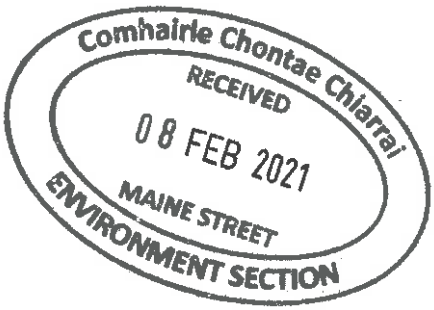
4th February 2021

By Registered Post

Kerry County Council
Environmental Services
Maine Street
Tralee
Co. Kerry



Our Ref: 501-00180-00309
Your Ref: Kerry File Ref. AP-20-01

Dear Sir / Madam,

RE: LICENSING OF INDUSTRIAL PLANT AP-20-01

RESPONSE TO REQUEST FOR FURTHER INFORMATION

SLR Consulting, Unit 7 Dundrum Business Park, Windy Arbour, Dublin 14 act as Planning & Environmental advisors to Roadstone Ltd.

We refer to Kerry County Council Ref. No. AP-20-01 and provide our response below to the requested items of further information.

1. *You are requested to provide detailed description of the plant and a material flow process through the plant.*

Response:

A detailed description of the plant and a material flow process through the plant is provided in Appendix 1.

2. *You are requested to carry out an odour assessment on the proposed development. This assessment should take specific account of the guidance contained in the EPA document "Odour Emissions Guidance Note" AG9 (September 2019).*

Response:

An odour assessment has been carried out and is provided in Appendix 2.

3. *You are requested to comment on the variations in flow rate and stack height used in the modelling exercise carried out in the planning application and this air licence application.*

Response:

It was originally planned to erect the M2000 Parker plant from Ballyegan with a Beninghoven burner. This plant is no longer available. The M2000 Parker plant had a stack height of 15m and 0.9m diameter. The stack height of the plant being installed is 15m with a diameter of 1.1m. With the increase of

diameter the actual exhaust volume m^3/hr increases from 68,350 m^3/hr to 76,520 m^3/hr (*Actual exhaust volume (m^3/h).*

4. *You are requested to include CO (Carbon monoxide) in the air quality impact assessment.*

Response:

A National Air Quality Standard (NAQS) for CO is specified in the Air Quality Standards Regulations (SI No 180 of 2011). The limit value is 10 mg/m^3, expressed as a maximum 8-hour rolling average that is calculated as the maximum concentration for each 8-hour average (01:00-09:00, 09:00-16:00 and 16:00-24:00).

The result of the modelling for CO are shown as a ground level contour plot in Figure 4.1. The 8-hour average concentrations were predicted running the ADMS5 model (refer to Air Quality Impact of Asphalt Plant Clasheen Woods, Killarney report – Envirocon 22/10/20), based on calculating the maximum value for the worst-case emissions scenario. This operating scenario modelled was based on the asphalt plant operating at full production from Monday-Saturday during the hours 04:00-19:00.

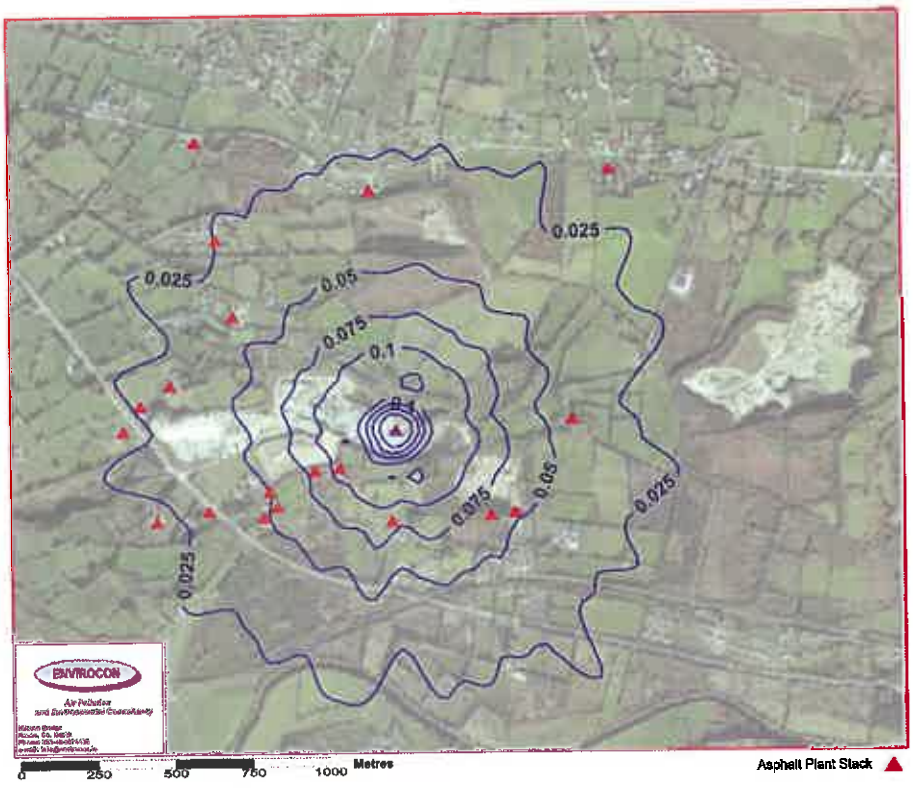


Figure 4.1: Predicted 8-hour average CO concentrations due to emissions from the asphalt plant (mg/m^3).

The amount of CO emitted from the aggregate drier burner is related to the efficiency of combustion and the quantity of the carbon content of the fuel burnt. The dryer burner that will be installed in the rotary dryer operates at a high combustion efficiency (>90%) and so the quantity of CO emitted in the exhaust from the burner will be very low. The characteristics of the asphalt plant stack and maximum emissions of CO based on a concentration of 500 mg/Nm^3 in the exhaust, equivalent to 6.8 g/s, are

provided in Tables 4.1 and 4.2. This value is specified in the German TA Luft Regulations that has been widely used to set emission limit values for macadam/asphalt plants in Ireland.

Table 4.1: Characteristics of the exhaust stack

Parameter	Stack Ht (m)	Diameter (m)	Exhaust Vol (Ref) (Nm^3/h)[(i)]	Exhaust vol (Nm^3/h)[(ii)]	Actual vol (m^3/h)[(iii)]	Exit T. (°C)	Exit Vel (m/s)
Exhaust Stack	15.0	1.1	49,000	56,000	76,520	100	22.4

Note: (i) Reference Condition (Dry/17%O_2), based on Moisture Content 12.5%; (ii) As discharged at STP Reference T=0°C) (Nm^3/h); (iii) Actual exhaust volume (m^3/h).

Table 4.2: CO Emission Limit and Maximum Rates

Parameter	Emission Limit Value (mg/Nm^3)	Emission (kg/h)	Emission (g/s)
Carbon Monoxide	500	24.5	6.8

Note: Emission Limit Value (Reference Dry/17% O_2)

Results of the modelling show predicted CO 8-hour maximum levels of 0.13 mg/m^3, equivalent to 1.3% of the hourly NAQS. Beyond a distance of 300-350m from the plant site, predicted CO concentrations are below 0.075 mg/m^3, or <0.75% of the 8-hour NAQS value. The predicted impact of CO emissions are imperceptible and of insignificant consequences on the health of the local community.

5. *It is noted that the annual average PM10 concentrations for EPA Zone D were used as background level, no reference was made to the actual dust monitoring data for the quarry. You are requested to address this matter.*

Response:

5.1 Airborne Particulates (PM_{10})

Of relevance to potential community health impacts, the particulate material referred to as PM_{10} (particulate material with a mean aerodynamic diameter of less than 10 µm) is recognised by the World Health Organisation as being associated with health concerns as they can enter the lower respiratory tract. The annual NAQS value for PM_{10} is 40 $\mu g/m^3$, with a daily limit value of 50 $\mu g/m^3$ (no more than 35 exceedances per year). Ambient concentrations of PM_{10} near the quarry boundary would be typically <10-15 $\mu g/m^3$ that is within the range of concentrations measured in rural locations values and below 40% of the annual NAQS – refer to Appendix 3 for PM10 monitoring results carried out in January 2021.

5.2 Dust Deposition Survey

5.2.1 Introduction

Dust is defined as particulate material up to 75 um (1µm= 1/1,000,000th of a metre), with the smaller size particles (<30 µm) remaining airborne for longer than the large particles that are rapidly deposited within 100m of the source. The small particles can remain airborne by wind-blow and result in soiling and staining on vegetation and at houses and other sensitive amenity areas up to 500m from the source. The distance and direction of houses and sensitive ecological receptors (grazing land, gardens etc.) from the source of dust emissions will determine the potential for dust nuisance complaints.

There are no European or National ambient standards for dust deposition associated with quarry activities. The DoEHLG (2004)[3] recommended guidance to Local Authorities in setting dust deposition limit values is based on the German TA Luft legislation. The guidance value to protect the local community from potential dust nuisance is a monthly average dust deposition limit value of 350 mg/m^2.day. The method of dust-fall collection and analytical method specific to this dust-fall limit value is the German Bergerhoff method that is recommended by the EPA in the Guidance Note for Environmental Management in the Extractive Industry (2006).

5.2.2 Survey Methodology

A monthly dust deposition survey at boundary locations in the quarry site has been carried out by Southern Scientific Services for Roadstone in recent years. The method used for monitoring dust-fall is the same approach used at quarries throughout Ireland with the Bergerhoff measurement procedure for dust-fall that was adopted.

The Bergerhoff method uses a jar supported on a pole to collect dust-fall. The rainwater and particulate material in the jar is evaporated in the laboratory and the dry residue weight determined by post-weighing the evaporation dish. The type of gauge and analytical procedures are specified in German Regulations VDI 2119. The average dust deposition rate is calculated by dividing the total weight of both dissolved (salts present in rainwater) and undissolved material in the sample by the area of the opening of the glass jar (m^2) and then by the number of days exposure. Sample results are reported as milligrams per square metre per day (mg/m^2.day). The monthly dust deposition limit for the Bergerhoff gauge monitoring method specified by the Local Authorities in Ireland is a monthly rate of 350 mg/m^2/day to prevent a community dust-fall nuisance at sensitive locations such as houses.

5.2.3 Dust-fall Results

Results from the monitoring network at the site boundary from December 2019 to November 2020 are presented in Table 5.1 below.

Table 5.1: Dust Monitoring Results (December 2019 – November 2020)

Monitoring Period	Location	Result (mg/m^2/day)
13/12/2019 – 14/01/2020	D1	221

Monitoring Period	Location	Result (mg/m²/day)
13/12/2019 – 14/01/2020	D2	205
13/12/2019 – 14/01/2020	D3	363
11/03/2020 – 11/06/2020	D1	77
11/03/2020 – 11/06/2020	D2	329
11/03/2020 – 11/06/2020	D3	136
12/08/2020 – 10/09/2020	D1	325
12/08/2020 – 10/09/2020	D2	261
12/08/2020 – 10/09/2020	D3	Broken Collector Gauge
10/09/2020 – 09/10/2020	D1	441
10/09/2020 – 09/10/2020	D2	203
10/09/2020 – 09/10/2020	D3	Broken Collector Gauge
09/10/2020 – 10/11/2020	D1	84
09/10/2020 – 10/11/2020	D2	184
09/10/2020 – 10/11/2020	D3	121

The results presented above indicate that dust deposition rates were typically below the recommended Bergerhoff limit value of 350 mg/m²/day averaged over 30 days and are within the recommended threshold limit value set out in the DoEHLG (2004), Quarries & Ancillary Activities: Guidelines for Planning Authorities and the EPA (2006), Environmental Management Guidelines: Environmental Management in the Extractive Industry (Non-Scheduled Minerals).

6. *It is noted that the emission point from the stack is only marginally above the surrounding ground level beyond the site boundary and there also appears to be a sharp rise in ground level in the vicinity of the proposed plant, the applicant should confirm that the modelling exercise has taken full account of this and has also taken account of any potential turbulence or downwash effect potentially arising.*

Response:

Preliminary analysis of the terrain bordering the sand pit void near the proposed location of the asphalt plant was undertaken to assess whether there was a significant effect from local changes of topography on the dispersion pattern of the emission plume from the stack.

The northern boundary overall slope gradient is 7% increasing from about 82m O.D near the edge of the sand pit floor north of the asphalt plant to 92m O.D at a distance of 140-150m beyond the pit

boundary. The grade height of the base of the stack is approximately 79m O.D. and at the planned height of 15m the stack top is 94m O.D. and so the plume is emitted above the highest point of the terrain in the vicinity of the sand pit boundary. Any terrain with an elevation above the stack top is over 170m to the north and 300m to the NE of the plant stack location.

The southern boundary of the sand pit floor is 75m from the stack location and increases to a maximum elevation of 90-92m O.D. at a distance of 90-105m downwind of the stack. Again, at all terrain levels along the southern boundary the top of the stack is above the ground elevation.

To the east of the asphalt plant site the quarry floor is below 86m within 250m of the stack increasing to 93m at a distance of 335m downwind.

Figure 6.1 shows the contours of the terrain within a 1km^2 of the stack location. Detailed topographical data was obtained from a CAD drawing of the sand pit site which gave 2m contouring. The contours were digitized and processed to provide a terrain grid of 64x64 points generated from digitised data that was incorporated in executing the ADMS5 air quality model.

The ADMS5 model has a terrain module that used advanced algorithms to generate a flow field over an area of terrain that simulates the effect of terrain height on plume dispersion due to changes in the wind field (wind direction and velocity) and turbulence. This can result in higher concentrations being calculated compared to an air quality modelling study using a flat terrain. It is not required in all cases of modelling where there is terrain in the surrounding area of a stack, as the need for inclusion in the study depends on the stack height, height of the emission plume, slope gradient. Terrain height effects on a plume are only included if the gradient exceeds 10%, though the effects generally only becomes significant on predicted concentrations well above this gradient.

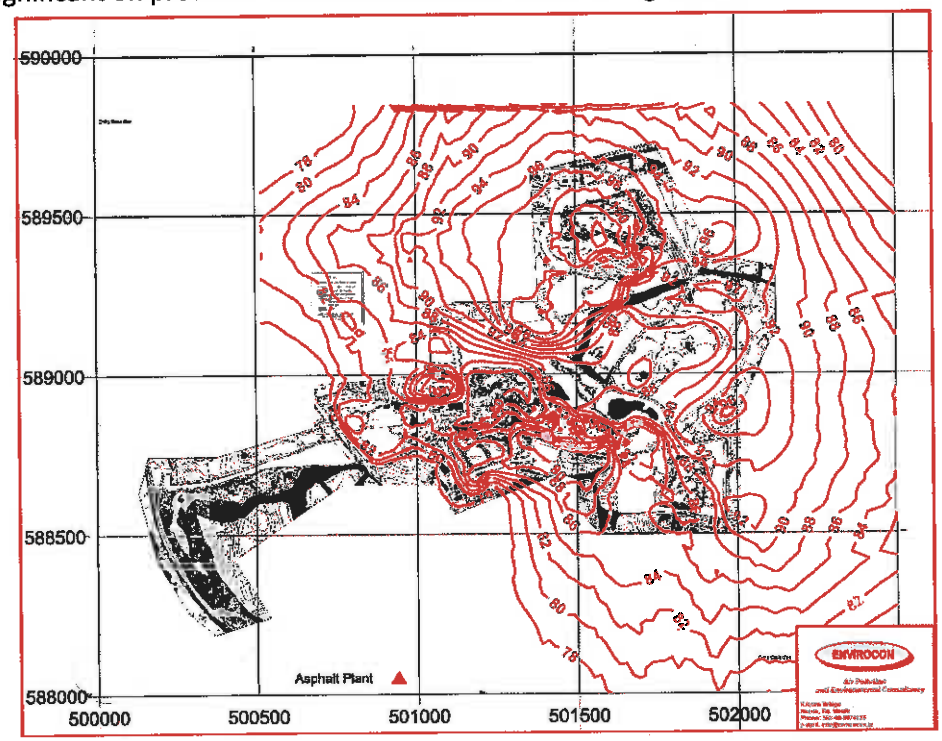


Figure 6.1: Contour pattern of local terrain at quarry site used in modelling study.

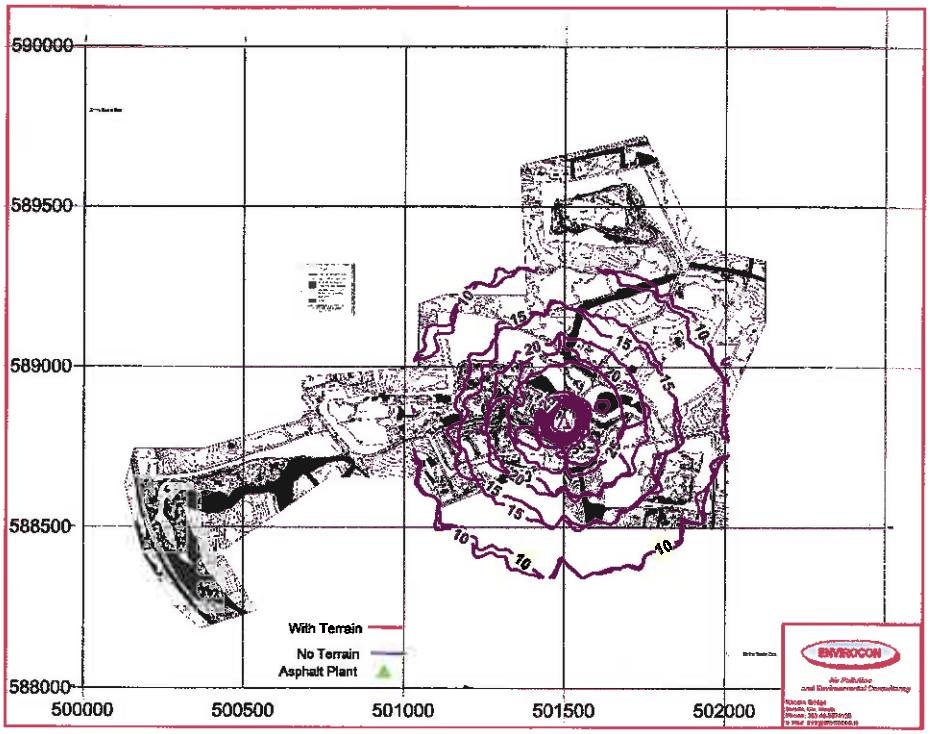


Figure 6.2: Comparison of 'With Terrain' and 'No Terrain' modelling scenarios. Predicted hourly concentrations for a unit emission rate of 1 g/s from the asphalt plant stack. (µg/m³)

To evaluate the significance of local terrain elevations on the 15m stack, modelling of plume emissions was carried out for 2 scenarios, 'with terrain' and 'no-terrain'. The 'with terrain' scenario used a stack top elevation at 94m O.D. as the terrain grid in the ADMS5 included specific spot heights of 79m O.D. around the stack to reflect the difference in grade height between the pit floor and the lower ground where the plant is to be installed. The 'no terrain' scenario was based on a stack top elevation also at 94m but without inclusion of the topography within the pit floor or at the boundary. A unit emission rate of 1 g/s of pollutant from the stack was used for this exercise. The results are shown in Figure 6.2 that demonstrate there is no significant difference between these 2 modelled scenarios in the spatial pattern and magnitude of predicted ground level impacts beyond the quarry site boundary.

Table 6.1 gives the maximum short-term concentrations predicted at the nearest houses to the southern boundary for the 2 modelling scenarios, with terrain included and modelled as flat terrain. These results show that in terms of magnitude of value and also percentage compliance with the NAQS values the 2 modelling scenarios give similar short-term impacts predicted beyond the southern boundary at the nearest houses.

Table 6.1: Predicted short-term ground level concentrations for With Terrain and No Terrain modelled scenarios.

Modelling Scenario	NO_2 (Hourly 99.8%)	SO_2 (Hourly 99.7%)	SO_2 (Daily 99.2%)	PM_{10} (Daily 90.4%)
With Terrain	42(21)	98 (28)	30 (24)	1.4 (2.8)
No Terrain	40 (20)	93 (27)	33 (26)	1.5 (3.0)
NAQS	200	350	125	50

Note: Values in () give % compliance with short-term NAQS value

The presence of terrain downwind of a stack does not have the same potential effect on plumes as a nearby building. This is because airflow around buildings are very different to that which occurs over elevated terrain. Buildings are typically rectangular with acute vertical sides and so as the air flows over the building there is an area of turbulence upwind and downwind, so that that the plume can be trapped in the turbulence. This results in the building down-wash effect with the plume grounding close to the building. This air flow pattern contrasts with airflow patterns in areas of terrain near a stack.

For gradual or undulating topography, the air flowing over the terrain downwind of the stack is generally laminar so the plume will not impact on the ground but flow parallel along the slope. The plume will only impact on the terrain if the ground has a steep gradient or vertical rock face. In this case there will be a re-circulating air flow close to the quarry wall as the air rises over the wall. The terrain slope near the northern boundary of the quarry floor, which is about 40m from the stack has a slope gradient of below 10%. The separation distance of the stack and the southern boundary is approximately 75m and the ground at the boundary has a slope gradient of 35%. However, the highest point along these 2 boundaries at the closest point are below the elevation of the stack top.

This modelling exercise, demonstrates that any difference in predicted ground level concentrations for NO_2, SO_2, PM_{10} that were included in the air quality modelling assessment report are marginal compared to the inclusion of local terrain data and are within the tolerance of the predicted values and percentage compliance of the appropriate short-term and long-term NAQS.

7. *You are requested to submit an AA Screening Report ruling out the potential for significant effect on Natura 2000 sites with certainty and without the use of mitigation measures or alternatively you are requested to submit a Natura Impact Statement for the proposal. As part of this, particular regard should be given to the vulnerability of Sheheree (Ardagh) Bog SAC to emissions as set out in the Conservation Objectives for the Natura 2000 Site. Regard should also be given to potential for cumulative effects taking into consideration existing and permitted developments in the area.*

Response:

An AA Screening report has been prepared and is provided in Appendix 4. The AA Screening report states the following:

> *'This screening report, based on the available information and project details, demonstrates that the proposed project does not pose a risk of likely significant effects on Natura 2000 sites.*

We therefore submit that the competent authority, in this case Kerry County Council, can determine that appropriate assessment is not required, as the proposed project, individually or in combination with other plans or projects, will not have a significant effect on any Natura 2000 sites.'

Yours sincerely
SLR Consulting Ireland

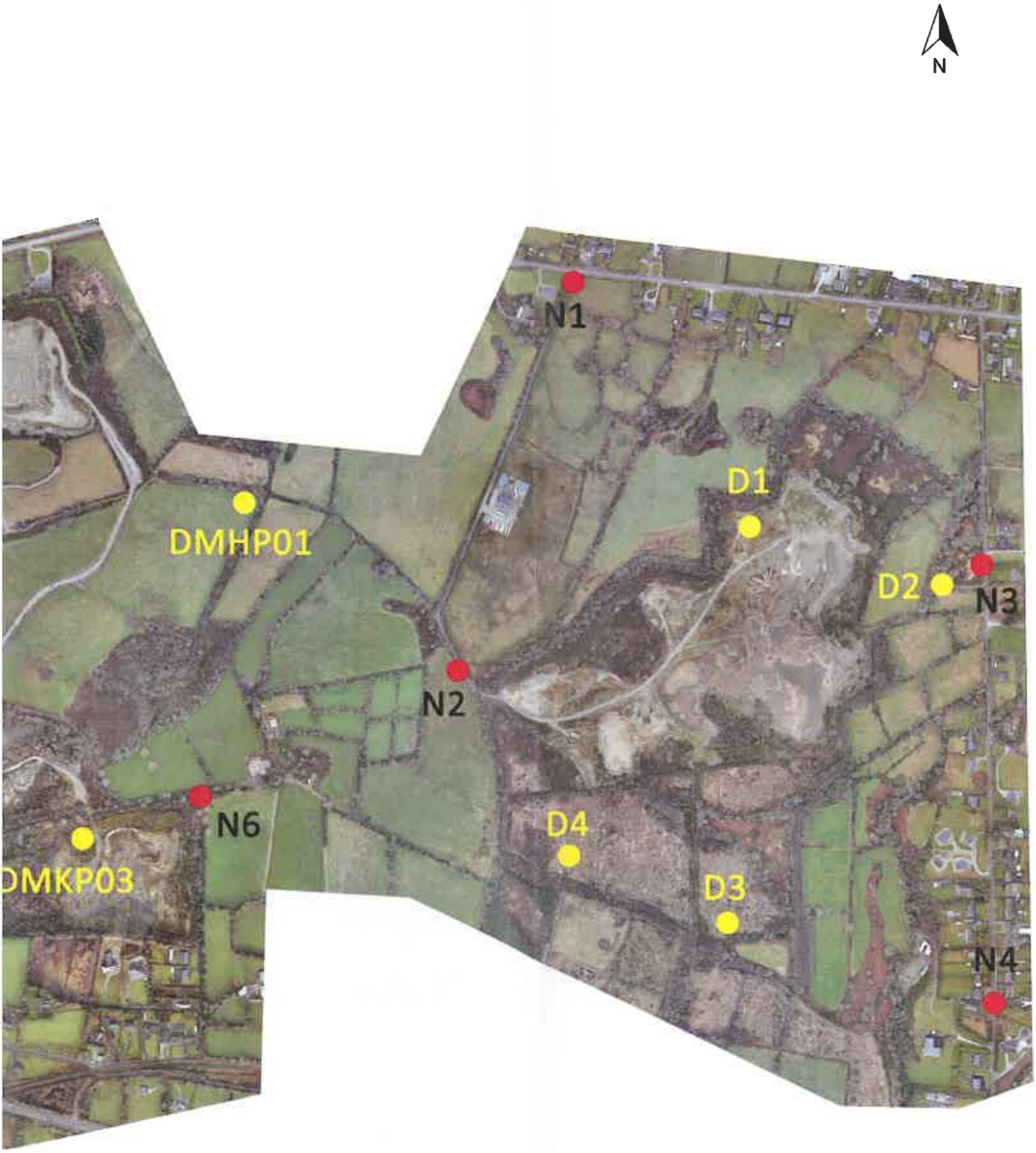
Peter Kinghan.

Peter Kinghan
Technical Director

Enc: Appendices
cc. Pat Gibney (Roadstone Ltd.)

FIGURES

Figure 1 : Monitoring Locations



Project:
Killarney Quarry,
Co. Kerry

Date:
31th Janaury 2017

Map:
Environmental
Monitor Locations

Map No:
RSKILE - ENV - 001

Legend

- Noise Monitoring Point
- Ground Water Monitoring Point
- Surface Water Monitor
- Dust Monitor
- Blast Monitoring

APPENDICES

Appendix 1: *Detailed description of the plant and a material flow process through the plant*

The proposed plant will be situated on a permanent hard-standing area and will consist of:

- Retaining wall
- Cold storage bins
- Feeders and associated conveyers
- Dryer and burner
- Screener
- Weigh hoppers and associated conveyers
- Mixer
- 4 no. bitumen tanks
- 2 no. filler tanks
- Baghouse filter and emission point stack
- 2 no. fuel tanks and associated bunding and a LPG gas tank.
- Hot storage bins and conveyers
- Control cabin and container
- Switch room, transformer and substation

The proposed plant layout is shown on planning Drawing LE10/001/01_003. A description of the plant and material flow-process through the plant is outlined below:

1. Aggregate cold feed bins

Cold feed bins are constructed and sized to suit the output of the plant. A loading shovel fills the bins with aggregate material available, from onsite stockpiles.

2. Feeder

For maximum efficiency, the aggregate feedstock must be supplied to the plant in the same proportions as in the finished specifications. In order to achieve this, each cold bin is fitted with an outlet device which enables the trickle of aggregates to be adjusted.

3. Feed conveyor

The feeder supplies aggregate onto a conveyor and transfers it to the dryer.

4. Dryer and associated system

In order to successfully manufacture Black-top materials, it is necessary that the aggregates are virtually free from moisture and at a temperature that will enable the adherence of the bitumen or other binder. The dryer used on this plant is a rotating drum which has the ability to dry road stone type aggregate at high throughputs.

Heat from the dryer is supplied via a burner. This burner will be a Benninghoven burner or equivalent. This burner will utilise fuel to generate heat energy. It is proposed to operate the plant on three possible fuel types: Mineral Gas Oil (MGO), 11LS or LPG gas.

It is proposed to use MGO as the fuel for start-up and shutdown of the burner. Then, 11LS will be the fuel supply for daily operations. If LPG gas is used; it will be used for startup, daily operation and shut down.

The three fuels are in compliance with the % sulphur content outlined in S.I. No. 119 of 2008- Sulphur Content of Heavy Fuel Oil, Gas Oil, and Marine Fuels Regulations 2008.

5. Screener system

After drying and heating, the hot aggregates are discharged from the dryer into a feed chute of the steel bucket dredger elevator. The elevator is totally enclosed in a light steel casing to prevent the escape of dust and fumes. At this stage the aggregates are proportioned as originally fed to the dryer from the feed unit, and having been through the dryer are now mixed. This material needs to be screened. The screening is performed by a vibrating screen onto which the elevator discharges its load.

6. Hot Bins

The hot sized aggregate falls directly from the screen to their respective 4 no. compartments of the hot stone storage hoppers (of varying sizes).

Each compartment is fitted with an independently operated outlet door of radial type.

1. Bitumen System

The bitumen system consists of four bitumen storage tanks, a circulating pump, piping to the plant and back to the tank with a diverter valve and a weigh hopper. These tanks are lagged.

2. Filler Tank System

There are two storage silos for filler material i.e. fine dust. One of these tanks will store the reclaim filler from the bag house filter and one will store imported filler. A proportion of filler will be conveyed to the mixer through an enclosed system, depending on the batch of Black-top being made.

3. Weigh Hoppers

Prior to mixing, the constituents of the mixture are weighed into their respective weighing hoppers:

- aggregates, each size separately, into the aggregate weigh hopper
- bitumen into the bitumen weigh hopper
- filler into the filler weigh hopper.

4. Mixer

The ingredients of the mixture are discharged from their hoppers into the paddle mixer, aggregate first, followed by bitumen and then filler. The length of time the mixture remains in the mixer is between 30 and 40 seconds.

5. Discharge of Material

The finished product can be directly discharged to trucks for immediate delivery to site or alternatively stored in special hot storage bins, with a capacity of 200 tonnes for later use.

6. Dust Collection System

The dust extraction system performs two major functions. Firstly, it introduces enough air into the dryer to allow the burner to operate efficiently and to extract the products of combustion at a rate that maintains a negative pressure within the drum. Secondly, it extracts and collects dust particles entrained in the exhaust gas stream. The size and quantity of dust depends on factors including, gas stream velocity and aggregate type.

This dust collection system complies with the best environmental management practice as set out in the EPA Environmental Management Guidelines – Environmental Management in the Extractive Industry (Non- Scheduled Minerals), 2006 which recommends using appropriate dust filter systems on Black-top plants.

Collected dust from the operation of the baghouse filter is transferred from the filter hopper to the reclaimed filler holding silo.

APPLICATION FOR AN AIR EMISSIONS LICENCE

POTENTIAL ODOUR IMPACT OF ASPHALT PLANT CLASHEEN WOODS, KILLARNEY

ROADSTONE LTD.
CLASHEEN
KILLARNEY, CO. KERRY

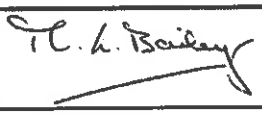
ENVIROCON

Air Pollution and Environmental Consultancy

Kilcarn Bridge
Navan, Co. Meath
Tel: 046-74135, Fax: 046-74055

POTENTIAL ODOUR IMPACT OF ASPHALT PLANT
CLASHEEN WOODS, KILLARNEY
CO. KERRY

ROADSTONE LTD.
CLASHEEN
KILLARNEY, CO. KERRY

Client	SLR Consulting Ltd.
Address	Dundrum Business Park, Dublin 14
Version	Final Report
Circulation	Peter Kinghan
Author	Michael Bailey, M.Sc., B.Sc., Dip. Env. Eng
Company	Envirocon Ltd, Old Road, Kilcarn Bridge, Navan Co. Meath e-mail: info@envirocon.ie, Tel: 046-9074135/086 8071314
	
Date	04/02/2021

1.0 INTRODUCTION

A request for further information relating to the application for an Air Licence submitted in October 2020 for the operation of an asphalt manufacturing plant at Clasheen Sand Pit, Killarney, Co. Kerry (Reg. AP-20-01) was received by Roadstone Ltd. in December 2020. Item No 2 of the further information request relates to odour potential generated from the operation of the asphalt plant and impact on air quality beyond the quarry site boundary:-

You are requested to carry out an odour assessment on the proposed development. This assessment should take specific account of the guidance contained in the EPA document "Odour Emissions Guidance Note" 'AG9 (September 2019)

The following response was prepared by Michael Bailey, Managing Director of Envirocon Ltd, who has over 25 years' experience in undertaking odour impact assessments from a wide range of activities throughout Ireland, including pharmaceutical, surface-coating, animal feed industries, composting facilities, wastewater treatment plants and landfill emissions. The company has also completed over 30 Air Emission Licence applications for asphalt plants in Ireland and the UK and undertaken fugitive emissions surveys and compliance monitoring for licenced plants.

2.0 POTENTIAL SOURCES OF ODOUR

2.1 Emission sources

There are 3 main potential fugitive, or uncontrolled, sources of odours from the operation of the asphalt manufacturing plant. The principal sources are fugitive odour emissions during the delivery and storage of bitumen, mixing of the bitumen and aggregate in the mixing tower and transfer of the asphalt from the bottom of the hot-mix storage system at the bottom of the mixing tower into trucks. A secondary source of odours is the exhaust stack that emits the exhaust gases from the aggregate dryer burner. This will include trace amounts of hydrocarbons from the oil used in the burner. The final potential source of odours at the asphalt plant site is from minor fugitive emissions from loaded trucks before the asphalt mix is covered.

2.2 Bitumen Product

2.2.1 Characteristics

Bitumen is a complex material produced from the refining of crude oil and is composed of many volatile organic compounds (VOCs) that combine to give the characteristic odour when the product is heated during the asphalt production process. Cold bitumen does not generate significant odours since the hydrocarbons in this substance are basically non-volatile at low temperatures so odorous emissions at ambient temperatures will be negligible. Bitumen is solid up to 20 °C, becoming soft at 35-55 °C and has viscous properties at around 135-175 °C, depending on the grade of bitumen, with increasing rate of volatility of VOCs as the temperature increases.

2.2.2. Odour Types

The odour from heated bitumen may be described as an unpleasant odour with a sweet smoky/burnt creosote/phenolic sulphurous or acrid characteristic. Typically, bitumen is composed of 85% Carbon, 8% Hydrogen, up to 5% Sulphur and 1% Nitrogen. The VOCs present in bitumen include Polycyclic Aromatic Hydrocarbons (PAHs) (eg. Naphthalene, Benzopyrene and Anthracene), Benzene, Toluene, Xylene, as well as a large number of other complex variants of these VOCs.

2.2.3 VOC Emissions from Delivery, Storage and Use

Bitumen will be delivered in purpose constructed tankers for transporting substances above 100°C and transferred directly to the heated steel double-skinned storage silos located within a concrete bund. Emissions of VOCs from the bitumen storage bund are normally insignificant and are only detectable close to the end of the delivery transfer pipe where the bitumen may form drips.

The principal source of VOCs is within the vicinity of the base of the asphalt mixing tower where the asphalt product is discharged directly into trucks from the enclosed hot-mix storage system emissions of VOCs take place. The VOCs present in the bitumen will be released as fugitive, or uncontrolled, odorous emissions to the air as the hot-mix falls from the pneumatic door at the bottom of the hot-mix storage bins. With modern asphalt plants these doors are designed so that loss of excess asphalt falling from the door onto the ground is prevented to minimise fugitive emissions. With this type of discharge mechanism emissions only take place intermittently over the day depending on the quantity of asphalt being produced at the plant.

Once the asphalt is discharged into the truck the vehicle moves to a designated area of the plant site where a flexible (tarpaulin) or rigid cover will cover the asphalt load before it departs from the quarry site. Any odorous emissions from the laden trucks will be short-term, and localised, as the vehicle moves off-site.

2.3 Fuel Oil

Fuel oil is composed of a large mix of hydrocarbons formed during the oil refining process and this fuel, along with gas oil burnt during start-up will be used in the aggregate dryer burner. The burner that will be installed in the dryer is a high efficiency combustion unit and so the burner flame will convert over 99% of the VOCs to CO_2 and H_2O. The residual fraction of VOCs will be emitted from the asphalt plant stack along with the combustion products CO_2 and H_2O with trace amounts of SO_2, NO_x and CO. Emissions during the initial start-up of the aggregate dryer burner may give an acrid odour characteristic due to reduced combustion efficiency as the burner air heats-up. However, once the aggregate dryer is operating at the normal temperature then the quantity of VOCs will rapidly decrease so that odours in the emission plume will be minor or insignificant.

3.0 ODOUR ABATEMENT

The proposed asphalt plant will be operated and effectively managed to meet Best Available Technology (BAT) requirements for the control and reduction of atmospheric emissions, including

fugitive odorous emissions. Given the nature of the production process where the hot asphalt is transferred to the hot-mix storage bins fugitive odour emissions cannot be completely eliminated. The following abatement measures will be implemented by the plant manager to reduce odour emissions:-

i) Inspections

Regular inspections of the bitumen storage bund area for leakage of pipeline network. Also monitoring of filling operation to stop transfer immediately to the tanks if leakage of transfer pipe or connections is detected.

ii) Bitumen delivery and storage

The bitumen storage silos at the asphalt plant will be installed within a bunded area designed so that in the unlikely event of any failure of valves or seals in the tanks or pipes occurs the hot bitumen will be retained within the concrete bund. Transfer of the bitumen from the delivery tanker to the bitumen storage tank will be via a secure connection to the filling pipe and the transfer will not proceed until all pipelines and connections are checked. The filling operation will be manned throughout. The bitumen storage tanks will be fitted with a volume indicator or high-level alarm to prevent over-filling. Any bitumen that may drip from the end of the flexible pipe connector used for filling the tanks will be collected in a small bin. These preventative measure substantially reduce the potential for bitumen to leak from the pipe and so greatly reduce the potential for fugitive odour emissions. The temperature of the heated storage tanks are continuously monitored as part of the plant process control system to ensure that over-heating of the stored bitumen does not occur.

iii) Mixing tower

All pipework connecting the bitumen tanks with the bitumen weigh tank on the mixing tower is sealed so that fugitive odours during the transfer to the asphalt/macadam mixer cannot occur. The pipe-line to the bitumen weigh tank at the mixing tower will be regularly checked to ensure there is no leakage at flanges or pipe seals.

The design of the bitumen/aggregate mixer and hot-mix storage system meets BAT requirements to ensure that fugitive odour or dust emissions do not occur. Access to the aggregate screen/ weigh unit, bitumen weigh hopper and mixer is only accessible via maintenance/inspection doors that are secured during plant production. The hot-mix storage bins are housed within an enclosed steel cladded structure at the bottom of the mixing tower

1.0 ODOUR IMPACT ASSESSMENT

1.1 Model Overview

The ADMS5 (Atmospheric Dispersion Modelling System (Version 5.2, November 2017) model was used to predict odour concentrations within the locality of the proposed asphalt plant. The ADMS software has been developed by CERC (Cambridge Environmental Research Consultants) over the past 20 years. It has been widely used for odour impact assessments of industrial facilities, wastewater treatment

plants, livestock production units and landfills in Ireland and this prediction model has been approved by the Environmental Protection Agency since 2000.

The ADMS5 takes account of substantially improved understanding of dispersion of an emission plume within the lower layers of the atmosphere. It also has the ability to model short-term averaging periods, in the order of 15 minutes or less, and so is suitable for modelling odour nuisance potential downwind of the boundary. Calculations were carried out to predict the rate of dilution from the asphalt plant to about 1km downwind to identify the extent where a potential odour nuisance may occur at the nearest houses (Figure 1).

The odour impact modelling study for the proposed asphalt plant was undertaken in accordance with the EPA Guidance report AG4 (2020).

4.2 Model Input Requirements

4.2.1 Emission source characteristics

The principal potential source of fugitive odours during the operation of the asphalt plant is the discharge of the hot asphalt from the hot-mix storage system located at the base of the mixing tower directly into trucks. The secondary potential odour source is due to emissions from the plant exhaust stack. Other sources such as filling the bitumen storage tanks and fugitive emissions from laden trucks before the load is covered will be minor.

The fugitive odour emissions that can occur during discharge of the hot-mix from the storage bins were modelled as a volume source since the extent of the odour emission would be from the discharge doors and extend around the mixing tower support structure where trucks are being loaded. The rate of fugitive odorous emissions from this location of the plant is given in units of odour units per cubic metre per second ($ou_E/m^3.s$). Odorous emissions in the exhaust plume from the top of the exhaust stack are defined as continuous emissions and are given as odour units per second (ou_E/s). The odour emission rates used in the impact assessment are based on maximum or 'worst-case' total odour emissions from the operation of the proposed asphalt plant.

The odour emission rate from the discharge zone at the hot-mix storage system was estimated to be a maximum rate of 14,000 ou_E/s. This emission rate is based on a uniform odour concentration of 100 ou_E/m^3 for the air volume within the hot-mix storage silo structure, which is estimated to be $140m^3$. This value is based on a truck discharge concrete stand area of $35m^2$ x 4m height to discharge doors, based on design drawings of the proposed plant. A uniform odour concentration of 100 ou_E/m^3 throughout the volume of air under the hot-mix storage system would be a worst-case odour concentration experienced adjacent to the truck loading stand at the bottom of the mixing tower.

Information on the emissions from the exhaust stack are given in Table 1. The odour emission rate of 7,800 ou_E/s is based on an odour concentration in the emission plume of 500 ou_E/m^3.

Table 1: Characteristics of the exhaust stack

Source	Stack Ht (m)	Diameter (m)	Exhaust vol (Nm^3/h)	Actual vol (m^3/h)	Exit T. (°C)	Exit Vel (m/s)	Odour Emission (ou_E/s)
Exhaust Stack	15	1.05	56,000	76,520	100	22.4	7,800

The ADMS5 model was run based on maximum odour emissions from both the discharge zone at the base of the hot-mix storage, combined with odour emissions from the exhaust stack. It was assumed that the asphalt plant was operating in full production during the hours of 04:00-19:00 hours Monday-Saturday. For the remaining hours the emission rate was set at zero. This approach to modelling the potential odour impact of the asphalt plant assumes a 'worst-case' emission scenario with emissions taking place during the operational period of the day

4.2.3 Climatological data

Sequential hourly climatological data from the meteorological station at Cork Airport (68km to SE) of Clasheen Woods were used in predicting the ground level pollutant concentrations in the locality of the sand pit. Hourly climatological datasets for the years, 2015-2018, that give measurements of wind speed, wind direction, air temperature and cloud cover were processed. The year-to-year variations in wind speed and direction were taken into account in the modelling by using these datasets instead of relying on predicted concentrations based only on one year of climatological data.

The climatological data recorded at Cork Airport is likely to be representative of conditions experienced in the Killarney area. The overall pattern of the annual frequency of wind direction and wind speed in the area is also likely to be similar to that experienced at the airport. The general W-E alignment of the River Flesk valley near Minish will tend to produce a strong prevailing SW-Westerly wind field in the area. The alternative location where hourly measurements of wind speed and direction are available is at Cahirciveen meteorological station (54km to the SW). This station is within 15km of the Atlantic coast and so measurements are strongly affected by local coastal wind-flow and would not be appropriate for locations over 50km east of the nearest coast-line.

Input parameters for wind speed, direction, cloud cover and air temperature provide values to enable the degree of atmospheric turbulence, or instability within the lower air layers to be calculated. Atmospheric instability occurs due to heating of the ground by solar radiation and this is related to the amount of cloud cover, coupled with the solar inclination, which is a function of the time of year. The hourly stability parameters were computed by the ADMS5 from the wind, temperature and cloud cover input data. Five annual data-sets of hourly climatological data for Cork Airport for the years 2015-2019 were generated and wind roses that show the frequency of certain wind direction sectors and frequency of wind speed categories for each year are given in Figure 1.

4.2.4 Receptor Grid

A receptor grid was used with a regular spacing of 5625 receptor points (75x75 points) covering an area centered on the asphalt plant of approximately $1.5km^2$ with 6m x 10m spacing between receptor

points where predicted values were modelled. Preliminary modelling to assess the extent of the area of the likely maximum ground level odour impact indicated that the highest odour levels will occur within about 75m of the asphalt plant site. The predicted short-term odour concentrations at the nearest houses to the application site were also modelled as part of the odour impact assessment study.

4.3 Results of Odour Model

4.3.1 Odour perception in the community

The perception of odour at some point downwind of an emission source depends on the type of odour compound and the air concentrations of the odorous gas. The measure used to quantify odour nuisance potential is the odour concentration, expressed in European odour units per cubic metre (ou_E/m^3). An odour concentration of 1 ou_E/m^3 is the level at which there is a 50% probability that, under laboratory conditions using a panel of qualified observers, an odour may be detected. At levels below 1 ou_E/m^3 the concentration of the gaseous compound causing the odour in the air will be less than the odour detection level and so although the odorous gas is still present in the air no odour will be experienced.

The intensity of an odour ranges from 1 ou_E/m^3 = odour detection, 2= faint odour with the intensity increasing up to 5 ou_E/m^3 where the odour is easily identifiable, with higher levels of 20 ou_E/m^3 likely to result in nuisance complaints by the local community depending on the frequency of the odour occurrence. If the odour from an emission source is recognisable but very infrequent over the year, then complaints are unlikely. However, if the odour creates a pervasive lingering odour, even though the occurrence is very low during the year, then the effect on the local community may be sufficient to define the event as a community nuisance.

An odour concentration of greater than 5 ou_E/m^3 has been widely used as a criteria for determining possible nuisance complaints, typically as a predicted hourly average 98 percentile limit value (175^{th} highest predicted value over a year). This predicted odour concentration has been adopted in the past as an acceptable approach in Ireland and the United Kingdom to demonstrate that no odour nuisance is likely to occur beyond the site boundary of waste transfer and composting facilities, wastewater treatment plants, landfills and intensive livestock production.

Ambient odour limits recommended in a report by the EPA for pig production units give a limit value of 3 ou_E/m^3 as a 98 percentile of predicted hourly concentrations, with a target value of 1.5 ou_E/m^3. A predicted odour concentration of 1.5 ou_E/m^3, expressed as a 98 percentile of hourly values, is recommended by the Environment Agency in the U.K. for sources with a potential for offensive odours, including WWTP's, organic waste treatment and landfills. Guideline values for residential areas of 1ou_E/m^3 as a 98 percentile have also been used in the Netherlands and more recently in Italy for 'sensitive locations'.

4.3.2 Predicted odour concentrations

The predicted 98 percentile odour short-term concentration contour pattern is shown in Figure 2. These percentile calculations give the odour concentration at each receptor location that is predicted to be exceeded for 2% of the year or 175 hours. The results are based on the maximum value predicted at each receptor location over the 5 annual data-sets (2015-2019) of hourly climatological data that were modelled. The pattern of predicted odour concentration around the asphalt plant site reflects the annual incidence of certain wind speeds and directions coupled with the different types of atmospheric stability close to the ground.

The dominant contribution of predicted odours from the asphalt plant site is due to the fugitive emissions associated with hot-mix transfer at the base of the mixing tower with an odour concentration of approximately 80-100 ou_E/m^3 within 50-100m from the plant site. The contribution to total potential short-term air quality impact of odorous emissions from just the exhaust stack is insignificant with a maximum 98 percentile level of 0.1 ou_E/m^3 beyond the sand pit boundary. This is due to the height of the stack of 15m and adequate plume rise from the top of stack resulting in rapid dispersion of any odours present in the emission plume so at ground level the overall impact will be negligible.

Table 2: Predicted short-term odour concentrations at the nearest houses to the application site

	Map Coordinates		Odour
House ID	**Easting**	**Northing**	**Hourly 98% ou_E/m^3**
H1	501125	588622	**0.22**
H2	501314	588707	0.69
H3	501342	588709	0.81
H4	501401	588634	1.0
H5	501808	588536	0.60
H6	501863	588513	0.50
H7	501936	588537	0.42
EPA Target Value			**1.5**

Predicted short-term odour concentrations at the nearest houses to the asphalt plant site are given in Table 2. The predicted 98 percentile odour concentrations indicates that the maximum level at the nearest house to the south of the sand pit site boundary is below 1.5 ou_E/m^3, which is the odour exposure criterion applied by the EPA for a target value of 1.5 ou_E/m^3 for houses near to waste treatment facilities or other activities emitting unpleasant odours. At the 4 nearest houses to the SE quarry site boundary the maximum predicted 98 percentile odour concentration is 0.25-1 ou_E/m^3, which is equivalent to <67% of the EPA criterion. At the 3 houses to the SE of the quarry site the predicted 98 percentile odour levels are 0.4-0.6 ou_E/m^3.

5.0 CONCLUSION

The air dispersion modelling study was carried out to evaluate the impact on local air quality of fugitive odour emissions from the proposed asphalt plant within the Roadstone sand pit at Clasheen, near

Killarney, Co. Kerry. The predicted concentrations were compared with the EPA ambient odour limits recommended for houses and other sensitive receptor sites near the boundary of industrial activities where odorous emissions take place that have a potential to create a community odour nuisance. The air quality assessment assumed a 'worst-case' emission scenario with the asphalt plant operating continuously during the normal working hours at the sand pit with no seasonal variation in output. The actual emissions from the proposed asphalt plant, with efficient operation of the aggregate dryer burner, will result in observed fugitive odour emissions substantially below the emission calculations used in the modelling study.

The design and operation of the proposed asphalt plant at Clasheen minimises the potential for malodours to be detected beyond the site boundary. The asphalt plant is designed to operate and be managed to meet BAT in terms of processes, emission abatement and monitoring. The whole process from delivery and storage of bitumen, production of asphalt and discharge of asphalt to transport of the asphalt off-site by covered trucks will be carried out so that odours from the asphalt production will be controlled and reduced.

The results of this impact assessment indicates that the maximum predicted 98 percentile of hourly odour concentrations is 1 ou_E/m^3 at the nearest houses to the sand pit boundary. This predicted hourly concentration is below the stringent odour exposure target value of 1.5 ou_E/m^3 at the nearest housing that has been adopted by the EPA in Ireland and other Environmental Agencies in the UK and elsewhere.

Based on an assessment of locations at the asphalt plant site where potential fugitive odour emissions may occur from storage of bitumen and production of asphalt the results of this odour impact modelling study demonstrates that no odour nuisance will occur beyond the sand pit boundary at Clasheen.

APPENDIX

ASPHALT PLANT LOCATION AND HOUSES, WIND ROSES AND AND PREDICTED GROUND LEVEL ODOUR CONCENTRATION CONTOUR PLOT (FIGURES 1-3)

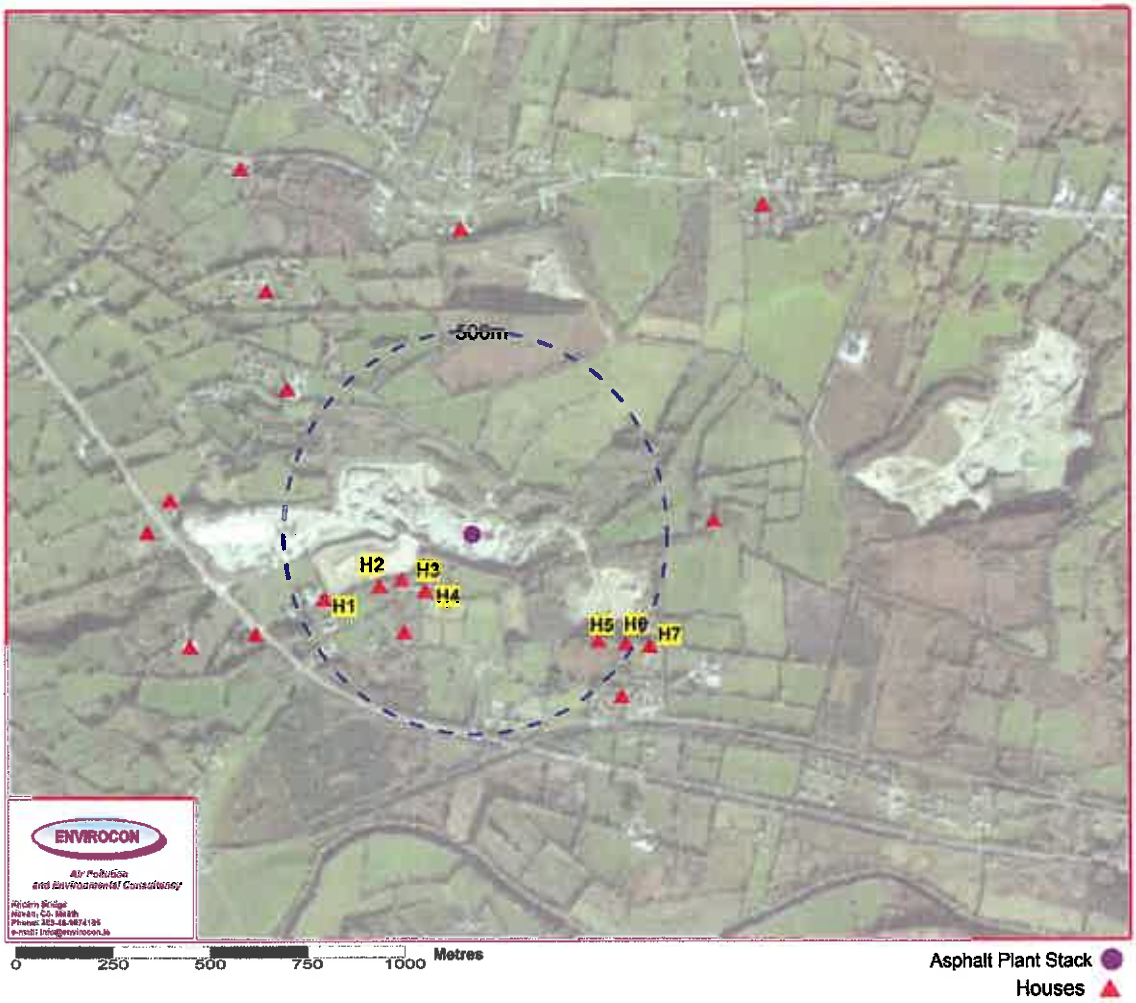
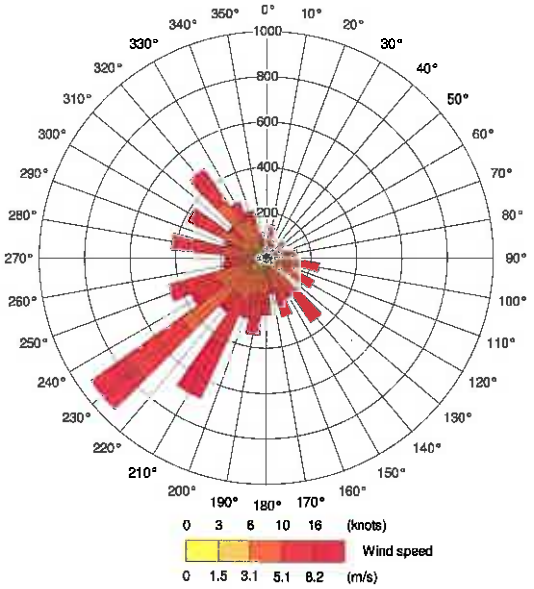
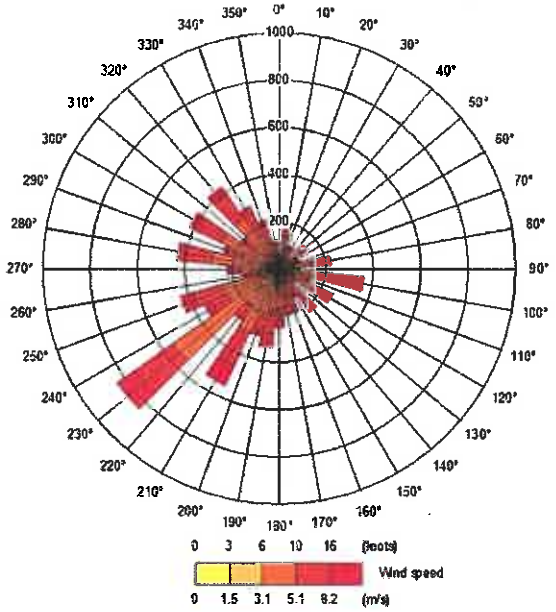


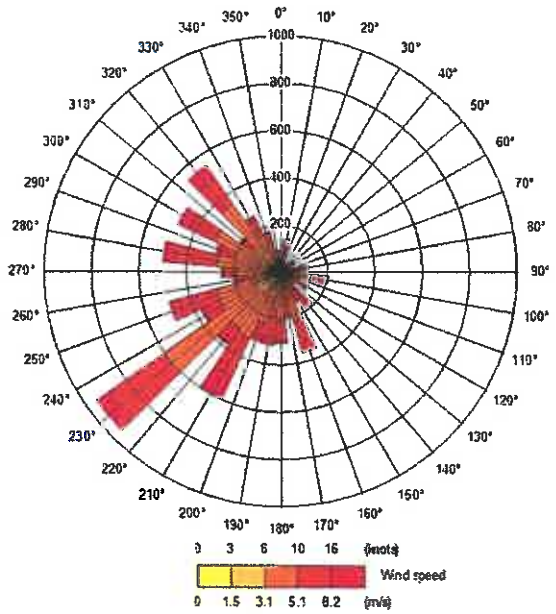
FIGURE 1: ASPHALT PLANT SITE AND LOCATION OF NEAREST HOUSES



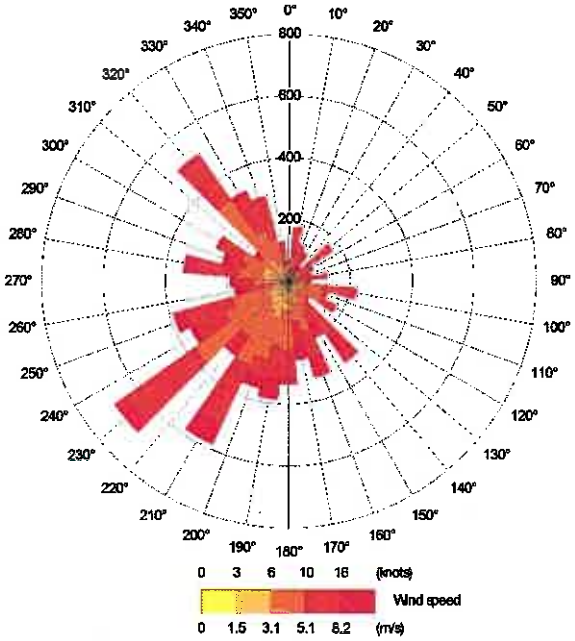
2015



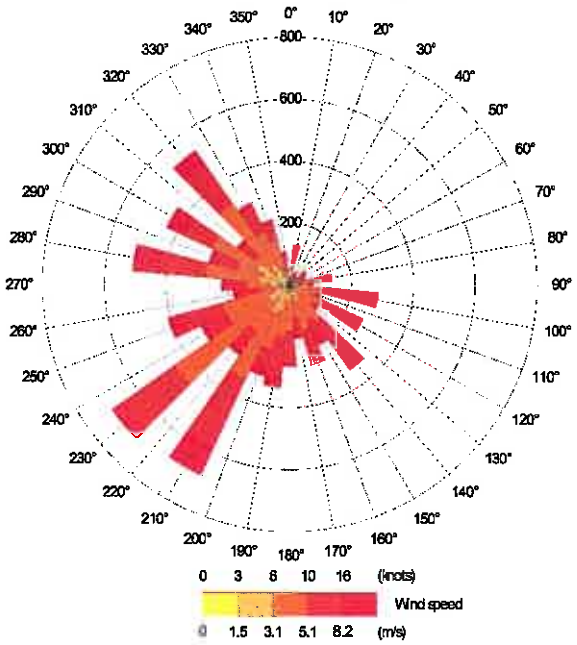
2016



2017



2018



2019

FIGURE 1: WIND ROSES FOR 2015-19 – CORK AIRPORT
Source: www.met.ie hourly raw data

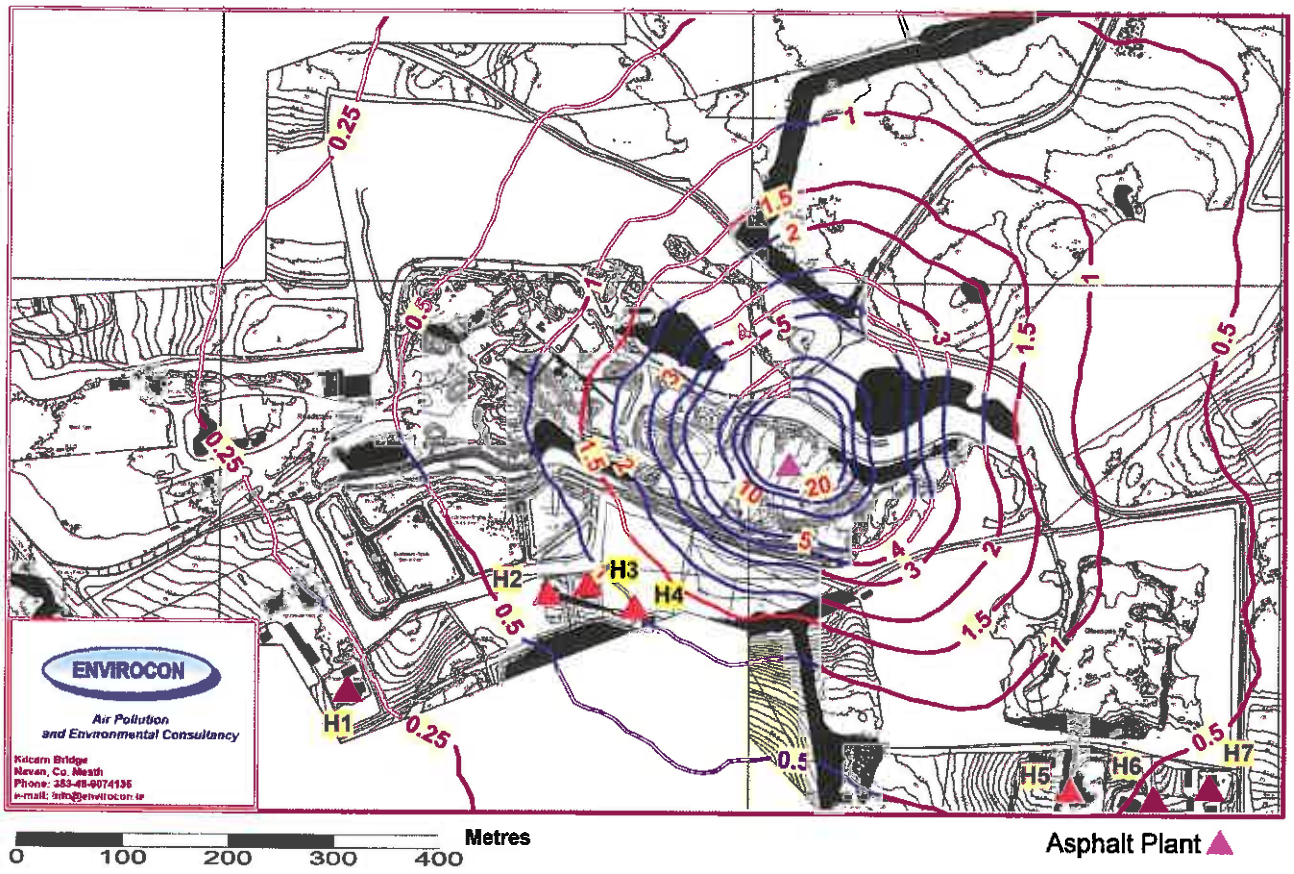


FIGURE 3: PREDICTED 98 PERCENTILE OF ODOUR CONCENTRATIONS DUE TO EMISSIONS FROM ASPHALT PLANT (ou_E/m^3)

Appendix 3: PM10 monitoring results carried out in January 2021

TECHNICAL NOTE

MALONE O'REGAN ENVIRONMENTAL

E1756, Roadstone PM_{10} Monitoring

RE: MONITORING OF AMBIENT PM_{10} AT CLASHEEN QUARRY, KILLARNEY, CO. KERRY

1 INTRODUCTION

Malone O'Regan Environmental (MOR) was commissioned by Roadstone Ltd. to carry out ambient PM_{10} monitoring at their quarry in Killarney, Co. Kerry (the Site).

MOR installed a PM_{10} monitor (Osiris TNO4361) at Location 1 (adjacent the eastern boundary of the Site) from the 12th January to the 15th January 2021. The PM_{10} monitor was installed by experienced MOR staff and set up and calibrated in accordance with the manufacturer's instructions. The location of the monitor is shown in Figure 1 below.

The monitoring results include cumulative PM_{10} concentrations comprising:

- Background suspended PM_{10} concentration in the area; and
- Suspended PM_{10} resulting from the Site activities.

Though Level 5 Covid-19 restrictions were in-place during the survey period, the Site was carrying out typical activities at the Site (crushing, screening, stockpiling and transport).

Figure 1: PM_{10} Monitoring Locations

2 MET DATA

The wind rose for the monitoring period for Valentia (the nearest Met Eireann synoptic station) is shown in Figure 2 along with summary tables detailing the daily wind speed and rainfall at Valentia during the monitoring event Table 2.

Figure 2: Wind rose from the 12th to 15th January 2021 (based on Met Éireann Data Valentia)

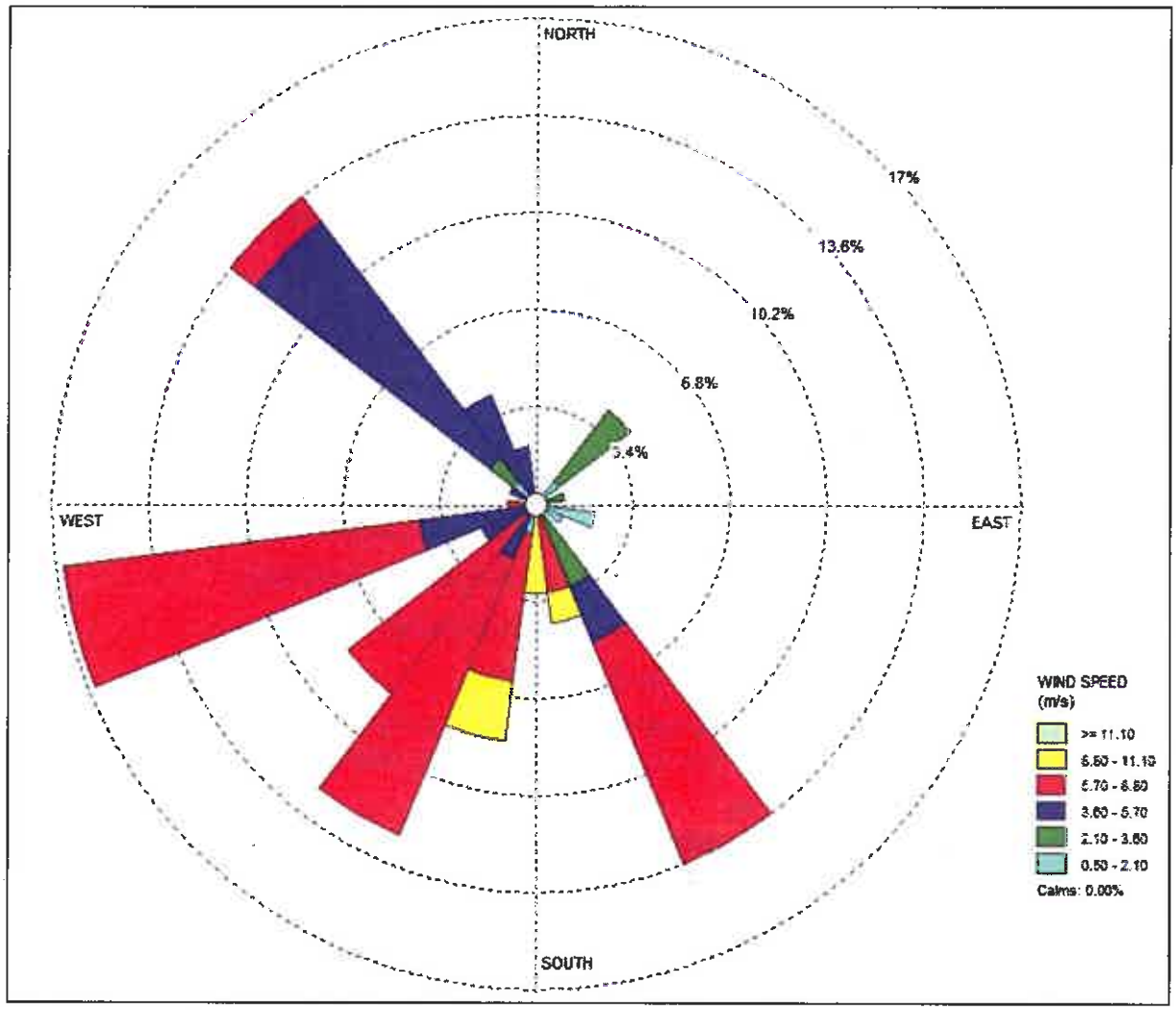


Table 2: Met Éireann Data from the 12th to 15th January 2021 (Valentia)

Date	Mean wind speed (m/s)	Rainfall (mm)
12/01/2021	5.9	0.2
13/01/2021	6.2	0.2
14/01/2021	3.3	0
15/01/2021	6.4	0.9

3 AIR QUALITY STANDARDS

Table 3 below lists applicable air quality standards (AQS) for PM_{10}, set out in Air Quality Directive (2008/50/EC) and S.I. No. 180 of 2011.

Table 3: Air Quality Standards (AQS) for PM_{10}

Pollutant	Concentration	Maximum No. of Exceedances permitted	Exceedance Expressed as Percentile	Measured as
Particulates (PM_{10})	50 µg/m³	35 times in a year	90.40th percentile	24-hour mean
	40 µg/m³	None	-	Annual mean

4 BACKGROUND AIR QUALITY

EU legislation on air quality requires that all Member States divide their territory into zones for the assessment and management of air quality. The current trends in air quality in Ireland are reported in the EPA publication Air Quality in Ireland (Key Indicators of Ambient Air Quality) – Annual Report 2016- 2019, which is the most up to date report on air quality in Ireland.

For ambient air quality management and monitoring in Ireland, four zones, A, B, C and D are defined in the Air Quality Standards (AQS) Regulations (S.I. No. 180 of 2011) and are defined as follows:

- **Zone A:** Dublin Conurbation;
- **Zone B:** Cork Conurbation;
- **Zone C:** 24 cities and large towns. Includes Galway, Limerick, Waterford, Clonmel, Kilkenny, Sligo, Drogheda, Wexford, Athlone, Ennis, Bray, Naas, Carlow, Tralee, Dundalk, Navan, Newbridge, Mullingar, Letterkenny, Celbridge and Balbriggan, Portlaoise, Greystones and Leixlip; and
- **Zone D:** Rural Ireland, i.e., the remainder of the State excluding Zones A, B & C.

Table 4 below shows the baseline air quality data for several Zone D monitoring stations.

Table 4: Annual Mean Concentrations of Pollutants Measured in Zone D

Monitoring Station	Total Particulates PM_{10} Annual Mean (µg/m³)			
	2016	2017	2018	2019
Castlebar	11.9	11.2	11	16
Cobh	-	-	15	13
Claremorris	10.1	10.8	12	11
Kilkitt	8.1	7.8	9	7
Roscommon Town	-	-	12	12
Enniscorthy	17.3	-	-	18
Macroom	-	-	-	28

Monitoring Station	Total Particulates PM_{10} Annual Mean (µg/m³)			
	2016	2017	2018	2019
Tipperary Town	-	-	-	9
Average Zone D	**11.9**	**9.9**	**11.8**	**14.3**

Clasheen Quarry is located in Zone D, i.e. rural Ireland, and therefore value of 14.3 µg/m³ is applicable to the general locality for the most recent year of data supplied by the EPA.

5 MONITORING RESULTS

Table 5 below details PM10 monitoring results for the Site from the 12th to the 15th of January 2021, and Figure 5-1 shows these results in a graphical format, together with annual and 24-hour AQS for PM_{10}.

Roadstone reports that the following activities took place during the monitoring period :

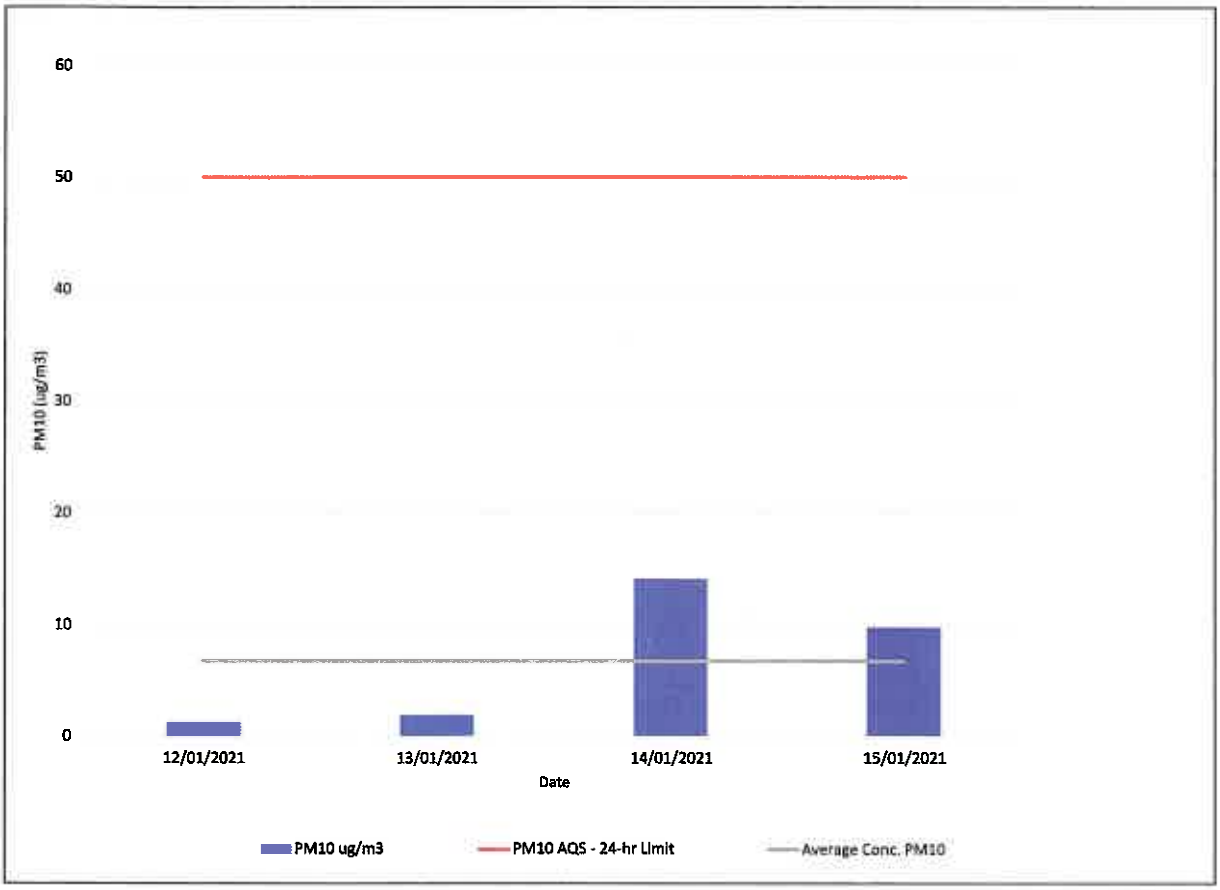
- Typical quarry activities:
  - crushing,
  - screening, and
  - transportation of aggregate.

The PM_{10} concentrations were below the limits on all four (4No.) monitoring days, and the average concentration over the 4-day monitoring period was below the 24-hr mean AQS limit.

Table 5: PM_{10} Monitoring Results Monitoring Location 1

Monitoring period	Monitored PM_{10} µg/m³ 24 hour mean	% of 24 hour mean AQS	% of annual mean AQS
12/01/2021 11:15 – 23:59	1.22	2.4	3.1
13/01/2021 00:00 – 23:59	1.94	3.9	4.9
14/01/2021 00:00 – 23:59	14.12	28.2	35.3
15/01/2021 00:00 – 23:59	9.76	19.5	24.4
Average for the monitoring period (12th to the 15th January 2021)	6.8	13.5%	16.9%

Figure 5: Graphical representation of PM_{10} monitoring data at monitoring location 1



Background air quality data for Zone D can be taken on average to be 14.3 µg/m^3 (refer to Table 4), and this is in line with the monitored data at monitoring location 1. The EPA classifies this as 'good' air quality (PM_{10} 1 to 16 µg/m^3). All values recorded during this monitoring event were within the EPA's criteria for 'good' air quality.

6 CONCLUSION

Based on the PM10 data presented the following can be concluded:

- The average Annual Mean concentration based on the monitoring completed by the EPA between 2016-2019 for PM_{10} in Zone D, i.e. rural monitoring locations, is 14.3µg/m^3.
- The Site is located within a rural setting of county Kerry, therefore a background PM_{10} value of 14.3µg/m^3 is appropriate background.
- Over the monitoring period for Location 1 noted the following –
    - The average 24-hour mean for the monitoring period was 6.9 µg/m^3 which is 13.5% of AQS daily limit value of 50 µg/m^3 and below the EPAs 2019 average Annual Mean concentration for Zone D PM_{10}.
    - The PM_{10} concentrations were below the AQS daily limit value of 50 µg/m^3 on all four (4No.) monitoring days.
    - The average PM_{10} concentration over the 4-day monitoring period was below the 24-hr mean AQS limit.

Appendix 4: AA Stage 1 Screening Report

APPROPRIATE ASSESSMENT
SCREENING REPORT

Application for Air Emissions Licence for Proposed Asphalt Plant at Clasheen Townland, Killarney, Co. Kerry

Prepared for: Roadstone Ltd.

SLR Ref: 424.02036.00730
Version No: 0
February 2021

Document Control	
Document Properties	
Organisation	SLR Consulting (Ireland) Ltd.
Project Name	Application for Air Emissions Licence for Proposed Asphalt Plant at Clasheen, Killarney, Co. Kerry
Report Title	Appropriate Assessment Screening Report
Author(s)	Hazel Douglas
Draft version/final	Final
Document reference	210203_424.02036.00730_Clasheen, Killarney AA Screening Report_v1 Final

DATE	Revision No	Prepared by	Reviewed by	Approved by	Status	Comments
03/02/2021	1	Hazel Douglas	Elaine Dromey	Elaine Dromey	Final	Final

BASIS OF REPORT

CONTENTS

DOCUMENT REFERENCES

TABLES

DRAWINGS

APPENDICES

1.0 Introduction

1.1 SLR Consulting Ireland (SLR) was commissioned by Roadstone Ltd. (Roadstone) to prepare an Appropriate Assessment (AA) screening report to inform the application for an air emissions licence for a permitted asphalt plant at Clasheen Townland, Killarney, Co. Kerry.

Background

1.2 Planning permission for the installation of a mobile blacktop plant at the existing Roadstone pit was granted by Kerry County Council in February 2011 (Plan File Ref. No. 10/1163). An extension of duration of the planning permission, under Section 42 of the Planning and Development Act 2000 (as amended), was granted by Kerry County Council on the 16 May 2016(Plan File Ref. No. 10/91163).

1.3 An air emissions licence was granted for the permitted mobile blacktop plant by Kerry County Council on the 22 February 2011 (Ref. No. AP10-01). A first party appeal was made to An Bord Pleanála to amend a condition of the licence and the board made a decision on the 29 July 2011. On the 21December 2018 Kerry County Council environment section wrote to the applicant informing them that as no atmospheric emissions had occurred to date at the site the licence would cease to have effect. As a result there is now a requirement for a new air emission licence for the proposed blacktop plant.

1.4 An AA screening exercise was undertaken as part of the application for the time extension of the mobile asphalt plant (Plan File Ref. 10/91163), which concluded that there was no potential for significant effects on Natura 2000 sites.

1.5 A new air emissions licence application was made by SLR, on behalf of the applicant Roadstone, to Kerry County Council (Environmental Services) in October 2020 (Ref. No. AP-20-01). The following request for further information has been made by Kerry County Council in December 2020, under the Air Pollution Act, 1987 (Licensing of Industrial Plant) Regulations, 1988:

> *"7. You are requested to submit an AA Screening Report ruling out the potential for significant effect on Natura 2000 sites with certainty and without the use of mitigation measures or alternatively you are requested to submit a Natura Impact Statement for the proposal. As part of this, particular regard should be given to the vulnerability of Sheheree (Ardagh) Bog SAC to emissions as set out in the Conservation Objectives for the Natura 2000 Site. Regard should also be given to potential for cumulative effects taking into consideration existing and permitted developments in the area."*

1.6 This AA Screening report provides the necessary information pursuant to the above further information request, for the new air emissions licence application (Ref. No. AP-20-01).

General Description of the Site

1.7 The proposed location of the new asphalt plant ("the Site") is within Roadstone's existing sand and gravel pit at Clasheen Townland, near Minish, approximately 3 km south east of Killarney, Co. Kerry. The Site is centred at approximate Ordnance Survey Ireland Grid Reference (OSIGR) coordinates W 01471 88822.

1.8 The Site is accessed directly from the N22 national road that runs between Killarney and Cork. The existing entrance area of the pit extends eastwards from the N22 road for 1 km with the proposed asphalt plant site on the pit floor within the eastern section of the active extraction area. The width of the pit floor near the proposed asphalt plant site is about 150m from north to south with the faces extending 8-10m above the floor on both sides.

1.9 The surrounding topography is gently undulating within 3 km of the site with elevations of 50-80 m O.D. within 3 km to the west of the N22. At the eastern end of the pit the ground surface is at about 90 m O.D. with the terrain increasing to 120-150 m O.D. within 4 km north of the eastern boundary.

1.10 The land use in the surrounding area is mainly fields for arable farming and pasture land with isolated areas of bog land. There is an extensive area of mature woodland bordering the north eastern boundary and extending along the eastern end of the pit.

Brief Project Description

1.11 Roadstone are proposing to operate an asphalt plant at their operational sand and gravel pit. The proposed asphalt plant would be a mobile blacktop plant, as per the details set out in the existing planning permission (Plan Ref. No. 10/1163).

Aim of the Report

1.12 The aim of this report is to provide supporting information to assist the competent authority, in this case Kerry County Council (Environmental Services) , to carry out screening for likely significant effects on Natura 2000 sites as a part of the process of granting a licence for air emissions for the permitted asphalt plant at Clasheen Townland, Killarney, Co. Kerry.

Objectives of Appropriate Assessment

1.13 The Habitats Directive promotes a hierarchy of avoidance, mitigation and compensatory measures to be addressed in the AA process[1] as follows:

- Firstly, a plan/ project should aim to avoid any negative impacts on Natura 2000 sites by identifying possible impacts early and designing the project/ plan to avoid such impacts.
- Secondly, mitigation measures should be applied during the AA process (after stage 1 screening) to the point where no adverse impacts on the site(s) remain.
- Thirdly a plan/ project may have to undergo an assessment of alternative solutions. Under this stage of the assessment, compensatory measures are required for any remaining adverse effects, but they are permitted only if (a) there are no alternative solutions and (b) the plan/ project is required for imperative reasons of overriding public interest (the 'IROPI test'). European case law highlights that consideration must be given to alternatives outside the plan/ project boundary area in carrying out the IROPI test.

Evidence of Technical Competence and Experience

1.14 SLR Associate Ecologist Hazel Douglas MBiolSci prepared this report. SLR Principal Ecologist Elaine Dromey MCIEEM carried out the technical review of this report.

1.15 Hazel Douglas holds a Master's Degree in Biology from The University of Sheffield, UK. Hazel has over seven years professional experience within ecological consultancy, and is experienced in habitat survey, protected species survey, Ecological Impact Assessment, and Appropriate Assessment Screening.

1.16 Elaine Dromey holds a BSc in Earth Science from University College Cork and an MSc in Vegetation Survey and Assessment from the University of Reading, UK. She is a full member of the Chartered

[1] The objectives as outlined are based on those set out in Scott Wilson and Levett-Therivel, (2006).

Institute of Ecology and Environmental Management and has worked as an ecological consultant for 18 years.

Relevant Legislation

1.17 The main pieces of relevant legislation are as follows:

- The Habitats Directive 92/43/EEC.
- The Birds Directive 2009/147/EC.
- European Communities (Birds and Natural Habitats) Regulations 2011 – 2015.
- Planning and Development Acts 2000 to 2020 - PART XAB.

1.18 The relevant sections of the legislation are summarised in Appendix A of this report.

2.0 Methods

Desk Study

2.1 A desk study was carried out to collate information available on Natura 2000 sites within the potential zone of influence of the proposed project. The site and the surrounding area were viewed using satellite imagery[2] and Environmental Protection Agency (EPA) Maps[3]. Kerry County Council planning portal[4] and myplan.ie[5] were accessed for information on other projects and plans. The National Parks and Wildlife Service (NPWS) website[6] was accessed for information on Natura 2000 sites.

2.2 The information contained within the Air Quality Impact Assessment report (Envirocon, 2020), submitted as part of the air emissions licence application, was used to inform the preparation of this report. Responses to the other items of requested further information have been reviewed. Relevant information on the planning file for the asphalt plant planning applications (Plan File Ref. No. 10/1163 and 10/91163) was also reviewed, including the project description, previous appropriate assessment screening, and environmental report.

Potential Zone of Influence

2.3 The '*zone of influence*' for a project is the area over which ecological features may be affected by biophysical changes as a result of the proposed project and associated activities. This is likely to extend beyond the project site, for example where there are ecological or hydrological links beyond the site boundaries. The zone of influence will vary for different ecological features depending on their sensitivity to an environmental change (CIEEM, 2018).

2.4 A distance of 15 km is currently recommended in the case of plans, as a potential zone of influence, and this distance is derived from UK guidance (Scott Wilson *et al*, 2006). For projects, the distance could be much less than 15 km, and in some cases less than 100 m. National Parks and Wildlife Service guidance (NPWS, 2009) advises that this must be evaluated on a case-by-case basis with reference to the nature, size and location of the project, the sensitivities of the ecological receptors, and the potential for in-combination effects.

2.5 The zone of influence of the proposed project is discussed in paragraphs 5.2 – 5.5 of this report.

Screening Report

2.6 The approach to preparing the AA screening report is summarised as follows:

- Identify Natura 2000 sites within the potential zone of influence of the project;
- Identify the features of interest of the Natura 2000 sites;
- Review whether there is potential for the features of interest to be affected by the project based on information such as the vulnerabilities of the Natura 2000 site, proximity to the Site and the nature and scale of the works associated with the project;
- Consider the likelihood of the identified potential impacts occurring based on the information collated and professional judgement;

[2] https://www.google.ie/maps & http://www.bing.com/maps/ (last accessed 27 January 2021)
[3] http://gis.epa.ie/(last accessed 27 January 2021)
[4] https://www.kerrycoco.ie/planning/ (last accessed 27 January 2021)
[5] https://myplan.ie/ (last accessed 27 January 2021)
[6] https://www.npws.ie/protected-sites (last accessed 27 January 2021)

- Consider the likelihood of cumulative effects arising from the project in-combination with other plans and projects; and
- Identify the likelihood of significant effects on Natura 2000 sites occurring because of the project.

2.7 The approach taken in preparing the screening report is based on standard methods and best practice guidance, as listed in the references section of this report.

3.0 Detailed Project Description

3.1 The permitted asphalt plant is a mobile blacktop plant, to be located in the eastern part of the sand and gravel pit floor. The plant would have an exhaust stack height of 15m and diameter of 1.1m.

3.2 The following project description has been taken from documents under the planning file for planning permission ref. 10/1163:

> Installation of a mobile black-top plant at Roadstone Wood Ltd., Clasheen, Killarney, Co. Kerry. This mobile plant will produce tarmac products for use in infrastructure projects. The total area required for the proposed development will be 2.07 ha of which the proposed plant will occupy 0.12 ha.
>
> The principal elements of the plant will be:
>
> - Retaining wall;
> - Cold storage bins;
> - Feeders and associated conveyers;
> - Dryer and burner;
> - Screener;
> - Weight hoppers and associated conveyers;
> - Mixer;
> - 4 no. bitumen tanks;
> - 2 no. filler tanks;
> - Baghouse filter and emission point stack;
> - 2 no. fuel tanks and associated bunding;
> - Hot storage bins and conveyers;
> - Control cabin and container; and
> - Switch room, transformer and substation.

3.3 The black-top plant will operate from 04.00 to 19.00 Monday to Saturday inclusive (as per condition no.4). Operating hours outside of the above to accommodate special projects shall be requested from the planning Authority prior to the scheduled works.

3.4 There will be no discharge of waters from the Site to any surface water courses.

4.0 Appropriate Assessment Screening

4.1 This section of the report identifies the zone of influence of the proposed project, provides information on the Natura 2000 sites within the identified zone of influence and sets out the potential impacts and effects and the likelihood of significant effects.

Identification of Natura 2000 Sites

4.2 The first step in identification of Natura 2000 sites is to determine the potential zone of influence of the project. The zone of influence for this project can be identified through a review of the nature of the proposed works, known impacts likely to arise as a result of this development type, distance from Natura 2000 sites and the features of interest of those sites.

4.3 The closest Natura 2000 site is the Killarney National Park, Macgillycuddy Reeks and Caragh River Catchment SAC 000365. The River Flesk, which forms part of this SAC, flows northwards to the west of the Roadstone pit and passes within 0.75 km to the south and 1.5 km to the west of the asphalt plant site. The second closest site is Sheheree (Ardagh) Bog SAC 000382 situated 3 km to the west of the asphalt plant site, and the third closest is Killarney National Park SPA 004038 located 3.5 km to the west of the asphalt plant site. These three Natura 2000 sites are close enough to the Site that they can be considered to be within the zone of influence of the project.

4.4 Castlemaine Harbour SAC 000343 lies approximately 8.3 km to the north west, Old Domestic Building, Curraglass Wood SAC 0002041 9.7 km to the south, and Blackwater River (Cork/Waterford) SAC 002170 lies 12.4 km to the north east of the Site. All three of these Natura 2000 sites are sufficiently distant from the asphalt plant that any emissions will not affect them.

4.5 All other Natura 2000 sites are considered to be outside the zone of influence of the project as they are sufficiently distant from the Site and not likely to be affected by emissions to air.

Description of Natura 2000 Sites

4.6 A description of the three Natura 2000 sites, taken from the supporting information available on the NPWS website[7], within the identified zone of influence for air emissions for the asphalt plant is provided in the following sections.

Killarney National Park, Macgillycuddy's Reeks and Caragh River Catchment SAC 000365

"This is the largest terrestrial site in Ireland and encompasses the mountains and lakes of the Iveragh Peninsula and the Paps range. It is the most mountainous region of Ireland, and includes the highest peak Carrauntoohil at 1039 m. The underlying rock is almost entirely Old Red Sandstone, although carboniferous limestone occurs on the east side of Lough Leane. Glacial processes have shaped the sandstone into dramatic ridges and valleys, including the well wooded Killarney valley. A wide range of semi-natural habitats are present, along with some improved land and forestry in the Caragh River catchment. Generally, the proximity of the site to the Atlantic in the south-west ensures a strong oceanic influence.

This site is of great ecological importance. It includes the most extensive oakwoods in the country, with some of the best bryophyte communities in Europe; Ireland's only sizable stand of Yew; excellent examples of blanket bog, alluvial woodland; good quality oligotrophic lakes, some of which support rare glacial relicts; unpolluted rivers with aquatic vegetation and rare invertebrates and fish; and

[7] https://www.npws.ie/protected-sites (last accessed 27 January 2021)

several other annexed habitats. The site also supports 12 Annex II species of flora and fauna, six Annex I bird species and at least 33 Irish Red Data Book species. Many rare bryophytes and invertebrates are also present, several at their only known Irish locations."

Sheheree (Ardagh) Bog SAC 000382

"This site is underlain by relatively impermeable muddy limestone bedrock. This is overlain by clayey tills with some old red sandstone clasts. The high ground surrounding the site consists of clayey till deposits with patches of gravel. This site developed in a small kettlehole lake with a gradual terrestrialisation leading to the formation of a raised bog. The land surrounding the bog is dominated by agricultural grassland.

This small confined raised bog site contains areas of active raised bog, degraded raised bog, carr woodland and marsh/rich-fen vegetation. It is the only remaining raised bog site with an intact surrounding lagg system in the country and this makes it of especially high ecological interest. In addition, the site is the most south-westerly example of a raised bog habitat in the country and is one of only two significant examples of the habitat in Co. Kerry. The presence of the protected semi-aquatic plant species Eriophorum gracile, which is only known from c. 25 sites in Ireland, adds to the ecological interest of the site."

Killarney National Park SPA 004038

"This large site encompasses the lakes and part of the Macgillycuddy's Reeks in the vicinity of Killarney. The underlying geology is Old Red Sandstone, although Carboniferous limestone occurs on the eastern shores of Lough Leane. Lough Leane is the most important and largest (8.6 km along its long axis) of the lakes, and is classified as a mesotrophic system. Muckross Lake and the Upper Lake are both high quality oligotrophic systems. Killarney National Park is perhaps best known for its Oak woodlands. They form the most extensive area of native woodland remaining in Ireland and include Derrycunihy Wood, described as perhaps the most natural Sessile Oak wood in the country. The woods are typically dominated by Quercus petraea, with an understorey of Ilex aquifolium. Arbutus unedo is a notable component of the woods. The site supports the largest Taxus baccata woodland in Ireland. An extensive area of wet woodland, or carr, occurs within the flood plain of Lough Leane. The higher areas of the site are dominated by blanket bog and wet heath. Outcropping rock, cliffs and crags are features of the site.

The site is of importance as it supports a good diversity of upland and woodland birds, as well as wintering waterfowl. It is a traditional site for a population of Anser albifrons flavirostris - while the numbers are now low, the population is still of importance as it is the most southerly in the country and also feeds entirely on bogs. Upland species which breed within the site include Falco peregrinus, Falco columbarius, Lagopus lagopus and Turdus torquatus - the latter two species are Red-listed in Ireland. The extensive woodlands support some scarce breeding birds, notably Phoenicurus phoenicurus, Phylloscopus sibilatrix and Sylvia borin. Several research programmes have been carried out, including studies on the bird communities associated with the woodlands, and the wildfowl associated with the lakes. A range of other notable animal and plant species are associated with this site, including Salvelinus alpinus."

Qualifying Interests and Conservation Objectives

4.7 The qualifying interests for which the Natura 2000 sites have been selected, along with the conservation objectives, and threats and pressures, are listed within **Table 1**.

Table 1: Qualifying Interests, Conservation Objectives, and Threats/ Pressures for Natura 2000 Sites within the Zone of Influence

Natura 2000 Site	Distance[8]	Qualifying Interests	Conservation Objectives	Threats/Pressures
Killarney National Park, Macgillycuddy Reeks and Caragh River Catchment SAC	0.75 km	Oligotrophic waters containing very few minerals of sandy plains (*Littorelletalia uniflorae*) [3110] Oligotrophic to mesotrophic standing waters with vegetation of the *Littorelletea uniflorae* and/or *Isoeto-Nanojuncetea* [3130] Water courses of plain to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation [3260] Northern Atlantic wet heaths with *Erica tetralix* [4010] European dry heaths [4030] Alpine and Boreal heaths [4060] *Juniperus communis* formations on heaths or calcareous grasslands [5130] Calaminarian grasslands of the *Violetalia calaminariae* [6130] Molinia meadows on calcareous, peaty or clayey-silt-laden soils (*Molinion caeruleae*) [6410] Blanket bogs (* if active bog) [7130] Depressions on peat substrates of the *Rhynchosporion* [7150] Old sessile oak woods with *Ilex* and *Blechnum* in the British Isles [91A0]	To restore the favourable conservation condition of qualifying habitats 3110, 3130, 4010, 4030, 4060, 6410, 7130, 7150, 91A0, 91E0 and 91J0 within the SAC. To maintain the favourable conservation condition of qualifying habitats 3260, 5130 and 6130 within the SAC. To restore the favourable conservation condition of freshwater pearl mussel, marsh fritillary and Killarney shad within the SAC. To maintain the favourable conservation condition of Kerry slug, sea lamprey, brook lamprey, river lamprey, Atlantic salmon, lesser horseshoe bat, otter, Killarney fern and slender naiad within the SAC. For each qualifying feature, a number of associated attributes and targets are listed (NPWS, 2017).	Urbanised areas, human habitation. Human intrusions and disturbances – attraction park, golf course, walking, horse riding and non-motorised vehicles. Mowing/cutting of grassland. Fire and fire suppression. Grazing. Fertilisation. Dispersed habitation. Sylviculture, forestry. Peat extraction. Hunting. Invasive non-native species. Erosion. Leisure fishing.

[8] When measured in a straight line over the shortest distance between the asphalt site and Natura 2000 site.

Natura 2000 Site	Distance[8]	Qualifying Interests	Conservation Objectives	Threats/Pressures
		Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* (*Alno-Padion, Alnion incanae, Salicion albae*) [91E0] *Taxus baccata* woods of the British Isles [91J0] *Geomalacus maculosus* (Kerry Slug) [1024] *Margaritifera margaritifera* (Freshwater Pearl Mussel) [1029] *Euphydryas aurinia* (Marsh Fritillary) [1065] *Petromyzon marinus* (Sea Lamprey) [1095] *Lampetra planeri* (Brook Lamprey) [1096] *Lampetra fluviatilis* (River Lamprey) [1099] *Salmo salar* (Salmon) [1106] *Rhinolophus hipposideros* (Lesser Horseshoe Bat) [1303] *Lutra lutra* (Otter) [1355] *Trichomanes speciosum* (Killarney Fern) [1421] *Najas flexilis* (Slender Naiad) [1833] *Alosa fallax killarnensis* (Killarney Shad) [5046]		
Sheheree (Ardagh) Bog SAC	3 km	Active raised bogs [7110] Degraded raised bogs still capable of natural regeneration [7120]	To restore the favourable conservation condition of active raised bogs (7110) within the SAC. For this qualifying feature, a number of associated attributes and targets are listed (NPWS, 2015).	Fertilisation. Mowing/cutting of grassland. Roads/motorways. Grazing.

Natura 2000 Site	Distance[8]	Qualifying Interests	Conservation Objectives	Threats/Pressures
				Urbanised areas, human habitation. Restructuring agricultural landholding.
Killarney National Park SPA	3.5 km	Merlin (*Falco columbarius*) [A098] Greenland White-fronted Goose (*Anser albifrons flavirostris*) [A395]	To maintain or restore the favourable conservation condition of the bird species listed as Special Conservation Interests for this SPA: merlin and Greenland white-fronted goose.	Urbanised areas, human habitation. Interspecific faunal relations – competition. Paths, tracks, cycling tracks. Grazing. Fertililsation. Walking, horse riding and non-motorised vehicles. Leisure fishing. Sylviculture, forestry.

Identification of Potential Impacts and Effects

4.8 The potential impacts of the proposed project on the habitats and species listed as qualifying interests for the Natura 2000 sites identified are discussed in this section. The potential impacts and effects on Natura 2000 sites are identified by considering the nature and scale of the proposed development; the location relative to Natura 2000 sites; and air quality modelling for the asphalt plant.

Potential Impacts and Effects

4.9 One potential source of impact has been identified as a result of the project; namely:

- Air quality impacts resulting from asphalt plant air emissions.

4.10 An air quality impact assessment has been completed (Envirocon, 2020) for the asphalt plant. The assessment used an Atmospheric Dispersion Modelling System (ADMS5) (Version 5.2, November 2017) to predict ambient air pollutant concentrations in the locality. The air quality impact assessment was undertaken in accordance with the Air Dispersion Modelling Guidance Note AG4 published by the EPA. The parameters used in the air quality modelling assumed a worst-case scenario and took the approach of maximum emissions within the permitted operating hours. Terrain data and worst-case climatic conditions were incorporated into the model assessment, along with the background concentrations of the pollutants modelled, which were derived from annual average concentrations obtained from rural locations (i.e. air quality Zone D – small town/rural) in Ireland published in the annual air quality reports for the years 2017-2019 by the EPA.

4.11 The air quality assessment looked at the effects of air emissions from the asphalt plant at ecological sensitive receptors including Natura 2000 sites, by modelling the Predicted Environmental Concentrations (PEC). The PEC is calculated using the total impact of emissions from the asphalt plant exhaust stack combined with the long-term background concentrations of the following pollutants emitted from the exhaust stack:

- Sulphur dioxide (SO_2); and
- Nitrogen oxides (NO_x).

4.12 The results of the air quality modelling demonstrate that in a worst-case scenario the annual average PEC values would be substantially below the National Air Quality Standards (NAQS) limits (SI No 180 of 2011) at all Natura 2000 sites within 15 km. Specifically, they fall below 17% of the annual NAQS limit for SO_2 and NO_x. The NAQS limit for the annual PEC value of SO_2 is 20 µg/m^3, whereas the predicted annual PEC value for SO_2 at the closest part of Killarney National Park, Macgillycuddy Reeks and Caragh River Catchment SAC (i.e. the River Flesk, located 0.75 km to the south) is 3.4 µg/m^3, or 17% of the NAQS limit. The predicted annual PEC value of NO_x for the same location is 4.5 µg/m^3, which is 15% of the 30 µg/m^3 NAQS limit for NO_x. The predicted SO_2 and NO_x concentrations are even lower for the remainder of the Natura 2000 sites, which are located at a further distance from the asphalt plant, and therefore the PEC values fall substantially below the NAQS limits at all Natura 2000 sites. The air quality assessment concludes that the contribution of the asphalt plant emissions to SO_2 and NO_x long-term PEC values are very low, and that it is evident that the potential air quality impact of emissions from the asphalt plant will be imperceptible at the Natura 2000 sites.

4.13 The air quality impact assessment has been updated to include Carbon Monoxide (CO) (refer to response to FI Item 4). Results of the modelling show predicted CO 8-hour maximum levels of 0.13 mg/m^3, equivalent to 1.3% of the hourly NAQS. Beyond a distance of 300-350m from the plant site, predicted CO concentrations are below 0.075 mg/m^3, or <0.75% of the 8-hour NAQS value.

4.14 The NAQS limits used in the air quality assessment for the asphalt plant are set to protect vegetation and natural ecosystems, and therefore the fact that the emissions would fall well below the NAQS

limits demonstrates that the emissions would not affect the habitats and species of the three Natura 2000 sites within the zone of influence.

4.15 With regards to potential effects specifically upon Sheheree (Ardagh) Bog SAC, the SAC is designated for its raised bog habitat. Raised bog habitat is sensitive to nitrogen deposition and acidification. Industrial emissions are not specifically listed as a threat or pressure on the standard data form for the SAC (NPWS, 2018a). However, the conservation objectives for the SAC target the restoration of raised bog, and one of the associated targets is for the air quality surrounding the bog to be close to natural reference conditions (NPWS, 2013a). The air quality assessment (Envirocon, 2020) models the annual average PEC values at the SAC as 4.1 $\mu g/m^3$ for NO_x, which is below 14 % of the NAQS limit, and 3.1 $\mu g/m^3$ for SO_2, which is below 16 % of NAQS limits, and concludes that the potential air quality impact of emissions from the asphalt plant will be imperceptible at the SAC (and all other Natura 2000 sites). Therefore the emissions are not predicted to have a significant effect upon the raised bog habitat at Sheheree (Ardagh) Bog SAC.

4.16 Considering the above, the air emissions of the proposed asphalt plant at Clasheen Townland, Killarney, is assessed as not resulting in any significant effects to any Natura 2000 sites.

Cumulative Effects

4.17 Cumulative effects can result from individually insignificant but collectively significant actions taking place over a period of time or concentrated in a location. Cumulative effects can make habitats and species more vulnerable or sensitive to change (CIEEM, 2018).

4.18 The following plan was considered together with the proposed asphalt plant for potential cumulative effects:

- Kerry County Development Plan 2015 – 2021.

4.19 There are no strategies or objectives in the County Development Plan that are likely to result in significant effects when considered in-combination with the proposed asphalt plant.

4.20 Background concentrations of emissions have already been factored into the air quality impact assessment (Envirocon, 2020), using EU Legislation Air Quality Zones classification information, such that the potential for cumulative effects as a result of other existing sources of emissions in the area have already been considered. The air quality impact assessment (Envirocon, 2020) states that there are no other significant industrial emission sources nearby, and so background levels in the surrounding area are well below the NAQS values.

4.21 This assessment of cumulative effects therefore focuses on future potential additional sources of emissions in the area, that have the potential to significantly increase the background concentrations of emissions. Kerry County Council planning portal was accessed to examine planning applications in the vicinity of the site for potential to act in-combination with the project (i.e. projects that could result in significant industrial emission sources).

4.22 Planning applications within the local area are mainly restricted to single or small numbers of dwellings or dwelling extensions, along with some larger residential developments and commercial development in Killarney, and some aggregate extraction operations in the surrounding areas. No applications which have the potential to significantly increase the background concentrations of emissions were identified, and as such there are no applications that are likely to result in significant effects when considered in-combination with the proposed asphalt plant.

4.23 Cumulative effects on Natura 2000 sites are therefore not predicted to occur as a result of the emissions to air from the asphalt plant at Clasheen Townland, Killarney, Co. Kerry.

Consideration of Findings

4.24 This screening report, based on the available information and project details, demonstrates that the proposed project does not pose a risk of likely significant effects on Natura 2000 sites.

4.25 We therefore submit that the competent authority, in this case Kerry County Council, can determine that appropriate assessment is not required, as the proposed project, individually or in combination with other plans or projects, will not have a significant effect on any Natura 2000 sites.

5.0 References

CIEEM (2018) *Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine.* Chartered Institute of Ecology and Environmental Management, Winchester.

DoEHLG (Department of the Environment, Heritage and Local Government) (2004) Quarries and Ancillary Activities Guidelines for Planning Authorities.

DoEHLG (Department of the Environment, Heritage and Local Government) (2009) *Appropriate Assessment of Plans and Projects in Ireland: Guidance for Planning Authorities.* National Parks and Wildlife Service, Department of the Environment, Heritage and Local Government. Dublin.

Envirocon (2020) *Air Quality Impact of Asphalt Plant, Clasheen, Killarney, Co. Kerry.* Roadstone Ltd., Clasheen, Killarney, Co. Kerry.

EPA (Environmental Protection Agency) (2006) *Environmental Management In The Extractive Industry.* EPA, Wexford.

European Commission (2001) *Assessment of Plans and Projects significantly affecting Natura 2000 Sites: Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC.*

European Commission (2018) *Managing Natura 2000 Sites: The Provisions of Article 6 of the 'Habitats Directive' 92/43/EEC.*

European Environment Agency (2014) *Air pollution fact sheet 2014. Ireland.* European Environment Agency, Copenhagen.

European Union Habitats Directive, (1992) *Council Directives 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora.*

European Union Birds Directive (2009) *Directive 2009/147/EC of the European Parliament and of the Council of 30 November 2009 on the conservation of wild birds (codified version).*

Kettunen, M, Terry, A., Tucker, G. & Jones A. (2007) *Guidance on the maintenance of landscape features of major importance for wild flora and fauna - Guidance on the implementation of Article 3 of the Birds Directive (79/409/EEC) and Article 10 of the Habitats Directive (92/43/EEC).* Institute for European Environmental Policy (IEEP), Brussels, 114 pp. & Annexes.

NPWS (2013a) *Site Synopsis for Killarney National Park, Macgillycuddy's Reeks and Caragh River Catchment SAC 000365* National Parks and Wildlife Service, Department of Culture, Heritage and the Gaeltacht.

NPWS (2013) *Site Synopsis for Killarney National Park SPA 004038.* National Parks and Wildlife Service, Department of Culture, Heritage and the Gaeltacht.

NPWS (2014) *Site Synopsis for Sheheree (Ardagh) Bog SAC 000382.* National Parks and Wildlife Service, Department of Culture, Heritage and the Gaeltacht.

NPWS (2015) Conservation Objectives: *Sheheree (Ardagh) Bog SAC 000382.* Version 1. National Parks and Wildlife Service, Department of Arts, Heritage and the Gaeltacht.

NPWS (2017) *Conservation Objectives: Killarney National Park, Macgillycuddy's Reeks and Caragh River Catchment SAC 000365. Version 1.* National Parks and Wildlife Service, Department of Culture, Heritage and the Gaeltacht.

NPWS (2018a) *Natura 2000 Standard Data Form for Killarney National Park, Macgillycuddy's Reeks and Caragh River Catchment SAC 000365.* National Parks and Wildlife Service, Department of Culture, Heritage and the Gaeltacht.

NPWS (2018) *Natura 2000 Standard Data Form for Killarney National Park SPA 004038.* National Parks and Wildlife Service, Department of Culture, Heritage and the Gaeltacht.

NPWS (2018) *Natura 2000 Standard Data Form for Sheheree (Ardagh) Bog SAC 000382.* National Parks and Wildlife Service, Department of Culture, Heritage and the Gaeltacht.

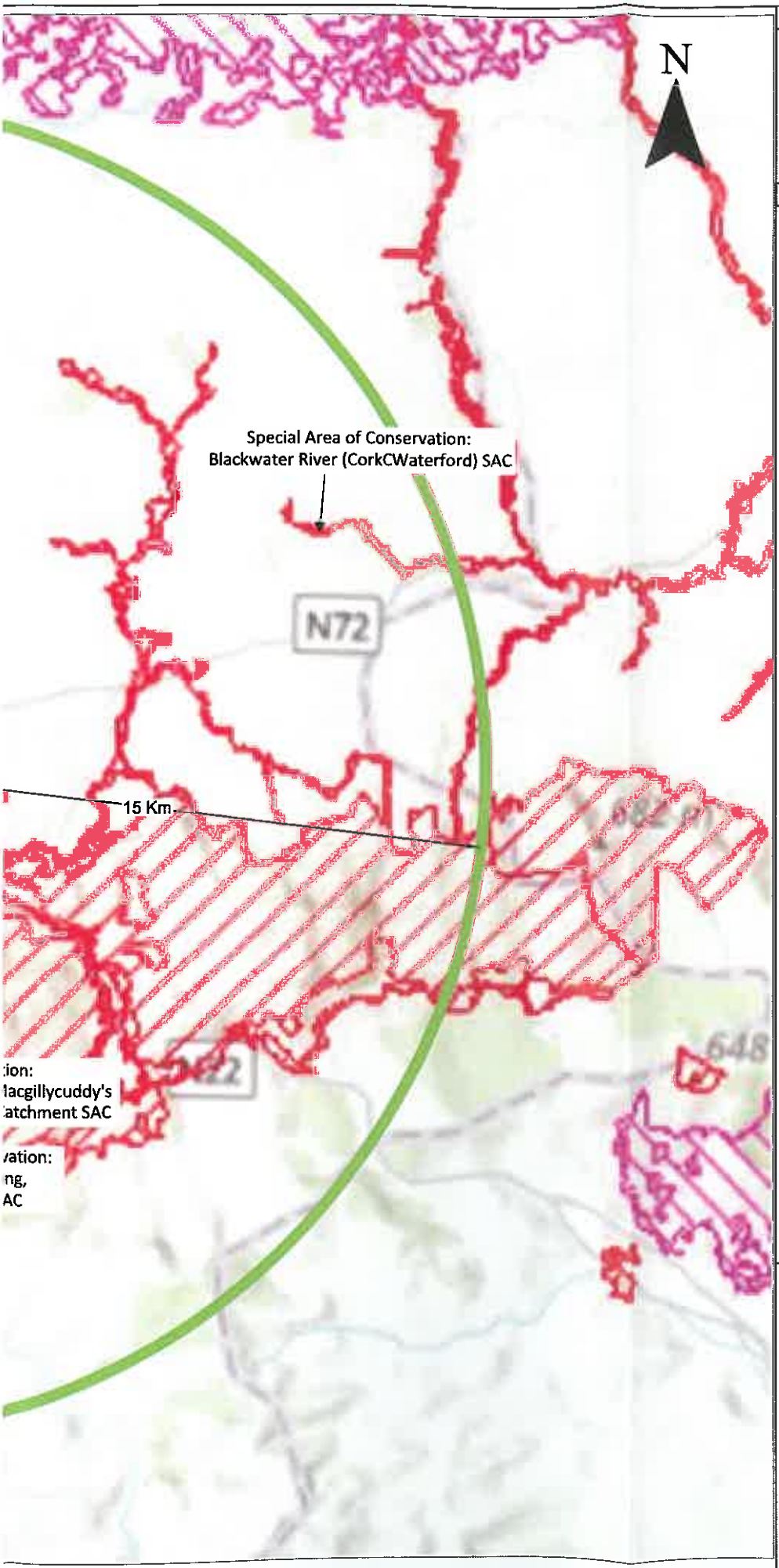
NPWS (2020) Conservation objectives for Killarney National Park SPA [004038]. Generic Version 7.0. Department of Culture, Heritage and the Gaeltacht.

Scott Wilson and Levett-Therivel, (2006). *Appropriate Assessment of Plans.* Scott Wilson, Levett-Therivel Sustainability Consultants, Treweek Environmental Consultants and Land Use Consultants.

Tyldesley. D., and Chapman, C., (2013) *The Habitat Regulations Assessment Handbook*, December 2020 Edition UK: DTA Publications Ltd

DRAWINGS

Figure 1: Natura 2000 Site Locations



NOTES

1. EXTRACT FROM NPWS ONLINE MAPPING

LEGEND

- SITE LOCATION
- SPECIAL PROTECTION AREA
- SPECIAL AREA OF CONSERVATION

SLR CONSULTING IRELAND
7 DUNDRUM BUSINESS PARK
WINDY ARBOUR
DUBLIN 14
T: +353-1-2964667
F: +353-1-2964676
www.slrconsulting.com

ROADSTONE LIMITED

APPROPRIATE ASSESSMENT: STAGE 1

PROPOSED ASPHALT PLANT

CLASHEEN TOWNLAND, KILLARNEY, CO. KERRY

NATURA 2000 SITE LOCATIONS

FIGURE 1

Scale	Date
NOT TO SCALE	FEBRUARY 2021

APPENDIX A RELEVANT LEGISLATION

European Nature Directives (Habitats and Birds)

The Habitats Directive (Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Flora) forms the basis for the designation of Special Areas of Conservation. Similarly, Special Protection Areas are classified under the Birds Directive (Council Directive 2009/147/EEC on the Conservation of Wild Birds). Collectively, Special Areas of Conservation (SAC) and Special Protection Areas (SPA) are referred to as the Natura 2000 network. In general terms, they are considered to be of exceptional importance for rare, endangered or vulnerable habitats and species within the European Community.

Under Article 6(3) of the Habitats Directive an appropriate assessment must be undertaken for any plan or project that is likely to have a significant effect on the conservation objectives of a Natura 2000 site. An appropriate assessment is an evaluation of the potential impacts of a plan or project on the conservation objectives of a Natura 2000 site[9], and the development, where necessary, of mitigation or avoidance measures to preclude negative effects.

Article 6, paragraph 3 of the EC Habitats Directive 92/43/EEC ("the Habitats Directive") states that:

> *"Any plan or project not directly connected with or necessary to the management of the site but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subject to appropriate assessment of its implications for the site in view of the site's conservation objectives. In the light of the conclusions of the assessment of the implications for the site and subject to the provisions of paragraph 4, the competent national authorities shall agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the site concerned and, if appropriate, after having obtained the opinion of the general public"*

The Habitats Directive is transposed into Irish law by the EC (Birds and Natural Habitats) Regulations 2011 – 2015. Part XAB of the Planning and Development Acts 2000 to 2020 transposes Article 6(3) and 6(4) of the Habitats Directive in respect of land use plans and proposed developments requiring development consent.

EC (Birds and Natural Habitats) Regulations 2011 to 2015 – Part 5

Part 5 of the EC (Birds and Natural Habitats) Regulations 2011 – 2015 sets out the circumstances under which an 'appropriate assessment' is required. Section 42(1) requires that *'a screening for Appropriate Assessment of a plan or project for which an application for consent is received, or which a public authority wishes to undertake or adopt, and which is not directly connected with or necessary to the management of the site as a European Site, shall be carried out by the public authority to assess, in view of best scientific knowledge and in view of the conservation objectives of the site, if that plan or project, individually or in combination with other plans or projects is likely to have a significant effect on the European site.'*

Section 42(2) expands on this, stipulating that a public authority must carry out a screening for Appropriate Assessment before consent for a plan or project is given, or a decision to undertake or adopt a plan or project is taken. To assist a public authority to discharge its duty in this respect, Section 42(3)(a) gives them the authority to direct a third party to provide a Natura Impact Statement and Section 42(3)(b) allows them to request any additional information that is considered necessary for the purposes of undertaking a screening assessment.

Section 42(6) requires that *'the public authority shall determine that an Appropriate Assessment of a plan or project is required where the plan or project is not directly connected with or necessary to the management of the site as a European Site and if it cannot be excluded, on the basis of objective scientific information following screening under this Regulation, that the plan or project, individually or in combination with other plans or projects, will have a significant effect on a European site'*.

[9] Also referred to as European Sites in the Planning and Development Acts 2000 – 2020.

Planning and Development Acts 2000 to 2020[10] - PART XAB

The relevant sections of Part XAB of the Planning and Development Acts 2000 – 2020 are set out below.

Screening for appropriate assessment

Section 177U requires that— (1) *A screening for appropriate assessment of a draft Land use plan or application for consent for proposed development shall be carried out by the competent authority to assess, in view of best scientific knowledge, if that Land use plan or proposed development, individually or in combination with another plan or project is likely to have a significant effect on the European site.*

(2) *A competent authority shall carry out a screening for appropriate assessment under subsection (1) before—*

(a) a Land use plan is made including, where appropriate, before a decision on appeal in relation to a draft strategic development zone is made, or

(b) consent for a proposed development is given.

(3) In carrying out screening for appropriate assessment of a proposed development a competent authority may request such information from the applicant as it may consider necessary to enable it to carry out that screening, and may consult with such persons as it considers appropriate and where the applicant does not provide the information within the period specified, or any further period as may be specified by the authority, the application for consent for the proposed development shall be deemed to be withdrawn.

(4) The competent authority shall determine that an appropriate assessment of a draft Land use plan or a proposed development, as the case may be, is required if it cannot be excluded, on the basis of objective information, that the draft Land use plan or proposed development, individually or in combination with other plans or projects, will have a significant effect on a European site.

(5) The competent authority shall determine that an appropriate assessment of a draft Land use plan or a proposed development, as the case may be, is not required if it can be excluded, on the basis of objective information, that the draft Land use plan or proposed development, individually or in combination with other plans or projects, will have a significant effect on a European site.

(6) (a) Where, in relation to a proposed development, a competent authority makes a determination that an appropriate assessment is required, the competent authority shall give notice of the determination, including reasons for the determination of the competent authority, to the following—

(i) the applicant,

(ii) if appropriate, any person who made submissions or observations in relation to the application to the competent authority, or

(iii) if appropriate, any party to an appeal or referral.

(b) Where a competent authority has determined that an appropriate assessment is required in respect of a proposed development it may direct in the notice issued under paragraph (a) that a Natura impact statement is required.

(c) Paragraph (a) shall not apply in a case where the application for consent for the proposed development was accompanied by a Natura impact statement.

(7) A competent authority shall, as soon as may be after making the Land use plan or making a decision in relation to the application for consent for proposed development, make available for inspection by members of the public during office hours at the offices of the authority, and may also publish on the internet —

[10] http://revisedacts.lawreform.ie/eli/2000/act/30/revised/en/html (Updated to 24 September 2020)

(a) any determination that it makes in relation to a draft Land use plan under subsection (4) or (5) as the case may be, and reasons for that determination, and

(b) any notice that it issues under subsection (6) in relation to a proposed development.

(8) In this section 'consent for proposed development' means, as appropriate —

(a) a grant of permission,

(b) a decision of the Board to grant permission on a planning application or an appeal,

(c) consent for development under Part IX,

(d) approval for development that may be carried out by a local authority under Part X or Part XAB or development that may be carried out under Part XI,

(e) approval for development on the foreshore under Part XV,

(f) approval for development under section 43 of the Act of 2001,

(g) approval for development under section 51 of the Roads Act 1993, or

(h) a substitute consent under Part XA.

(9) In deciding upon a declaration or a referral under section 5 of this Act a planning authority or the Board, as the case may be, shall where appropriate, conduct a screening for appropriate assessment in accordance with the provisions of this section.

(10) In deciding upon an application under section 176A or a determination review or an application referral under section 176C, a planning authority or the Board, as the case may be, shall, where appropriate, conduct a screening for appropriate assessment in accordance with the provisions of this section.

EUROPEAN OFFICES

United Kingdom

AYLESBURY
T: +44 (0)1844 337380

BELFAST
belfast@slrconsulting.com

BRADFORD-ON-AVON
T: +44 (0)1225 309400

BRISTOL
T: +44 (0)117 906 4280

CARDIFF
T: +44 (0)29 2049 1010

CHELMSFORD
T: +44 (0)1245 392170

EDINBURGH
T: +44 (0)131 335 6830

EXETER
T: + 44 (0)1392 490152

GLASGOW
T: +44 (0)141 353 5037

GUILDFORD
T: +44 (0)1483 889800

LONDON
T: +44 (0)203 805 6418

MAIDSTONE
T: +44 (0)1622 609242

MANCHESTER (Denton)
T: +44 (0)161 549 8410

MANCHESTER (Media City)
T: +44 (0)161 872 7564

NEWCASTLE UPON TYNE
T: +44 (0)191 261 1966

NOTTINGHAM
T: +44 (0)115 964 7280

SHEFFIELD
T: +44 (0)114 245 5153

SHREWSBURY
T: +44 (0)1743 23 9250

STIRLING
T: +44 (0)1786 239900

WORCESTER
T: +44 (0)1905 751310

Ireland

DUBLIN
T: + 353 (0)1 296 4667

France

GRENOBLE
T: +33 (0)6 23 37 14 14