) of the Island Plan Core Strategy.

No development shall commence until a scheme specifying the measures to minimise the emission of dust from the development hereby approved (including measures to monitor emissions) has been submitted to and approved in writing by the Local Planning Authority. Mitigating measures shall then be complied with in accordance with any time scale outlined in the submitted document. The scheme shall include measures to prevent dust emanating from access and haul roads caused by traffic entering and leaving the site and shall be implemented in full and the suppression equipment thereafter maintained in accordance with the manufacturers instructions for the duration of the permission.

**Reason:** To prevent dust from becoming a source of nuisance to nearby properties and uses and to comply with the requirements of policy DM2 (Design Quality for New Development) of the Island Plan Core Strategy.

No development shall take place until details of the location and maximum height and footprint of storage mounds for aggregates and recycled road planing’s to be used in connection with the asphalt plant hereby approved have been submitted to and agreed in writing by the Local Planning Authority. Development shall be carried out in strict accordance with the approved details.

**Reason:** To ensure that the appearance of the development is satisfactory and comply with the requirements of policies SP5 (Environment), DM2 (Design Quality for New Development) and DM12 (Landscape, Seascape, Biodiversity and Geodiversity) of the Island Plan Core Strategy.
No external lighting shall be installed at the site except in accordance with details which have been submitted to and agreed in writing by the Local Planning Authority. Details shall include the location, height, baffling to reduce light spillage and levels of illumination. Development shall be carried out in accordance with the agreed details and retained thereafter.

**Reason:** To prevent lighting from becoming a source of nuisance to nearby properties and uses, to ensure the appearance of the development is acceptable and to comply with the requirements of policy DM2 (Design Quality for New Development) of the Island Plan Core Strategy.

For a period of seven years from the date of this planning permission, there shall be no more than 40 vehicle movements (two way) associated with the delivery of asphalt from the development hereby permitted between the hours of 08.00 – 09.30 Monday to Saturday. The operator shall maintain daily records for vehicle movements between these hours, which shall be made available to the Planning Authority for inspection upon request.

**Reason:** In the interests of highway safety, because the junction of the access road to the site and Blackwater Road would not be suitable to cater for a greater number of road movements during peak travel times and to comply with the requirements of policies SP7 (Travel) and DM2 (Design Quality for New Development) of the Island Plan Core Strategy.

There shall be permitted a maximum of 40 days per calendar year when the vehicle movement restriction in condition 11 can be exceeded. This figure shall be reviewed at intervals of not less than 12 months by the Planning Authority and the Applicant and may be increased or decreased as may be agreed.

**Reason:** In the interests of highway safety, because the junction of the access road to the site and Blackwater Road would not be suitable to cater for a greater number of road movements during peak travel times and to comply with the requirements of policies SP7 (Travel) and DM2 (Design Quality for New Development) of the Island Plan Core Strategy.

Prior to commissioning of the development hereby approved a detailed scheme based on the principles of drawing number W.061/4 dated November 2012 shall be submitted to and approved in writing by the Local Planning Authority. The works as approved shall thereafter be implemented prior to commencement of the development.

**Reason:** In the interests of highway safety and to comply with the requirements of policies SP7 (Travel) and DM2 (Design Quality for New Development) of the Island Plan Core Strategy.

The asphalt plant hereby approved shall only be fueled with gas oil and by no other source of fuel except with the prior written approval of the Local Planning Authority.

**Reason:** To prevent the development from becoming a source of nuisance or pollution to nearby properties and uses and to comply with the requirements of policy DM2 (Design Quality for New Development) of the Island Plan Core Strategy.

The site outlined in red shall be used for the production of asphalt and storage of materials associated with that process and for no other purpose (including any other purpose in Class B1, B2 or B8 of the Schedule of the Town and Country Planning (Use Classes) Order 1987, or in any provision equivalent to that Class in any statutory instrument revoking and re-enacting that Order with or without modification).

**Reason:** To prevent any alternative use being made of the premises which could be a source of nuisance or disturbance to occupants of neighbouring properties and to comply with DM2 (Design Quality for New Development) of the Island Plan Core Strategy.
The existing asphalt plant and all associated equipment at the site shall be removed within six months of the date of the asphalt plant hereby approved becoming operational.

**Reason:** In the interests of the visual amenities of the surrounding area, to prevent an unacceptable level of use at the site and to comply with policies SP5 (Environment), DM2 (Design Quality for New Development), DM12 (Landscape, Seascape, Biodiversity and Geodiversity) and DM14 (Flood Risk) of the Island Plan Core Strategy.

In the event of the plant becoming permanently disused or disused for a period exceeding one year, all equipment including the concrete plinth shall be removed and the site restored in accordance with a scheme to be submitted to and approved in writing by the Local Planning Authority within six months of the date of this permission. The scheme shall include details of:

(a) The sequence of phasing of (backfilling and) restoration
(b) The respreading over the floor of the area of subsoil and topsoil in order that the site has an acceptable visual appearance
(c) The ripping of any compacted layers of final cover to ensure adequate drainage and aeration; such ripping should normally take place before placing of the topsoil;
(d) The machinery to be used in soil resspreading operations;
(e) Drainage of the restored land including the formation of suitably graded contours to promote natural drainage and the installation of artificial drainage;
(f) The reinstatement of the plant site and access roads by clearing plant, buildings, machinery and concrete or brickwork, deep cultivation in both directions to remove rocks and other obstructions, replacing of subsoil and then topsoil;
(g) Grass seeding of restored areas with a suitable herbage mixture;
(h) A timetable for implementation and after care;

and upon approval such scheme shall be implemented as approved unless a variation has been agreed in writing by the Local Planning Authority.

**Reason:** To ensure that the site is restored in an orderly manner to a condition capable of beneficial after use and in the interests of the amenities of local residents and to comply with policies SP5 (Environment), DM2 (Design Quality for New Development), DM12 (Landscape, Seascape, Biodiversity and Geodiversity) and DM14 (Flood Risk) of the Island Plan Core Strategy.

Prior the development hereby approved commencing, the developer shall notify the Local Planning Authority of the intended date of commencement for the development. The developer shall also notify the Local Planning Authority of the date that the plant becomes operational.

**Reason:** To allow the Local Planning Authority to monitor the commencement of the development, to ensure compliance with conditions 17 and 18 of this permission and to comply with policy DM2 (Design Quality for New Development) of the Island Plan Core Strategy.
Important

Reasons for Approval

In reaching the decision to grant planning permission account has been taken of national planning policy guidance (NPPF) and the policies contained within the Island Plan Core Strategy.

The principle reasons for granting planning permission are:

While the proposed replacement asphalt plant would be located in a rural area, it would be located within an established quarry that currently comprises an existing asphalt plant of a similar size and scale. The site is located centrally and given the requirement for infrastructure to support the development planned within the Island Plan Core Strategy and the Highways PFI, it is considered that the proposal is in compliance with policy SP1 (Spatial Strategy) of the Core Strategy.

The Council is satisfied that the proposed replacement asphalt plant would not harm the character and appearance of the surrounding countryside or appear intrusive from public vantage points within close proximity or at distance from the site.

The Council is also of the opinion that the proposal would not harm the amenities of nearby properties by reason of noise or light pollution, particularly given the presence of an existing plant at the site. In addition, it is considered that the proposed replacement asphalt plant would not present harm to human health as a result of odour or chemical processes and that risks could be managed on an ongoing basis through the relevant permits issued by the Council.

The impact of the development upon ecological interests would be minor and the proposed biodiversity enhancements outlined within the applicant's ecological survey would allow suitable habitats to establish at the site and therefore, improve biodiversity. Furthermore, the proposal would not result in the loss of any high amenity trees and would provide a means to require landscaping enhancements that would further screen the site.

The Council is of the opinion that through the imposition of highway conditions and works to the eastern radi of the site access, the impact of the development upon highway safety would be acceptable.

The proposed improvements to site drainage would assist in reducing the risk of contamination to water courses as a result of rain water run-off or potential spillage from storage tanks.

As a result, the proposed development would accord with the principles of policies DM2 (Design Quality for New Development), DM11 (Historic and Built Environment), DM12 (Landscape, Seascape, Biodiversity and Geodiversity), DM14 (Flood Risk) SP5 (Environment) and SP7 (Travel) of the Island Plan Core Strategy and the NPPF.

Having regard to the above and having taken into account all relevant material considerations, it is concluded that the proposal is in full conformity with the provisions of the development plan.

Statement of Proactive Working

In accordance with paragraphs 186 and 187 of the NPPF, the Isle of Wight Council take a positive and approach to development proposals focused on solutions to secure sustainable developments that improve the economic, social and environmental conditions of the area in the following way:

- The IWC offers a pre application advice service
- Updates applicants/agents of any issues that may arise in the processing of their application and suggest solutions where possible

In this instance the Council has liaised with the applicants to resolve issues relating to highway safety.
Informatives

In the event that the volume of surface water discharged from the site into the external ditch increases or the design of the discharge point requires alteration, the applicant should make contact in advance with the Council as Land Drainage Authority for the relevant Ordinary Water Course Land Drainage Consent to discharge into the nearby Ordinary Watercourse (Merstone Stream) to confirm if a formal application will be necessary. Relevant forms and information can be obtained by writing to the following address:

Ordinary Watercourse Regulation
Planning Services, IW Council
Seaclose Offices
Fairlee Road
Newport
Isle of Wight
PO30 2QS

The applicant is advised to contact the Environment Agency to gain the relevant waste permit for the storage and treatment of waste at the site (recycled road planing's). Information in respect of Environmental Permitting Guidance can be found on the following website - http://environment-agency.gov.uk

You are advised to notify the Local Planning Authority prior to implementation of this consent in order that normal checks may be carried out by the Enforcement Officer.
Attention is drawn to the attached notes

(a) This notice only relates to the decision of the Council under the Town & Country Planning Acts and does not relate to any application which may be required under the Building Regulations or any other Act, Regulation, Byelaw or Order.

(b) Attention is drawn to the provisions of Section 32 of the Isle of Wight Act 1980 which requires adequate provision for access for the fire brigade to premises which are the subject of this approval and to adjoining property.

(c) You are hereby advised of the need to make an application to Highways and Transport, County Hall, High Street, Newport, Isle of Wight, PO30 1UD, on (01983) 823777 before making any excavation in the footway or verge, in connection with any planning approval.

(d) Please note that the development hereby permitted must be carried out strictly in accordance with the plans attached, and any variation from the approved plans must be agreed with Local Planning Authority before the works are undertaken.

Date: 16/05/2013

Authorised on behalf of
Isle of Wight Council
Council Offices
Fairlee Road
Newport
Isle of Wight
PO30 2QS
Isle of Wight Council

The Town and Country Planning Act 1990

Planning Permission

Application reference number: P/01515/13 - TCP/31126/A

Parish: Arreton

Applicant: Wight Building Materials Limited
Bardon Hall
Copt Oak Road
Markfield
Leicestershire
LE67 9PJ

Agent: Mr D Marsh
PDE Consulting Limited
6 Forbes Business Centre
Kempson Way
Bury St Edmunds
Suffolk
IP32 7AR

Description: Variation of condition nos. 2 and 3 and removal of condition no. 14 on P/00902/12 - TCP/31126 to allow an alternative asphalt plant to be constructed

Location: Blackwater Quarry, part of Bardon Vectis Ltd, St. Georges Down, Blackwater, Newport, Isle Of Wight, PO30

The Isle of Wight Council hereby give notice of the decision made on 29/01/2014 for planning permission for the development described above and in accordance with the application, plans and any other associated information submitted.

Conditions

1. The development hereby permitted shall be carried out in complete accordance with the details shown on the submitted plans, numbered below, except where varied by any other conditions of this permission.

   972/PL1
   972/PL3
   M12.165(a).D.002
   M12.165(a).D.003
   M12.165(a).D.004
   W.061/4 (Junction Radii)

Reason: For the avoidance of doubt and to ensure the satisfactory implementation of the development in accordance with policies DM2 (Design Quality for New Development) and DM11 (Landscape, Seascape, Biodiversity and Geodiversity) of the Island Plan Core Strategy.
Notwithstanding the details shown on drawing number 972/PL7, no development shall take place until details of the proposed scheme of additional landscaping and tree planting surrounding the development has been submitted to and agreed in writing by the Local Planning Authority. Such details shall be in accordance with the principles of drawing 972/PL7 and shall include planting plans, written specifications, schedules of plants noting species, plant sizes and proposed numbers/densities. The approved planting scheme shall be carried out in the first planting season following the commencement of the approved development and any trees or plants which within a period of 5 years from the commencement of the development die, are removed or become seriously damaged or diseased shall be replaced in the next planting season with others of similar size and species, unless the Local Planning Authority gives written consent to any variation.

**Reason:** To ensure the appearance of the development is satisfactory and to comply with the requirements of policies SP5 (Environment), DM2 (Design Quality for New Development) and DM12 (Landscape, Seascapes, Biodiversity and Geodiversity) of the Island Plan Core Strategy.

No development including site clearance shall commence on the site until trees and other planting shown to be retained in this permission have been protected by fencing or another agreed barrier. Any fencing shall conform to the following specification:

Barriers shall consist of a scaffold framework as shown in figure 2 of BS 5837 (2005). Comprising of vertical and horizontal framework braced to resist impact, with vertical tubes spaced at a maximum of 3 m intervals. Onto this weld mesh panels are to be securely fixed. Such fencing or barrier shall be maintained throughout the course of the works on the site, during which period the following restrictions shall apply:

(a) No placement or storage of material;
(b) No placement or storage of fuels or chemicals.
(c) No placement or storage of excavated soil.
(d) No lighting of bonfires.
(e) No physical damage to bark or branches.
(f) No changes to natural ground drainage in the area.
(g) No changes in ground levels.
(h) No digging of trenches for services, drains or sewers.
(i) Any trenches required in close proximity shall be hand dug ensuring all major roots are left undamaged.

**Reason:** To ensure the appearance of the development is satisfactory, to prevent damage to nearby trees and to comply with the requirements of policies SP5 (Environment), DM2 (Design Quality for New Development) and DM12 (Landscape, Seascapes, Biodiversity and Geodiversity) of the Island Plan Core Strategy.

The recommendations outlined within the Ecology Assessment report (Natural Enterprise, June 2012) shall be implemented in full within the first planting season following the commencement of the development.

**Reason:** In the interests of the ecological value and visual amenity of the area and to comply with the requirements of policies SP5 (Environment), DM2 (Design Quality for New Development) and DM12 (Landscape, Seascapes, Biodiversity and Geodiversity) of the Island Plan Core Strategy.
No development shall take place until details of the dimensions, means of construction and site levels for an impermeable hard standing to underlay the site of development hereby approved have been submitted to and agreed in writing by the Local Planning Authority. The information shall include details of a drainage system for the collection of surface water from the site as well as details of the proposed silt trap and hydrocarbon filters, any new drainage infrastructure and the points at which the means of drainage will connect to the existing drainage ditch that is located alongside the entrance road to the site. Details should also include surveys of the existing drainage system to ensure that existing pipework is in a suitable condition and of a specification to manage predicted flows from the development. The drainage system and hard standing shall follow the principles outlined within submitted Hydrogeological Risk Assessment dated May 2012. Development shall be carried out in accordance with the agreed details and shall be retained and maintained thereafter.

**Reason:** To ensure that the site is suitably drained, to protect ground water and watercourses from pollution and to comply with policies SP5 (Environment), DM2 (Design Quality for New Development), DM12 (Landscape, Seascape, Biodiversity and Geodiversity) and DM14 (Flood Risk) of the Island Plan Core Strategy.

Any storage vessel used for the storage of oil, fuel, bitumen, flux oils and other additives/chemicals shall be placed or installed within an impermeable bund capable of holding at least 110% of the vessels capacity. All fill, draw and overflow pipes shall be properly housed within the bunded area to avoid spillage. The storage vessel, impermeable container and pipes shall be maintained for the life of the development hereby permitted.

**Reason:** To minimise the risk of pollution to nearby watercourses, ground water and neighbouring land and to comply with policies DM2 (Design Quality for New Development) and DM14 (Flood Risk) of the Island Plan Core Strategy.

No development shall commence until a scheme specifying the measures to minimise the emission of dust from the development hereby approved (including measures to monitor emissions) has been submitted to and approved in writing by the Local Planning Authority. Mitigating measures shall then be complied with in accordance with any time scale outlined in the submitted document. The scheme shall include measures to prevent dust emanating from access and haul roads caused by traffic entering and leaving the site and shall be implemented in full and the suppression equipment thereafter maintained in accordance with the manufacturers instructions for the duration of the permission.

**Reason:** To prevent dust from becoming a source of nuisance to nearby properties and uses and to comply with the requirements of policy DM2 (Design Quality for New Development) of the Island Plan Core Strategy.

No development shall take place until details of the location and maximum height and footprint of storage mounds for aggregates and recycled road planing's to be used in connection with the asphalt plant hereby approved have been submitted to and agreed in writing by the Local Planning Authority. Development shall be carried out in strict accordance with the approved details.

**Reason:** To ensure that the appearance of the development is satisfactory and comply with the requirements of policies SP5 (Environment), DM2 (Design Quality for New Development) and DM12 (Landscape, Seascape, Biodiversity and Geodiversity) of the Island Plan Core Strategy.
No external lighting shall be installed at the site except in accordance with details which have been submitted to and agreed in writing by the Local Planning Authority. Details shall include the location, height, baffling to reduce light spillage and levels of illumination. Development shall be carried out in accordance with the agreed details and retained thereafter.

**Reason:** To prevent lighting from becoming a source of nuisance to nearby properties and uses, to ensure the appearance of the development is acceptable and to comply with the requirements of policy DM2 (Design Quality for New Development) of the Island Plan Core Strategy.

For a period of seven years from the date of this planning permission, there shall be no more than 40 vehicle movements (two way) associated with the delivery of asphalt from the development hereby permitted and the adjacent mobile cold asphalt recycling plant to the west of the site between the hours of 08.00 – 09.30 Monday to Saturday. The operator shall maintain daily records for vehicle movements between these hours, which shall be made available to the Planning Authority for inspection upon request.

**Reason:** In the interests of highway safety, because the junction of the access road to the site and Blackwater Road would not be suitable to cater for a greater number of road movements during peak travel times and to comply with the requirements of policies SP7 (Travel) and DM2 (Design Quality for New Development) of the Island Plan Core Strategy.

There shall be permitted a maximum of 40 days per calendar year when the vehicle movement restriction in condition 10 can be exceeded. This figure shall be reviewed at intervals of not less than 12 months by the Planning Authority and the Applicant and may be increased or decreased as may be agreed.

**Reason:** In the interests of highway safety, because the junction of the access road to the site and Blackwater Road would not be suitable to cater for a greater number of road movements during peak travel times and to comply with the requirements of policies SP7 (Travel) and DM2 (Design Quality for New Development) of the Island Plan Core Strategy.

Prior to commissioning of the development hereby approved a detailed scheme based on the principles of drawing number W.061/4 dated November 2012 shall be submitted to and approved in writing by the Local Planning Authority. The works as approved shall thereafter be implemented prior to commencement of the development.

**Reason:** In the interests of highway safety and to comply with the requirements of policies SP7 (Travel) and DM2 (Design Quality for New Development) of the Island Plan Core Strategy.

The site outlined in red shall be used for the production of asphalt and storage of materials associated with that process and for no other purpose (including any other purpose in Class B1, B2 or B8 of the Schedule of the Town and Country Planning (Use Classes) Order 1987, or in any provision equivalent to that Class in any statutory instrument revoking and re-enacting that Order with or without modification).

**Reason:** To prevent any alternative use being made of the premises which could be a source of nuisance or disturbance to occupants of neighbouring properties and to comply with DM2 (Design Quality for New Development) of the Island Plan Core Strategy.
The existing asphalt plant and all associated equipment at the site shall be removed within six months of the date of the asphalt plant hereby approved becoming operational.

**Reason:** In the interests of the visual amenities of the surrounding area, to prevent an unacceptable level of use at the site and to comply with policies SP5 (Environment), DM2 (Design Quality for New Development), DM12 (Landscape, Seascape, Biodiversity and Geodiversity) and DM14 (Flood Risk) of the Island Plan Core Strategy.

In the event of the plant becoming permanently disused or disused for a period exceeding one year, all equipment including the concrete plinth shall be removed and the site restored in accordance with a scheme to be submitted to and approved in writing by the Local Planning Authority within six months of the date of this permission. The scheme shall include details of:

1. The sequence of phasing of (backfilling and) restoration
2. The respreading over the floor of the area of subsoil and topsoil in order that the site has an acceptable visual appearance
3. The ripping of any compacted layers of final cover to ensure adequate drainage and aeration; such ripping should normally take place before placing of the topsoil;
4. The machinery to be used in soil respraying operations;
5. Drainage of the restored land including the formation of suitably graded contours to promote natural drainage and the installation of artificial drainage;
6. The reinstatement of the plant site and access roads by clearing plant, buildings, machinery and concrete or brickwork, deep cultivation in both directions to remove rocks and other obstructions, replacing of subsoil and then topsoil;
7. Grass seeding of restored areas with a suitable herbage mixture;
8. A timetable for implementation and after care;

and upon approval such scheme shall be implemented as approved unless a variation has been agreed in writing by the Local Planning Authority.

**Reason:** To ensure that the site is restored in an orderly manner to a condition capable of beneficial after use and in the interests of the amenities of local residents and to comply with policies SP5 (Environment), DM2 (Design Quality for New Development), DM12 (Landscape, Seascape, Biodiversity and Geodiversity) and DM14 (Flood Risk) of the Island Plan Core Strategy.

Prior the development hereby approved commencing, the developer shall notify the Local Planning Authority of the intended date of commencement for the development. The developer shall also notify the Local Planning Authority of the date that the plant becomes operational.

**Reason:** To allow the Local Planning Authority to monitor the commencement of the development, to ensure compliance with conditions 14 and 15 of this permission and to comply with policy DM2 (Design Quality for New Development) of the Island Plan Core Strategy.
Important

Statement of Proactive Working

In accordance with paragraphs 186 and 187 of the NPPF, the Isle of Wight Council take a positive and approach to development proposals focused on solutions to secure sustainable developments that improve the economic, social and environmental conditions of the area in the following way:

- The IWC offers a pre application advice service
- Updates applicants/agents of any issues that may arise in the processing of their application and suggest solutions where possible

In this instance the Council has liaised with the applicants to resolve issues relating to noise.

Informatives

1. You are advised to notify the Local Planning Authority prior to implementation of this consent in order that normal checks may be carried out by the Enforcement Officer.

2. In the event that the volume of surface water discharged from the site into the external ditch increases or the design of the discharge point requires alteration, the applicant should make contact in advance with the Council as Land Drainage Authority for the relevant Ordinary Water Course Land Drainage Consent to discharge into the nearby Ordinary Watercourse (Merstone Stream) to confirm if a formal application will be necessary. Relevant forms and information can be obtained by writing to the following address:

   Ordinary Watercourse Regulation
   Planning Services, IW Council
   Seaclose Offices
   Fairlee Road
   Newport
   Isle of Wight
   PO30 2QS

3. The applicant is advised to contact the Environment Agency to gain the relevant waste permit for the storage and treatment of waste at the site (recycled road planing's). Information in respect of Environmental Permitting Guidance can be found on the following website - http://environment-agency.gov.uk
Attention is drawn to the attached notes

(a) This notice only relates to the decision of the Council under the Town & Country Planning Acts and does not relate to any application which may be required under the Building Regulations or any other Act, Regulation, Byelaw or Order.

(b) Attention is drawn to the provisions of Section 32 of the Isle of Wight Act 1980 which requires adequate provision for access for the fire brigade to premises which are the subject of this approval and to adjoining property.

(c) You are hereby advised of the need to make an application to Highways and Transport, County Hall, High Street, Newport, Isle of Wight, PO30 1UD, on (01983) 823777 before making any excavation in the footway or verge, in connection with any planning approval.

(d) Please note that the development hereby permitted must be carried out strictly in accordance with the plans attached, and any variation from the approved plans must be agreed with Local Planning Authority before the works are undertaken.

Date: 29/01/2014

Authorised on behalf of
Isle of Wight Council
Council Offices
Fairlee Road
Newport
Isle of Wight
PO30 2QS
APPENDIX 3

Specification for Plant
Stationary Asphalt Batch Plant

StarMix 2000 / 3000 / 4000 / 5000
Stationary Asphalt Batch Plant

The Phoenix StarMix range embodies all that is the very best in asphalt plant design.

A first choice for contractors making a major long term investment in a high capacity, high performance plant and seeking to secure and ensure reliable, financially viable, quality asphalt production and supply on a regional basis for many years to come.

Meeting all the criteria for a high performance and environmental plant, the StarMix is able to provide major asphalt production capabilities and can draw on an extensive range of options and configurations to choose from. Specific and exacting requirements of individual clients are able to be met in full in this high-end market sector.

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Cold Feed
Compact transportable multi-hopper, cold feed unit with built in collecting conveyor and dryer feed conveyer. Direct drive geared motor units give high reliability. Accurate variable speed control via AC motor and inverter.

Aggregate Dryer
Fully insulated and clad aggregate dryer. Drive by electric motors and gear unit through polymer friction drive support rollers.

Screen
Twin shaft oil lubricated screen fully enclosed in an acoustic dust housing.

StarMix Mixers
Fully synchronised twin shaft paddle mixers with abrasion resistant liner plates, paddle arms and tips.

Product Range
Intended to satisfy the European market the SM2000 offers a multi-deck oil lubricated screen and five hot storage bins to cater for high specification mixes.

StarMix 2000 - 160tph
StarMix 3000 - 240tph
StarMix 4000 - 320tph
StarMix 5000 - 400tph

The StarMix 2000 high level is a popular choice for those who want to service larger major highway contracts. The 3000tph, offers 250 bins of stored material storage.

Maximising all the features of the standard StarMix, the 4000 is also available as a high level option. Available options include the addition of HAP and fibre additions.

For major highways and highways contracts the 5000 offers everything required to maximise production, empower material, reduce emissions and keep cost to a minimum.
### Technical Specifications

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<td>118,825</td>
<td>145,655</td>
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<tr>
<td><strong>Hot Stone Elevator, Screen &amp; Mixing Section</strong></td>
<td></td>
<td></td>
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<tr>
<td>Elevator Capacity tph</td>
<td>180</td>
<td>260</td>
<td>340</td>
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<td>Elevator Drive kW</td>
<td>22.0</td>
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<td>2.2</td>
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<td>2250</td>
<td>3250</td>
<td>4250</td>
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<td>550</td>
<td>650</td>
<td>800</td>
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<td>Filter Weigh Hopper Capacity kg</td>
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<td>800</td>
<td>1050</td>
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<tr>
<td>Paddle Mixer Capacity kg</td>
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<td>2 x 37.0</td>
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*Plant capacity is based on 3% moisture content of feed aggregate with 0.5% residual moisture content of mixed materials, dryer discharge temperature of 160°C, ambient temperature 15°C at altitude 150m above sea level, aggregate bulk density average 1600kg/m³, 5% bitumen content, 45 second v.f.mix cycle at 100% plant utilisation.*

### Benefits

- Flexibility of plant layout - standard or high level design
- Low maintenance operation
- Environmental design - sheeted and clad to customers requirements
- High thermal efficiency dryer with unique replaceable lifter design
- Multi-fuel burner
- Fully automatic controls
- Can be extended/retrofitted with numerous options at a later stage
- High performance production plant with up to 7 hot storage bins

---

**Phoenix Transworld Limited**, Viaduct Works, Canon Street, Leicester, LE4 6GH, United Kingdom  
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W: www.phoenixtransworld.com  
E: sales@phoenixtransworld.com

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© Phoenix Transworld Limited 2011
Modular Static Asphalt Batch Plant

- Modular sections for ease of transportation & erection
- Flexibility of plant layout high or low level design
- Environmentally considerate; sheeted options
- Highly efficient multi-fuel burner
- Integral filler silos, elevator & stairways
- Dust filter emissions less than 20mg/m³

The StarMix ECO range embodies all that is the very best in asphalt plant design, meeting all the criteria for a high performance, aesthetically pleasing asphalt plant. The quality of engineering is focussed on all aspects of the plants operation, aimed at maximizing production of quality asphalt, increasing running reliability and minimizing maintenance cost. StarMix ECO range is also available with high capacity hot mixed material storage facilities as well as sheeting options making the plant suitable for environmentally sensitive locations. Entirely sheeted the plant benefits from lower dust emissions, noise and is more maintenance friendly. StarMix ECO also benefits from the latest advance in technology systems, weighing gear, high density thermal insulation, and is normally designed specifically to the customers requirements.

Up to six compartments as standard are supplied however a seventh can be added via diverter door section. Each modular section contains part of the integrated filler silo/silos and stack on top of each other when erected. Filler/additive material is then transferred via screw conveyer to a weigh hopper.

Material supplied from the cold feed unit passes through the aggregate dryer prior to being elevated to the multi-deck screening section where the material is separated for storage in the insulated hot stone bin compartments. Over size material is also rejected by screen. Overflow chutes in each storage bin are provided.

The mixing section contains all the right components necessary to begin the binding process. Filler, bitumen and aggregate weigh hoppers are suspended on load cells providing the operator with accurate proportions of ingredients. The advanced control system measures each weight extremely effectively prior to discharge into the paddle mixer for mixing.

StarMix Eco 3000 - High Level, 320tph static batch production asphalt plant with 300 tonne hot mixed material storage facility & integral additive silos. StarBatch Eco 1500 - 120tph static batch production asphalt plant with 200 tonne inclined hot mixed material storage facility with reclaimed & imported filler silos.

<table>
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<tr>
<th>Capacities</th>
<th>Model</th>
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<td>StarBatch</td>
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<tr>
<td></td>
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Plant capacity is based on 3% moisture content of feed aggregate with 0.5% residual moisture content of mixed materials, dryer discharge temperature of 150°C, ambient temperature 15°C at altitude 150m above sea level, aggregate bulk density average 1600kg/m³, 5% bitumen content, 45 second weigh/mix cycle at 100% plant utilisation.

Due to our policy of continual product development, changes to specification and data may occur without prior notice. Illustrations and photos may show optional equipment.

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APPENDIX 4

Specification for Recovered Fuel Oil
### Supplier Details:
- Malary Ltd
- Malary House
- Brookfield Business Ctr.
- Cottenham, Cambridge
- CS24 8PS

### Product Brand Name
- M2 Premium Fuel
- PFO Product Type (PFO Class C2)
- Comparable BS2869:2006 Class G

### Customer Details
- Eurovia Ipswich
- Site Contact scott

### Delivery Details
- **Date:** 16.08.13
- **Vehicle Reg. No:** Kx07yewz
- **Product Batch No:** 945/M2

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<th>Property</th>
<th>Units</th>
<th>Method</th>
<th>Limit</th>
<th>Results</th>
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</thead>
<tbody>
<tr>
<td>Sulfated Ash (max)</td>
<td>% (m/m)</td>
<td>IP550</td>
<td>0.20</td>
<td>0.20</td>
</tr>
<tr>
<td>Total Halogens (as Chlorine)</td>
<td>mg/kg</td>
<td>IP500</td>
<td>1.50</td>
<td>0.89</td>
</tr>
<tr>
<td>PCB's (max)</td>
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<td>IP462</td>
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<td>&lt;1</td>
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<tr>
<td>Kinematic viscosity @ 40°C</td>
<td>mm²/sec</td>
<td>BS2000-71</td>
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<tr>
<td>Kinematic viscosity @ 100°C</td>
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<td>°C</td>
<td>IP523</td>
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<td>&gt;110</td>
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<tr>
<td>Sulfur (max)</td>
<td>% (m/m)</td>
<td>BS2000-336</td>
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<td>% (v/v)</td>
<td>BS2000-24</td>
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<td>Carbon residue (micro) (max), Equivalent to BS2869 Class G</td>
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<td>Sediment (max) Equivalent to BS2869 Class G</td>
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<tr>
<td>Strong Acid Number</td>
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<td>BS2000-139</td>
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### Metals
- **Units:** mg/kg
- **Method:** IP594
- **Limit:** 5
- **Results:** <0.5
- **Zinc** mg/kg | IP593 | 300 | 133.3
- **Copper** mg/kg | IP593 | 40 | 22.1
- **Lead** mg/kg | IP593 | 25 | 11.0
- **Nickel** mg/kg | IP593 | 5 | 2.7
- **Chromium** mg/kg | IP593 | 5 | 4.5
- **Arsenic** mg/kg | IP593 | 5 | <0.5
- **Cadmium** mg/kg | IP593 | 5 | <0.5
- **Thallium** mg/kg | IP593 | 5 | <0.5
- **Antimony** mg/kg | IP593 | 5 | <0.5
- **Cobalt** mg/kg | IP593 | 5 | <0.5
- **Manganese** mg/kg | IP593 | 5 | 3.7
- **Vanadium** mg/kg | IP593 | 5 | <0.5

### Statement
Malary Ltd certifies that this data is representative of the supply made under the above delivery details and fully conforms to the Processed Fuel Oil Quality Protocol for a Class C2 Recovered Residual Product that also meets other than its viscosity or ash content (where deviations are permitted) the requirements of a fuel to BS 2869:2006* Class E, G or G.

Signed on behalf of
(Malary Ltd)

[Signature]

Authorized Signatory
Print Name

M2-AD-FM-053-001
Page 2.
6 PART 1

<table>
<thead>
<tr>
<th>Company Name:</th>
<th>Malary Ltd</th>
<th>Certificate of Conformity</th>
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<tbody>
<tr>
<td>Address Line 1</td>
<td>Malary House</td>
<td>Processed Fuel Oil</td>
</tr>
<tr>
<td>Line 2</td>
<td>Brookfield Business Ctr., Cottenham</td>
<td></td>
</tr>
<tr>
<td>Line 3</td>
<td>Cambridge</td>
<td></td>
</tr>
<tr>
<td>Post Code:</td>
<td>CB24 8PS</td>
<td></td>
</tr>
<tr>
<td>Contact Detail</td>
<td>Senior Chemist</td>
<td></td>
</tr>
<tr>
<td></td>
<td>01954 250638</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Email: <a href="mailto:mara.tavares@malary.co.uk">mara.tavares@malary.co.uk</a></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Gill Smith commercial Director</td>
<td></td>
</tr>
<tr>
<td></td>
<td>01954 253915</td>
<td></td>
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<td></td>
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<tr>
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<th>m2 Premium Fuel</th>
<th>PFO Product Type (PFO Class C1* or C2*)</th>
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<tbody>
<tr>
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<td>Comparable BS2869:2006 *Class G</td>
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| Production Site permit Number | BT2777W                                      |
| Production Batch Number      | 945                                           |
| Date of Production           | 13/08/13                                      |

m2 environmental solutions (Malary Ltd) hereby certify that the product supply details above was:

- Produced by a company licensed by the Oil Recycling Association and Oil Care Campaign’s conformance scheme licence number.
- Produced at a site permitted to conduct such a recovery operation.
- Derived entirely from waste inputs listed in Appendix B of the current PFO Quality Protocol.
- Sampled and tested in accordance with IP 475/UKAS approved procedures against the relevant requirements of Appendix C Standards (Table 2) and met all requirements. See also Part II.
- Identified to appropriate users with associated permit conditions who have been advised of regulatory requirements for its combustion OR for supplies made to distributors or brokers or outlets of any other form have been notified of the conditions of use.

And that the record of the makeup and disposal of this batch are properly recorded.

Signed on behalf of Malary Ltd

Authorised signatory [signature]  Print Name [signature]
APPENDIX 5

Air Quality Assessment
PDE Consulting Limited

Blackwater Asphalt Plant, Isle of Wight

Air Quality Assessment

February 2014

Executive Park, Avalon Way, Anstey, Leicester, LE7 7GR

Tel: +44 (0)116 234 8000

Email: nigel.mann@wyg.com
### Document Control

**Project:** Blackwater Asphalt Plant, Isle of Wight - Air Quality Technical Note  

**Client:** PDE Consulting Limited  

**Job Number:** A084072  

**File Origin:** O:\Acoustics Air Quality and Noise\Active Projects\  

**Document Checking:**  

| Prepared by: | Gabor Antony  
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**Issue** | **Date** | **Status**  
---|---|---  
1 | 28th February 2014 | First Issue  
2 |  |  
3 |  |  
4 |  |  
5 |  |  

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2. Policy and Legislative Context .......................................................................................... 5
3. Assessment Methodology .................................................................................................. 10
4. Baseline Conditions ......................................................................................................... 12
5. Assessment of Air Quality Impacts .................................................................................. 17
6. Mitigation .......................................................................................................................... 32
7. Conclusions ....................................................................................................................... 33

Figures

Figure 1 Site Location Plan
Figure 2 Bournemouth Meteorological Station Windrose
Figure 3 Modelled Building Layout

Appendices

Appendix A – Air Quality Standards and Assessment Criteria
Appendix B – Detailed Dispersion Modelling Contour-Plot Figures
1. Introduction

PDE Consulting Limited (acting on behalf of Wight Building Materials Limited) commissioned WYG Planning and Environment (WYG) to prepare an Air Quality Assessment (AQA) for an environmental permit application for a proposed asphalt plant on the Isle of Wight. The assessment is to enable the potential air quality effects of the proposed development to be considered within the decision making process.

This report presents the approach and findings of the impact assessment on Air Quality. The report presents the methodology followed, and provides a review of baseline Air Quality at the proposed site and surrounding area. The results of the assessment of the impact of the proposed development on the baseline features and resources are presented in order to determine the magnitude of impact and significance of impact anticipated. Mitigation measures are subsequently presented and discussed to minimise the impacts of the proposed development during both construction and operation.

1.1 Site Location and Context

The Applicant is seeking revised planning permission for the construction of an asphalt roadstone coating plant and ancillary facilities including offices, lorry park, storage bays, workshop and access at St Georges Down, Blackwater, Newport.

St Georges Down is located approximately four kilometres from the centre of Newport, accessed by the A3056. The approximate United Kingdom National Grid Reference of the site is 451525:86350 and the postal code of the site is PO30 3BX. The site is situated within the central area of Blackwater Quarry, an existing operational mineral extraction and waste management site. The site is bounded to the North, East and West by Quarry workings and access roads, and to the south by an agricultural woodland boundary.

Reference should be made to Figure 1 for a visual illustration of the proposed site boundary and surrounding area.

1.2 Scope

The assessment has considered potential impacts associated with operational phase point source emissions of nitrogen dioxide (NO₂) particulate matter with an aerodynamic diameter of less than 10µm (PM_{10}), sulphur dioxide (SO₂), and other compounds such as hydrogen chloride (HCl), hydrogen fluoride (HF), metals and their salts, dioxins and PCBs have also been considered as these are associated with burning of recovered oil in accordance with Process Guidance Note 3/15 (12), and Sector Guidance Note IPPC SG9.
2. Policy and Legislative Context

2.1 Documents Consulted

Legislation and Best Practice Guidance

- The Air Quality Standards Regulations, 2010;
- The Environmental Permitting (England and Wales) Regulations 2010;
- The Environment Act, 1995;
- National Planning Policy Framework, Office of the Deputy Prime Minister, 2012;
- Local Air Quality Management Technical Guidance LAQM.TG(09), DEFRA, 2009;
- Development Control: Planning for Air Quality, National Society for Clean Air and Environmental Protection, 2006;
- Process Guidance Note 3/15 (12) Secretary of State’s Guidance for Roadstone Coating Processes, September 2012; and,
- Sector Guidance Note IPPC SG9 Integrated Pollution Prevention and Control (IPPC) Secretary of State’s Guidance for A2 Roadstone Coating, Mineral and Other Processes that Burn Recovered Fuel Oil (April 2005)

Websites Consulted

- Google maps (maps.google.co.uk);
- The UK National Air Quality Archive (www.airquality.co.uk);
- Isle of Wight Council (http://www.iwight.com)
- Magic (http://magic.defra.gov.uk/)
- Environment Agency Interactive Maps (http://maps.environment-agency.gov.uk)

Site Specific Reference Documents

- The Island Plan Core Strategy, Isle of Wight Council, Adopted March 2012
- 2010 Air Quality Progress Report for Isle of Wight Council
- Detailed Air Quality Modelling Study, Isle of Wight Council, January 2005
2.2 Air Quality Legislation

2.2.1 European Legislation

European air quality legislation is consolidated under Directive 2008/50/EC, which came into force on 11th June 2008. This Directive consolidates previous legislation which was designed to deal with specific pollutants in a consistent manner and provides new air quality objectives for fine particulates. The consolidated Directives include:

- **Directive 1999/30/EC** – the First Air Quality "Daughter" Directive – sets ambient air limit values for nitrogen dioxide and oxides of nitrogen, sulphur dioxide, lead and particulate matter;
- **Directive 2000/69/EC** – the Second Air Quality "Daughter" Directive – sets ambient air limit values for benzene and carbon monoxide; and,

The fourth daughter Directive was not included within the consolidation and is described as:

- **Directive 2004/107/EC** – sets health-based limits on polycyclic aromatic hydrocarbons, cadmium, arsenic, nickel and mercury, for which there is a requirement to reduce exposure to as low as reasonably achievable.

2.2.2 UK Legislation

The Air Quality Standards Regulations (2010) seek to simplify air quality regulation and provide a new transposition of the Air Quality Framework Directive, First, Second and Third Daughter Directives and also transpose the Fourth Daughter Directive within the UK. The Air Quality Limit Values are transposed into the updated Regulations as Air Quality Standards, with attainment dates in line with the European Directives. SI 2007 No. 64 Regulation 14 extends powers, under Section 85(5) of the Environment Act (1995), for the Secretary of State to give directions to Local Authorities (LAs) for the implementation of these Directives.

The Air Quality Strategy is the method for implementation of the above air quality limit values in England, Scotland, Wales and Northern Ireland, and provides a framework for improving air quality and protecting human health from the effects of air pollution.

For each nominated pollutant, the Air Quality Strategy sets clear, measurable, outdoor air quality standards and target dates by which these must be achieved; the combined standard and target date is referred to as the AQO for that pollutant. Adopted national standards are based on the recommendations of the EPAQS
and have been translated into a set of Statutory Objectives within the Air Quality (England) Regulations (2010).

The AQOs for pollutants relevant to this assessment are presented in Appendix A, along with European Commission (EC) Directive Limits and World Health Organisation (WHO) Guidelines.

2.2.3 Local Air Quality Management

Under Section 82 of the Environment Act (1995) (Part IV), LAs are required to periodically review and assess air quality within their area of jurisdiction under the system of LAQM. This review and assessment of air quality involves assessing present and likely future ambient pollutant concentrations against AQOs. If it is predicted that levels at the façade of buildings where members of the public are regularly present (normally residential properties) are likely to be exceeded, the LA is required to declare an Air Quality Management Area (AQMA). For each AQMA, the LA is required to produce an Air Quality Action Plan (AQAP), the objective of which is to reduce pollutants levels in pursuit of the relevant AQOs.

The results of IoWC’s LAQM process are reviewed in Section 4.

2.2.4 Industrial Pollution Regulation

Atmospheric emissions from industrial processes are controlled in the UK through the Environmental Permitting (England and Wales) Regulations (2010). The Blackwater Asphalt Plant will be classified as a Part B process under the regulations, and as such will be required to operate in accordance with the conditions of an Environmental Permit, as issued by the Local Authority. The Permit will include stated emission limits for various pollutants produced by the process, as well as best practice guidelines for fugitive dust and odour control. Compliance with these conditions must be demonstrated through continuous and periodic monitoring requirements in order to limit potential air quality impacts in the surrounding area to acceptable levels.

The proposed process is covered by Process Guidance Note 3/15(12) Statutory Guidance for Roadstone Coating Processes, which provides guidance on the conditions appropriate for the control of emissions to air from Roadstone Coating processes/installations.¹

Given that activities such as burning waste oil are not covered by the quality protocol for processed fuel oil emissions must comply with the Waste Incineration Directive (WID). The relevant Emission Limit Values are detailed in Table 9.

2.2.5 Dust Nuisance

The main requirements with respect to dust control from industrial or trade premises not regulated under the Environmental Permitting (England and Wales) Regulations (2010), including the proposed development construction site, is that provided in Section 79 of Part III of the Environmental Protection Act (1990). The Act defines nuisance as:

“any dust, steam, smell or other effluvia arising on industrial trade or business premises and being prejudicial to health or a nuisance.”

Enforcement of the Act, in regard to nuisance, is currently under the jurisdiction of the local Environmental Health Department, whose officers are deemed to provide an independent evaluation of nuisance. If the LA is satisfied that a statutory nuisance exists, or is likely to occur or happen again, it must serve an Abatement Notice under Part III of the Act. Enforcement can insist that there be no dust beyond the boundary of the works. The only defence is to show that the process to which the nuisance has been attributed and its operation are being controlled according to Best Practice Measures (BPM).

2.3 Planning Context

2.3.1 National Policy

The National Planning Policy Framework (NPPF) principally brings together and summarises the suite of Planning Policy Statements (PPS) and Planning Policy Guidance (PPG) which previously guided planning policy making. The NPPF broadly retains the principles of PPS 23: Planning and Pollution Control and states that:

‘Planning policies should sustain compliance with and contribute towards national objectives for pollutants, taking into account the presence of Air Quality Management Areas and the cumulative impacts on air quality from individual sites in local areas. Planning decisions should ensure that any new development in Air Quality Management Areas is consistent with the local air quality action plan.’

2.3.2 Local Policy

In accordance with the Planning and Compulsory Purchase Act 2004, Isle of Wight Council (IoWC) is currently in the process of preparing a Local Development Framework (Island Plan) which represents a suite of planning documents that will set out the Council’s future planning policies, and once complete, supersede the Unitary Development Plan. The key document of the LDF is the Core Strategy (CS) which
Blackwater Asphalt Plant  
Air Quality Assessment

was adopted by the IoWC on 21 March 2012. The Council has also prepared an Environmental Statement and Adoption Statement to accompany the adopted Core Strategy2.

Following a review of the Island Plan documents, the following policies were identified as being relevant to the assessment of air quality impacts associated with the proposed development:

Core Strategy DM2 – Design Quality for New Development

*Development proposals will be expected to:

5. Minimise the consumption of natural resources and the production of waste or pollution.

Core Strategy DM20 – Minerals

*Mineral related development proposals (including wharves, quarries, borrow pits and associated processing plants) will be expected to demonstrate how they will:

4. In the first instance avoid the principal environmental and nature conservation impacts associated with mineral development and where necessary mitigate these impacts, including noise, dust, air quality, vibration, mineral waste, visual, impact on archaeological and heritage features, ground and surface water and land stability.
3. Assessment Methodology

The potential environmental effects of the proposed development are identified, in so far as current knowledge of the site and development allows. The significance of potential environmental effects is assessed according to their scale (magnitude) and the sensitivity of the receptors.

3.1.1 Predicting Magnitude of Impact

Magnitude (scale of change) is determined by considering the predicted deviation from baseline conditions. Quantifiable assessment of magnitude has been undertaken where possible.

Impacts of the proposed development on air quality have been assessed with reference to the baseline conditions and environmental assessment criteria. The rationale for determining the magnitude of an impact is shown in Table 1. The rationale has been derived in part from the magnitude matrix described in Table 4 of the EPUK non statutory guidance “Development Control: Planning for Air Quality (2010 Update)”.

### Table 1 Methodology for Assessing Magnitude of Impacts on Air Quality

<table>
<thead>
<tr>
<th>Magnitude of Impact(1)</th>
<th>Description</th>
<th>Description</th>
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<td>Large</td>
<td>Impact resulting in a considerable change in baseline environmental conditions (!) with severe undesirable/desirable consequences on the receiving environment.</td>
<td>• Air quality varies between the do minimum and do something by more than 10% of the air quality criterion.</td>
</tr>
<tr>
<td>Medium</td>
<td>Impact resulting in a discernible change in baseline environmental conditions with undesirable/desirable conditions</td>
<td>• Air quality varies between the do minimum and do something by 5 - 10% of the air quality criterion.</td>
</tr>
<tr>
<td>Small</td>
<td>Impact resulting in a discernible change in baseline environmental conditions with undesirable/desirable conditions that can be tolerated.</td>
<td>• Air quality varies between the do minimum and do something by 1 - 5% of the air quality criterion.</td>
</tr>
<tr>
<td>Imperceptible(2)</td>
<td>No discernible change in baseline environmental conditions.</td>
<td>• Air quality varies between the do minimum and do something by less than 1% of the air quality criterion.</td>
</tr>
</tbody>
</table>

**NOTE**

(1) An impacts magnitude can be either positive or negative, except for negligible.

(2) If the assessor is certain that a receptor or attribute of a feature will suffer no impact whatsoever then the term 'No Impact' can be used in the place of 'Negligible Impact'. However, it is not usually possible to determine 'No Impact' in many cases with 100% certainty so the term 'Negligible' should be used in these cases.

The stated criteria have been developed by WYG and are based on the example assessment criteria for air quality provided in the Environmental Protection UK guidance document Development Control: Planning for Air Quality.

---

3.2 Sensitivity of Receptor

Receptors can demonstrate different sensitivities to changes in their environment. For the purpose of this assessment sensitivity is determined as **Very High**, **High**, **Medium** or **Low** as detailed in Table 2.

Table 2  Methodology for Assessing Sensitivity of Receptor

<table>
<thead>
<tr>
<th>Sensitivity</th>
<th>Description</th>
</tr>
</thead>
</table>
| Very High   | - For an *increase* in the air quality pollutant concentrations with the scheme, absolute concentration above the air quality criterion *with* the scheme; or,  
- For a *decrease* in air quality pollutant concentrations with the scheme, absolute concentrations above the air quality criterion *without* the scheme.  
- Densely populated areas – more than 100 dwellings within 20m of the development site |
| High        | - For an *increase* in the air quality pollutant concentrations with the scheme, absolute concentration of 90-100% of the air quality criterion *with* the scheme; or,  
- For a *decrease* in air quality pollutant concentrations with the scheme, absolute concentrations of 90-100% air quality criterion *without* the scheme.  
- Densely populated areas – 10-100 dwellings within 20m of the development site |
| Medium      | - For an *increase* in the air quality pollutant concentrations with the scheme, absolute concentration of 75-90% of the air quality criterion *with* the scheme; or,  
- For a *decrease* in air quality pollutant concentrations with the scheme, absolute concentrations of 75-90% air quality criterion *without* the scheme.  
- Suburban or edge of town areas |
| Low         | - For an *increase* in the air quality pollutant concentrations with the scheme, absolute concentration of less than 75% of the air quality criterion *with* the scheme; or,  
- For a *decrease* in air quality pollutant concentrations with the scheme, absolute concentrations of less than 75% air quality criterion *without* the scheme.  
- Rural/Industrial areas |

3.3 Assessment of Impact Significance

Table 3 shows how the interaction of magnitude and sensitivity results in the significance of an environmental effect. If the scale of the impact magnitude is **negative** then the resulting effect is **adverse**. If the scale of the impact magnitude is **positive** then the resulting effect is **beneficial**.

Table 3  Impact Significance Matrix

<table>
<thead>
<tr>
<th>Sensitivity of Receptor</th>
<th>Magnitude of Impact</th>
<th>Large</th>
<th>Medium</th>
<th>Small</th>
<th>Imperceptible</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very High</td>
<td>Major</td>
<td>Medium</td>
<td>Minor</td>
<td>Negligible</td>
<td></td>
</tr>
<tr>
<td>High</td>
<td>Moderate</td>
<td>Moderate</td>
<td>Minor</td>
<td>Negligible</td>
<td></td>
</tr>
<tr>
<td>Medium</td>
<td>Minor</td>
<td>Minor</td>
<td>Negligible</td>
<td>Negligible</td>
<td></td>
</tr>
<tr>
<td>Low</td>
<td>Minor</td>
<td>Negligible</td>
<td>Negligible</td>
<td>Negligible</td>
<td></td>
</tr>
</tbody>
</table>
4. Baseline Conditions

A review of background air quality in the vicinity of the proposed installation was undertaken in order to determine a suitable baseline for use within the Air Quality Assessment. The data sources used are described in the following sections.

4.1 Local Air Quality Management

As required under Section 82 of the Environment Act (1995) (Part IV), IoWC have conducted an ongoing exercise to review air quality within their area of jurisdiction. The assessments have indicated that pollutant concentrations across the Island are unlikely to exceed the relevant Air Quality Objectives. As such there are no Air Quality Management Areas currently designated on the Isle of Wight.

4.2 Air Quality Monitoring

There are currently no automatic monitoring stations on the Isle of Wight. As such levels of NO$_2$, SO$_2$ and PM$_{10}$ for Blackwater are not available. The assessment has therefore utilised pollutant concentrations referenced from the UK National Air Quality Information Archive database based on the National Grid Co-ordinates of 1 x 1 km grid squares nearest to the development site. In April 2012 Defra issued revised 2010 based background maps for NO$_x$, NO$_2$, PM$_{10}$ and PM$_{2.5}$ which incorporate updates to the input data used for modelling.

Benzene Monitoring

There is currently no monitoring of Benzene on the Isle of Wight, therefore monitoring results from the Southampton monitoring site have been utilised within the assessment. Monitored Benzene concentrations for 2013 are in the range of 0.55 to 1.73µg/m$^3$ with an average of 0.90µg/m$^3$.

Heavy Metals

Concentrations of Hg are measured throughout the UK as part of the Rural Heavy Metals Network (CEH) Monitoring Network. The closest sites to the development are Barcombe Mills and Yarnes Wood. Although there is significant distance between the two locations, this source of data has been reviewed in lieu of closer monitoring sites. Monitoring results for 2012, the most recent year with data available, is detailed within Table 4.
Table 4  Monitored Background Data for Metals, 2012

<table>
<thead>
<tr>
<th>Monitoring Site</th>
<th>As</th>
<th>Cd</th>
<th>Ni</th>
<th>Pb</th>
<th>Cr</th>
<th>Cu</th>
<th>Mn</th>
<th>V</th>
</tr>
</thead>
<tbody>
<tr>
<td>Barcombe Mills</td>
<td>0.58</td>
<td>1.13</td>
<td>0.09</td>
<td>0.28</td>
<td>0.45</td>
<td>4.71</td>
<td>0.24</td>
<td>2.59</td>
</tr>
<tr>
<td>Yarner Wood</td>
<td>0.40</td>
<td>1.03</td>
<td>0.05</td>
<td>0.21</td>
<td>0.42</td>
<td>0.66</td>
<td>0.15</td>
<td>0.59</td>
</tr>
</tbody>
</table>

Monitoring is not undertaken for thallium (Tl), antimony (Sb) or cobalt (Co) within the UK.

Acid Gases

Concentrations of HCl are measured throughout the UK as part of the UKEAP Acid Gas and Aerosol Monitoring Network. The closest sites to the development are Barcombe Mills and Yarnes Wood. Although there is significant distance between the two locations, this source of data has been reviewed in lieu of closer monitoring sites. Monitoring results for 2012, the most recent year with data available, is detailed within Table 5.

Table 5  Monitored Background Data for Hydrogen Chloride (HCl), 2012

<table>
<thead>
<tr>
<th>Location</th>
<th>Annual Mean Concentration (µg/m$^3$)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Barcombe Mills</td>
<td>0.28</td>
</tr>
<tr>
<td>Yarner Wood</td>
<td>0.21</td>
</tr>
</tbody>
</table>

As a worst case scenario, monitoring results from the Barcombe Mills monitoring location, which reported the highest HCl concentrations in 2012, have been utilised in the assessment.

HF is not routinely monitored within the UK. However, based on ambient measurements taken in the vicinity of industrial sites, the Expert Panel on Air Quality Standards (EPAQS) suggests that background levels have been in the range 0.034µg/m$^3$ to 2.35µg/m$^3$.

Polycyclic aromatic hydrocarbons (PAHs)

PAHs are measured at various industrial, urban and rural sites across the UK. The most important PAH is benzo(a)pyrene (BaP), for which an AQO / EAL of 0.25 ng/m$^3$ is used. There are currently no monitoring of PAHs on the Isle of Wight, therefore monitoring results from the Hove monitoring site have been utilised within the assessment. Monitored PAH concentrations for 2012 are in the range of 0.0242ng/m$^3$ to 0.4046ng/m$^3$ with an average of 0.16ng/m$^3$.

---

4 EPAQS. Guidelines for Halogens and Hydricarbon Halides in Ambient Air for Protecting Human Health against Acute Irritancy Effects
Dioxins and Furans

Dioxins and Furans are a family of toxic substances with similar structures, the primary sources of which include herbicide production, coal combustion, steel production and the pulp and paper industry. Polychlorinated Dibenzo-Dioxins (PCDDs) and Polychlorinated Dibenzo Furans (PCDFs) are considered to be toxic, with one dioxin, 2, 3, 7, 8-TCDD identified as a definite carcinogen.

Monitoring of PCDD/Fs is undertaken at 5 No. locations in the UK as part of the Toxic Organic Micropollutants (TOMPS) network. Monitoring results across the network recorded throughout 2010, are displayed in Table 6.

<table>
<thead>
<tr>
<th>Location</th>
<th>2010 Annual Mean Concentration (fg/m³ I-TEQ)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manchester</td>
<td>48.70</td>
</tr>
<tr>
<td>Hazelrigg</td>
<td>8.00</td>
</tr>
<tr>
<td>London</td>
<td>38.60</td>
</tr>
<tr>
<td>High Muffles</td>
<td>2.76</td>
</tr>
<tr>
<td>Auchencorth</td>
<td>5.01</td>
</tr>
<tr>
<td>Weymouth</td>
<td>2.49</td>
</tr>
</tbody>
</table>

As a worst case scenario, monitoring results from the Manchester monitoring location, which reported the highest PCDDs and PCDFs concentrations in 2010, have been utilised in the assessment.

It should be noted that raw monitoring results for each PCDD/F congener has been multiplied by the associated WHO toxic equivalence factor to give a total PCDD/F concentration in compliance with the I-TEQ reporting convention. This allows a comparison between the modelled concentration and the monitored concentration to be made.

4.3 Background Pollutant Mapping

Background pollutant concentration data on a 1km x 1km spatial resolution is provided by the UK National Air Quality Archive and is routinely used in assessing background pollutant concentrations where monitoring has not taken place.

Background concentrations as used within the prediction calculations were referenced from the UK National Air Quality Information Archive database based on the National Grid Co-ordinates of 1 x 1 km grid squares nearest to the development site. In April 2012 Defra issued revised 2010 based background maps for NOₓ, NO₂, PM₁₀ and PM₂.₅ which incorporate updates to the input data used for modelling. The updated mapped background concentrations used in the assessment, are summarised in Table 7 for the relevant grid square.
covering the application site and surrounding area. Predicted concentrations for NO\textsubscript{x}, NO\textsubscript{2} and PM\textsubscript{10} are based on 2010 published background data and predicted SO\textsubscript{2} and C\textsubscript{6}H\textsubscript{6} concentrations are based on 2001 emissions data.

**Table 7  Predicted Annual Mean Background Concentrations (µg/m\textsuperscript{3})**

<table>
<thead>
<tr>
<th>UK NGR (m)</th>
<th>NO\textsubscript{2}</th>
<th>NO\textsubscript{x}</th>
<th>PM\textsubscript{10}</th>
<th>PM\textsubscript{2.5}</th>
<th>SO\textsubscript{2}</th>
<th>C\textsubscript{6}H\textsubscript{6}</th>
<th>CO</th>
</tr>
</thead>
<tbody>
<tr>
<td>X</td>
<td>Y</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>450500</td>
<td>85500</td>
<td>10.91</td>
<td>14.19</td>
<td>14.38</td>
<td>9.51</td>
<td>2.16</td>
<td>0.16</td>
</tr>
<tr>
<td>450500</td>
<td>86500</td>
<td>11.89</td>
<td>15.60</td>
<td>14.65</td>
<td>9.72</td>
<td>2.25</td>
<td>0.18</td>
</tr>
<tr>
<td>450500</td>
<td>87500</td>
<td>12.44</td>
<td>16.43</td>
<td>14.22</td>
<td>9.65</td>
<td>2.68</td>
<td>0.20</td>
</tr>
<tr>
<td>451500</td>
<td>85500</td>
<td>10.40</td>
<td>13.48</td>
<td>14.55</td>
<td>9.47</td>
<td>2.17</td>
<td>0.16</td>
</tr>
<tr>
<td>451500</td>
<td>86500</td>
<td>12.10</td>
<td>15.94</td>
<td>14.10</td>
<td>9.59</td>
<td>2.19</td>
<td>0.18</td>
</tr>
<tr>
<td>451500</td>
<td>87500</td>
<td>11.67</td>
<td>15.32</td>
<td>14.40</td>
<td>9.68</td>
<td>2.44</td>
<td>0.20</td>
</tr>
<tr>
<td>452500</td>
<td>85500</td>
<td>10.91</td>
<td>14.21</td>
<td>15.26</td>
<td>9.75</td>
<td>2.34</td>
<td>0.16</td>
</tr>
<tr>
<td>452500</td>
<td>86500</td>
<td>11.48</td>
<td>15.03</td>
<td>14.08</td>
<td>9.49</td>
<td>2.33</td>
<td>0.17</td>
</tr>
<tr>
<td>452500</td>
<td>87500</td>
<td>11.47</td>
<td>15.03</td>
<td>13.91</td>
<td>9.45</td>
<td>2.54</td>
<td>0.18</td>
</tr>
<tr>
<td>Mean</td>
<td></td>
<td>11.48</td>
<td>15.03</td>
<td>14.40</td>
<td>9.59</td>
<td>2.34</td>
<td>0.17</td>
</tr>
</tbody>
</table>

It should be noted that for predicted annual mean background concentrations of SO\textsubscript{2}, year adjustment factors are no longer provided. Therefore, concentrations of SO\textsubscript{2} are assumed to have remained constant.

**Sensitive Receptors**

The term 'sensitive receptors' includes any persons, locations or systems that may be susceptible to changes in abiotic factors or loss of amenity as a consequence of atmospheric emissions from the installation.

**4.3.1 Emission Sensitive Receptors**

The AQOs only apply at locations where the public may be exposed to pollution for a sufficient period for there to be any measurable health effect. The averaging period and AQO involved will determine which locations are considered to be sensitive receptors.

For the purpose of this assessment, emission sensitive receptors are shown in Table 8. Where these emission sensitive receptors are referenced in the report text they are referred to as R1 to R9.

**Table 8  Identified Emission Sensitive Receptors**

<table>
<thead>
<tr>
<th>Receptor</th>
<th>UK NGR (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>X</td>
</tr>
<tr>
<td>R1</td>
<td>451818.9</td>
</tr>
<tr>
<td>R2*</td>
<td>452016.0</td>
</tr>
<tr>
<td>R3</td>
<td>451529.4</td>
</tr>
<tr>
<td>R4</td>
<td>451565.6</td>
</tr>
</tbody>
</table>

[Blackwater Coating Plant
Isle of Wight
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Reference should be made to Figure 2 for a graphical representation of the identified representative combustion emission sensitive receptor locations. However, it should be noted that this is not an exhaustive list and there may be other locations within the vicinity of the site that may experience impacts as a result of the proposed development.

The receptor sensitivity to each pollutant species has been determined based on background concentrations and the methodology contained within Table 2.

### 4.3.2 Ecological Receptors

Air quality impacts associated with the proposed development have the potential to impact on receptors of ecological sensitivity within the vicinity of the site. The Conservation of Habitats and Species Regulations (2010) require competent authorities to review planning applications and consents that have the potential to impact on European designated sites (e.g. SPAs).

A study was undertaken to identify any statutory designated sites of ecological or nature conservation importance within the extents of the dispersion modelling assessment. This was completed using the Multi-Agency Geographic Information for the Countryside (MAGIC) web-based interactive mapping service, which draws together information on key environmental schemes and designations⁶. Following a search within a 1km radius of the site boundary, no sensitive ecological receptors were identified.

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⁶ [www.magic.gov.uk](http://www.magic.gov.uk)
5. Assessment of Air Quality Impacts

5.1 Construction Phase

The assessment has referenced the Institute of Air Quality Management’s ‘Guidance on the Assessment of the Impacts of Construction on Air Quality and the Determination of their Significance’ document when assessing the potential air quality impacts associated with the construction phase. In accordance with this document, based on the fact that there are no residential receptors within 300m of the site boundary a detailed assessment is not considered necessary.

5.2 Operational Phase

During the operation of the proposed asphalt plant, the principle air quality impacts are likely to include:

- HDVs carrying fuel and consumables and LDVs carrying employees and visitors to and from the proposed development. This would result in the generation of road vehicle exhaust emissions both on-site and on the local and regional road network;
- Process emissions associated with the operation of the proposed asphalt Plant.

5.2.1 Road Vehicle Exhaust Emissions

During the operational phase, road traffic exhaust emissions generated by wagons, vans, cars and other vehicles associated with the proposed development using the local and regional road network have the potential to cause increased concentrations of traffic-related pollutants, such as NO\(_2\) and PM\(_{10}\), in the vicinity of the site.

Additional vehicle trips are anticipated to include LDVs carrying employees to and from the proposed development and HDVs associated with the import and export of material.

However, the number of vehicle movements associated with the operational phase of the development is not expected to meet either the DMRB or EPUK screening criteria for further assessment. Specifically, DMRB states that roads which do not meet the following criteria can be considered to result in negligible air quality impacts:

- Increase in 24-hour Annual Average Daily Traffic (AADT) flow of more than 1,000 vehicles; and/or
- Increase in 24-hour AADT HGV flow of more than 200 vehicles and/or
- Daily average traffic speed will change by 10kmh or more, and/or
Blackwater Asphalt Plant  
Air Quality Assessment

- Peak hour speed will change by 10kph or more.

Similarly, EPUK 'Development Control: Planning for Air Quality (2010 Update)' states in paragraph 5.6 that an air quality assessment is likely to be necessary when any development will:

- Generate or increase traffic congestion,
- Significantly change traffic volumes (typically greater than 5% in AADT or peak hour flows) or vehicle speed (typically greater than 10%) or both, usually on roads with flows more than 10,000 AADT.
- Increase HGV movements by 200 movements or more per day.

In accordance with the aforementioned guidance, potential air quality impacts associated with increases in vehicle flows below the stated criteria can be considered as negligible.

5.2.2 Model Inputs

Process Emissions - Human Health Impacts

Point source emissions associated with the coating processes on site have the potential to impact on air quality in the vicinity of the site boundary. Potential increases in pollutant concentrations have been predicted through a detailed dispersion modelling assessment.

Process conditions were provided through correspondence with the client and reference to Process Guidance Note 3/15(12) and the Sector Guidance Note IPPC SG9. Table 9 below provides a summary of the process inputs used within the modelling assessment.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Unit</th>
<th>Value</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Stack Height</td>
<td>m</td>
<td>28</td>
<td></td>
</tr>
<tr>
<td>Stack Diameter</td>
<td>m</td>
<td>1.18</td>
<td></td>
</tr>
<tr>
<td>Stack Location</td>
<td>UK NGR (m)</td>
<td>451,539, 86,332</td>
<td></td>
</tr>
<tr>
<td>Flue Gas Exit Velocity</td>
<td>m/s (maximum value)</td>
<td>18.4</td>
<td></td>
</tr>
<tr>
<td>Volumetric Flow Rate</td>
<td>m³/s</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>Exhaust Gas Temperature</td>
<td>°C</td>
<td>100</td>
<td></td>
</tr>
<tr>
<td>Flue gas Oxygen Content</td>
<td>%v/v (dry)</td>
<td>18</td>
<td></td>
</tr>
<tr>
<td>Flue gas Moisture Content</td>
<td>%v/v</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Pollutant</td>
<td>Emission Limit Value (mg/m³)</td>
<td>Emission Rate per Stack (g/s)</td>
<td></td>
</tr>
<tr>
<td>Nitrogen Oxides (NOₓ as NO₂)</td>
<td>200</td>
<td>0.443</td>
<td></td>
</tr>
<tr>
<td>Particulate Matter (PM₁₀)</td>
<td>50</td>
<td>0.111</td>
<td></td>
</tr>
<tr>
<td>Particulate Matter (PM₂.₅)</td>
<td>50</td>
<td>0.111</td>
<td></td>
</tr>
<tr>
<td>Sulphur Dioxide (SO₂)</td>
<td>50</td>
<td>0.111</td>
<td></td>
</tr>
<tr>
<td>Carbon Monoxide (CO)</td>
<td>50</td>
<td>0.111</td>
<td></td>
</tr>
<tr>
<td>Hydrogen Chloride (HCl)</td>
<td>10</td>
<td>0.022</td>
<td></td>
</tr>
</tbody>
</table>

Blackwater Coating Plant  
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February 2014
<table>
<thead>
<tr>
<th>Pollutant</th>
<th>Emission Limit Value (mg/m³)</th>
<th>Emission Rate per Stack (g/s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydrogen Fluoride (HF)</td>
<td>1</td>
<td>0.002</td>
</tr>
<tr>
<td>Cadmium (Cd)</td>
<td>0.05</td>
<td>2.00x10⁻⁴</td>
</tr>
<tr>
<td>Mercury (Hg)</td>
<td>0.05</td>
<td>2.00x10⁻⁴</td>
</tr>
<tr>
<td>Other Metals</td>
<td>0.5</td>
<td>2.00x10⁻³</td>
</tr>
<tr>
<td>VOCs (as Benzene)</td>
<td>10</td>
<td>0.022</td>
</tr>
<tr>
<td>PAHs (as B[a]P)</td>
<td>0.001</td>
<td>4.00x10⁻⁶</td>
</tr>
<tr>
<td>Dioxins and Furans</td>
<td>1x10⁻⁷</td>
<td>4.00x10⁻¹⁰</td>
</tr>
</tbody>
</table>

**Note:** All concentrations are expressed at reference conditions taken from Sector Guidance Note IPPC SG9 (dry gas, 3% or 11% oxygen (as described), 273°K, 101.3kPa), all emission rates corrected in air dispersion modelling to actual flue gas conditions.

**Meteorological Data**

Meteorological data used in this assessment was taken from Bournemouth meteorological station, which is considered to be representative of conditions within the vicinity of the application site. Reference should be made to Figure 2 for a wind rose for this site.

**Building Downwash**

The integrated Building Profile Input Programme (BPIP) module within AERMOD was used to assess the potential impact of building downwash upon predicted dispersion characteristics. Building downwash occurs when turbulence, induced by nearby structures, causes pollutants emitted from an elevated source to be displaced and dispersed rapidly towards the ground, resulting in elevated ground level concentrations.

Modelling that includes data inputs for building downwash provides a more accurate representation of pollutant dispersion than modelling that omits this consideration. Tests have indicated that when building downwash is not accounted for, erroneous predicted concentrations may be produced. Building downwash should always be considered for buildings that have a maximum height equivalent to at least 40% of the emission height, and which within a distance defined as five times the lesser of the height or maximum projected width of the building.

All on-site structures were inputted into the BPIP Building Downwash pre-processor, with building dimensions based on floor plans and elevations of the proposed facility, as provided by DLA Architecture.

Reference should be made to Figure 3 for a graphical representation for the modelled building layout.

**Modelling Scenarios**

The dispersion modelling has assessed cumulative impact of emissions from the facility taking into consideration of the operation of the existing installation and the operations associated with the site following the implementation of the proposed expansion.

The scenarios considered within the Dispersion Modelling Assessment are detailed in Table 10.
Table 10  Modelling Scenarios

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Modelling Scenario</th>
<th>Short Term</th>
<th>Long Term</th>
</tr>
</thead>
<tbody>
<tr>
<td>NO₂</td>
<td>99.79&lt;sup&gt;th&lt;/sup&gt; %ile 1-hour mean</td>
<td>Annual mean</td>
<td></td>
</tr>
<tr>
<td>NOₓ</td>
<td>-</td>
<td>Annual mean&lt;sup&gt;(1)&lt;/sup&gt;</td>
<td></td>
</tr>
<tr>
<td>PM as PM₁₀</td>
<td>90.41&lt;sup&gt;th&lt;/sup&gt; %ile 24-hour Mean</td>
<td>Annual mean</td>
<td></td>
</tr>
<tr>
<td>PM as PM₂,₅</td>
<td>-</td>
<td>Annual mean</td>
<td></td>
</tr>
<tr>
<td>SO₂</td>
<td>99.18&lt;sup&gt;th&lt;/sup&gt; %ile 24-hour</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td></td>
<td>99.73&lt;sup&gt;rd&lt;/sup&gt; %ile 1-hour 15min (99.60%ile 1-hour)</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>CO</td>
<td>Maximum 8-hour rolling mean</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Cd</td>
<td>-</td>
<td>Annual mean</td>
<td></td>
</tr>
<tr>
<td>Hg</td>
<td>Maximum 1-hour mean</td>
<td>Annual mean</td>
<td></td>
</tr>
<tr>
<td>VOC (as C₆H₆)</td>
<td>-</td>
<td>Annual mean</td>
<td></td>
</tr>
<tr>
<td>Group 3 metals (Sb, As, Cr, Co, Cr, Pb, Mn, Ni, V)</td>
<td>1-hour Mean</td>
<td>Annual mean</td>
<td></td>
</tr>
<tr>
<td>PaH</td>
<td>Maximum 1-hour mean</td>
<td>Annual mean</td>
<td></td>
</tr>
<tr>
<td>Dioxins &amp; Furans</td>
<td>-</td>
<td>Annual mean</td>
<td></td>
</tr>
</tbody>
</table>

This Dispersion Modelling Assessment does not take into consideration the impact from the installation during Emergency Situations, as described within H1 – Risk Assessment, as these are not predicted to occur for any significant period of time to impact upon any AQO or EAL.

5.2.3  Modelling Results

Full colour isopleth plots of predicted ground level pollutant concentrations are presented in the Figures section. All predicted concentrations have been compared to the relevant AQO. A summary of modelling results is contained in the following sections.

All process emission impacts are considered to be **direct**, **reversible**, **permanent** and **long-term** in nature. The impacts are determined to be **reversible** as the cessation of operations will result in pollutant concentrations returning to baseline levels, **permanent** as they will potentially occur throughout the operational phase and **long-term** because it is assumed the plant will be in operation 24-hours per day.
Nitrogen Dioxide (NO$_2$)

Predicted ground level NO$_2$ concentrations were assessed against the relevant AQOs. The results of the model predictions at each discrete receptor, inclusive of background, are summarised in Table 11.

<table>
<thead>
<tr>
<th>Receptor</th>
<th>Operational Source Process Contribution (PC)</th>
<th>Predicted Annual Mean Concentration ($\mu$g/m$^3$)</th>
<th>Predicted Environmental Concentration (PEC)$^{(a)}$</th>
<th>Operational Source Process Contribution (PC)</th>
<th>Predicted Environmental Concentration (PEC)$^{(b)}$</th>
</tr>
</thead>
<tbody>
<tr>
<td>R1</td>
<td>0.04</td>
<td>11.52</td>
<td>0.70</td>
<td>23.65</td>
<td></td>
</tr>
<tr>
<td>R2*</td>
<td>0.03</td>
<td>11.51</td>
<td>0.55</td>
<td>23.50</td>
<td></td>
</tr>
<tr>
<td>R3</td>
<td>0.02</td>
<td>11.50</td>
<td>0.45</td>
<td>23.40</td>
<td></td>
</tr>
<tr>
<td>R4</td>
<td>0.02</td>
<td>11.49</td>
<td>0.47</td>
<td>23.43</td>
<td></td>
</tr>
<tr>
<td>R5</td>
<td>0.01</td>
<td>11.49</td>
<td>0.34</td>
<td>23.29</td>
<td></td>
</tr>
<tr>
<td>R6</td>
<td>0.01</td>
<td>11.49</td>
<td>0.42</td>
<td>23.38</td>
<td></td>
</tr>
<tr>
<td>R7</td>
<td>0.01</td>
<td>11.48</td>
<td>0.29</td>
<td>23.24</td>
<td></td>
</tr>
<tr>
<td>R8</td>
<td>0.01</td>
<td>11.49</td>
<td>0.31</td>
<td>23.26</td>
<td></td>
</tr>
<tr>
<td>R9</td>
<td>0.01</td>
<td>11.48</td>
<td>0.21</td>
<td>23.17</td>
<td></td>
</tr>
<tr>
<td>AQOs</td>
<td></td>
<td>40</td>
<td></td>
<td>200</td>
<td></td>
</tr>
</tbody>
</table>

Note: *Non-Residential receptors are marked with asterisk

$^{(a)}$ Inclusive of Background concentration of 11.48µg/m$^3$

$^{(b)}$ Inclusive of Background concentration of 22.96µg/m$^3$

As indicated in Table 11, there were no predicted exceedances of the relevant AQOs for NO$_2$ at the Council’s existing monitoring location or any modelled discrete receptors. It should be noted that the majority of the predicted 1-hour mean NO$_2$ concentrations is the assumed background and the increase associated with the proposed development is not significant.

Impacts on NO$_2$ concentrations were assessed by comparing the modelled process contribution, representing the potential increase in pollutant concentration should the development proceed, against the relevant AQO and the stated criteria. The magnitude of predicted impacts on annual mean NO$_2$ concentrations at residential receptors are imperceptible at receptors of low sensitivity. As such, the significance of predicted impacts with respect to annual mean NO$_2$ is expected to be negligible, in accordance with the stated methodology.

Based on the 99.79$^{th}$ percentile process contribution, the magnitude of predicted impacts on 1-hour mean NO$_2$ concentrations is imperceptible at receptors of low sensitivity. The significance of predicted impacts with respect to 1-Hour mean NO$_2$ is classified as negligible, in accordance with the stated methodology.

It should be noted that impacts on NO$_2$ concentrations have been predicted based on the plant emitting the maximum permitted emission limit 24-hours per day, 365-days per year. Actual impacts on NO$_2$ concentrations are therefore likely to be less than those predicted.
Particulate Matter (PM$_{10}$)

Predicted ground level PM$_{10}$ concentrations were assessed against the relevant AQOs. The results of the model predictions at each discrete receptor, inclusive of background, are summarised in Table 12.

Table 12  Summary of Predicted PM$_{10}$ Concentrations

<table>
<thead>
<tr>
<th>Receptor</th>
<th>Predicted Annual Mean Concentration (µg/m$^3$)</th>
<th>Predicted 24-hour Mean (90.41$^{th}$ Percentile) Concentration (µg/m$^3$)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Operational Source Process Contribution (PC)</td>
<td>Environmental Concentration (PEC)$^{(a)}$</td>
</tr>
<tr>
<td></td>
<td>Predicted Environmental Concentration (PEC)$^{(b)}$</td>
<td></td>
</tr>
<tr>
<td>R1</td>
<td>0.04</td>
<td>14.44</td>
</tr>
<tr>
<td>R2$^*$</td>
<td>0.03</td>
<td>14.43</td>
</tr>
<tr>
<td>R3</td>
<td>0.02</td>
<td>14.42</td>
</tr>
<tr>
<td>R4</td>
<td>0.02</td>
<td>14.41</td>
</tr>
<tr>
<td>R5</td>
<td>0.01</td>
<td>14.41</td>
</tr>
<tr>
<td>R6</td>
<td>0.01</td>
<td>14.41</td>
</tr>
<tr>
<td>R7</td>
<td>0.01</td>
<td>14.40</td>
</tr>
<tr>
<td>R8</td>
<td>0.01</td>
<td>14.41</td>
</tr>
<tr>
<td>R9</td>
<td>0.01</td>
<td>14.40</td>
</tr>
</tbody>
</table>

AQOs 40 50

Note:  
$^*_{Non-Residential receptors are marked with asterisk}$  
$^{(a)}_{Inclusive of Background concentration of 14.40µg/m^3}$  
$^{(b)}_{Inclusive of Background concentration of 28.80µg/m^3}$

As indicated in Table 12, there were no predicted exceedances of the relevant AQOs for PM$_{10}$ at any discrete receptor location. It should be noted that the majority of the predicted 24-hour mean PM$_{10}$ concentrations is the assumed background and the marginal increase associated with the proposed development is minimal.

Impacts on PM$_{10}$ concentrations were assessed by comparing the modelled process contribution, representing the potential increase in pollutant concentration should the development proceed, against the relevant AQO and the stated criteria. Predicted impacts on annual mean PM$_{10}$ concentrations are imperceptible in magnitude at residential receptors of low sensitivity. The significance of predicted impacts with respect to annual mean PM$_{10}$ is therefore classified as negligible, in accordance with the stated methodology.

Based on the 90.41$^{th}$ percentile process contribution, the magnitude of predicted impacts on 24-hour mean PM$_{10}$ concentrations is imperceptible at residential receptors of low sensitivity. The significance of predicted impacts with respect to 24-Hour mean PM$_{10}$ is classified as negligible, in accordance with the stated methodology.

Particulate Matter (PM$_{2.5}$)

Predicted ground level PM$_{2.5}$ concentrations were assessed against the relevant AQO. The results of the model predictions at each discrete receptor, inclusive of background, are summarised in Table 13.
As indicated in Table 13, there were no predicted exceedances of the relevant AQOs for PM$_{2.5}$ at any discrete receptor location.

Impacts on PM$_{2.5}$ concentrations were assessed by comparing the modelled process contribution, representing the potential increase in pollutant concentration should the development proceed, against the relevant AQO and the stated criteria. Predicted impacts on annual mean PM$_{10}$ concentrations are imperceptible in magnitude at receptors of low sensitivity. The significance of predicted impacts with respect to annual mean PM$_{2.5}$ is therefore classified as negligible, in accordance with the stated methodology.

**Carbon Monoxide (CO)**

Predicted ground level CO concentrations were assessed against the relevant AQO. The results of the model predictions at each discrete receptor, inclusive of background, are summarised in Table 14.
As indicated in Table 14, there were no predicted exceedances of the relevant AQO for CO at any discrete receptor location.

Impacts on CO concentrations were assessed by comparing the modelled process contribution, representing the potential increase in pollutant concentration should the development proceed, against the relevant AQO and the stated criteria. Predicted impacts on 8-hour Running Mean CO concentrations are imperceptible in magnitude at receptors of low sensitivity. The significance of predicted impacts with respect to CO concentrations is therefore classified as negligible, in accordance with the stated methodology.

Sulphur Dioxide (SO2)

Predicted ground level SO2 concentrations were assessed against the relevant AQOs. The results of the model predictions at each discrete receptor, inclusive of background, are summarised in Table 15.

### Table 15 Summary of Predicted SO2 Concentrations

<table>
<thead>
<tr>
<th>Receptor</th>
<th>24-hour Mean (99.18th Percentile)</th>
<th>1-hour Mean (99.73rd Percentile)</th>
<th>15-minute Mean (99.90th Percentile)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>PC PEC(a)</td>
<td>PC PEC(a)</td>
<td>PC PEC(a)</td>
</tr>
<tr>
<td>R1</td>
<td>0.31 5.00</td>
<td>0.69 5.38</td>
<td>0.96 5.65</td>
</tr>
<tr>
<td>R2*</td>
<td>0.22 4.91</td>
<td>0.54 5.23</td>
<td>0.76 5.45</td>
</tr>
<tr>
<td>R3</td>
<td>0.16 4.84</td>
<td>0.43 5.12</td>
<td>0.71 5.40</td>
</tr>
<tr>
<td>R4</td>
<td>0.16 4.85</td>
<td>0.45 5.14</td>
<td>0.68 5.37</td>
</tr>
<tr>
<td>R5</td>
<td>0.09 4.78</td>
<td>0.33 5.01</td>
<td>0.51 5.20</td>
</tr>
<tr>
<td>R6</td>
<td>0.17 4.86</td>
<td>0.38 5.07</td>
<td>0.60 5.29</td>
</tr>
<tr>
<td>R7</td>
<td>0.09 4.78</td>
<td>0.27 4.96</td>
<td>0.46 5.15</td>
</tr>
<tr>
<td>R8</td>
<td>0.12 4.80</td>
<td>0.30 4.99</td>
<td>0.44 5.13</td>
</tr>
<tr>
<td>R9</td>
<td>0.08 4.77</td>
<td>0.20 4.89</td>
<td>0.34 5.03</td>
</tr>
</tbody>
</table>

AQOs and Limit Values: 125 350 266

*Non-Residential receptors are marked with asterisk
a) Inclusive of Background concentration of 4.68µg/m³

As indicated in Table 15, there are no predicted exceedances of the relevant AQOs for SO2 at any discrete receptor location.

Impacts on SO2 concentrations were assessed by comparing the modelled process contribution against the relevant AQOs and the stated criteria. Predicted impacts SO2 concentrations are imperceptible in magnitude at receptors of low sensitivity. The significance of predicted impacts is classified as negligible, in accordance with the stated methodology.

Volatile Organic Compounds

VOC emissions from the proposed development are likely to consist of a variety of species, with the relevant emission limit value (ELV) being set for Total Organic Carbon (TOC). For the purposes of this assessment it has been assumed that the entire TOC emission consists of only C6H6 in order to allow...
comparison with the AQO. This is considered a worst-case scenario as TOC emissions are unlikely to consist of only one species.

The results of the model predictions at each discrete receptor, inclusive of background, are summarised in Table 16.

### Table 16  Summary of Predicted VOC Concentrations

<table>
<thead>
<tr>
<th>Receptor</th>
<th>Predicted Annual Mean VOC Concentration (µg/m³)</th>
<th>Process Contribution (PC)</th>
<th>Predicted Environmental Concentration (PEC)</th>
</tr>
</thead>
<tbody>
<tr>
<td>R1</td>
<td>0.008</td>
<td></td>
<td>0.91</td>
</tr>
<tr>
<td>R2*</td>
<td>0.006</td>
<td></td>
<td>0.91</td>
</tr>
<tr>
<td>R3</td>
<td>0.004</td>
<td></td>
<td>0.91</td>
</tr>
<tr>
<td>R4</td>
<td>0.003</td>
<td></td>
<td>0.90</td>
</tr>
<tr>
<td>R5</td>
<td>0.002</td>
<td></td>
<td>0.90</td>
</tr>
<tr>
<td>R6</td>
<td>0.002</td>
<td></td>
<td>0.90</td>
</tr>
<tr>
<td>R7</td>
<td>0.001</td>
<td></td>
<td>0.90</td>
</tr>
<tr>
<td>R8</td>
<td>0.002</td>
<td></td>
<td>0.90</td>
</tr>
<tr>
<td>R9</td>
<td>0.001</td>
<td></td>
<td>0.90</td>
</tr>
<tr>
<td>Limit Value</td>
<td>5 (Expressed as Benzene, C₆H₆)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note:  
*Non-Residential receptors are marked with asterisk  
(a) Inclusive of Background concentration of 0.90µg/m³

As indicated in Table 16, there are no predicted exceedances of the annual mean AQO for C₆H₆ at any discrete receptor location.

Impacts on C₆H₆ concentrations were assessed by comparing the modelled process contribution against the relevant AQO and the stated WYG criteria. Predicted impacts on annual mean C₆H₆ concentrations are imperceptible at receptors of low sensitivity. The significance of predicted impacts is classified as negligible, in accordance with the stated methodology.

### Hydrogen Chloride

Predicted ground level HCl concentrations were assessed against the relevant EAL. The results of the model predictions at each discrete receptor, inclusive of background, are summarised in Table 17.

### Table 17  Summary of Predicted HCl Concentrations

<table>
<thead>
<tr>
<th>Receptor</th>
<th>Predicted Max 1-hour Mean HCl Concentration (µg/m³)</th>
<th>Process Contribution (PC)</th>
<th>Predicted Environmental Concentration (PEC)</th>
</tr>
</thead>
<tbody>
<tr>
<td>R1</td>
<td>0.15</td>
<td>0.71</td>
<td></td>
</tr>
<tr>
<td>R2*</td>
<td>0.12</td>
<td>0.68</td>
<td></td>
</tr>
<tr>
<td>R3</td>
<td>0.12</td>
<td>0.68</td>
<td></td>
</tr>
<tr>
<td>R4</td>
<td>0.11</td>
<td>0.67</td>
<td></td>
</tr>
<tr>
<td>R5</td>
<td>0.08</td>
<td>0.64</td>
<td></td>
</tr>
<tr>
<td>R6</td>
<td>0.10</td>
<td>0.66</td>
<td></td>
</tr>
</tbody>
</table>
As indicated in Table 17, there were no predicted exceedances of the relevant criteria for HCl at any discrete receptor location.

Impacts on HCl concentrations were assessed by comparing the modelled process contribution against the relevant EAL and the stated criteria. Predicted impacts on 1-hour mean HCl concentrations are imperceptible at receptors of low sensitivity. The significance of predicted impacts is classified as negligible, in accordance with the stated methodology.

**Hydrogen Fluoride**

Predicted ground level HF concentrations were assessed against the relevant EAL. The results of the model predictions at each discrete receptor, inclusive of background, are summarised in Table 18.

**Table 18 Summary of Predicted HF Concentrations**

<table>
<thead>
<tr>
<th>Receptor</th>
<th>Predicted Annual Mean Concentration (µg/m³)</th>
<th>Predicted Max 1-hour Mean Concentration (µg/m³)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Process Contribution (PC)</td>
<td>Predicted Environmental Concentration (PEC)¹)</td>
</tr>
<tr>
<td>R1</td>
<td>0.0008</td>
<td>2.35</td>
</tr>
<tr>
<td>R2⁴</td>
<td>0.0006</td>
<td>2.35</td>
</tr>
<tr>
<td>R3</td>
<td>0.0004</td>
<td>2.35</td>
</tr>
<tr>
<td>R4</td>
<td>0.0003</td>
<td>2.35</td>
</tr>
<tr>
<td>R5</td>
<td>0.0002</td>
<td>2.35</td>
</tr>
<tr>
<td>R6</td>
<td>0.0002</td>
<td>2.35</td>
</tr>
<tr>
<td>R7</td>
<td>0.0001</td>
<td>2.35</td>
</tr>
<tr>
<td>R8</td>
<td>0.0002</td>
<td>2.35</td>
</tr>
<tr>
<td>R9</td>
<td>0.0001</td>
<td>2.35</td>
</tr>
<tr>
<td>EALs</td>
<td>16</td>
<td>160</td>
</tr>
</tbody>
</table>

Note: ⁴Non-Residential receptors are marked with asterisk  
²) Inclusive of Background concentration of 2.35µg/m³  
³) Inclusive of Background concentration of 4.70µg/m³

As indicated in Table 18, there were no predicted exceedances of the relevant criteria for HF at any discrete receptor location.

Impacts on HF concentrations were assessed by comparing the modelled process contribution against the relevant EAL and the stated criteria. Predicted impacts on annual and 1-hour mean HF concentrations are
imperceptible at receptors of low sensitivity. The significance of predicted impacts is classified as negligible, in accordance with the stated methodology.

Cadmium (Cd)

Predicted ground level Cd concentrations were assessed against the relevant EAL. The results of the model predictions at each discrete receptor, inclusive of background, are summarised in Table 19.

Table 19 Summary of Predicted Cd Concentrations

<table>
<thead>
<tr>
<th>Receptor</th>
<th>Predicted Annual Mean Cd Concentration (µg/m$^3$)</th>
<th>Process Contribution (PC)</th>
<th>Predicted Environmental Concentration (PEC) (a)</th>
</tr>
</thead>
<tbody>
<tr>
<td>R1</td>
<td>0.00007</td>
<td></td>
<td>0.00016</td>
</tr>
<tr>
<td>R2*</td>
<td>0.00006</td>
<td></td>
<td>0.00014</td>
</tr>
<tr>
<td>R3</td>
<td>0.00004</td>
<td></td>
<td>0.00012</td>
</tr>
<tr>
<td>R4</td>
<td>0.00003</td>
<td></td>
<td>0.00012</td>
</tr>
<tr>
<td>R5</td>
<td>0.00002</td>
<td></td>
<td>0.00011</td>
</tr>
<tr>
<td>R6</td>
<td>0.00002</td>
<td></td>
<td>0.00011</td>
</tr>
<tr>
<td>R7</td>
<td>0.00001</td>
<td></td>
<td>0.00010</td>
</tr>
<tr>
<td>R8</td>
<td>0.00002</td>
<td></td>
<td>0.00011</td>
</tr>
<tr>
<td>R9</td>
<td>0.00001</td>
<td></td>
<td>0.00010</td>
</tr>
<tr>
<td>AQO</td>
<td></td>
<td></td>
<td>0.005</td>
</tr>
</tbody>
</table>

Note: *Non-Residential receptors are marked with asterisk

(a) Inclusive of Background concentration of 0.09ng/m$^3$

As indicated in Table 19, there were no predicted exceedances of the relevant EAL for Cd at any discrete receptor location. Impacts on Cd concentrations were assessed by comparing the modelled process contribution against the relevant EAL and the stated criteria. Predicted impacts on annual mean Cd concentrations are imperceptible, at residential receptors of low sensitivity. The significance of predicted impacts is classified as negligible, in accordance with the stated methodology.

Metals

The ELV for Sb, As, Pb, Cr, Co, Cu, Mn, Ni and V will be stated as total heavy metals. However, for the purposes of this assessment they were considered individually to allow comparison with any relevant AQOs.

The assessment of predicted heavy metal concentrations is based on Environment Agency guidance relating specifically to the assessment of Group 3 metals stack releases. As such the screening method detailed in the ‘Guidance to Applicants on the Impact Assessment for Group 3 Metals Stack Releases – V.2 June 2011’ has been applied to the model outputs, based on an Emission Limit of 0.5mg/m$^3$.

For the purposes of the assessment, results for arsenic, and hexavalent chromium Cr(VI) are presented as these have substantially lower Long Term EALs than other Group 3 Metals. However, given that Short Terms EALs have not been set for either As or Cr(VI), predicted Vanadium concentrations have also been
presented given that the EAL for this metal (1µg/m³) is the most challenging to meet. The predicted process contributions of the proposed development with respect to these pollutants are presented in the following Tables.

The parameters stated in the Step 1 assessment, which also apply to the Step 2 assessment, are stated below:

- **LONG TERM EALS** – Predicted Environmental Concentration (PEC) <70%
- **SHORT TERM EALS** – Process Contribution (PC) <20% of the headroom

Where the headroom is the appropriate standard minus the background concentration.

**Arsenic**

**Long term**

### Table 20 Summary of Predicted Long Term Arsenic Concentrations – Stage 1 Screening

<table>
<thead>
<tr>
<th>Receptor</th>
<th>Predicted As Process Contribution (µg/m³)</th>
<th>Background(µg/m³)</th>
<th>Predicted Environmental Concentration (µg/m³)(^a)</th>
<th>% of EAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>R1</td>
<td>0.0007</td>
<td>0.0006</td>
<td>0.0013</td>
<td>43.31</td>
</tr>
<tr>
<td>R2*</td>
<td>0.0006</td>
<td>0.0006</td>
<td>0.0011</td>
<td>37.89</td>
</tr>
<tr>
<td>R3</td>
<td>0.0004</td>
<td>0.0006</td>
<td>0.0009</td>
<td>31.53</td>
</tr>
<tr>
<td>R4</td>
<td>0.0003</td>
<td>0.0006</td>
<td>0.0009</td>
<td>29.59</td>
</tr>
<tr>
<td>R5</td>
<td>0.0002</td>
<td>0.0006</td>
<td>0.0008</td>
<td>25.73</td>
</tr>
<tr>
<td>R6</td>
<td>0.0002</td>
<td>0.0006</td>
<td>0.0008</td>
<td>26.83</td>
</tr>
<tr>
<td>R7</td>
<td>0.0001</td>
<td>0.0006</td>
<td>0.0007</td>
<td>23.41</td>
</tr>
<tr>
<td>R8</td>
<td>0.0002</td>
<td>0.0006</td>
<td>0.0008</td>
<td>26.15</td>
</tr>
<tr>
<td>R9</td>
<td>0.0001</td>
<td>0.0006</td>
<td>0.0007</td>
<td>22.41</td>
</tr>
<tr>
<td>EAL</td>
<td></td>
<td></td>
<td>0.003</td>
<td></td>
</tr>
</tbody>
</table>

**Note:**
- \*Non-Residential receptors are marked with asterisk
- \(^a\) Inclusive of Background concentration of 0.58ng/m³

As indicated in Table 20, there were no predicted exceedances of the relevant EAL for As at any discrete receptor location. Impacts on As concentrations were assessed by comparing the modelled process contribution against the relevant EAL and the stated criteria. Predicted impacts on annual mean As concentrations are **imperceptible**, at residential receptors of **low** sensitivity. The significance of predicted impacts is classified as **negligible**, in accordance with the stated methodology. Given that long term Arsenic concentrations meet the stage 1 screening criteria, therefore Arsenic has not been considered further within this assessment.
Chromium

Long Term

Table 21  Summary of Predicted Long Term Cr(VI) Concentrations

<table>
<thead>
<tr>
<th>Receptor</th>
<th>Predicted Cr Process Contribution (µg/m³)</th>
<th>Background</th>
<th>Predicted Environmental Concentration (µg/m³)</th>
<th>% of EAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>R1</td>
<td>0.0007</td>
<td>0.0000488</td>
<td>0.0008</td>
<td>384.14</td>
</tr>
<tr>
<td>R2*</td>
<td>0.0006</td>
<td>0.0000488</td>
<td>0.0006</td>
<td>302.78</td>
</tr>
<tr>
<td>R3</td>
<td>0.0004</td>
<td>0.0000488</td>
<td>0.0004</td>
<td>207.35</td>
</tr>
<tr>
<td>R4</td>
<td>0.0003</td>
<td>0.0000488</td>
<td>0.0004</td>
<td>178.27</td>
</tr>
<tr>
<td>R5</td>
<td>0.0002</td>
<td>0.0000488</td>
<td>0.0002</td>
<td>120.35</td>
</tr>
<tr>
<td>R6</td>
<td>0.0002</td>
<td>0.0000488</td>
<td>0.0003</td>
<td>136.91</td>
</tr>
<tr>
<td>R7</td>
<td>0.0001</td>
<td>0.0000488</td>
<td>0.0002</td>
<td>85.65</td>
</tr>
<tr>
<td>R8</td>
<td>0.0002</td>
<td>0.0000488</td>
<td>0.0003</td>
<td>126.74</td>
</tr>
<tr>
<td>R9</td>
<td>0.0001</td>
<td>0.0000488</td>
<td>0.0001</td>
<td>70.64</td>
</tr>
<tr>
<td>EAL</td>
<td></td>
<td>0.0000488</td>
<td>0.0002</td>
<td></td>
</tr>
</tbody>
</table>

Note: The proportion of Cr(VI) to total chromium is 20%
2012 Background Cr = 0.24ng/m³ (20% = 0.0488ng/m³)
*Non-Residential receptors are marked with asterisk

Given that long term Cr(VI) concentrations do not meet the stage 1 screening criteria, a stage 2 assessment has been undertaken which makes predictions assuming each metal comprises 11% of the total group (i.e. 0.5mg/m³ apportioned across nine metals) and that the proportion of Cr(VI) to total Chromium is 20%.

Table 22  Summary of Predicted Long Term Cr(VI) Concentrations – Stage 2 Screening

<table>
<thead>
<tr>
<th>Receptor</th>
<th>Predicted Cr Process Contribution (µg/m³)</th>
<th>Background</th>
<th>Predicted Environmental Concentration (µg/m³)</th>
<th>% of EAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>R1</td>
<td>0.000079</td>
<td>0.0000488</td>
<td>0.00013</td>
<td>63.99</td>
</tr>
<tr>
<td>R2*</td>
<td>0.000061</td>
<td>0.0000488</td>
<td>0.00011</td>
<td>55.04</td>
</tr>
<tr>
<td>R3</td>
<td>0.000040</td>
<td>0.0000488</td>
<td>0.00009</td>
<td>44.54</td>
</tr>
<tr>
<td>R4</td>
<td>0.000034</td>
<td>0.0000488</td>
<td>0.00008</td>
<td>41.34</td>
</tr>
<tr>
<td>R5</td>
<td>0.000021</td>
<td>0.0000488</td>
<td>0.00007</td>
<td>34.97</td>
</tr>
<tr>
<td>R6</td>
<td>0.000025</td>
<td>0.0000488</td>
<td>0.00007</td>
<td>36.79</td>
</tr>
<tr>
<td>R7</td>
<td>0.0000013</td>
<td>0.0000488</td>
<td>0.000006</td>
<td>31.15</td>
</tr>
<tr>
<td>R8</td>
<td>0.0000023</td>
<td>0.0000488</td>
<td>0.000007</td>
<td>35.67</td>
</tr>
<tr>
<td>R9</td>
<td>0.0000010</td>
<td>0.0000488</td>
<td>0.000006</td>
<td>29.50</td>
</tr>
<tr>
<td>EAL</td>
<td></td>
<td>0.0000488</td>
<td>0.0002</td>
<td></td>
</tr>
</tbody>
</table>

Note: 2012 Background Cr = 0.048ng/m³
*Non-Residential receptors are marked with asterisk

As illustrated by Table 22, assuming that Cr emissions account for 11% of the Emission Limit Value for group 3 metals and Cr(VI) accounts for 20% of total Cr, the PEC falls below 70% of the Environmental Assessment Level of 0.0002µg/m³. As such there is considered to be no risk of exceeding the long term EAL.
Assuming the proposed development will achieve an emission rate for Cr of the maximum screening criteria of 0.055mg/m³ (11% of ELV 0.5mg/m³), predicted impacts on long term Cr concentrations are imperceptible, at residential receptors of low sensitivity. The significance of predicted impacts is classified as negligible, in accordance with the stated methodology.

Vanadium

Short Term

Table 23 Summary of Predicted Short Term (24-hour) Vanadium Concentrations
Stage 1 Screening

<table>
<thead>
<tr>
<th>Receptor</th>
<th>Predicted V Process Contribution (µg/m³)</th>
<th>Background</th>
<th>Headroom (µg/m³)</th>
<th>% of Headroom</th>
</tr>
</thead>
<tbody>
<tr>
<td>R1</td>
<td>0.00674</td>
<td>0.00088</td>
<td>0.992</td>
<td>0.68</td>
</tr>
<tr>
<td>R2*</td>
<td>0.00521</td>
<td>0.00088</td>
<td>0.994</td>
<td>0.52</td>
</tr>
<tr>
<td>R3</td>
<td>0.00315</td>
<td>0.00088</td>
<td>0.996</td>
<td>0.32</td>
</tr>
<tr>
<td>R4</td>
<td>0.00379</td>
<td>0.00088</td>
<td>0.995</td>
<td>0.38</td>
</tr>
<tr>
<td>R5</td>
<td>0.00207</td>
<td>0.00088</td>
<td>0.997</td>
<td>0.21</td>
</tr>
<tr>
<td>R6</td>
<td>0.00390</td>
<td>0.00088</td>
<td>0.995</td>
<td>0.39</td>
</tr>
<tr>
<td>R7</td>
<td>0.00204</td>
<td>0.00088</td>
<td>0.997</td>
<td>0.20</td>
</tr>
<tr>
<td>R8</td>
<td>0.00230</td>
<td>0.00088</td>
<td>0.997</td>
<td>0.23</td>
</tr>
<tr>
<td>R9</td>
<td>0.00156</td>
<td>0.00088</td>
<td>0.998</td>
<td>0.16</td>
</tr>
<tr>
<td>EAL</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: *Non-Residential receptors are marked with asterisk

As illustrated by the results in Table 23, the screening criteria is not exceeded at any of the residential receptor locations and as such, the short term objective for Vanadium and other Group 3 metals for which a short term EAL has been defined, is not expected to be exceeded as a result of the proposed development.

PAHs

Predicted ground level PAHs (expressed as Benzo(a)pyrene) concentrations were assessed against the relevant EAL. The results of the model predictions at each discrete receptor, inclusive of background, are summarised in Table 24.

Table 24 Summary of Predicted Benzo(a)pyrene Concentrations

<table>
<thead>
<tr>
<th>Receptor</th>
<th>Predicted Annual Mean Benzo(a)pyrene Concentration (ng/m³)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Process Contribution (PC)</td>
</tr>
<tr>
<td>R1</td>
<td>0.0014</td>
</tr>
<tr>
<td>R2*</td>
<td>0.0011</td>
</tr>
<tr>
<td>R3</td>
<td>0.0007</td>
</tr>
<tr>
<td>R4</td>
<td>0.0006</td>
</tr>
<tr>
<td>R5</td>
<td>0.0004</td>
</tr>
<tr>
<td>R6</td>
<td>0.0004</td>
</tr>
</tbody>
</table>
As indicated in Table 18, there were no predicted exceedances of the relevant criteria for HF at any discrete receptor location.

**Dioxins and Furans**

There are no air quality standards for dioxins and furans and as such it is not possible to determine the magnitude and subsequently, significance of the predicted increase in PCDD/F exposure as a result of emissions associated with the proposed development. As such, the process contribution of the facility is presented as a percentage of existing background levels.

**Table 25 Predicted PCDD/F Concentrations (fg/m³ I-TEQ)**

<table>
<thead>
<tr>
<th>Receptor</th>
<th>PC</th>
<th>Background</th>
<th>Total PCDD/F</th>
<th>PC as % of Background</th>
</tr>
</thead>
<tbody>
<tr>
<td>R1</td>
<td>0.14</td>
<td>48.7</td>
<td>48.84</td>
<td>0.30</td>
</tr>
<tr>
<td>R2*</td>
<td>0.11</td>
<td>48.7</td>
<td>48.81</td>
<td>0.23</td>
</tr>
<tr>
<td>R3</td>
<td>0.07</td>
<td>48.7</td>
<td>48.77</td>
<td>0.15</td>
</tr>
<tr>
<td>R4</td>
<td>0.06</td>
<td>48.7</td>
<td>48.76</td>
<td>0.13</td>
</tr>
<tr>
<td>R5</td>
<td>0.04</td>
<td>48.7</td>
<td>48.74</td>
<td>0.08</td>
</tr>
<tr>
<td>R6</td>
<td>0.04</td>
<td>48.7</td>
<td>48.74</td>
<td>0.09</td>
</tr>
<tr>
<td>R7</td>
<td>0.02</td>
<td>48.7</td>
<td>48.72</td>
<td>0.05</td>
</tr>
<tr>
<td>R8</td>
<td>0.04</td>
<td>48.7</td>
<td>48.74</td>
<td>0.08</td>
</tr>
<tr>
<td>R9</td>
<td>0.02</td>
<td>48.7</td>
<td>48.72</td>
<td>0.04</td>
</tr>
</tbody>
</table>

Note: *Non-Residential receptors are marked with asterisk

As illustrated by Table 25, the additional contribution to total background PCDD/F concentrations is expected to be small, equating to approximately 0.3% of the estimated existing concentrations.
6. Mitigation

6.1 Construction Phase

Based on the distance of sensitive receptor locations from the proposed site boundary, no mitigation measures have been recommended within this assessment relating specifically to construction phase emissions.

6.2 Operational Phase

The proposed Asphalt Plant will require a permit to operate under the Environmental Permitting (England and Wales) Regulations (2010). Compliance with the terms of the permit will provide mitigation for point source, fugitive, dust and odour emissions during the operational phase of the development. Suitable abatement systems have also been included within the plant design in order to ensure atmospheric emissions are below the relevant limits during normal operation, such as particulate filtration systems.
7. Conclusions

PDE Consulting Limited commissioned WYG Planning and Environment (WYG) to prepare an Air Quality Assessment (AQA) for an environmental permit application for a proposed asphalt plant at Blackwater. The assessment is to enable the potential air quality effects of the proposed development to be considered within the decision making process.

Baseline air quality conditions were defined through a desk study of existing pollutant monitoring data. The results of the assessment indicated that existing pollutant concentrations in the vicinity of the site were reasonably low, with no monitored exceedances of the relevant Air Quality Objectives.

The Assessment has concluded that based on the assumptions and specifications detailed within this report, the proposed development will not result in any exceedances of the relevant Air Quality Objectives for pollutants described by the WID.

Given the impact magnitude of the increase in PM$_{10}$ concentrations at local sensitive receptors, predicted impacts on annual mean and 24 hour PM$_{10}$ concentrations are expected to be of predominantly negligible significance, when considering 100% of the 50mg/m$^3$ emission rate.

Similarly, the proposed development will not result in any exceedances of the Annual Mean, 24-hour Mean, 1-hour Mean and 15 Minute Mean Air Quality Objectives for SO$_2$. Given the impact magnitude of the increase in SO$_2$ concentrations at local sensitive receptors, predicted impacts on annual mean, 24-hour, 1-hour mean and 15-minute mean SO$_2$ concentrations are expected to be of negligible significance in accordance with the stated methodology.

The proposed installation will utilise recovered oil within the asphalt production process, in accordance with the Process Guidance Note and the WID, hydrogen chloride, hydrogen fluoride, metals and their salts, dioxins and PCBs have been considered within the assessment.

The predicted magnitude of impact is imperceptible and their significance of predicted impacts is therefore expected to be ‘negligible’, in accordance with the stated methodology.

Impacts associated with the proposed development are therefore not considered to be contrary to local planning policy with respect to air quality.
Figures
Figure 2  Bournemouth Meteorological Station Windrose
Figure 3  Modelled Building Layout
Appendix A – Air Quality Standards and Assessment Criteria
# Table A1  Air Quality Standards, Objectives, Limit and Target Values

<table>
<thead>
<tr>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>NO₂</td>
<td>1-hour mean</td>
<td>287µg/m³</td>
<td>200µg/m³ by end of 2005 (max 18 exceedences a year)</td>
<td>200µg/m³ by end of 2005 (max 18 exceedences a year)</td>
<td>200µg/m³, 105ppb</td>
</tr>
<tr>
<td></td>
<td>Annual mean</td>
<td>40µg/m³</td>
<td>40µg/m³ by end of 2005</td>
<td>40µg/m³ by end of 2009</td>
<td>40µg/m³</td>
</tr>
<tr>
<td></td>
<td>Annual mean for protection of vegetation and ecosystems</td>
<td>30µg/m³</td>
<td>30µg/m³ as NO₂ by end of 2000</td>
<td>30µg/m³ as NO₂ by end of 2000</td>
<td>30µg/m³ as NO₂, 19th July 2001</td>
</tr>
<tr>
<td>SO₂</td>
<td>10-min mean</td>
<td>500µg/m³</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>15-min mean</td>
<td>266µg/m³</td>
<td>266µg/m³ by end of 2005 (max 35 exceedences a year)</td>
<td>266µg/m³ by end of 2005 (max 35 exceedences a year)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>1-hour mean</td>
<td>350µg/m³</td>
<td>350µg/m³ by end of 2004 (max 24 exceedences a year)</td>
<td>350µg/m³ by end of 2004 (max 24 exceedences a year)</td>
<td>350µg/m³</td>
</tr>
<tr>
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<td>24-hour mean</td>
<td>125µg/m³</td>
<td>125µg/m³ by end of 2004 (max 3 exceedences a year)</td>
<td>125µg/m³ by end of 2004 (max 3 exceedences a year)</td>
<td>125µg/m³</td>
</tr>
<tr>
<td></td>
<td>Annual Mean</td>
<td>50µg/m³</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Annual &amp; winter (1 Oct. to 31 March) for protection of vegetation and ecosystems</td>
<td>20µg/m³</td>
<td>20µg/m³ by end of 2000</td>
<td>20µg/m³ by end of 2000</td>
<td></td>
</tr>
<tr>
<td>PM₁₀</td>
<td>Running 24-hour mean</td>
<td>50µg/m³</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>24-hour mean</td>
<td>50µg/m³ by end of 2004 (max 35 exceedences a year)</td>
<td>50µg/m³ by end of 2004 (max 35 exceedences a year)</td>
<td>50µg/m³ by end of 2004 (max 35 exceedences a year)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Annual Mean</td>
<td>40µg/m³</td>
<td>40µg/m³ by end of 2004</td>
<td>40µg/m³ by end of 2004</td>
<td></td>
</tr>
</tbody>
</table>

---

Blackwater Asphalt Plant  
Air Quality Assessment  

Blackwater Coating Plant  
Isle of Wight  
February 2014
<table>
<thead>
<tr>
<th></th>
<th></th>
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<th></th>
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</thead>
<tbody>
<tr>
<td>PM$_{2.5}$</td>
<td>Annual Mean</td>
<td>25µg/m$^3$</td>
<td>20µg/m$^3$ by 1st January 2020</td>
<td>5µg/m$^3$ by 1st January 2010</td>
<td>20µg/m$^3$</td>
</tr>
<tr>
<td>C$_6$H$_6$</td>
<td>Running Annual Mean</td>
<td>16.25µg/m$^3$</td>
<td>16.25µg/m$^3$ by end of 2003</td>
<td>5µg/m$^3$ by end of 2010</td>
<td>5µg/m$^3$</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>10mg/m$^3$ by end of 2004</td>
<td>10mg/m$^3$ by end of 2004</td>
<td>10mg/m$^3$</td>
</tr>
<tr>
<td>CO</td>
<td>15-min mean</td>
<td></td>
<td>100mg/m$^3$</td>
<td>100mg/m$^3$</td>
<td>100mg/m$^3$</td>
</tr>
<tr>
<td></td>
<td>30-min mean</td>
<td></td>
<td>60mg/m$^3$</td>
<td>60mg/m$^3$</td>
<td>60mg/m$^3$</td>
</tr>
<tr>
<td></td>
<td>1-hour mean</td>
<td></td>
<td>30mg/m$^3$</td>
<td>30mg/m$^3$</td>
<td>30mg/m$^3$</td>
</tr>
<tr>
<td></td>
<td>8-hour mean</td>
<td></td>
<td>Maximum daily 8-hour mean 10mg/m$^3$ by end of 2004</td>
<td>Maximum daily 8-hour mean 10mg/m$^3$ by end of 2004</td>
<td>10mg/m$^3$</td>
</tr>
<tr>
<td></td>
<td>Running 8-hour mean</td>
<td>11.6mg/m$^3$</td>
<td>11.6mg/m$^3$ by end of 2003</td>
<td>11.6mg/m$^3$ by end of 2003</td>
<td>11.6mg/m$^3$</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>10mg/m$^3$ maximum daily mean by end of 2003</td>
<td>10mg/m$^3$ maximum daily mean by end of 2003</td>
<td>10mg/m$^3$</td>
</tr>
<tr>
<td>Pb</td>
<td>Annual Mean</td>
<td>0.25µg/m$^3$</td>
<td>0.25µg/m$^3$ by end of 2004</td>
<td>0.25µg/m$^3$ by end of 2004</td>
<td>0.5µg/m$^3$</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>0.25µg/m$^3$ maximum daily mean by end of 2003</td>
<td>0.25µg/m$^3$ maximum daily mean by end of 2003</td>
<td>0.5µg/m$^3$</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>0.5µg/m$^3$ by end of 2004</td>
<td>0.5µg/m$^3$ by end of 2004</td>
<td>0.5µg/m$^3$</td>
</tr>
<tr>
<td>As</td>
<td>Annual Mean</td>
<td></td>
<td>6ng/m$^3$ by end of 2012</td>
<td>6ng/m$^3$ by end of 2012 Total content within PM$_{10}$</td>
<td>6ng/m$^3$</td>
</tr>
<tr>
<td>Cd</td>
<td>Annual Mean</td>
<td></td>
<td>5ng/m$^3$ by end of 2012</td>
<td>5ng/m$^3$ by end of 2012 Total content within PM$_{10}$</td>
<td>5ng/m$^3$</td>
</tr>
<tr>
<td>Ni</td>
<td>Annual Mean</td>
<td></td>
<td>20ng/m$^3$ by end of 2012</td>
<td>20ng/m$^3$ by end of 2012 Total content within PM$_{10}$</td>
<td>20ng/m$^3$</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Pollutant</th>
<th>Long Term EAL (µg/m³)</th>
<th>Short Term EAL (µg/m³)</th>
</tr>
</thead>
<tbody>
<tr>
<td>HCl</td>
<td>-</td>
<td>750</td>
</tr>
<tr>
<td>HF</td>
<td>16</td>
<td>160</td>
</tr>
<tr>
<td>Hg</td>
<td>0.25</td>
<td>7.5</td>
</tr>
<tr>
<td>Cd</td>
<td>0.005</td>
<td>-</td>
</tr>
<tr>
<td>V</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>As</td>
<td>0.003</td>
<td>-</td>
</tr>
<tr>
<td>Ni</td>
<td>0.02</td>
<td>-</td>
</tr>
<tr>
<td>Cr VI</td>
<td>0.0002</td>
<td>-</td>
</tr>
<tr>
<td>Cr</td>
<td>5</td>
<td>150</td>
</tr>
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</table>

Appendix B – Detailed Dispersion Modelling
Contour-Plot Figures
Figure 4  Predicted Annual Mean NO$_2$ Concentrations (µg/m$^3$)
Figure 5  Predicted 99.79%-ile 1-hour Mean NO$_2$ Concentrations (µg/m$^3$)
Blackwater Asphalt Plant
Air Quality Assessment

Figure 6  Predicted Annual Mean PM$_{10}$ Concentrations (µg/m$^3$)
Figure 7  Predicted 90.41%-ile 24-hour Mean PM$_{10}$ Concentrations (µg/m$^3$)
Figure 8  Predicted 99.18%ile 24-hour Mean SO\textsubscript{2} Concentrations (µg/m\textsuperscript{3})
Figure 9  Predicted 99.73%-ile 1-hour Mean SO$_2$ Concentrations (µg/m$^3$)
Figure 10  Predicted 99.9%-ile 15-min Mean SO₂ Concentrations (µg/m³)
Figure 11  Predicted Annual Mean VOC Concentrations (µg/m³)
Figure 12  Predicted 1-hour Mean Max HCl Concentrations (µg/m³)
Figure 13  Predicted Annual Mean HF Concentrations (µg/m³)
Figure 14  Predicted 1-hour Mean Max HF Concentrations (µg/m³)
Figure 15  Predicted Annual Mean Cd Concentrations ($\mu$g/m$^3$)
Figure 16  Predicted Annual Mean As Concentrations (µg/m³)