Coryton Power Station Environmental Permit Variation Application

Air Quality Impact Assessment

PREPARED FOR

Coryton Energy Company Limited

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Air Quality Impact Assessment

0752339

Russell Cullen
Partner

Environmental Resources Management Ltd
2nd Floor Exchequer Court
33 St Mary Axe
London
EC3A 8AA
T +44 203 206 5200

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ACRONYMS AND ABBREVIATIONS

Acronyms	Description
AQS	Air Quality Standard
AQMA	Air Quality Management Area
AW	Ancient Woodland
BAT	Best Available Techniques
BREF	Best Available Technique Reference Document
CCGT	Combined Cycle Gas Turbine
CL	Critical Load
CO	Carbon Monoxide
^oC	Degrees Celsius
DEFRA	Department for Environment, Food & Rural Affairs
EA	Environment Agency
EAL	Environmental Assessment Level
ELV	Emission Limit Value

Acronyms	Description
EU	European Union
g/s	Grams per second
IED	Industrial Emission Directive
K	Degrees Kelvin
LCP	Large Combustion Plant
LNR	Local Nature Reserve
LWS	Local Wildlife Site
m/s	Metres per second
m^3/s	Cubic metres per second
$\mu g/m^3$	Micrograms per cubic metre
mg/m^3	Milligrams per cubic metre
MWth	MegaWatt Thermal
NLC	North Lincolnshire Council
NNR	National Nature Reserve
NO_2	Nitrogen Dioxide
NO_x	Oxides of Nitrogen
PC	Process Contribution
PEC	Predicted Environmental Concentration
PM	Particulate Matter
$\mu g/m^3$	Micrograms per cubic metre
SAC	Special Area of Conservation
SO_2	Sulphur Dioxide
SPA	Special Protection Area
SSSI	Site of Special Scientific Interest

CHECKLIST

Requirement[1]	Report Section Reference
Purpose of the study	Section 0
Describe the site	Section 0
Modelled emission scenarios, duration and frequency	Section 3
Location map (proposed site, site boundary, land use)	Section 1.1 and Figure 1.1 for site location
Relevant environmental standards	Section 2.1
Background levels	Section 5
Explain the model	Section 4.1 and Table 4.1
Explain emission parameters	Section 4.1 and Table 4.2
Explain the modelled domain and receptors	Section 4.3 and Figure 4.1 for modelled domain
Explain meteorological data and surface characteristics	Section 4.1 and Table 4.1
Explain terrain and building treatments	Section 4.1
Special treatment	Section 4.1
Sensitivity analysis	Section 4.5
Impact assessment	Section 5
Contour plots	Appendix A

[1] EA, last updated May 2024, Air emissions risk assessment for your environmental permit, https://www.gov.uk/guidance/air-emissions-risk-assessment-for-your-environmental-permit

EXECUTIVE SUMMARY

Coryton Energy Company Limited (InterGen) operates the Coryton Power Station (the 'Site'), under an existing permit (EPR/EP3833LY/V003), most recently dated the 10th March 2020. The Site is located within a heavy industrial area at Standford-le-Hope, Coryton, Essex, SS17 9GN, adjacent to the former Coryton Refinery.

The Site is currently permitted as a combined cycle gas turbine (CCGT) power plant, comprising two gas turbines with a gross thermal input of 702 MW each. Other combustion plants operated on the installation include two gas fired auxiliary boilers (4 MWth input each), a gas oil (diesel) fired emergency generator (2 MWth input) and a gas oil fired firewater pump (0.56 MWth input).

InterGen is proposing to upgrade the two CCGTs which will involve the CCGTs being taken offline for refurbishment works. Once work is complete, they will be reinstated and recommissioned. After the upgrades, there will be an uplift of 84 MWth to the power input of the Site; each CCGT will be 744 MWth. The proposed upgrade works to the CCGTs will require a variation to the Site's current EP as a result of the increased thermal input capacity.

The two CCGTs are considered Large Combustion Plant (LCP), each having a thermal input greater than 50 MWth and are subject to Schedule 1 of the Environmental Permitting Regulations (EPR), under a Section 1.1 Part A(1) activity. Each CCGT is expected to operate between 890 to 980 hours per year and will therefore require compliance with the relevant BAT-AELs set out in the Large Combustion Plant (LCP) Best Available Techniques Conclusions (BATC) Document.

The upgraded CCGTs will continue to run on natural gas.

An air quality modelling has been developed to assess the significance of the potential impact of NO_2 and NO_x emissions on sensitive human health and ecological receptors from a proposed upgrade of two combined cycle gas turbine (CCGT) sources on the InterGen Site. The Base Scenario (current operations) and the Future Scenario (with upgraded CCGTs) were assessed.

For human health impacts the upgrade to the CCGTs (Source A1+A2) resulted in no significant effects based on the maximum offsite receptor. When the wider site combustion emitters are considered in addition to the CCGTs, the model results indicate the potential for an exceedance of the NO2 short term AQS. This modelled outcome only arises when the emergency generator and fire pump are being used, for example during testing. These sources are unlikely to all operate concurrently and the diesel generator and fire pump engine will only be operated for a small number of hours per year, and therefore in practice, the NO2 1 hour standard is not likely to be exceeded.

Impacts on nearby sensitive ecological receptors for ambient NOx were insignificant when considering Source A1+A2 annual mean at all designated sites. Holehaven Creek SSSI shows a potentially significant impact against the 24-hour standard for these emitters for both base and future scenarios, however with lower predicted contributions for the future scenario.

When considering all sources together there is one modelled potentially significant impact at Holehaven Creek SSSI against the annual mean standard and modelled potentially significant impacts at four designated sites (with Holehaven Creek being the most impacted) against the 24-hour standard. In all cases the future scenario predicted contributions are less than those

from the base scenario and as such the future scenario is predicted to represent an improvement. Moreover, all sources are unlikely to all operate concurrently as the emergency diesel generator and fire pump engine will only operate during emergencies, and for testing a few hours a year.

This air quality impact assessment has been prepared by Environmental Resources Management Limited (ERM) on behalf of InterGen. The supporting information document is based on information provided by InterGen, publicly available environmental data and results of air quality dispersion modelling undertaken by ERM.

1. INTRODUCTION

1.1 BACKGROUND

Coryton Energy Company Limited (InterGen) operates the Coryton Power Station (the 'Site'), under an existing permit (EPR/EP3833LY/V003) dated the 10th March 2020. The Site is located within a heavy industrial area at Standford-le-Hope, Coryton, Essex, SS17 9GN, adjacent to the former Coryton Refinery.

The Site is currently permitted as a combined cycle gas turbine (CCGT) power plant, comprising two gas turbines with a gross thermal input of 702 MW each. Other combustion plant operated on the installation are two gas fired auxiliary boilers (4 MWth each), a gas oil fired emergency generator (2 MWth) and a gas oil fired firewater pump (0.56 MWth).

InterGen is proposing to upgrade the two CCGTs which will involve the CCGTs being taken offline for refurbishment works, once work is complete, they will be reinstated and recommissioned. After the upgrades, there will be an uplift of 84 MWth to the power input of the Site; each CCGT will be 744 MWth. The proposed upgrade works to the CCGTs will require a variation to the Site's current EP.

The air quality impact assessment (AQIA) considers the changes in emissions from the current to future designs including the change in emissions arising from the use of upgraded CCGTs, the higher operational capacity and changes to flue gas composition and exit characteristics resulting from the upgrades. The AQIA also considers emissions from all combustion plants on site, comprising two boilers and a fire pump, as well as the two CCGTs. It aims to evaluate the significance of the potential combustion gases from the burning of natural gas on the ambient air quality. The pollutant of interest is oxides of nitrogen (NO_x) in relation to impacts on human health and ecological habitats.

Two scenarios were modelled using the ADMS to assess the potential emissions of NO_x on the ambient air quality from the Site's operation. The two scenarios are described below:

- Base Scenario: assessment of the currently permitted Site; and
- Future Scenario: assessment of the future proposed permitted Site design including uprated units.

The significance of the potential impacts of NO_x for both of these Scenarios was assessed by comparison against the EA criteria outlined in **Section 2**.

Figure 1.1 shows the site boundary and emission points.

1.2 POLLUTANTS ASSESSED

This AQIA provides a detailed assessment of the potential impacts to local human health and ecological receptors resulting from NOx emissions from the Site.

Sulphur Dioxide (SO_2) is not assessed as natural gas in the UK contains less than 50 mg/m^3 of sulphur (Gas Safety (Management) Regulations 1996)[2]. Therefore, upon combustion, sulphur dioxide emissions are negligible. This is reflected in the Large Combustion Plants (LCP) Best

[2] UK Government 1996, Gas Safety (Management) Regulations 1996. https://www.legislation.gov.uk/uksi/1996/551/contents

Available Technique Reference Document (BREF)[3] which does not set emission limits for SO_2 when combusting natural gas as a fuel.

Particulate matter (PM) emissions from the combustion of natural gas are also negligible. As stated in the LCP BREF page 547 "Dust or particulate matter emissions from combustion plants burning natural gas are not an environmental concern under normal operation and controlled combustion conditions", and the BREF does not set emissions limits for gas turbines burning natural gas because of emissions being insignificant.

Finally, carbon monoxide (CO) emissions from a correctly tuned gas turbine may be considered negligible. Gas turbines are operated in lean conditions[4] where there is more air introduced into the turbine than is required for the quantity of fuel burned. This is reflected in the LCP BREF that states on page 783: "In order to prevent or reduce CO emissions to air from the combustion of natural gas, Best Available Technique (BAT) is to ensure optimised combustion". Furthermore, the LCP BREF does not provide BAT-AELs for CO, rather, it provides an indication of the yearly average CO emission levels for each type of existing combustion plant operated ≥ 1,500 hours per year. The existing CCGTs at the Site operate for < 1,500 hours per year, for which the LCP BREF provides no indicative CO emission levels to assess against.

InterGen currently operates and will continue to operate the Site's CCGTs in line with the BAT requirements. As such, combustion is maintained "near complete" meaning that CO emissions are negligible and are not assessed in detail by this AQIA.

[3] European Commission 2017. Large Combustion Plants BREF. https://eippcb.jrc.ec.europa.eu/reference/large-combustion-plants-0
[4] GE Power Systems. Gas Turbine Emissions and Control. https://www.gevernova.com/content/dam/gepower-new/global/en_US/downloads/gas-new-site/resources/reference/ger-4211-gas-turbine-emissions-and-control.pdf

Site Boundary

Air Emission Points

0 20 40 60 80 100

Metres

N

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Figure 1.1
Site Boundary and Emission Points
Coryton Power Station

ERM

InterGen

PROJECTION: British National Grid

Esri Community Maps Contributors, Esri UK, Esri, TomTom, Garmin, Foursquare, GeoTechnologies, Inc, METI/NASA, USGS

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2. LEGAL FRAMEWORK

2.1 AIR QUALITY STANDARDS

The protection of sensitive human receptors is regulated through the following:

- Air Quality Standards imposed by The Air Quality Standards Regulations 2010 (as amended)[5] transposed from EU standards[6]; and
- Environmental Assessment Levels (EALs) set out by the EA[7].

Collectively these are referred to as Air Quality Standards (AQS). This assessment addresses the potential emissions of NO_x and by association NO_2 from the current and proposed future operations. The statutory criteria of relevance for this assessment are set out in **Table 2.1.**

TABLE 2.1 APPLICABLE AIR QUALITY STANDARDS FOR HUMAN HEALTH

Applicability [a]	Pollutant	Averaging Period	Assessment Criterion (µg/m³)	Percentile
Sensitive Human Receptor	NO_2	1-hour mean, not to be exceeded more than 18 times per year	200	99.79th
		Annual mean	40	N/A

2.2 SENSITIVE ECOLOGICAL RECEPTORS

Following EA guidance, impacts at habitats within up to 10 km from the emissions source have been modelled. Impacts have been modelled at the following sites within 10 km of the emissions source:

- Special Areas of Conservation (SACs) and candidate SACs designated under the EC Habitats Directive;
- Special Protection Areas (SPAs) and potential SPAs designated under the EC Birds Directive;
- Sites of Special Scientific Interest (SSSI) established by the 1981 Wildlife and Countryside Act;
- Ramsar Sites (Ramsar); and
- Local Wildlife Sites (LWS)

The protection of sensitive ecological receptors is regulated through the following:

- AQS imposed by The Air Quality Standards Regulations 2010 (as amended) transposed from EU standards;
- Targets for protected conservation areas set out by the Environment Agency; and
- Site-specific Critical Loads set out on the Air Pollution Information Service (APIS) website[8].

[5] The Air Quality Standards Regulations 2010 Statutory Instrument 2008/301. Available online at: http://www.legislation.gov.uk/uksi/2010/1001/contents/made
[6] European Union Air Quality Standards. Available online at: http://ec.europa.eu/environment/air/quality/standards.htm
[7] https://www.gov.uk/guidance/air-emissions-risk-assessment-for-your-environmental-permit
[8] UK Air Pollution Information System. Available online at: www.apis.ac.uk

Those relating to ambient air are referred to as Critical Levels and those relating to deposition are referred to as Critical Loads. The Critical Levels (CLs) of relevance for this assessment are set out in **Table 2.2**. As the Critical Loads are site specific, these are set out in the detailed results presented in **Table 4.3**.

TABLE 2.2 APPLICABLE CRITICAL LEVELS

Applicability [a]	Pollutant	Averaging Period	Assessment Criterion (µg/m³)	Percentile
Sensitive Ecological Receptor	NO_x	24-hour mean	200 [a]	N/A
		Annual mean	30	N/A

[a] The EA H1 guidance for air emissions risk assessments for environmental permits advises that for detailed assessments where ozone is below the AOT40 critical level and sulphur dioxide is below the lower critical level of 10 µg/m^3, a higher AQS of 200 µg/m^3 should be used compared to the recommended 75 µg/m^3.

2.3 SIGNIFICANCE OF IMPACT

The significance of the potential emissions of NO_x from the Site's operation are assessed by comparison against applicable standards on the basis of the:

- Process Contribution (PC); and
- Predicted Environmental Concentration (PEC), the PEC being the Process Contribution (PC) added to the ambient baseline.

The EA[9] criteria for significance of the potential impact at sensitive human and ecological receptors are presented in **Table 2.3.**

TABLE 2.3 SIGNIFICANCE CRITERIA FOR POTENTIAL IMPACTS

Applicability	PC, as % of AQS or CL		PEC, as % of AQS or CL	Significance
Sensitive Human Receptor				
Short-term Impact				
Any sensitive human receptor	<10%		-	Insignificant
	>10%		-	Potentially Significant
Long-term Impact				
Any sensitive human receptor	<1%		-	Insignificant
	>1%	AND	<70%	Potentially Significant
	>1%	AND	>70%	Potentially Significant
Sensitive Ecological Receptor				
Short-term Impact				
	<10%		-	Insignificant

[9] Environment Agency, last updated December 2023, Air emissions risk assessment for your environmental permit, https://www.gov.uk/guidance/air-emissions-risk-assessment-for-your-environmental-permit

Applicability	PC, as % of AQS or CL		PEC, as % of AQS or CL	Significance
Ramsar, Special Area of Conservation (SAC), Special Protection Area (SPA) or Site of Special Scientific Interest (SSSI)	>10%		-	Potentially Significant
Ancient Woodland (AW), Local Wildlife Site (LWS), Local Nature Reserve (LNR) or National Nature Reserve (NNR)	<100%		-	Insignificant
	>100%		-	Potentially Significant
Long-term Impact				
Ramsar, SAC, SPA or SSSI	<1%		-	Insignificant
	>1%	AND	<70%	Insignificant
	>1%	AND	>70%	Potentially Significant
AW, LWS, LNR or NNR	<100%		-	Insignificant
	>100%		-	Potentially Significant

3. AIR QUALITY BACKGROUND CONCENTRATIONS

Thurrock Council has declared sixteen Air Quality Management Areas (AQMA) related to breaches of the NO_2 annual mean AQS[10]. The nearest AQMA to the Project Site is the Rochford AQMA located in Rochford District Council 9.3 km northeast.

3.1 DEFRA MAPPING AND MONITORING DATA

The baseline air quality information was reviewed from background maps[11] and local monitoring reports for NO_x and NO_2 (**Table 3.1**). The DEFRA mapping was determined to be a more representative background due to the location of the local monitoring site however both sets of values are comparable.

TABLE 3.1 BASELINE AIR QUALITY FROM DEFRA/LOCAL MONITORING SITES

Source	Pollutants Monitored	Baseline Value (µg/m³)	Period
DEFRA Mapping (2021)	NO_2	15.5	Annual Mean (2021)
	NO_x	21.5	Annual Mean (2021)
Local Monitoring Site (Stanford-le-hope Roadside) (2024)	NO_2	16.8	Annual Mean (2024)
	NO_x	23.2	Annual Mean (2024)

3.2 OZONE (AOT40) AND SO_2

The 24-hourly 200 µg/m³ standard for NO_x on designated environmental sites is justified by the levels of ozone and SO_2 in the local area as outlined in **Section 2.1**. Ozone is not measured in the immediate vicinity of the Site. The Thurrock monitoring station located in Grays approximately 13.6 km southwest of the Site was used to obtain background ozone and SO_2 as this monitoring location is considered the most representative of the Site and the closest.

[10] Thurrock Council, 2024 Air Quality Management Areas. https://www.thurrock.gov.uk/air-quality/air-quality-management-areas. Accessed 24/01/2025
[11] DEFRA 2024, Background Mapping data for local authorities – 2021. https://uk-air.defra.gov.uk/data/laqm-background-maps?year=2021. Accessed 24/01/2025

TABLE 3.2 BACKGROUND OZONE AND SO_2

Source	Pollutants Monitored	Threshold	Monitored Baseline	Notes
Thurrock (UKA00272)[12]	Ozone	6,000 µg/m^3	4,517 µg/m^3, as the AOT40	AOT40 accumulated hourly value (01 May – 31 July 2024, 08:00:20:00)
	SO_2	10 µg/m^3	2.1 µg/m^3	Annual Mean (2024)

[12] Defra 2024, Site Information for Thurrock (UKA002720, https://uk-air.defra.gov.uk/networks/site-info?site_id=THUR Accessed: 25/01/25

4. ASSESSMENT METHODOLOGY

4.1 MODEL PARAMETERS AND INPUTS

The key elements of the methodology used for carrying out the air dispersion modelling study are set out in **Table 4.1.**

TABLE 4.1 AIR DISPERSION MODEL METHODOLOGY AND PARAMETERS

Parameter	Approach	Notes
Dispersion model	ADMS	
Number of sources	5	See **Figure 1.1** for locations of the modelled sources.
Model domain	30 km x 30 km	Radius of 15 km from the centre of the Site. See **Figure 4.1** for the modelled domain.
Human receptor grid	Multi-tier grid 20 m up to 1 km from the centre of the Site; 50 m between 2 km and 5 km from the centre of the Site; 100 m between 10 km to 15 km from the centre of the Site	The maximum modelled stack height is 59.4 m above ground level. See **Section 4.3** for details.
Buildings	9 buildings with heights range from 8 m to 35 m.	Buildings that are greater than one third of the stack height, within five stack heights of the stack, are included.
Terrain	Flat	There are no sustained gradients of >1:10 in the vicinity of the Site, and therefore terrain was not required.
Surface characteristics	Surface Roughness Site: 0.3 m representative of agricultural areas with some taller vegetation Met Station: 0.1 m representative of root crop areas	Based on mapping and aerial imagery.
Meteorological data	Southend Airport, 5 years (2019-2023)	Hour-sequential data. Wind roses are presented in **Figure 4.2**. 2023 was identified as the year with the highest annual mean NO_x impact, and this was used for the subsequent analysis.
NO_x to NO_2 conversion ratio	Short-term concentrations: <500 m from source 15% >500 m from source 35% Long-term concentrations: 70%	The Environment Agency[13] states that a short-term conversion ratio of 15% is reasonable within 500 m of a source. For distances of >500 m ratios are taken from other Environment Agency guidance[14].

[13] Environment Agency AQMAU, 2016, Diesel generator short term NO_2 impact assessment, https://consult.defra.gov.uk/airquality/medium-combustion-plant-and-controls-on-generators/supporting_documents/Generator%20EA%20air%20dispersion%20modelling%20report.pdf
[14] Environment Agency, 2007, Review of methods for NO to NO_2 conversion in plumes at short ranges, https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/290985/scho0907bnhi-e-e.pdf

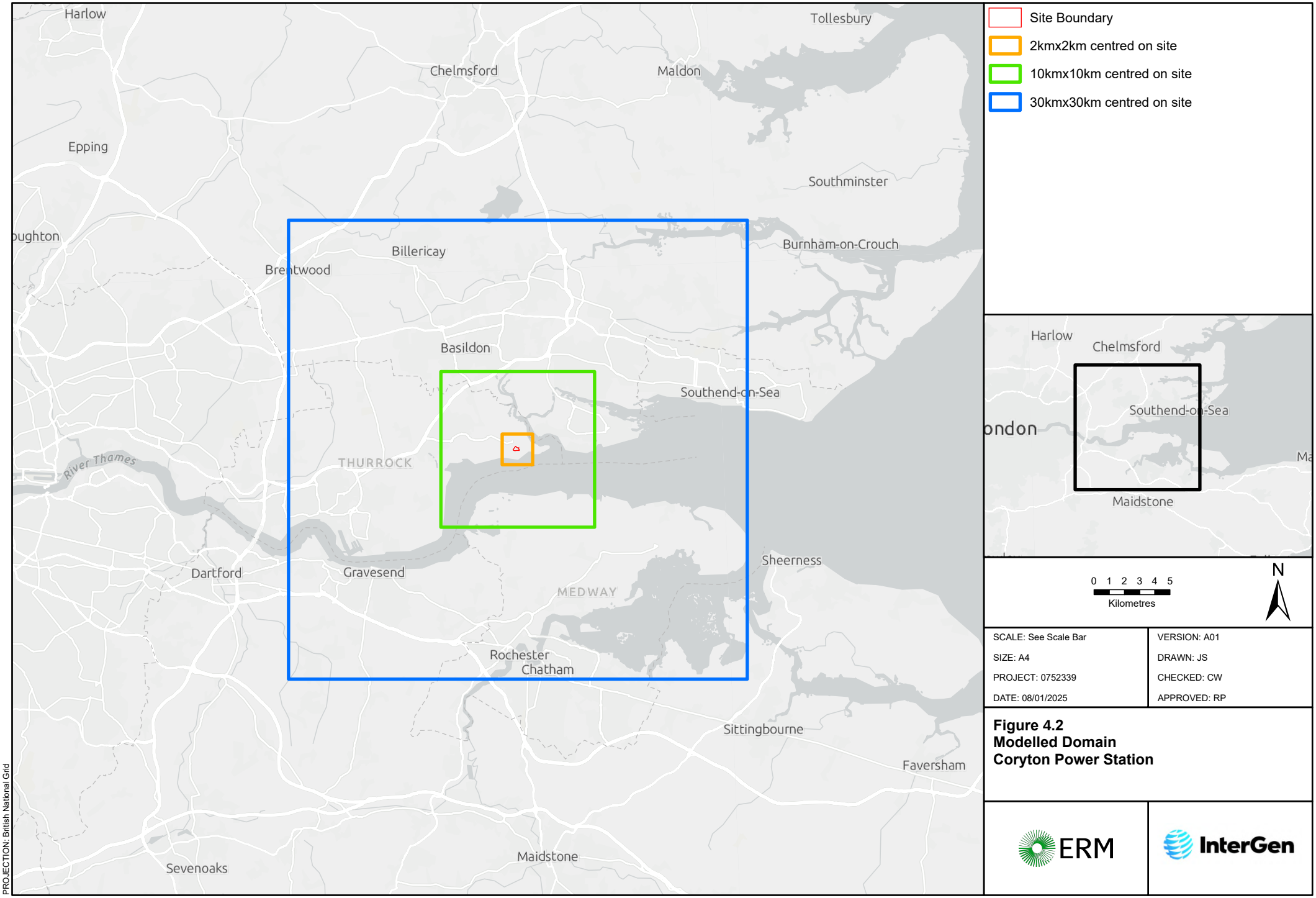

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Figure 4.2
Modelled Domain
Coryton Power Station

ERM InterGen

PROJECTION: British National Grid

Esri UK, Esri, TomTom, Garmin, Foursquare, FAO, METI/NASA, USGS, Esri UK, Esri, TomTom, Garmin, FAO, NOAA, USGS

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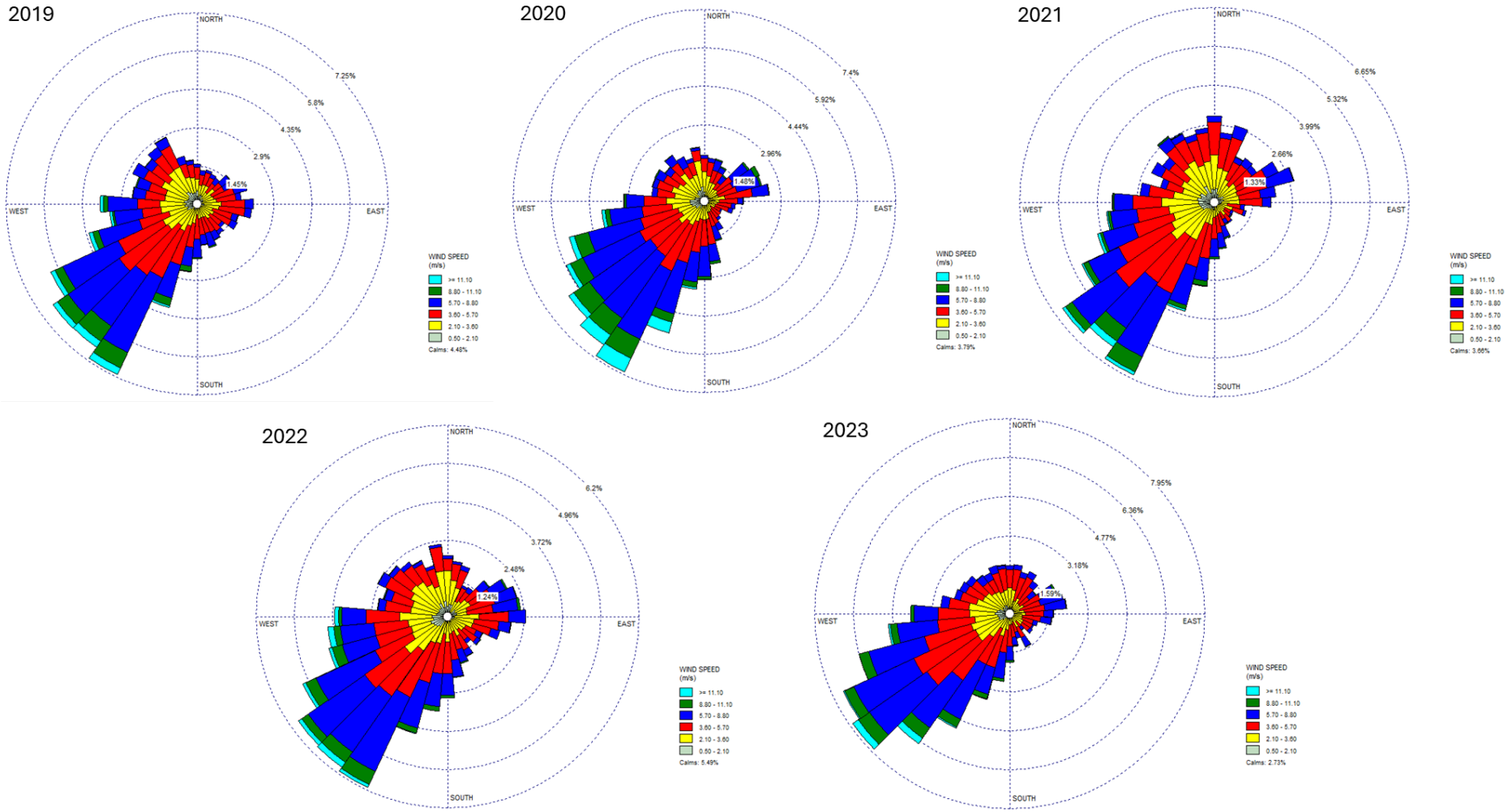
FIGURE 4.2 WIND ROSE DATA FROM SOUTHEND AIRPORT (2019 – 2023)



4.2 EMISSION PARAMETERS

Two scenarios were modelled using the ADMS to assess the potential emissions of NO_x on the ambient air quality from the Site's operation. The Two scenarios are described below, and the emission parameters used in this assessment are presented in **Table 4.2.**

- Base Scenario: assessment of the currently permitted Site; and
- Future Scenario: assessment of the future proposed permitted Site design including uprated units.

TABLE 4.2 MODELLED EMISSION PARAMETERS

Parameter	Source A1	Source A2	Source A3	Source A4	Source A5
Combustion Source	CCGT	CCGT	Gas Fired Boilers	Emergency Diesel Generator	Fire Pump Generator
Number of flues	1	1	2 [b]	1	1
Operating hours per a year	894	979	8,064	118	31
Stack Orientation	Vertical				
Stack Height above ground level (m)	59.35	59.35	24	3.11	6.88
Flue Diameter (m)	6.06	6.06	0.51	0.25	0.15
Emission Velocity (m/s, Base Scenario)	18.89	18.89	13.17	225.9	119.7
Emission Velocity (m/s, Future Scenario)	21.84	21.84	13.17	225.9	119.7
Normalised Flow Rate (m^3/s, Base Scenario)	545	545	2.69	11.09	2.12
Normalised Flow Rate (m^3/s, Future Scenario)	629.8	629.8	2.69	11.09	2.12
Emission Temperature (^oC, Base Scenario)	99.9	96.9	232	419	419
Emission Temperature (^oC, Future Scenario)	91.6	91.6	232	419	419
Stack Easting and Northing	574197, 182205	574202, 182212	574137, 182195	574089, 182199	574098, 182144
NO_x Concentration (mg/m^3, Base Scenario) [a]	45.0	45.0	100	100	100
NO_x Concentration (mg/m^3, Future Scenario) [a]	40.0	40.0	100	100	100
NO_x Emission (g/s, Base Scenario) [a]	24.53	24.53	0.269	3.555	0.0995
NO_x Emission (g/s, Future Scenario) [a]	25.2	25.2	0.269	3.555	0.0995

[a] Concentrations were assumed the following conditions: 283.15 K, 101.3 kPa, 11% O_2, 9.6% moisture.
[b] Two flues from two separate boilers emitting through a common stack.

4.3 HUMAN RECEPTORS

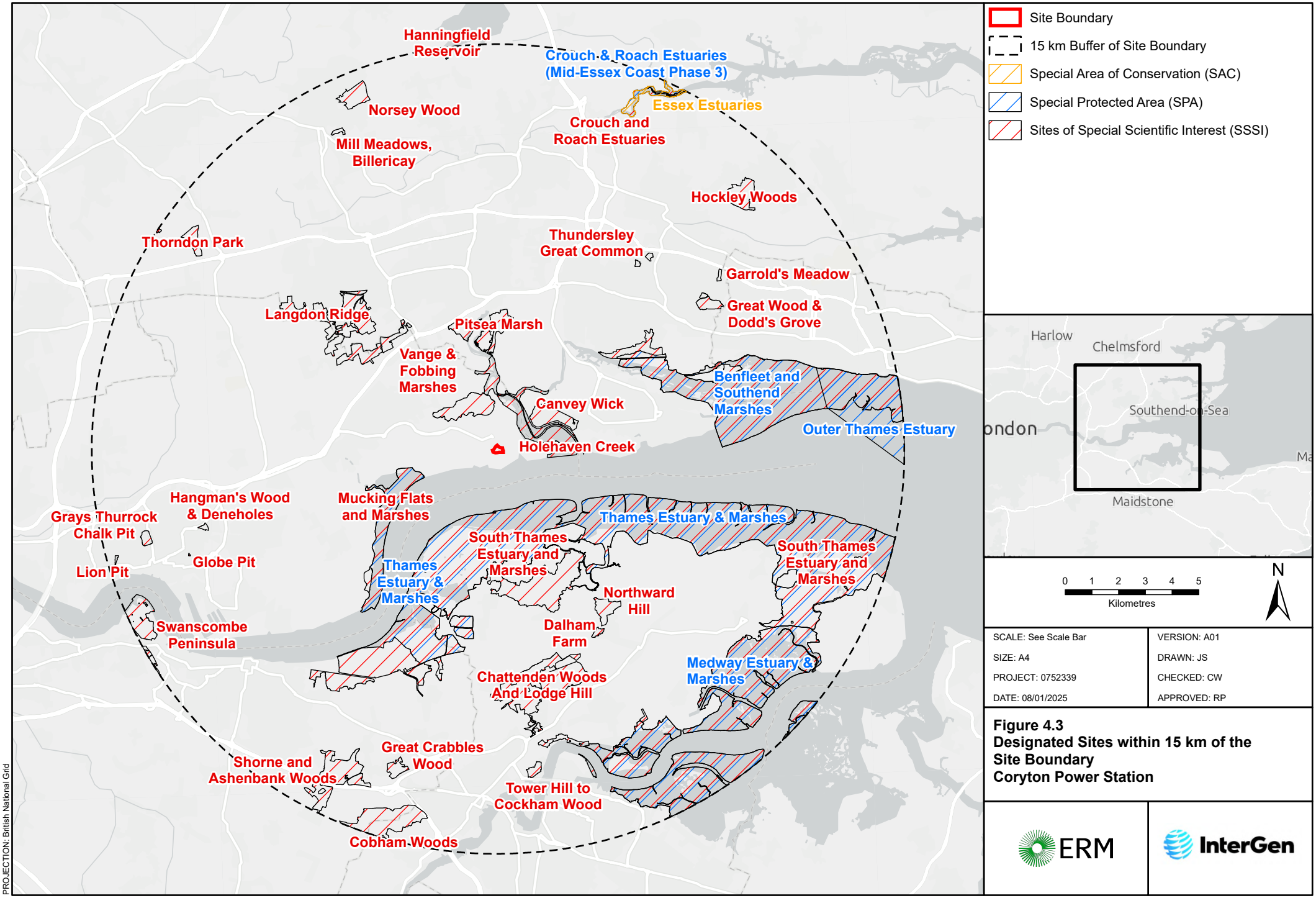
The potential impact of NO_x emissions from the Site's operation was assessed with reference to model grid receptors. These hypothetical receptors were identified within a 15 km radius of the centre of the Site. A map of the modelled domain is presented in **Figure 4.1**. This assessment focuses on the maximum offsite results beyond the Site boundary. The modelled maximum offsite emissions, representing the highest modelled impacts expected to occur outside the power plant' facilities, are presented in **Section 5** below.

4.4 ECOLOGICAL RECEPTORS

As per EA permitting guidance[15], protected conservation areas within a 15 km radius of the Site, including Special Areas of Conservation (SAC), Special Protection Areas (SPA) and Ramsar sites, as well as a 2 km radius of the Site for Sites of Special Scientific Interest (SSSI), Ramsar Sites (Ramsar), Local Nature Reserves (LNR), Local Wildlife Sites (LWS) and National Nature Reserves (NNR) have been included in the ecological impact assessment. Based on the MAGIC[16] map website, the following designated ecological sites have been included. The location of these ecological sites within the 15 km from the centre of the Site are shown in **Figure 4.3**.

The baseline conditions of the site-specific critical loads (CL) of the designed ecological sites are used to assess nutrient nitrogen deposition and acid deposition rates. These have been reviewed and obtained from the Air Pollution Information System (APIS[17]) website, consulted 20th November 2024, based on the site relevant critical loads tool. APIS is an online database detailing critical loads and background concentrations for sensitive ecological sites, developed in partnership by the UK conservation agencies and regulatory agencies and the Centre for Ecology and Hydrology**. Table 4.3** presents the applicable site-specific critical loads which were used to assess nutrient nitrogen and acid depositions in this assessment.

[15] EA, last updated May 2024, Air emissions risk assessment for your environmental permit, https://www.gov.uk/guidance/air-emissions-risk-assessment-for-your-environmental-permit
[16] Natural England, 2018, MAGIC Interactive map, https://magic.defra.gov.uk/magicmap.aspx
[17] UK APIS, 2024, https://www.apis.ac.uk/



PROJECTION: British National Grid

SCALE: See Scale Bar	VERSION: A01
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DATE: 08/01/2025	APPROVED: RP

Figure 4.3
Designated Sites within 15 km of the Site Boundary
Coryton Power Station

ERM InterGen

Esri UK, Esri, TomTom, Garmin, FAO, NOAA, USGS, Esri UK, Esri, TomTom, Garmin, Foursquare, METI/NASA, USGS
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Path: \\UKSPRDGISFS01\Data\London\Projects\0752339 - Project InterGen\MAP\0752339 - Project InterGen\0752339 - Project InterGen.aprx\0752339 - InterGen - Designated Sites Within 15 km - A01

TABLE 4.3 APPLICABLE CRITICAL LOADS FOR NUTRIENT AND ACID DEPOSITIONS

Ecological Site and Type	**Nitrogen Deposition**	**Acid Deposition**					
		Low Range (min), keq/ha/yr		**High Range (max), keq/ha/yr**			
	CL (kgN/ha/yr)	**CL maxS**	**CL minN**	**CL maxN**	**CL maxS**	**CL minN**	**CL maxN**
Benfleet And Southend Marshes SPA	10 - 20	N/A[a], not assessed.					
Benfleet and Southend Marshes SSSI	10 - 20	N/A[a], not assessed.					
Canvey Wick SSSI	N/A[a], not assessed.	N/A[a], not assessed.					
Chattenden Woods and Lodge Hill SSSI	10 - 20	1.165	0.142	1.307	2.727	0.357	3.084
Cobham Woods SSSI	15 - 20	8.559	0.142	8.701	1.296	0.142	1.438
Crouch & Roach Estuaries (Mid-Essex Coast Phase 3) SPA	10 - 20	N/A[a], not assessed.					
Crouch and Roach Estuaries SSSI	10 - 20	4	0.856	4.856	4	1.071	5.071
Dalham Farm SSSI	N/A[a], not assessed.	N/A[a], not assessed.					
Essex Estuaries SAC	5 - 15	N/A[a], not assessed.					
Garrold's Meadow SSSI	10 - 20	4	0.856	4.856	4	0.856	4.856

Ecological Site and Type	Nitrogen Deposition	Acid Deposition					
		Low Range (min), keq/ha/yr		High Range (max), keq/ha/yr			
	CL (kgN/ha/yr)	CL maxS	CL minN	CL maxN	CL maxS	CL minN	CL maxN
Globe Pit SSSI	N/A[a], not assessed.	N/A[a], not assessed.					
Grays Thurrock Chalk Pit SSSI	N/A[a], not assessed.	N/A[a], not assessed.					
Great Crabbles Wood SSSI	15 - 20	1.203	0.142	1.345	8.48	0.142	8.622
Great Wood & Dodd's Grove SSSI	15 - 20	1.667	0.142	2.2024	2.485	0.357	2.627
Hangman's Wood & Deneholes SSSI	N/A[a], not assessed.	N/A[a], not assessed.					
Hanningfield Reservoir SSSI	10 - 20	4	1.071	5.071	4	1.071	5.071
Hockley Woods SSSI	15 - 20	2.534	0.357	2.891	2.479	0.142	2.621
Holehaven Creek SSSI	10 - 20	N/A[a], not assessed.					
Langdon Ridge SSSI	10 - 15	2.532	0.357	2.889	2.539	0.357	2.896
Lion Pit SSSI	N/A[a], not assessed.	N/A[a], not assessed.					
Medway Estuary & Marshes SPA	5 - 15	0.89	0.499	1.389	4.18	0.892	4.894

Ecological Site and Type	Nitrogen Deposition	Acid Deposition					
		Low Range (min), keq/ha/yr		High Range (max), keq/ha/yr			
	CL (kgN/ha/yr)	CL maxS	CL minN	CL maxN	CL maxS	CL minN	CL maxN
Medway Estuary and Marshes SSSI	5 - 15	4	0.856	4.856	4	1.071	5.071
Mill Meadows Billericay SSSI	10 - 20	4	1.071	5.071	4	1.071	5.071
Mucking Flats and Marshes SSSI	10 - 20	N/A[a], not assessed.					
Norsey Wood SSSI	15 - 20	1.707	0.142	2.064	2.577	0.357	2.934
Northward Hill SSSI	N/A[a], not assessed.	N/A[a], not assessed.					
Pitsea Marsh SSSI	15 - 25	N/A[a], not assessed.					
Shorne and Ashenbank Woods SSSI	15 - 20	1.203	0.142	1.345	8.547	0.142	8.689
South Thames Estuary and Marshes SSSI	5 - 15	0.51	0.499	1.389	4.17	0.892	5.032
Swanscombe Peninsula SSSI	N/A[a], not assessed.	N/A[a], not assessed.					
Thames Estuary & Marshes SPA	5 - 15	0.52	0.499	1.389	4.17	0.892	5.032
Thorndon Park SSSI	15 - 20	1.708	0.142	2.065	2.576	0.357	2.933
Thundersley Great Common SSSI	5 - 15	0.86	0.499	1.359	0.86	0.499	1.359

Ecological Site and Type	Nitrogen Deposition	Acid Deposition					
		Low Range (min), keq/ha/yr		High Range (max), keq/ha/yr			
	CL (kgN/ha/yr)	CL maxS	CL minN	CL maxN	CL maxS	CL minN	CL maxN
Tower Hill to Cockham Wood SSSI	15 - 20	1.173	0.142	1.315	2.637	0.142	2.779
Vange & Fobbing Marshes SSSI	N/A[a], not assessed.	N/A[a], not assessed.					
Benfleet and Southend Marshes Ramsar[b]	10 - 20	N/A[a], not assessed.					
Thames Estuary & Marshes Ramsar[b]	5 - 15	0.52	0.499	1.389	4.17	0.892	5.032
West Canvey Marshes LWS[b]	N/A[a], not assessed.	N/A[a], not assessed.					
Northwick Farm & Seawall LWS[b]	N/A[a], not assessed.	N/A[a], not assessed.					
Corringham & Fobbing Marshes LWS[b]	N/A[a], not assessed.	N/A[a], not assessed.					

Data accessed from APIS website dated 20/11/2024.

[a] N/A Site-specific critical loads for nitrogen and acidity information were not available from the APIS website for these sites on this date. Ecological impacts of nutrient nitrogen and acid depositions at these sites were therefore not assessed.

[b] Critical load information for Ramsar and LWS sites is not available from APIS therefore assumptions were made where possible (i.e. if there was a related SAC, SPA or SSSI for a specific site). Benfleet and Southend Marshes and Thames Estuary & Marshes Ramsar sites were assessed using their related designated site loads.

4.5 SENSITIVITY ANALYSIS

The sensitivity analysis of the dispersion model study is based on:

- Meteorological variation: Meteorological data recorded at Southend Airport from 2019-2023 was used for this assessment, it is the closest relevant station and provides local meteorology characteristics to inform the air quality dispersion model. The data for the year 2023 resulted in the highest modelled concentrations, so the impact assessment was carried out on model results for that year to be conservative.
- Effect of building downwash: Nine buildings immediate within the Site have been included in the dispersion model as per the site layout. The proposed air quality dispersion model is considered robust and not prone to under-estimating the impacts.

5. MODELLED IMPACTS

The assessment considered the potential impact of NO_x emissions from the Site's operation in relation to human health and ecological habitats. Two scenarios were modelled using the ADMS. The modelled results were compared against the statutory AQS presented in **Table 2.1** and **Table 2.2**. The EA criteria outlined in **Table 2.3** were used to determine the significance of the modelled results. The significance of the potential impacts are shown for the Base Scenario (current operations) and Future Scenario (future operations). The delta between the two scenarios is also shown.

5.1 HUMAN HEALTH IMPACTS

The detailed modelling aims to identify whether there could be potential exceedances of the statutory AQS for the 1-hour mean NO_2, i.e. PEC > 200 µg/m^3. The modelled maximum offsite PCs and PECs for the hourly and the annual mean NO_2 at the grid receptors for each of the sources for both the Base and Future Scenarios are presented in **Table 5.1**Table 5.1 and **Table 5.2**Table 5.2. The results in these tables represent the highest modelled emissions, therefore the predicted contributions at the other potential receptors are lower. For this assessment, the baseline concentration for long-term NO_2 at sensitive human receptors is 15.5 µg/m^3, based on the 2021 DEFRA background mapping data[18] as shown in Section 3. For short-term averages, it is multiplied by two to 31.1 µg/m^3.

[18] DEFRA, 2021, Background Mapping data for local authorities -2021, https://uk-air.defra.gov.uk/data/laqm-background-maps?year=2021

TABLE 5.1 MODELLED MAXIMUM OFFSITE CONCENTRATIONS OF 1-HOUR MEAN NO_2, 99.79TH PERCENTILE (µg/m^3)

	AQS (µg/m^3)	Background (µg/m^3)	Scenario	Max PC (µg/m^3)	PC as % of AQS	PEC (µg/m^3)	PEC as % of AQS	Significance	Delta (µg/m^3)
Source A1 (CCGT)	200	31.1	Base	14.4	7.2%	45.4	23%	Insignificant	-2.50
			Future	11.9	5.9%	42.9	21%	Insignificant	
Source A2 (CCGT)	200	31.1	Base	14.1	7.1%	45.2	23%	Insignificant	-2.29
			Future	11.8	5.9%	42.9	21%	Insignificant	
Source A1+A2 (CCGTs)	200	31.1	Base	28.6	14.3%	59.6	30%	Potentially Significant	-4.88
			Future	23.7	11.9%	54.8	27%	Potentially Significant	
All Sources Sources A1 (CCGT), A2 (CCGT), A3 (Gas Fired Boilers), A4 (Emergency Diesel Generator) and A5 (Fire Pump)	200	31.1	Base	494	246.8%	524.6	262%	Potentially Significant	0.00
			Future	494	246.8%	524.6	262%	Potentially Significant	

The modelled results indicate that the hourly NO_2 AQS of 200 µg/m^3 is not predicted to be exceeded as a consequence of the Source A1, Source A2 and Source A1+A2 together Site operations. The modelled potential impacts of NO_x emissions from these sources do not exceed 10% of the PC and are therefore considered insignificant.

When the wider site combustion emitters are considered in addition to the CCGTs, the model results indicate the potential for an exceedance of the AQS. This modelled outcome only arises when the emergency generator and fire pump are being used, for example during testing. These sources are unlikely to all operate concurrently and the diesel generator and fire pump engine will only be operated for a small number of hours per year, and therefore in practice, the NO_2 1 hour standard is not likely to be exceeded.

A contour plot for the 1-hour mean NO_2 99.79th percentile PCs of the Future Scenario relating to Source A1+A2 together is presented in **Table 5.2.**

TABLE 5.2 MODELLED MAXIMUM OFFSITE CONCENTRATIONS OF ANNUAL MEAN NO_2 (µg/m^3)

	AQS (µg/m^3)	Background (µg/m^3)	Scenario	Max PC (µg/m^3)	PC as % of AQS	PEC (µg/m^3)	PEC as % of AQS	Significance	Delta (µg/m^3)
Source A1 (CCGT)	40	15.5	Base	0.0902	0.2%	15.6	39%	Insignificant	-0.00775
			Future	0.0825	0.2%	15.6	39%	Insignificant	
Source A2 (CCGT)	40	15.5	Base	0.101	0.3%	15.6	39%	Insignificant	-0.0105
			Future	0.0905	0.2%	15.6	39%	Insignificant	
Source A1+A2 (CCGTs)	40	15.5	Base	0.191	0.5%	15.7	39%	Insignificant	-0.0182
			Future	0.173	0.4%	15.7	39%	Insignificant	
All Sources	40	15.5	Base	6.19	15.5%	21.7	54%	Potentially Significant	-0.0113

	AQS (µg/m³)	Background (µg/m³)	Scenario	Max PC (µg/m³)	PC as % of AQS	PEC (µg/m³)	PEC as % of AQS	Significance	Delta (µg/m³)
Sources A1 (CCGT), A2 (CCGT), A3 (Gas Fired Boilers), A4 (Emergency Diesel Generator) and A5 (Fire Pump)			Future	6.18	15.5%	21.7	54%	Potentially Significant	

The modelled results indicate that the annual mean NO_2 AQS of 40 µg/m³ are not predicted to be exceeded as a consequence of the Source A1, Source A2 and Source A1+A2 together Site operations. The modelled potential impacts of NO_x emissions from these sources do need exceed 1% of the PC and are therefore considered insignificant.

When the wider site combustion emitters are considered in addition to the CCGTs, the model results indicate the potential for a potentially significant impact as the PC is greater than 1% and the PEC is less than 70% when all of the sources operate concurrently. However, in practice the diesel generator and fire pump engine are operated for a small number of hours per year and the impacts of these sources will be minimal in the context of the annual mean NO_2. As such, the impacts will be insignificant in practice.

A contour plot for the annual mean NO_2 PCs of the Future Scenario relating to Source A1+A2 together is presented in **Appendix A** .

5.2 ECOLOGICAL IMPACTS

The potential impact of ambient NO_x, and nutrient nitrogen and acid deposition resulting from the Site's operation on the surrounding designated ecological sites has been assessed for both Source A1+A2 together and all sources together for the Base scenario and Future Scenario. For each combination of sources and scenario the modelled results were compared against the Critical Levels (outlined in **Table 2.1**) to evaluate the ambient NO_x levels, and were compared against the site-specific Critical Loads (presented in **Table 4.3**) to evaluate the nutrient nitrogen and acid deposition.

5.2.1 AMBIENT NO_X EMISSIONS

The modelled PCs and PECs for NO_x at the designated ecological site with the highest predicted potential impact, Holehaven Creek SSSI, are presented in **Table 5.3.** Full results for all designated ecological sites are shown in **Appendix B**) and show the following:

- For Sources A1+A2 together:
  - The 24-hour mean PC is only modelled to be >10% of the 24-hour mean Critical Levels at one of the designated sites (Holehaven SSSI) for both the Base and the Future Scenarios. The predicted contributions from the Future Scenario are less than those for the Base Scenario for all sites and therefore the Future Scenario has a predicted an improvement at all designated sites;
  - The annual mean PC is not modelled to be >1% of the annual mean Critical Levels at any identified sites for all scenarios; and
  - The modelled potential impacts on the ambient NO_x levels from Source A1+A2 together are therefore considered insignificant at all receptors.
- For all sources together (A1, A2, A3, A4 and A5):
  - The 24-hour mean PC is modelled to be >10% of the 24-hour mean Critical Levels at five of the assessed designated sites (Canvey Wick SSSI, Holehaven Creek SSSI, Pitsea Marsh SSSI, South Thames Estuary and Marshes SSSI and Thames Estuary & Marshes Ramsar) for both the Base and the Future Scenarios. However, in practice the diesel generator and fire pump engine will only operate for a small number of hours and therefore the potential for impacts from these two sources is expected to be minimal. The predicted contributions from the Future Scenario are less than those for the Base Scenario for all sites and therefore the Future Scenario has predicted an improvement at all designated sites;
  - The annual mean PC is modelled to be >1% of the annual mean Critical Levels at only one designated site (Holehaven Creek SSSI) for both Base and the Future Scenarios. This site shows a potential significant impact. Again, in practice the diesel generator and fire pump engine will operate for a small number of hours and in practice, the potential for impacts from these two sources will be minimal. All other sites show an insignificant impact for all scenarios; and
  - The modelled potential impacts on the ambient NO_x levels from all sources together are therefore considered insignificant at most receptors other than at Holehaven Creek for annual mean PC (which as mentioned above is modelled to be >1% of the annual mean Critical Level) and at five designated sites for the 24-hour standard.

- The difference in significance for the ambient results on designated ecological sites between all sources together and Source A1+A2 indicates that it is not the CCGT sources that are contributing the main impacts to the designated sites. The greater contribution is from the emergency generator and fire pump and as discussed above it is anticipated that these sources are unlikely to operate concurrently with the CCGTs in practice and will only be operated for a small number of hours per year.

TABLE 5.3 MODELLED MAXIMUM AMBIENT NO_X CONCENTRATIONS (µg/m^3) – WORST CASE RECEPTORS

Ecological Site	CL	Baseline	Base PC	Base PC as % of Critical Level	Base PEC	Base PEC as % of Critical Level	Significance	Future PC	Future PC as % of Critical Level	Future PEC	Future PEC as % of Critical Level	Significance	Delta
Source A1+A2													
Holehaven Creek SSSI	30 (Annual)	28.0	0.205	0.68%	28.2	94.1%	Insignificant	0.191	0.64%	28.2	94.1%	Insignificant	-0.0138
Holehaven Creek SSSI	200 (24-hour)	56.1	26.5	13.2%	82.5	41.3%	Potentially Significant	24.6	12.3%	80.7	40.3%	Potentially Significant	-1.88
All Sources													
Holehaven Creek SSSI	30 (Annual)	28.0	0.381	1.27%	28.4	94.7%	Potentially Significant	0.371	1.24%	28.4	94.7%	Potentially Significant	-0.0105
Holehaven Creek SSSI	200 (24-hour)	56.1	32.6	16.3%	88.6	44.3%	Potentially Significant	31.0	15.5%	87.0	43.5%	Potentially Significant	-1.64

5.2.2 NUTRIENT NITROGEN DEPOSITION

The modelled maximum nutrient nitrogen deposition rates at the identified designated ecological sites from emissions of NO_x at the Site are presented in **Appendix B**. The PC is compared with the relevant Critical Loads outlined inTable 4.3, and combined, with the relevant background concentrations.

The modelled nutrient nitrogen deposition rates arising from the Site's operation is below 1% of the critical loads at any of the identified sites both Sources A1+A2 together and all sources together. Impacts are therefore considered insignificant.

5.2.3 ACID DEPOSITION

The modelled maximum acid deposition rates at the identified designated ecological sites from emissions of NO_x at the Site are presented in **Appendix B**. The PC is compared with the relevant Critical Loads outlined in **Table 4.3.**

The modelled acidification rates arising from the Site's operation is below 1% of the critical loads at any of the identified sites for both the Base and Future scenarios for Source A1+A2 together and all sources together. Impacts are therefore considered insignificant.

6. CONCLUSION

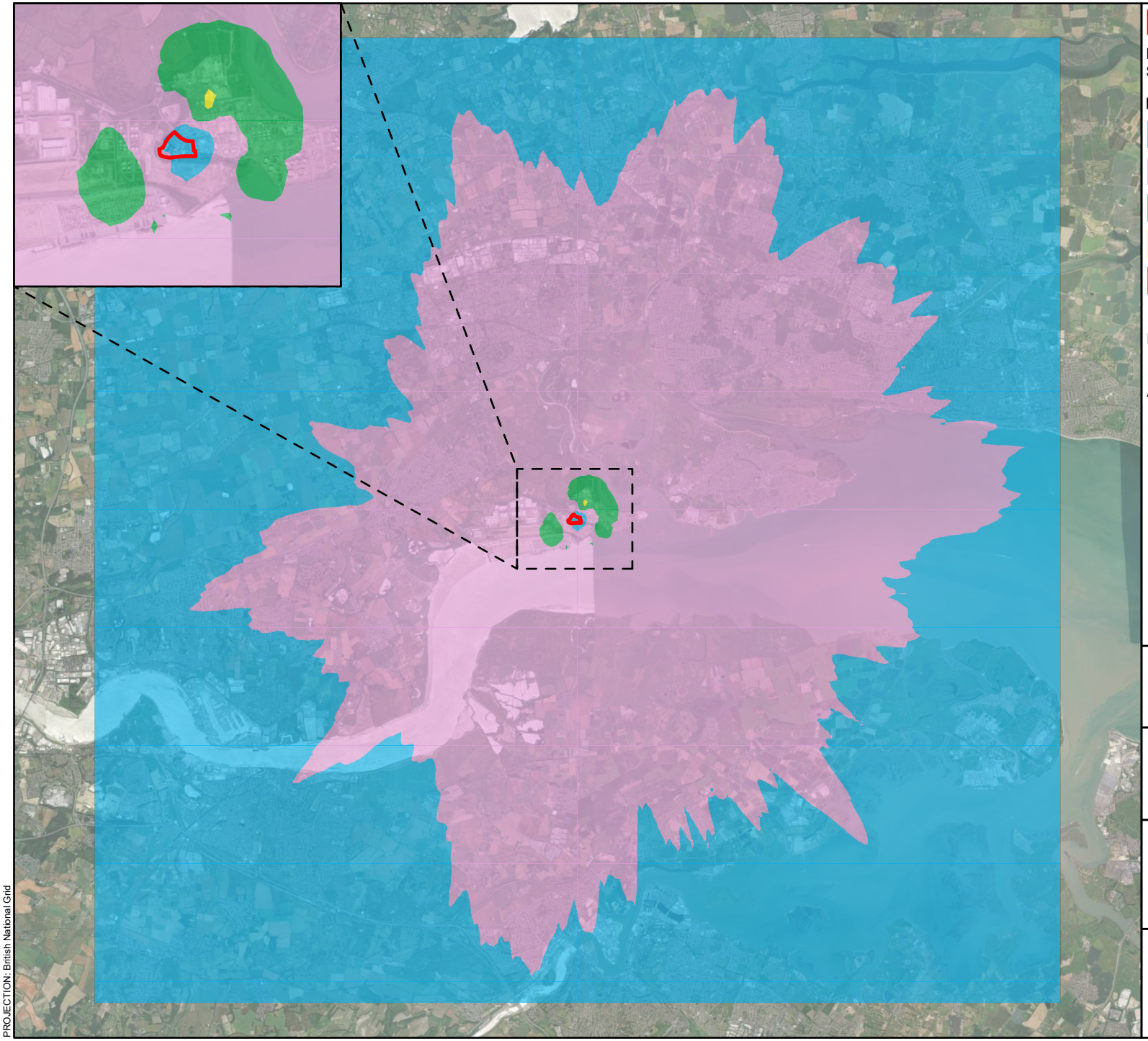
An air quality modelling has been carried out to assess the significance of the potential impact of NO_x emissions on ambient air quality from a proposed upgrade of two CCGT sources on the InterGen Site. The Base Scenario and the Future upgraded scenario was assessed for a number of human and ecological receptors and the impacts compared against relevant UK standards.

For human health impacts the upgrade to the CCGTs (Source A1+A2) resulted in no significant effects based on the maximum offsite receptor. When the wider site combustion emitters are considered in addition to the CCGTs, the model results indicate the potential for an exceedance of the NO_2 short term AQS. This modelled outcome only arises when the emergency generator and fire pump are being used, for example during testing. These sources are unlikely to all operate concurrently and the diesel generator and fire pump engine will only be operated for a small number of hours per year, and therefore in practice, the NO_2 1 hour standard is not likely to be exceeded.

Impacts on nearby sensitive ecological receptors for ambient NO_x were insignificant when considering Source A1+A2 annual mean at all designated sites. Holehaven Creek SSSI shows a potentially significant impact against the 24-hour standard for these emitters for both base and future scenarios, however with lower predicted contributions for the future scenario.

When considering all sources together there is one modelled potentially significant impact at Holehaven Creek SSSI against the annual mean standard and modelled potentially significant impacts at five designated sites (with Holehaven Creek being the most impacted) against the 24-hour standard. In all cases the future scenario predicted contributions are less than those from the base scenario and as such the future scenario is predicted to represent an improvement. Moreover, all sources are unlikely to all operate concurrently as the emergency diesel generator and fire pump engine will only operate during emergencies, and for testing a few hours a year.

APPENDIX A CONTOUR PLOTS



Site Boundary

PC for NO_2 1-hour maximum, 99.79th percentile - Source 1+2 (Future Scenario)

$\mu g/m^3$

- ≤2
- 2-10
- 10-20
- 20-200
- >200

Baseline: 31.1 $\mu g/m^3$

AQS: 200 $\mu g/m^3$

0 1 2 3 4 5

Kilometres

N

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SIZE: A4	DRAWN: JG
PROJECT: 0752339	CHECKED: RP
DATE: 18/06/2025	APPROVED: RC

Figure A.1
PC for NO_2 1-hour maximum
99.79th percentile
Source 1+2 (Future Scenario)

ERM

InterGen

PROJECTION: British National Grid

Maxar, Microsoft, Earthstar Geographics

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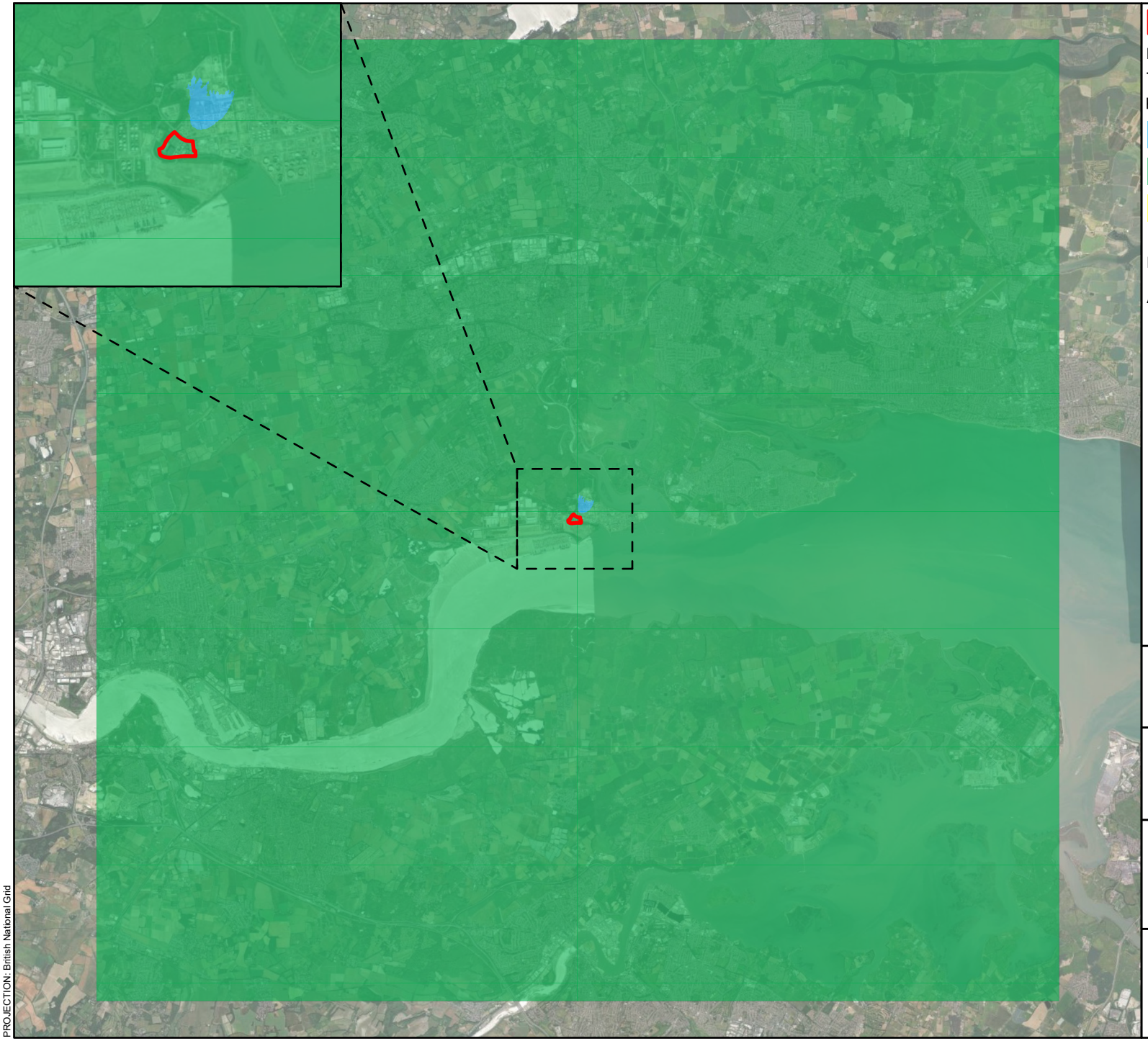

Site Boundary

Delta PC for NO_2 1-hour maximum, 99.79th percentile - Source 1+2

µg/m^3

≤-2

-2 to 2

>2

Baseline: 31.1 µg/m^3

AQS: 200 µg/m^3

0 1 2 3 4 5

Kilometres

N

SCALE: See Scale Bar	VERSION: A02
SIZE: A4	DRAWN: JG
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DATE: 18/06/2025	APPROVED: RC

Figure A.2
Delta PC for NO_2 1-hour maximum
99.79th percentile
Source 1+2

ERM

InterGen

PROJECTION: British National Grid

Maxar, Microsoft, Earthstar Geographics

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Site Boundary

PC for NO_2 annual mean - Source 1+2 (Future Scenario)

$\mu g/m^3$

- ≤0.4
- 0.4-0.8
- 0.8-2
- 2-40
- >40

Baseline: 15.5 $\mu g/m^3$

AQS: 40 $\mu g/m^3$

0 1 2 3 4 5

Kilometres

N

SCALE: See Scale Bar	VERSION: A02
SIZE: A4	DRAWN: JG
PROJECT: 0752339	CHECKED: RP
DATE: 18/06/2025	APPROVED: RC

Figure A.3
PC for NO_2 annual mean
Source 1+2 (Future Scenario)

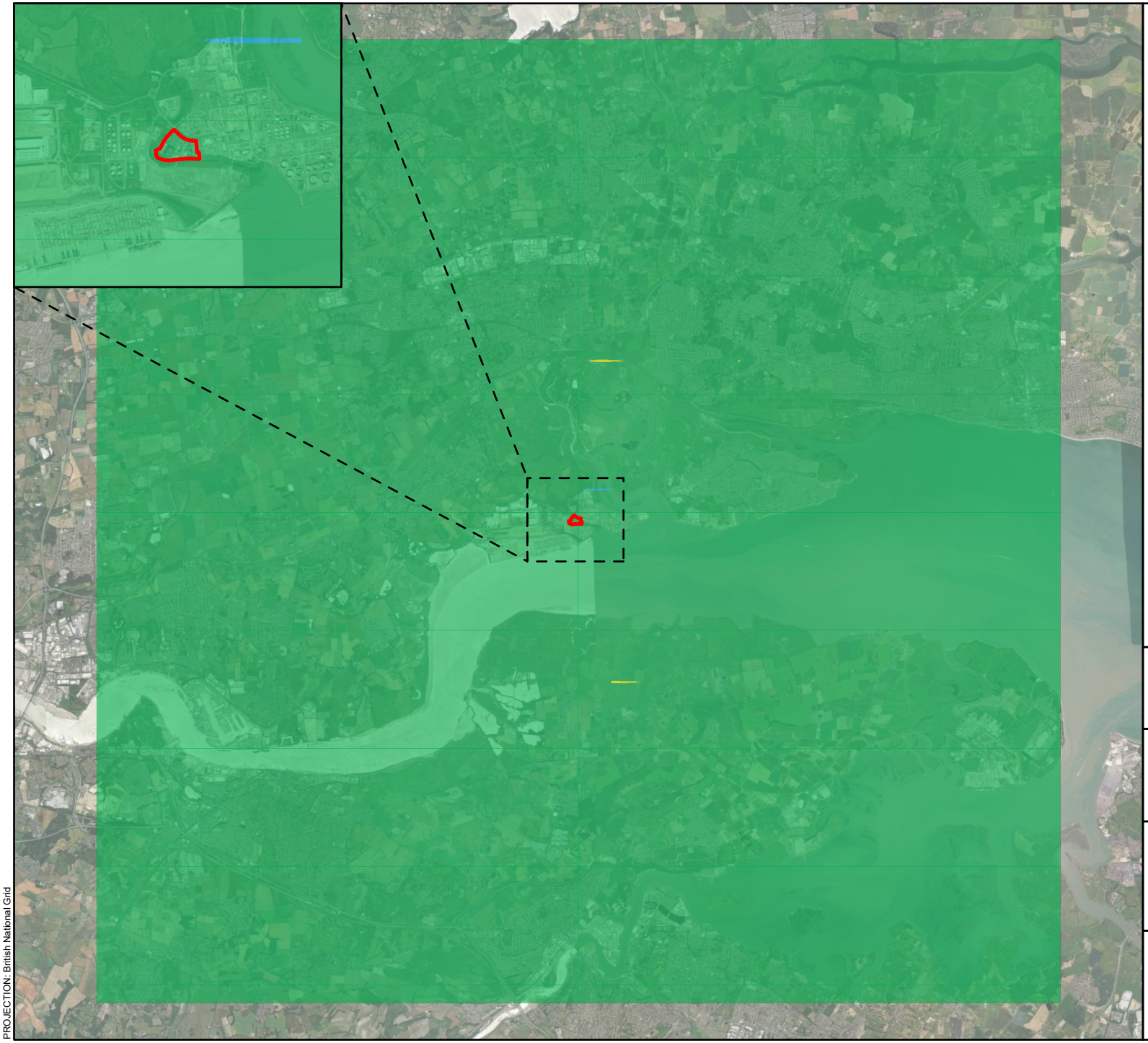
ERM

InterGen

PROJECTION: British National Grid

Earthstar Geographics

Path: \\UKSPRDGISFS01\Data\London\Projects\0752339 - Project InterGen\MAP\0752339 - Project InterGen\0752339 - Project InterGen.aprx\0752339 - InterGen - NO2 Annual Mean Contours - A02



Site Boundary

Delta PC for NO_2 annual mean - Source 1+2

µg/m^3

≤-0.1

-0.1 to 0.1

>0.1

Baseline: 15.5 µg/m^3

AQS: 40 µg/m^3

0 1 2 3 4 5

Kilometres

N

SCALE: See Scale Bar	VERSION: A02
SIZE: A4	DRAWN: JG
PROJECT: 0752339	CHECKED: RP
DATE: 18/06/2025	APPROVED: RC

Figure A.4
Delta PC for NO_2 annual mean
Source 1+2

ERM

InterGen

PROJECTION: British National Grid

Maxar, Microsoft, Earthstar Geographics

Path: \\UKSPRDGISFS01\Data\London\Projects\0752339 - Project InterGen\MAP\0752339 - Project InterGen\0752339 - Project InterGen.aprx\0752339 - InterGen - Delta NO2 Annual Mean Contours - A02

APPENDIX B ECOLOGICAL TABLES

Modelled Acid Deposition (keq/ha/yr) – Source A1+A2

Habitat name	Habitat type	CL (keq ha^{-1} yr^{-1}) LOW Range (Min ...)			Baseline (keq ha^{-1} yr^{-1}) S baseline	N baseline	Base PC	Base N NO2	Base PC as % of CL	Base PEC	Base PEC as % of CL	Base Significance	Future PC	Future N NO2	Future PC as % of CL	Future PEC	PEC as % of CL	Significance	Delta
Chattenden Woods and Lodge Hill SSSI	Woodland	1.165	0.142	1.307	0.17	0.88	0.008277937	0.000170	0.013%	1.050	80.3%	Insignificant	0.008145916	0.000167	0.0128%	1.050	80.3%	Insignificant	-0.0000027091
Cobham Woods SSSI	Woodland	8.559	0.142	8.701	0.19	0.77	0.009188694	0.000189	0.002%	0.960	11.0%	Insignificant	0.005984039	0.000123	0.0014%	0.960	11.0%	Insignificant	-0.0000657595
Crouch and Roach Estuaries SSSI	Woodland	4	0.856	4.856	0.14	0.87	0.033417695	0.000686	0.014%	1.011	20.8%	Insignificant	0.03301475	0.000677	0.0140%	1.011	20.8%	Insignificant	-0.0000082684
Garrold's Meadow SSSI	Grassland	4	0.856	4.856	0.17	0.88	0.026028536	0.000267	0.005%	1.050	21.6%	Insignificant	0.026142375	0.000268	0.0055%	1.050	21.6%	Insignificant	0.0000011680
Great Crabbles Wood SSSI	Woodland	1.203	0.142	1.345	0.23	1.7	0.006695591	0.000137	0.010%	1.930	143.5%	Insignificant	0.006714152	0.000138	0.0102%	1.930	143.5%	Insignificant	0.0000003809
Great Wood & Dodd's Grove SSSI	Woodland	1.667	0.142	2.2024	0.21	1.68	0.029275067	0.000601	0.027%	1.891	85.8%	Insignificant	0.029305866	0.000601	0.0273%	1.891	85.8%	Insignificant	0.0000006320
Hanningfield Reservoir SSSI	Woodland	4	1.071	5.071	0.15	0.93	0.008622316	0.000177	0.000%	1.080	3.8%	Insignificant	0.008461105	0.000174	0.0000%	1.080	3.8%	Insignificant	-0.0000033080
Hockley Woods SSSI	Woodland	2.534	0.357	2.891	0.22	1.72	0.019617766	0.000403	0.014%	1.940	67.1%	Insignificant	0.019768621	0.000406	0.0140%	1.940	67.1%	Insignificant	0.0000030955
Langdon Ridge SSSI	Woodland	2.532	0.357	2.889	0.229	1.76	0.016174959	0.000332	0.011%	1.989	68.9%	Insignificant	0.016082265	0.000330	0.0114%	1.989	68.9%	Insignificant	-0.0000019021
MEDWAY ESTUARY & MARSHES SPA	Grassland	0.89	0.499	1.389	0.16	0.84	0.026294784	0.000270	0.019%	1.000	72.0%	Insignificant	0.00707874	0.000073	0.0052%	1.000	72.0%	Insignificant	-0.0001971566
Medway Estuary and Marshes SSSI	Grassland	4	0.856	4.856	0.183	0.92	0.026294784	0.000270	0.006%	1.103	22.7%	Insignificant	0.00707874	0.000073	0.0015%	1.103	22.7%	Insignificant	-0.0001971566
Mill Meadows Billericay SSSI	Grassland	4	1.071	5.071	0.18	0.94	0.003689335	0.000038	0.000%	1.120	4.5%	Insignificant	0.003713457	0.000038	0.0000%	1.120	4.5%	Insignificant	0.0000002475
Norsey Wood SSSI	Woodland	1.707	0.142	2.064	0.229	1.807	0.00352248	0.000072	0.004%	2.036	98.6%	Insignificant	0.003577519	0.000073	0.0036%	2.036	98.6%	Insignificant	0.0000011294
Shorne and Ashenbank Woods SSSI	Woodland	1.203	0.142	1.345	0.217	1.71	0.006436029	0.000132	0.010%	1.927	143.3%	Insignificant	0.00644243	0.000132	0.0098%	1.927	143.3%	Insignificant	0.0000001314
South Thames Estuary and Marshes SSSI	Grassland	0.51	0.499	1.389	0.179	0.895	0.119912201	0.001230	0.089%	1.075	77.4%	Insignificant	0.113241167	0.001162	0.0836%	1.075	77.4%	Insignificant	-0.0000684448
THAMES ESTUARY & MARSHES SPA	Grassland	0.52	0.499	1.389	0.14	0.81	0.040350312	0.000414	0.030%	0.950	68.4%	Insignificant	0.038254323	0.000392	0.0283%	0.950	68.4%	Insignificant	-0.0000215048
Thorndon Park SSSI	Grassland	1.708	0.142	2.065	0.196	1.76	0.003359709	0.000034	0.002%	1.956	94.7%	Insignificant	0.003340828	0.000034	0.0017%	1.956	94.7%	Insignificant	-0.0000001937
Thundersley Great Common SSSI	Grassland	0.86	0.499	1.359	0.162	0.874	0.025161606	0.000258	0.019%	1.036	76.3%	Insignificant	0.025243504	0.000259	0.0191%	1.036	76.3%	Insignificant	0.0000008403
Tower Hill to Cockham Wood SSSI	Woodland	1.173	0.142	1.315	0.237	1.716	0.006605243	0.000136	0.010%	1.953	148.5%	Insignificant	0.006544598	0.000134	0.0102%	1.953	148.5%	Insignificant	-0.0000012444
THAMES ESTUARY & MARSHES RAMSAR	Grassland	0.52	0.499	1.389	0.14	0.81	0.119912201	0.001230	0.089%	0.951	68.5%	Insignificant	0.113241167	0.001162	0.0836%	0.951	68.5%	Insignificant	-0.0000684448

Modelled Acid Deposition (keq/ha/yr) – All Sources

Habitat name	Habitat type	CL (keq ha^{-1} yr^{-1}) LOW Range (Min ...)			Baseline (keq ha^{-1} yr^{-1}) S baseline	N baseline	Base PC	Base N NO2	Base PC as % of CL	Base PEC	Base PEC as % of CL	Base Significance	Future PC	Future N NO2	Future PC as % of CL	Future PEC	PEC as % of CL	Significance	Delta
Chattenden Woods and Lodge Hill SSSI	Woodland	1.165	0.142	1.307	0.17	0.88	0.012445799	0.000255	0.0%	1.050	80.4%	Insignificant	0.01236554	0.000254	0.0194%	1.050	80.4%	Insignificant	-0.0000016470
Cobham Woods SSSI	Woodland	8.559	0.142	8.701	0.19	0.77	0.012363681	0.000254	0.0%	0.960	11.0%	Insignificant	0.00795287	0.000163	0.0019%	0.960	11.0%	Insignificant	-0.0000905099
Crouch and Roach Estuaries SSSI	Woodland	4	0.856	4.856	0.14	0.87	0.042302102	0.000868	0.0%	1.011	20.8%	Insignificant	0.04189916	0.000860	0.0177%	1.011	20.8%	Insignificant	-0.0000082684
Garrold's Meadow SSSI	Grassland	4	0.856	4.856	0.17	0.88	0.032343525	0.000332	0.0%	1.050	21.6%	Insignificant	0.03252416	0.000334	0.0069%	1.050	21.6%	Insignificant	0.0000018533
Great Crabbles Wood SSSI	Woodland	1.203	0.142	1.345	0.23	1.7	0.008732563	0.000179	0.0%	1.930	143.5%	Insignificant	0.00876358	0.000180	0.0134%	1.930	143.5%	Insignificant	0.0000006364
Great Wood & Dodd's Grove SSSI	Woodland	1.667	0.142	2.2024	0.21	1.68	0.036642926	0.000752	0.0%	1.891	85.8%	Insignificant	0.0367407	0.000754	0.0342%	1.891	85.8%	Insignificant	0.0000020063
Hanningfield Reservoir SSSI	Woodland	4	1.071	5.071	0.15	0.93	0.011455569	0.000235	0.0%	1.080	3.8%	Insignificant	0.01136001	0.000233	0.0000%	1.080	3.8%	Insignificant	-0.0000019609
Hockley Woods SSSI	Woodland	2.534	0.357	2.891	0.22	1.72	0.024016682	0.000493	0.0%	1.940	67.1%	Insignificant	0.02422813	0.000497	0.0172%	1.940	67.1%	Insignificant	0.0000043389
Langdon Ridge SSSI	Woodland	2.532	0.357	2.889	0.229	1.76	0.020518569	0.000421	0.0%	1.989	68.9%	Insignificant	0.02036866	0.000418	0.0145%	1.989	68.9%	Insignificant	-0.0000030761
MEDWAY ESTUARY & MARSHES SPA	Grassland	0.89	0.499	1.389	0.16	0.84	0.032757131	0.000336	0.0%	1.000	72.0%	Insignificant	0.0099851	0.000102	0.0074%	1.000	72.0%	Insignificant	-0.0002336410
Medway Estuary and Marshes SSSI	Grassland	4	0.856	4.856	0.183	0.92	0.032757131	0.000336	0.0%	1.103	22.7%	Insignificant	0.01007599	0.000103	0.0021%	1.103	22.7%	Insignificant	-0.0002327085
Mill Meadows Billericay SSSI	Grassland	4	1.071	5.071	0.18	0.94	0.004774692	0.000049	0.0%	1.120	4.5%	Insignificant	0.00480805	0.000049	0.0000%	1.120	4.5%	Insignificant	0.0000003423
Norsey Wood SSSI	Woodland	1.707	0.142	2.064	0.229	1.807	0.004520958	0.000093	0.0%	2.036	98.6%	Insignificant	0.00458528	0.000094	0.0046%	2.036	98.6%	Insignificant	0.0000013198
Shorne and Ashenbank Woods SSSI	Woodland	1.203	0.142	1.345	0.217	1.71	0.008240255	0.000169	0.0%	1.927	143.3%	Insignificant	0.00825735	0.000169	0.0126%	1.927	143.3%	Insignificant	0.0000003508
South Thames Estuary and Marshes SSSI	Grassland	0.51	0.499	1.389	0.179	0.895	0.197299517	0.002024	0.1%	1.076	77.5%	Insignificant	0.1876128	0.001925	0.1386%	1.076	77.5%	Insignificant	-0.0000993857
THAMES ESTUARY & MARSHES SPA	Grassland	0.52	0.499	1.389	0.14	0.81	0.061484232	0.000631	0.0%	0.951	68.4%	Insignificant	0.05938824	0.000609	0.0439%	0.951	68.4%	Insignificant	-0.0000215048
Thorndon Park SSSI	Grassland	1.708	0.142	2.065	0.196	1.76	0.00430257	0.000044	0.0%	1.956	94.7%	Insignificant	0.00429303	0.000044	0.0021%	1.956	94.7%	Insignificant	-0.0000000978
Thundersley Great Common SSSI	Grassland	0.86	0.499	1.359	0.162	0.874	0.030356835	0.000311	0.0%	1.036	76.3%	Insignificant	0.03058169	0.000314	0.0231%	1.036	76.3%	Insignificant	0.0000023070
Tower Hill to Cockham Wood SSSI	Woodland	1.173	0.142	1.315	0.237	1.716	0.00964263	0.000198	0.0%	1.953	148.5%	Insignificant	0.00961077	0.000197	0.0150%	1.953	148.5%	Insignificant	-0.0000006538
THAMES ESTUARY & MARSHES RAMSAR	Grassland	0.52	0.499	1.389	0.14	0.81	0.197299517	0.002024	0.1%	0.952	68.5%	Insignificant	0.1876128	0.001925	0.1386%	0.952	68.5%	Insignificant	-0.0000993857

Modelled Maximum Annual Mean Nox Concentrations (µg/m3) - Source A1+A2

Ecological Site	Critical Level (Annual mean)	Baseline	Base PC	Base PC as % of Critic	Base PEC	Base PEC as % of Critical Level	Significance	Future PC	Future PC as % of Critical Level	Future PEC	Future PEC as % of Critical Level	Significance	Delta
BENFLEET AND SOUTHEND MARSHES SPA	30	19.3	0.06530853	0.22%	19.35	64.49%	Insignificant	0.0626705	0.21%	19.34	64.48223499923390%	Insignificant	-0.0026
Benfleet and Southend Marshes SSSI	30	19.3	0.06530853	0.22%	19.35	64.49%	Insignificant	0.0626705	0.21%	19.34	64.48223499923390%	Insignificant	-0.0026
Canvey Wick SSSI	30	22.1	0.163810991	0.55%	22.23	74.12%	Insignificant	0.154664264	0.52%	22.23	74.08554754718420%	Insignificant	-0.0091
Chattenden Woods and Lodge Hill SSSI	30	19.0	0.011825624	0.04%	18.98	63.26%	Insignificant	0.011637023	0.04%	18.98	63.25545674189500%	Insignificant	-0.0002
Cobham Woods SSSI	30	21.8	0.013126706	0.04%	21.80	72.66%	Insignificant	0.008548627	0.03%	21.79	72.64516209033490%	Insignificant	-0.0046
CROUCH & ROACH ESTUARIES (MID-ESSEX COAST PHASE 3) SPA	30	15.7	0.047739565	0.16%	15.79	52.63%	Insignificant	0.047163928	0.16%	15.79	52.63054642770170%	Insignificant	-0.0006
Crouch and Roach Estuaries SSSI	30	15.7	0.047739565	0.16%	15.79	52.63%	Insignificant	0.047163928	0.16%	15.79	52.63054642770170%	Insignificant	-0.0006
Datham Farm SSSI	30	15.5	0.011827432	0.04%	15.51	51.71%	Insignificant	0.011678458	0.04%	15.51	51.70559485878990%	Insignificant	-0.0001
ESSEX ESTUARIES SAC	30	15.7	0.049592726	0.17%	15.79	52.64%	Insignificant	0.04801085	0.16%	15.79	52.63336950152210%	Insignificant	-0.0016
Garrold's Meadow SSSI	30	17.2	0.037183622	0.12%	17.22	57.38%	Insignificant	0.03734625	0.12%	17.22	57.38448749847790%	Insignificant	0.0002
Grays Thurrock Chalk Pit SSSI	30	27.3	0.008267107	0.03%	27.35	91.17%	Insignificant	0.008384801	0.03%	27.35	91.16794933538810%	Insignificant	0.0001
Great Crabbles Wood SSSI	30	22.1	0.009565131	0.03%	22.13	73.77%	Insignificant	0.009591646	0.03%	22.13	73.76530548595890%	Insignificant	0.0000
Great Wood & Dodd's Grove SSSI	30	17.3	0.041821525	0.14%	17.36	57.86%	Insignificant	0.041865522	0.14%	17.36	57.85955174124810%	Insignificant	0.0000
Hangman's Wood & Deneholes SSSI	30	24.6	0.010068878	0.03%	24.60	81.99%	Insignificant	0.010199517	0.03%	24.60	81.99399839075340%	Insignificant	0.0001
Hanningfield Reservoir SSSI	30	12.7	0.012317594	0.04%	12.73	42.44%	Insignificant	0.012087294	0.04%	12.73	42.44029097838660%	Insignificant	-0.0002
Hockley Woods SSSI	30	15.4	0.02802538	0.09%	15.46	51.52%	Insignificant	0.028240887	0.09%	15.46	51.52080295738200%	Insignificant	0.0002
Holehaven Creek SSSI	30	28.0	0.205039239	0.68%	28.23	94.10%	Insignificant	0.191258611	0.64%	28.22	94.05419536910200%	Insignificant	-0.0138
Langdon Ridge SSSI	30	21.6	0.023107084	0.08%	21.58	71.94%	Insignificant	0.022974665	0.08%	21.58	71.93991554984780%	Insignificant	-0.0001
Lion Pit SSSI	30	32.6	0.0074477	0.02%	32.56	108.54%	Insignificant	0.007550583	0.03%	32.56	108.54183527610400%	Insignificant	0.0001
MEDWAY ESTUARY & MARSHES SPA	30	27.7	0.037563977	0.13%	27.71	92.37%	Insignificant	0.010112486	0.03%	27.68	92.27370828554030%	Insignificant	-0.0275
Medway Estuary and Marshes SSSI	30	27.7	0.037563977	0.13%	27.71	92.37%	Insignificant	0.010112486	0.03%	27.68	92.27370828554030%	Insignificant	-0.0275
Mill Meadows Billericay SSSI	30	15.9	0.005270479	0.02%	15.94	53.15%	Insignificant	0.005304939	0.02%	15.94	53.14768312956620%	Insignificant	0.0000
Mucking Flats and Marshes SSSI	30	31.3	0.040152539	0.13%	31.30	104.34%	Insignificant	0.03933089	0.13%	31.30	104.33776963242000%	Insignificant	-0.0008
Norsey Wood SSSI	30	14.9	0.005032115	0.02%	14.95	49.84%	Insignificant	0.005110742	0.02%	14.95	49.84036914018260%	Insignificant	0.0001
Northward Hill SSSI	30	15.5	0.012387677	0.04%	15.51	51.71%	Insignificant	0.012205279	0.04%	15.51	51.70735092834860%	Insignificant	-0.0002
Pitsea Marsh SSSI	30	23.3	0.149375266	0.50%	23.45	78.15%	Insignificant	0.115855211	0.39%	23.41	78.04285070167430%	Insignificant	-0.0335
Shorne and Ashenbank Woods SSSI	30	20.7	0.009194327	0.03%	20.75	69.16%	Insignificant	0.009203472	0.03%	20.75	69.16401157328770%	Insignificant	0.0000
South Thames Estuary and Marshes SSSI	30	34.7	0.171303144	0.57%	34.89	116.31%	Insignificant	0.161773096	0.54%	34.88	116.28257698592100%	Insignificant	-0.0095
Swanscombe Peninsula SSSI	30	36.1	0.008042851	0.03%	36.13	120.44%	Insignificant	0.008146998	0.03%	36.13	120.44048999246600%	Insignificant	0.0001
THAMES ESTUARY & MARSHES SPA	30	33.2	0.057643302	0.19%	33.29	110.97%	Insignificant	0.054649033	0.18%	33.29	110.95549677625600%	Insignificant	-0.0030
Thorndon Park SSSI	30	19.5	0.004799585	0.02%	19.53	65.11%	Insignificant	0.004772612	0.02%	19.53	65.11257537283100%	Insignificant	0.0000
Thundersley Great Common SSSI	30	19.8	0.035945151	0.12%	19.81	66.03%	Insignificant	0.036062149	0.12%	19.81	66.02687382838660%	Insignificant	0.0001
Tower Hill to Cockham Wood SSSI	30	22.3	0.009436062	0.03%	22.29	74.29%	Insignificant	0.009349425	0.03%	22.29	74.29449808481740%	Insignificant	-0.0001
Vange & Fobbing Marshes SSSI	30	23.3	0.03394878	0.11%	23.33	77.77%	Insignificant	0.032241124	0.11%	23.33	77.76413707838660%	Insignificant	-0.0017
Benfleet and Southend Marshes RAMSAR	30	19.3	0.063726443	0.21%	19.35	64.49%	Insignificant	0.0626705	0.21%	19.34	64.48223499923390%	Insignificant	-0.0011
THAMES ESTUARY & MARSHES RAMSAR	30	33.2	0.171303144	0.57%	33.40	111.34%	Insignificant	0.161773096	0.54%	33.39	111.31257698592100%	Insignificant	-0.0095

Modelled Maximum 24-Hour Mean Nox Concentrations (µg/m3) - Source A1+A2

Ecological Site	Critical Level (24-Hour Mean)	Baseline	Base PC	Base PC as % of Critic	Base PEC	Base PEC as % of Critical Level	Significance	Future PC	Future PC as % of Critical Level	Future PEC	Future PEC as % of Critical Level	Significance	Delta
BENFLEET AND SOUTHEND MARSHES SPA	200	38.6	4.33068	2.17%	42.89	21.45%	Insignificant	4.28719	2.14%	42.85	21.42559500000000%	Insignificant	-0.0435
Benfleet and Southend Marshes SSSI	200	38.6	4.59915	2.30%	43.16	21.58%	Insignificant	4.592	2.30%	43.16	21.57800000000000%	Insignificant	-0.0072
Canvey Wick SSSI	200	44.1	17.3101	8.66%	61.45	30.73%	Insignificant	17.1059	8.55%	61.25	30.62395000000000%	Insignificant	-0.2042
Chattenden Woods and Lodge Hill SSSI	200	37.9	2.78362	1.39%	40.71	20.36%	Insignificant	2.74186	1.37%	40.67	20.33593000000000%	Insignificant	-0.0418
Cobham Woods SSSI	200	43.6	3.8945	1.95%	47.46	23.73%	Insignificant	1.47169	0.74%	45.04	22.52084500000000%	Insignificant	-2.4228
CROUCH & ROACH ESTUARIES (MID-ESSEX COAST PHASE 3) SPA	200	31.5	3.19752	1.60%	34.68	17.34%	Insignificant	3.21094	1.61%	34.69	17.34747000000000%	Insignificant	0.0134
Crouch and Roach Estuaries SSSI	200	31.5	3.19752	1.60%	34.68	17.34%	Insignificant	3.21094	1.61%	34.69	17.34747000000000%	Insignificant	0.0134
Datham Farm SSSI	200	31.0	2.42073	1.21%	33.42	16.71%	Insignificant	2.3929	1.20%	33.39	16.69645000000000%	Insignificant	-0.0278
ESSEX ESTUARIES SAC	200	31.5	3.23214	1.62%	34.72	17.36%	Insignificant	3.21094	1.61%	34.69	17.34747000000000%	Insignificant	-0.0212
Garrold's Meadow SSSI	200	34.4	2.18062	1.09%	36.54	18.27%	Insignificant	2.18747	1.09%	36.54	18.27173500000000%	Insignificant	0.0069
Grays Thurrock Chalk Pit SSSI	200	54.7	1.03012	0.52%	55.71	27.86%	Insignificant	1.02955	0.51%	55.71	27.85677500000000%	Insignificant	-0.0006
Great Crabbles Wood SSSI	200	44.2	1.66567	0.83%	45.91	22.95%	Insignificant	1.66643	0.83%	45.91	22.95321500000000%	Insignificant	0.0008
Great Wood & Dodd's Grove SSSI	200	34.6	2.72733	1.36%	37.36	18.68%	Insignificant	2.80029	1.40%	37.43	18.71614500000000%	Insignificant	0.0730
Hangman's Wood & Deneholes SSSI	200	49.2	1.24351	0.62%	50.42	25.21%	Insignificant	1.23086	0.62%	50.41	25.20343000000000%	Insignificant	-0.0126
Hanningfield Reservoir SSSI	200	25.4	2.34326	1.17%	27.78	13.89%	Insignificant	2.34937	1.17%	27.79	13.89468500000000%	Insignificant	0.0061
Hockley Woods SSSI	200	30.9	1.76544	0.88%	32.62	16.31%	Insignificant	1.78937	0.89%	32.65	16.32268500000000%	Insignificant	0.0239
Holehaven Creek SSSI	200	56.1	26.4852	13.24%	82.54	41.27%	Potentially Significant	24.6102	12.31%	80.66	40.33010000000000%	Potentially Significant	-1.8750
Langdon Ridge SSSI	200	43.1	3.03789	1.52%	46.16	23.08%	Insignificant	2.96867	1.48%	46.09	23.04333500000000%	Insignificant	-0.0692
Lion Pit SSSI	200	65.1	0.950445	0.48%	66.06	33.03%	Insignificant	0.968074	0.48%	66.08	33.03903700000000%	Insignificant	0.0176
MEDWAY ESTUARY & MARSHES SPA	200	55.3	2.71123	1.36%	58.06	29.03%	Insignificant	1.89378	0.95%	57.24	28.61889000000000%	Insignificant	-0.8175
Medway Estuary and Marshes SSSI	200	55.3	2.71123	1.36%	58.06	29.03%	Insignificant	1.9092	0.95%	57.25	28.62660000000000%	Insignificant	-0.8020
Mill Meadows Billericay SSSI	200	31.9	1.11543	0.56%	32.99	16.50%	Insignificant	1.14821	0.57%	33.03	16.51310500000000%	Insignificant	0.0328
Mucking Flats and Marshes SSSI	200	62.5	8.01371	4.01%	70.54	35.27%	Insignificant	7.02153	3.51%	69.55	34.77276500000000%	Insignificant	-0.9922
Norsey Wood SSSI	200	29.9	0.941301	0.47%	30.84	15.42%	Insignificant	0.963539	0.48%	30.86	15.42876950000000%	Insignificant	0.0222
Northward Hill SSSI	200	31.0	2.57854	1.29%	33.58	16.79%	Insignificant	2.48684	1.24%	33.49	16.74342000000000%	Insignificant	-0.0917
Pitsea Marsh SSSI	200	46.6	19.7141	9.86%	66.31	33.15%	Insignificant	15.675	7.84%	62.27	31.13450000000000%	Insignificant	-4.0391
Shorne and Ashenbank Woods SSSI	200	41.5	1.47442	0.74%	42.95	21.48%	Insignificant	1.51342	0.76%	42.99	21.49671000000000%	Insignificant	0.0390
South Thames Estuary and Marshes SSSI	200	69.4	19.337	9.67%	88.78	44.39%	Insignificant	18.6557	9.33%	88.10	44.05085000000000%	Insignificant	-0.6813
Swanscombe Peninsula SSSI	200	72.2	1.46126	0.73%	73.71	36.85%	Insignificant	1.49045	0.75%	73.74	36.86922500000000%	Insignificant	0.0292
THAMES ESTUARY & MARSHES SPA	200	66.5	9.26116	4.63%	75.73	37.86%	Insignificant	9.06657	4.53%	75.53	37.76528500000000%	Insignificant	-0.1946
Thorndon Park SSSI	200	39.1	1.11613	0.56%	40.17	20.09%	Insignificant	1.12867	0.56%	40.19	20.09333500000000%	Insignificant	0.0125
Thundersley Great Common SSSI	200	39.5	2.65603	1.33%	42.20	21.10%	Insignificant	2.70509	1.35%	42.25	21.12454500000000%	Insignificant	0.0491
Tower Hill to Cockham Wood SSSI	200	44.6	2.26293	1.13%	46.82	23.41%	Insignificant	2.25269	1.13%	46.81	23.40534500000000%	Insignificant	-0.0102
Vange & Fobbing Marshes SSSI	200	46.6	7.83627	3.92%	54.43	27.22%	Insignificant	7.19269	3.60%	53.79	26.89334500000000%	Insignificant	-0.6436
Benfleet and Southend Marshes RAMSAR	200	38.6	4.33068	2.17%	42.89	21.45%	Insignificant	4.27853	2.14%	42.84	21.42126500000000%	Insignificant	-0.0522
THAMES ESTUARY & MARSHES RAMSAR	200	66.5	19.337	9.67%	85.80	42.90%	Insignificant	18.6557	9.33%	85.12	42.55985000000000%	Insignificant	-0.6813

Modelled Maximum Annual Mean Nox Concentrations (µg/m3) - All Sources

Ecological Site	Critical Level (Annual mean)	Baseline	Base PC	Base PC as % of Critic	Base PEC	Base PEC as % of Critical Level	Significance	Future PC	Future PC as % of Critical Level	Future PEC	Future PEC as % of Critical Level	Significance	Delta
BENFLEET AND SOUTHEND MARSHES SPA	30	19.3	0.085102392	0.28%	19.37	64.56%	Insignificant	0.082464363	0.27%	19.36	64.5482145416667%	Insignificant	-0.0026
Benfleet and Southend Marshes SSSI	30	19.3	0.085261756	0.28%	19.37	64.56%	Insignificant	0.082623726	0.28%	19.36	64.5487457538813%	Insignificant	-0.0026
Canvey Wick SSSI	30	22.1	0.267902349	0.89%	22.34	74.46%	Insignificant	0.258755622	0.86%	22.33	74.4325187409437%	Insignificant	-0.0091
Chattenden Woods and Lodge Hill SSSI	30	19.0	0.017779713	0.06%	18.98	63.28%	Insignificant	0.01766505	0.06%	18.98	63.2755501670244%	Insignificant	-0.0001
Cobham Woods SSSI	30	21.8	0.017662401	0.06%	21.80	72.68%	Insignificant	0.011361238	0.04%	21.80	72.6545374591324%	Insignificant	-0.0063
CROUCH & ROACH ESTUARIES (MID-ESSEX COAST PHASE 3) SPA	30	15.7	0.060431574	0.20%	15.80	52.67%	Insignificant	0.059855937	0.20%	15.80	52.6728531249619%	Insignificant	-0.0006
Crouch and Roach Estuaries SSSI	30	15.7	0.060431574	0.20%	15.80	52.67%	Insignificant	0.059855937	0.20%	15.80	52.6728531249619%	Insignificant	-0.0006
Dalham Farm SSSI	30	15.5	0.017819707	0.06%	15.52	51.73%	Insignificant	0.017741497	0.06%	15.52	51.7258049884399%	Insignificant	-0.0001
ESSEX ESTUARIES SAC	30	15.7	0.063134853	0.21%	15.81	52.68%	Insignificant	0.061218467	0.20%	15.80	52.6773948896119%	Insignificant	-0.0019
Garrold's Meadow SSSI	30	17.2	0.046205036	0.15%	17.22	57.41%	Insignificant	0.046463081	0.15%	17.22	57.4148769367960%	Insignificant	0.0003
Grays Thurrock Chalk Pit SSSI	30	27.3	0.01013007	0.03%	27.35	91.17%	Insignificant	0.010229758	0.03%	27.35	91.1740991939992%	Insignificant	0.0001
Great Crabbles Wood SSSI	30	22.1	0.01247509	0.04%	22.13	73.77%	Insignificant	0.012519396	0.04%	22.13	73.7750646537900%	Insignificant	0.0000
Great Wood & Dodd's Grove SSSI	30	17.3	0.052347037	0.17%	17.37	57.89%	Insignificant	0.052486716	0.17%	17.37	57.8949557183562%	Insignificant	0.0001
Hangman's Wood & Deneholes SSSI	30	24.6	0.012328289	0.04%	24.60	82.00%	Insignificant	0.012434835	0.04%	24.60	82.0014494500114%	Insignificant	0.0001
Hanningfield Reservoir SSSI	30	12.7	0.016365098	0.05%	12.74	42.45%	Insignificant	0.016228583	0.05%	12.74	42.4540952767199%	Insignificant	-0.0001
Hockley Woods SSSI	30	15.4	0.034309546	0.11%	15.46	51.54%	Insignificant	0.034611616	0.12%	15.46	51.5420387203349%	Insignificant	0.0003
Holehaven Creek SSSI	30	28.0	0.381339353	1.27%	28.41	94.69%	Potentially Significant	0.370837918	1.24%	28.40	94.6527930585997%	Potentially Significant	-0.0105
Langdon Ridge SSSI	30	21.6	0.029312241	0.10%	21.59	71.96%	Insignificant	0.029098088	0.10%	21.59	71.9603269600913%	Insignificant	-0.0002
Lion Pit SSSI	30	32.6	0.009047693	0.03%	32.56	108.55%	Insignificant	0.009140268	0.03%	32.56	108.54713422627 10%	Insignificant	0.0001
MEDWAY ESTUARY & MARSHES SPA	30	27.7	0.046795902	0.16%	27.72	92.40%	Insignificant	0.014264434	0.05%	27.69	92.2875481141400%	Insignificant	-0.0325
Medway Estuary and Marshes SSSI	30	27.7	0.046795902	0.16%	27.72	92.40%	Insignificant	0.014394268	0.05%	27.69	92.2879808944140%	Insignificant	-0.0324
Mill Meadows Billericay SSSI	30	15.9	0.006820989	0.02%	15.95	53.15%	Insignificant	0.006868649	0.02%	15.95	53.1528954969406%	Insignificant	0.0000
Mucking Flats and Marshes SSSI	30	31.3	0.069782766	0.23%	31.33	104.44%	Insignificant	0.067385081	0.22%	31.33	104.43128360182 60%	Insignificant	-0.0024
Norsey Wood SSSI	30	14.9	0.006458511	0.02%	14.95	49.84%	Insignificant	0.006550396	0.02%	14.95	49.8451679850342%	Insignificant	0.0001
Northward Hill SSSI	30	15.5	0.01914554	0.06%	15.52	51.73%	Insignificant	0.019026954	0.06%	15.52	51.7300898452664%	Insignificant	-0.0001
Pitsea Marsh SSSI	30	23.3	0.24196959	0.81%	23.54	78.46%	Insignificant	0.204355557	0.68%	23.50	78.3378518566971%	Insignificant	-0.0376
Shorne and Ashenbank Woods SSSI	30	20.7	0.011771793	0.04%	20.75	69.17%	Insignificant	0.011796216	0.04%	20.75	69.1726540519711%	Insignificant	0.0000
South Thames Estuary and Marshes SSSI	30	34.7	0.281856452	0.94%	35.00	116.68%	Insignificant	0.268018292	0.89%	34.99	116.6367276414000%	Insignificant	-0.0138
Swanscombe Peninsula SSSI	30	36.1	0.009882463	0.03%	36.13	120.45%	Insignificant	0.009985573	0.03%	36.13	120.4466185756700%	Insignificant	0.0001
THAMES ESTUARY & MARSHES SPA	30	33.2	0.087834618	0.29%	33.32	111.07%	Insignificant	0.084840348	0.28%	33.32	111.0561344935310%	Insignificant	-0.0030
Thorndon Park SSSI	30	19.5	0.006146529	0.02%	19.54	65.12%	Insignificant	0.006132905	0.02%	19.54	65.1171096847336%	Insignificant	0.0000
Thundersley Great Common SSSI	30	19.8	0.043366906	0.14%	19.82	66.05%	Insignificant	0.043688123	0.15%	19.82	66.0522937428387%	Insignificant	0.0003
Tower Hill to Cockham Wood SSSI	30	22.3	0.013775186	0.05%	22.29	74.31%	Insignificant	0.013729668	0.05%	22.29	74.3090988945053%	Insignificant	0.0000
Vange & Fobbing Marshes SSSI	30	23.3	0.056316964	0.19%	23.35	77.84%	Insignificant	0.055448429	0.18%	23.35	77.8414947626332%	Insignificant	-0.0009
Benfleet and Southend Marshes RAMSAR	30	19.3	0.083394031	0.28%	19.37	64.55%	Insignificant	0.082464363	0.27%	19.36	64.5482145416667%	Insignificant	-0.0009
THAMES ESTUARY & MARSHES RAMSAR	30	33.2	0.281856452	0.94%	33.51	111.71%	Insignificant	0.268018292	0.89%	33.50	111.6667276414000%	Insignificant	-0.0138

Modelled Maximum 24-Hour Mean Nox Concentrations (µg/m3) - All Sources

Ecological Site	Critical Level (24-Hour Mean)	Baseline	Base PC	Base PC as % of Critic	Base PEC	Base PEC as % of Critical Level	Significance	Future PC	Future PC as % of Critical Level	Future PEC	Future PEC as % of Critical Level	Significance	Delta
BENFLEET AND SOUTHEND MARSHES SPA	200	38.6	5.03811	2.52%	43.60	21.80%	Insignificant	4.9932	2.50%	43.56	21.7786000000000%	Insignificant	-0.0449
Benfleet and Southend Marshes SSSI	200	38.6	5.3758	2.69%	43.94	21.97%	Insignificant	5.38387	2.69%	43.95	21.9739350000000%	Insignificant	0.0081
Canvey Wick SSSI	200	44.1	20.4608	10.23%	64.60	32.30%	Potentially Significant	20.3839	10.19%	64.53	32.2629500000000%	Potentially Significant	-0.0769
Chattenden Woods and Lodge Hill SSSI	200	37.9	3.38511	1.69%	41.32	20.66%	Insignificant	3.35269	1.68%	41.28	20.6413450000000%	Insignificant	-0.0324
Cobham Woods SSSI	200	43.6	4.58177	2.29%	48.15	24.08%	Insignificant	1.74181	0.87%	45.31	22.6559050000000%	Insignificant	-2.8400
CROUCH & ROACH ESTUARIES (MID-ESSEX COAST PHASE 3) SPA	200	31.5	3.65268	1.83%	35.14	17.57%	Insignificant	3.6661	1.83%	35.15	17.5750500000000%	Insignificant	0.0134
Crouch and Roach Estuaries SSSI	200	31.5	3.65268	1.83%	35.14	17.57%	Insignificant	3.6661	1.83%	35.15	17.5750500000000%	Insignificant	0.0134
Dalham Farm SSSI	200	31.0	2.88784	1.44%	33.89	16.94%	Insignificant	2.86827	1.43%	33.87	16.9341350000000%	Insignificant	-0.0196
ESSEX ESTUARIES SAC	200	31.5	3.76127	1.88%	35.25	17.62%	Insignificant	3.6661	1.83%	35.15	17.5750500000000%	Insignificant	-0.0952
Garrold's Meadow SSSI	200	34.4	2.55408	1.28%	36.91	18.46%	Insignificant	2.52314	1.26%	36.88	18.4395700000000%	Insignificant	-0.0309
Grays Thurrock Chalk Pit SSSI	200	54.7	1.37034	0.69%	56.05	28.03%	Insignificant	1.39941	0.70%	56.08	28.0417050000000%	Insignificant	0.0291
Great Crabbles Wood SSSI	200	44.2	1.98295	0.99%	46.22	23.11%	Insignificant	1.9869	0.99%	46.23	23.1134500000000%	Insignificant	0.0040
Great Wood & Dodd's Grove SSSI	200	34.6	3.12383	1.56%	37.76	18.88%	Insignificant	3.20746	1.60%	37.84	18.9197300000000%	Insignificant	0.0836
Hangman's Wood & Deneholes SSSI	200	49.2	1.6462	0.82%	50.82	25.41%	Insignificant	1.68088	0.84%	50.86	25.4284400000000%	Insignificant	0.0347
Hanningfield Reservoir SSSI	200	25.4	2.84231	1.42%	28.28	14.14%	Insignificant	2.86932	1.43%	28.31	14.1546600000000%	Insignificant	0.0270
Hockley Woods SSSI	200	30.9	1.99971	1.00%	32.86	16.43%	Insignificant	2.02657	1.01%	32.88	16.4412850000000%	Insignificant	0.0269
Holehaven Creek SSSI	200	56.1	32.5911	16.30%	88.64	44.32%	Potentially Significant	30.953	15.48%	87.00	43.5015000000000%	Potentially Significant	-1.6381
Langdon Ridge SSSI	200	43.1	3.75354	1.88%	46.87	23.44%	Insignificant	3.72296	1.86%	46.84	23.4204800000000%	Insignificant	-0.0306
Lion Pit SSSI	200	65.1	1.2034	0.60%	66.31	33.16%	Insignificant	1.21535	0.61%	66.33	33.1626750000000%	Insignificant	0.0119
MEDWAY ESTUARY & MARSHES SPA	200	55.3	3.08734	1.54%	58.43	29.22%	Insignificant	2.41089	1.21%	57.75	28.8774450000000%	Insignificant	-0.6765
Medway Estuary and Marshes SSSI	200	55.3	3.08734	1.54%	58.43	29.22%	Insignificant	2.41089	1.21%	57.75	28.8774450000000%	Insignificant	-0.6765
Mill Meadows Billericay SSSI	200	31.9	1.47769	0.74%	33.36	16.68%	Insignificant	1.47283	0.74%	33.35	16.6754150000000%	Insignificant	-0.0049
Mucking Flats and Marshes SSSI	200	62.5	11.8953	5.95%	74.42	37.21%	Insignificant	10.5389	5.27%	73.06	36.5314500000000%	Insignificant	-1.3564
Norsey Wood SSSI	200	29.9	1.20642	0.60%	31.10	15.55%	Insignificant	1.20984	0.60%	31.10	15.5519200000000%	Insignificant	0.0034
Northward Hill SSSI	200	31.0	3.11907	1.56%	34.12	17.06%	Insignificant	3.02715	1.51%	34.03	17.0135750000000%	Insignificant	-0.0919
Pitsea Marsh SSSI	200	46.6	27.5025	13.75%	74.10	37.05%	Potentially Significant	22.1816	11.09%	68.78	34.3878000000000%	Potentially Significant	-5.3209
Shorne and Ashenbank Woods SSSI	200	41.5	1.73605	0.87%	43.22	21.61%	Insignificant	1.74815	0.87%	43.23	21.6140750000000%	Insignificant	0.0121
South Thames Estuary and Marshes SSSI	200	69.4	22.8882	11.44%	92.33	46.17%	Potentially Significant	22.2069	11.10%	91.65	45.8264500000000%	Potentially Significant	-0.6813
Swanscombe Peninsula SSSI	200	72.2	1.64938	0.82%	73.90	36.95%	Insignificant	1.68032	0.84%	73.93	36.9641600000000%	Insignificant	0.0309
THAMES ESTUARY & MARSHES SPA	200	66.5	14.7868	7.39%	81.25	40.63%	Insignificant	14.1608	7.08%	80.62	40.3124000000000%	Insignificant	-0.6260
Thorndon Park SSSI	200	39.1	1.40775	0.70%	40.47	20.23%	Insignificant	1.41798	0.71%	40.48	20.2379900000000%	Insignificant	0.0102
Thundersley Great Common SSSI	200	39.5	3.11668	1.56%	42.66	21.33%	Insignificant	3.17396	1.59%	42.72	21.3589800000000%	Insignificant	0.0573
Tower Hill to Cockham Wood SSSI	200	44.6	2.66089	1.33%	47.22	23.61%	Insignificant	2.65539	1.33%	47.21	23.6066950000000%	Insignificant	-0.0055
Vange & Fobbing Marshes SSSI	200	46.6	12.0045	6.00%	58.60	29.30%	Insignificant	11.5996	5.80%	58.19	29.0968000000000%	Insignificant	-0.4049
Benfleet and Southend Marshes RAMSAR	200	38.6	5.03811	2.52%	43.60	21.80%	Insignificant	4.98454	2.49%	43.55	21.7742700000000%	Insignificant	-0.0536
THAMES ESTUARY & MARSHES RAMSAR	200	66.5	22.8882	11.44%	89.35	44.68%	Potentially Significant	22.2069	11.10%	88.67	44.3354500000000%	Potentially Significant	-0.6813

Modelled Nutrient Nitrogen Deposition (kgN/ha/yr) - Source A1+A2

Habitat name	Type	Minimum CL	Background	NO2 deposition velocity	Base - NO2 annual PC ($\mu g/m^3$)	Base Deposition as PC	Base Deposition PC as % of CL	Base Deposition as PEC	Base Deposition PEC as % of CL	Significance	Future - NO2 annual PC ($\mu g/m^3$)	Future Deposition as PC	Future Deposition PC as % of CL	Future Deposition as PEC	Future Deposition PEC as % of CL	Significance	Delta
BENFLEET AND SOUTHEND MARSHES SPA	Grassland	10	11.661	*0.0015*	0.0457	6.58E-03	0.07%	11.67	116.68%	Insignificant	0.0439	0.00631	0.06%	11.67	116.67%	Insignificant	-2.66E-04
Benfleet and Southend Marshes SSSI	Grassland	10	11.661	*0.0015*	0.0457	6.58E-03	0.07%	11.67	116.68%	Insignificant	0.0439	0.00631	0.06%	11.67	116.67%	Insignificant	-2.66E-04
Chattenden Woods and Lodge Hill SSSI	Woodland	10	9.316	*0.003*	0.0083	2.38E-03	0.02%	9.32	93.18%	Insignificant	0.0081	0.00234	0.02%	9.32	93.18%	Insignificant	-3.80E-05
Cobham Woods SSSI	Woodland	15	11.4	*0.003*	0.0092	2.64E-03	0.02%	11.40	76.02%	Insignificant	0.0060	0.00172	0.01%	11.40	76.01%	Insignificant	-9.22E-04
CROUCH & ROACH ESTUARIES (MID-ESSEX (	Woodland	10	9.125	*0.003*	0.0334	9.61E-03	0.10%	9.13	91.35%	Insignificant	0.0330	0.00950	0.09%	9.13	91.34%	Insignificant	-1.16E-04
Crouch and Roach Estuaries SSSI	Woodland	10	9.125	*0.003*	0.0334	9.61E-03	0.10%	9.13	91.35%	Insignificant	0.0330	0.00950	0.09%	9.13	91.34%	Insignificant	-1.16E-04
ESSEX ESTUARIES SAC	Woodland	5	9.352	*0.003*	0.0347	9.99E-03	0.20%	9.36	187.24%	Insignificant	0.0336	0.00967	0.19%	9.36	187.23%	Insignificant	-3.19E-04
Garrold's Meadow SSSI	Grassland	10	10.586	*0.0015*	0.0260	3.74E-03	0.04%	10.59	105.90%	Insignificant	0.0261	0.00376	0.04%	10.59	105.90%	Insignificant	1.64E-05
Great Crabbles Wood SSSI	Woodland	15	10.342	*0.003*	0.0067	1.93E-03	0.01%	10.34	68.96%	Insignificant	0.0067	0.00193	0.01%	10.34	68.96%	Insignificant	5.34E-06
Great Wood & Dodd's Grove SSSI	Woodland	15	10.636	*0.003*	0.0293	8.42E-03	0.06%	10.64	70.96%	Insignificant	0.0293	0.00843	0.06%	10.64	70.96%	Insignificant	8.86E-06
Hanningfield Reservoir SSSI	Woodland	10	9.901	*0.003*	0.0086	2.48E-03	0.02%	9.90	99.03%	Insignificant	0.0085	0.00243	0.02%	9.90	99.03%	Insignificant	-4.64E-05
Hockley Woods SSSI	Woodland	15	10.434	*0.003*	0.0196	5.64E-03	0.04%	10.44	69.60%	Insignificant	0.0198	0.00569	0.04%	10.44	69.60%	Insignificant	4.34E-05
Holehaven Creek SSSI	Woodland	10	9.787	*0.003*	0.1435	4.13E-02	0.41%	9.83	98.28%	Insignificant	0.1339	0.03852	0.39%	9.83	98.26%	Insignificant	-2.78E-03
Langdon Ridge SSSI	Woodland	10	10.271	*0.003*	0.0162	4.65E-03	0.05%	10.28	102.76%	Insignificant	0.0161	0.00463	0.05%	10.28	102.76%	Insignificant	-2.67E-05
MEDWAY ESTUARY & MARSHES SPA	Grassland	5	11.163	*0.0015*	0.0263	3.78E-03	0.08%	11.17	223.34%	Insignificant	0.0071	0.00102	0.02%	11.16	223.28%	Insignificant	-2.76E-03
Medway Estuary and Marshes SSSI	Grassland	5	11.163	*0.0015*	0.0263	3.78E-03	0.08%	11.17	223.34%	Insignificant	0.0071	0.00102	0.02%	11.16	223.28%	Insignificant	-2.76E-03
Mill Meadows Billericay SSSI	Grassland	10	9.431	*0.0015*	0.0037	5.31E-04	0.01%	9.43	94.32%	Insignificant	0.0037	0.00053	0.01%	9.43	94.32%	Insignificant	3.47E-06
Mucking Flats and Marshes SSSI	Grassland	10	9.616	*0.0015*	0.0281	4.04E-03	0.04%	9.62	96.20%	Insignificant	0.0275	0.00396	0.04%	9.62	96.20%	Insignificant	-8.27E-05
Norsey Wood SSSI	Woodland	15	9.321	*0.003*	0.0035	1.01E-03	0.01%	9.32	62.15%	Insignificant	0.0036	0.00103	0.01%	9.32	62.15%	Insignificant	1.58E-05
Pitsea Marsh SSSI	Grassland	15	9.295	*0.0015*	0.1046	1.50E-02	0.10%	9.31	62.07%	Insignificant	0.0811	0.01167	0.08%	9.31	62.04%	Insignificant	-3.38E-03
Shorne and Ashenbank Woods SSSI	Woodland	15	11.317	*0.003*	0.0064	1.85E-03	0.01%	11.32	75.46%	Insignificant	0.0064	0.00185	0.01%	11.32	75.46%	Insignificant	1.84E-06
South Thames Estuary and Marshes SSSI	Grassland	5	9.877	*0.0015*	0.1199	1.72E-02	0.34%	9.89	197.88%	Insignificant	0.1132	0.01629	0.33%	9.89	197.87%	Insignificant	-9.60E-04
THAMES ESTUARY & MARSHES SPA	Grassland	5	9.699	*0.0015*	0.0404	5.80E-03	0.12%	9.70	194.10%	Insignificant	0.0383	0.00550	0.11%	9.70	194.09%	Insignificant	-3.02E-04
Thorndon Park SSSI	Grassland	15	10.467	*0.0015*	0.0034	4.83E-04	0.00%	10.47	69.78%	Insignificant	0.0033	0.00048	0.00%	10.47	69.78%	Insignificant	-2.72E-06
Thundersley Great Common SSSI	Grassland	5	9.613	*0.0015*	0.0252	3.62E-03	0.07%	9.62	192.33%	Insignificant	0.0252	0.00363	0.07%	9.62	192.33%	Insignificant	1.18E-05
Tower Hill to Cockham Wood SSSI	Woodland	15	10.457	*0.003*	0.0066	1.90E-03	0.01%	10.46	69.73%	Insignificant	0.0065	0.00188	0.01%	10.46	69.73%	Insignificant	-1.74E-05
Benfleet and Southend Marshes RAMSAR	Grassland	10	11.661	*0.0015*	0.0446	6.42E-03	0.06%	11.67	116.67%	Insignificant	0.0439	0.00631	0.06%	11.67	116.67%	Insignificant	-1.06E-04
THAMES ESTUARY & MARSHES RAMSAR	Grassland	5	9.699	*0.0015*	0.1199	1.72E-02	0.34%	9.72	194.32%	Insignificant	0.1132	0.01629	0.33%	9.72	194.31%	Insignificant	-9.60E-04

Modelled Nutrient Nitrogen Deposition (kgN/ha/yr) - All Sources

Habitat name	Type	Minimum CL	Background	NO2 deposition velocity	Base - NO2 annual PC ($\mu g/m^3$)	Base Deposition as PC	Base Deposition PC as % of CL	Base Deposition as PEC	Base Deposition PEC as % of CL	Significance	Future - NO2 annual PC ($\mu g/m^3$)	Future Deposition as PC	Future Deposition PC as % of CL	Future Deposition as PEC	Future Deposition PEC as % of CL	Significance	Delta
BENFLEET AND SOUTHEND MARSHES SPA	Grassland	10	11.661	*0.0015*	0.0596	8.57E-03	0.09%	11.67	116.70%	Insignificant	0.0577	0.00830	0.08%	11.67	116.69%	Insignificant	4.95E-04
Benfleet and Southend Marshes SSSI	Grassland	10	11.661	*0.0015*	0.0597	8.59E-03	0.09%	11.67	116.70%	Insignificant	0.0578	0.00832	0.08%	11.67	116.69%	Insignificant	4.97E-04
Chattenden Woods and Lodge Hill SSSI	Woodland	10	9.316	*0.003*	0.0124	3.58E-03	0.04%	9.32	93.20%	Insignificant	0.0124	0.00356	0.04%	9.32	93.20%	Insignificant	4.43E-05
Cobham Woods SSSI	Woodland	15	11.4	*0.003*	0.0124	3.56E-03	0.02%	11.40	76.02%	Insignificant	0.0080	0.00229	0.02%	11.40	76.02%	Insignificant	2.83E-05
CROUCH & ROACH ESTUARIES (MID-ESSEX (	Woodland	10	9.125	*0.003*	0.0423	1.22E-02	0.12%	9.14	91.37%	Insignificant	0.0419	0.01205	0.12%	9.14	91.37%	Insignificant	5.10E-04
Crouch and Roach Estuaries SSSI	Woodland	10	9.125	*0.003*	0.0423	1.22E-02	0.12%	9.14	91.37%	Insignificant	0.0419	0.01205	0.12%	9.14	91.37%	Insignificant	5.10E-04
ESSEX ESTUARIES SAC	Woodland	5	9.352	*0.003*	0.0442	1.27E-02	0.25%	9.36	187.29%	Insignificant	0.0429	0.01233	0.25%	9.36	187.29%	Insignificant	5.45E-04
Garrold's Meadow SSSI	Grassland	10	10.586	*0.0015*	0.0323	4.65E-03	0.05%	10.59	105.91%	Insignificant	0.0325	0.00468	0.05%	10.59	105.91%	Insignificant	1.51E-04
Great Crabbles Wood SSSI	Woodland	15	10.342	*0.003*	0.0087	2.51E-03	0.02%	10.34	68.96%	Insignificant	0.0088	0.00252	0.02%	10.34	68.96%	Insignificant	2.20E-05
Great Wood & Dodd's Grove SSSI	Woodland	15	10.636	*0.003*	0.0366	1.05E-02	0.07%	10.65	70.98%	Insignificant	0.0367	0.01057	0.07%	10.65	70.98%	Insignificant	3.87E-04
Hanningfield Reservoir SSSI	Woodland	10	9.901	*0.003*	0.0115	3.30E-03	0.03%	9.90	99.04%	Insignificant	0.0114	0.00327	0.03%	9.90	99.04%	Insignificant	3.74E-05
Hockley Woods SSSI	Woodland	15	10.434	*0.003*	0.0240	6.91E-03	0.05%	10.44	69.61%	Insignificant	0.0242	0.00697	0.05%	10.44	69.61%	Insignificant	1.67E-04
Holehaven Creek SSSI	Woodland	10	9.787	*0.003*	0.2669	7.68E-02	0.77%	9.86	98.64%	Insignificant	0.2596	0.07468	0.75%	9.86	98.62%	Insignificant	1.99E-02
Langdon Ridge SSSI	Woodland	10	10.271	*0.003*	0.0205	5.90E-03	0.06%	10.28	102.77%	Insignificant	0.0204	0.00586	0.06%	10.28	102.77%	Insignificant	1.20E-04
MEDWAY ESTUARY & MARSHES SPA	Grassland	5	11.163	*0.0015*	0.0328	4.71E-03	0.09%	11.17	223.35%	Insignificant	0.0100	0.00144	0.03%	11.16	223.29%	Insignificant	4.71E-05
Medway Estuary and Marshes SSSI	Grassland	5	11.163	*0.0015*	0.0328	4.71E-03	0.09%	11.17	223.35%	Insignificant	0.0101	0.00145	0.03%	11.16	223.29%	Insignificant	4.75E-05
Mill Meadows Billericay SSSI	Grassland	10	9.431	*0.0015*	0.0048	6.87E-04	0.01%	9.43	94.32%	Insignificant	0.0048	0.00069	0.01%	9.43	94.32%	Insignificant	3.30E-06
Mucking Flats and Marshes SSSI	Grassland	10	9.616	*0.0015*	0.0488	7.03E-03	0.07%	9.62	96.23%	Insignificant	0.0472	0.00679	0.07%	9.62	96.23%	Insignificant	3.31E-04
Norsey Wood SSSI	Woodland	15	9.321	*0.003*	0.0045	1.30E-03	0.01%	9.32	62.15%	Insignificant	0.0046	0.00132	0.01%	9.32	62.15%	Insignificant	5.96E-06
Pitsea Marsh SSSI	Grassland	15	9.295	*0.0015*	0.1694	2.44E-02	0.16%	9.32	62.13%	Insignificant	0.1430	0.02058	0.14%	9.32	62.10%	Insignificant	3.49E-03
Shorne and Ashenbank Woods SSSI	Woodland	15	11.317	*0.003*	0.0082	2.37E-03	0.02%	11.32	75.46%	Insignificant	0.0083	0.00238	0.02%	11.32	75.46%	Insignificant	1.96E-05
South Thames Estuary and Marshes SSSI	Grassland	5	9.877	*0.0015*	0.1973	2.84E-02	0.57%	9.91	198.11%	Insignificant	0.1876	0.02699	0.54%	9.90	198.08%	Insignificant	5.32E-03
THAMES ESTUARY & MARSHES SPA	Grassland	5	9.699	*0.0015*	0.0615	8.84E-03	0.18%	9.71	194.16%	Insignificant	0.0594	0.00854	0.17%	9.71	194.15%	Insignificant	5.25E-04
Thorndon Park SSSI	Grassland	15	10.467	*0.0015*	0.0043	6.19E-04	0.00%	10.47	69.78%	Insignificant	0.0043	0.00062	0.00%	10.47	69.78%	Insignificant	2.66E-06
Thundersley Great Common SSSI	Grassland	5	9.613	*0.0015*	0.0304	4.37E-03	0.09%	9.62	192.35%	Insignificant	0.0306	0.00440	0.09%	9.62	192.35%	Insignificant	1.34E-04
Tower Hill to Cockham Wood SSSI	Woodland	15	10.457	*0.003*	0.0096	2.77E-03	0.02%	10.46	69.73%	Insignificant	0.0096	0.00277	0.02%	10.46	69.73%	Insignificant	2.67E-05
Benfleet and Southend Marshes RAMSAR	Grassland	10	11.661	*0.0015*	0.0584	8.40E-03	0.08%	11.67	116.69%	Insignificant	0.0577	0.00830	0.08%	11.67	116.69%	Insignificant	4.85E-04
THAMES ESTUARY & MARSHES RAMSAR	Grassland	5	9.699	*0.0015*	0.1973	2.84E-02	0.57%	9.73	194.55%	Insignificant	0.1876	0.02699	0.54%	9.73	194.52%	Insignificant	5.32E-03

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ERM's London Office
2nd Floor Exchequer Court
33 St Mary Axe
London, EC3A 8AA

T: +44 20 3206 5200
F: +44 20 3206 5440

www.erm.com