RiverOak Strategic Partners

Ecology Noise Contour Maps

TR020002/D4/ENCM

Examination Document

Project Name:	Manston Airport Development Consent Order
Application Ref:	TR020002
Submission Deadline:	**4**
Date:	8 March 2019

Manston Airport DCO application:
Note Accompanying Noise Contour Plots

1. Introduction

As part of the Development Consent Order (DCO) process for Manston Airport, RiverOak (the applicant) has had discussions with Natural England to agree a Statement of Common Ground (SoCG). The SoCG prepared for Deadline 3 (15/2/19), indicated that Natural England had requested '*Noise contour maps (showing the contours at 5dB intervals, and for both L_{Amax} and L_{Aeg}) superimposed onto the designated sites*'.

The contour plots have been prepared. This note accompanies these providing supporting information in respect of:

- The mix of aircraft types and their relative noisiness;
- Assumptions made in respect of take offs and landings.

2. Summary of Findings

The assessment of effects of aircraft noise on birds presented in the Environmental Statement and Report to Inform Appropriate Assessment considered that a 70dB noise threshold was appropriate and sufficiently precautionary. The contour plots provided here are not intended to suggest that the assessment requires amendment but are intended to provide Natural England with information requested.

Additionally, it is clear from the information provided below that overall numbers of flights will be relatively infrequent during any one day, that the loudest planes make up a relatively small proportion of the forecast fleet and that that only certain flight directions will occur on any one day.

3. Noise Contours Plots Produced

Appendix 3.3 of the Environmental Statement presented the Aircraft Forecast, which included a number of aircraft types being used by 2039 including Boeing 747-400, Boeing 747-800, Boeing 777-200, Boeing 737-800, Airbus 330-200 etc.

Different plane types create different levels of noise. Therefore noise contour plots have been prepared for three types of plane; one considered to be one of the loudest (a Boeing 747-400), one (a Boeing 737-800) considered to be mid-range in respect of noise levels created, and one (an ATR72) considered to be one of the least noisy planes types to be operated from Manston.

The contour plots have been drawn individually for clarity, to demonstrate the differences between representative plane types, and enable analysis of the different effects of different flight paths, as some will occur more frequently than others (see Section 3).

A summary of the figures that have been prepared is presented in Table 3.1.

Table 3.1 Aircraft Noise Contour Plots Provided to Natural England

Figure Reference	Plane Type	Contours for?
40820-Lon20	-	Aircraft noise – L_{Aeq8h} (night)
40820-Lon21	-	Aircraft noise – L_{Aeq16h} (day)
40820-Lon22	747-400	Arriving from the east
40820-Lon23	747-400	Arriving from the west
40820-Lon24	747-400	Departing to the east
40820-Lon25	747-400	Departing to the west (turning north)
40820-Lon37	747-400	Departing to the west (turning south)
40820-Lon26	737-800	Arriving from the east
40820-Lon27	737-800	Arriving from the west
40820-Lon28	737-800	Departing to the east
40820-Lon29	737-800	Departing to the west (turning north)
40820-Lon38	737-800	Departing to the west (turning north)
40820-Lon32	ATR72	Arriving from the east
40820-Lon33	ATR72	Arriving from the west
40820-Lon34	ATR72	Departing to the east
40820-Lon35	ATR72	Departing to the west (turning north)
40820-Lon36	ATR72	Departing to the west (turning north)

4. Frequencies of Occurrence of the Noise Contours

To provide an indication of the frequency of occurrence of particular noise contour types, the range of aircraft forecast to be in service in 2039 (Year 20, the busiest year forecast) have been allocated into one of 3 relative noise bands as follows:

- Quieter – ATR72, Fokker 70;
- Mid-range – Boeing 737-800, Boeing 757-200, Boeing 757-300, Airbus A320, Airbus A330-200; and
- Louder – Boeing 747-400, Boeing 747-800, Boeing 767-300, Boeing 767-400, Boeing 777-200.

There are forecast to be a total of 26,469 aircraft movements[1] in 2039, with the following approximate mix of aircraft:

[1] An aircraft movement equates to an arrival or a departure.

- Less noisy – 5,766 per annum, or 16 aircraft movements per average annual day;
- Mid-range – 14,746 per annum, or 40 aircraft movements per average annual day;
- More noisy – 5,764 per annum, or 16 aircraft movements per average annual day.

The assessment of airport operation has assumed the following key points:

- Due to the prevailing wind conditions, 70% of flights will land from the east and take off to the west. The implication is that on average 255 days per annum have flights that arrive from the east and depart towards the west.
- Approximately 50% of aircraft taking off towards the west will turn north over the coast whilst the other 50% will turn south (both illustrated in the contour plots).

Based on these key points and the forecast aircraft fleet (in respect of noise generated), Table 4.1 presents the frequency of total occurrences per year. Tables 4.2 and 4.3 illustrate the number of flights per day (7am-11pm) when the prevailing wind is from the west, or from the east respectively.

Table 4.1 Annual Aircraft Movements by Flight Direction

Noise category	Annual movements	Arrive from east	Arrive from west	Depart to west (north)	Depart to west (south)	Depart to east
Less noisy	5766	2018	865	1009	1009	865
Mid range	14939	5229	2241	2614	2614	2241
More noisy	5720	2017	864	1009	1009	864

Table 4.2 Daily Aircraft flights – prevailing wind from the west (approx. 255 days per year)

Noise category	Daily movement	Arrive from east	Arrive from west	Depart to west (north)	Depart to west (south)	Depart to east
Less noisy	16	8	0	4	4	0
Mid range	41	21	0	10	10	0
More noisy	16	8	0	4	4	0

Note: Flight numbers rounded

Table 4.3 Daily Aircraft flights – prevailing wind from the east (approx. 110 days per year)

Noise category	Daily movement	Arrive from east	Arrive from west	Depart to west (north)	Depart to west (south)	Depart to east
Less noisy	16	0	8	0	0	8
Mid range	41	0	21	0	0	21
More noisy	16	0	8	0	0	8

Note: Flight numbers rounded

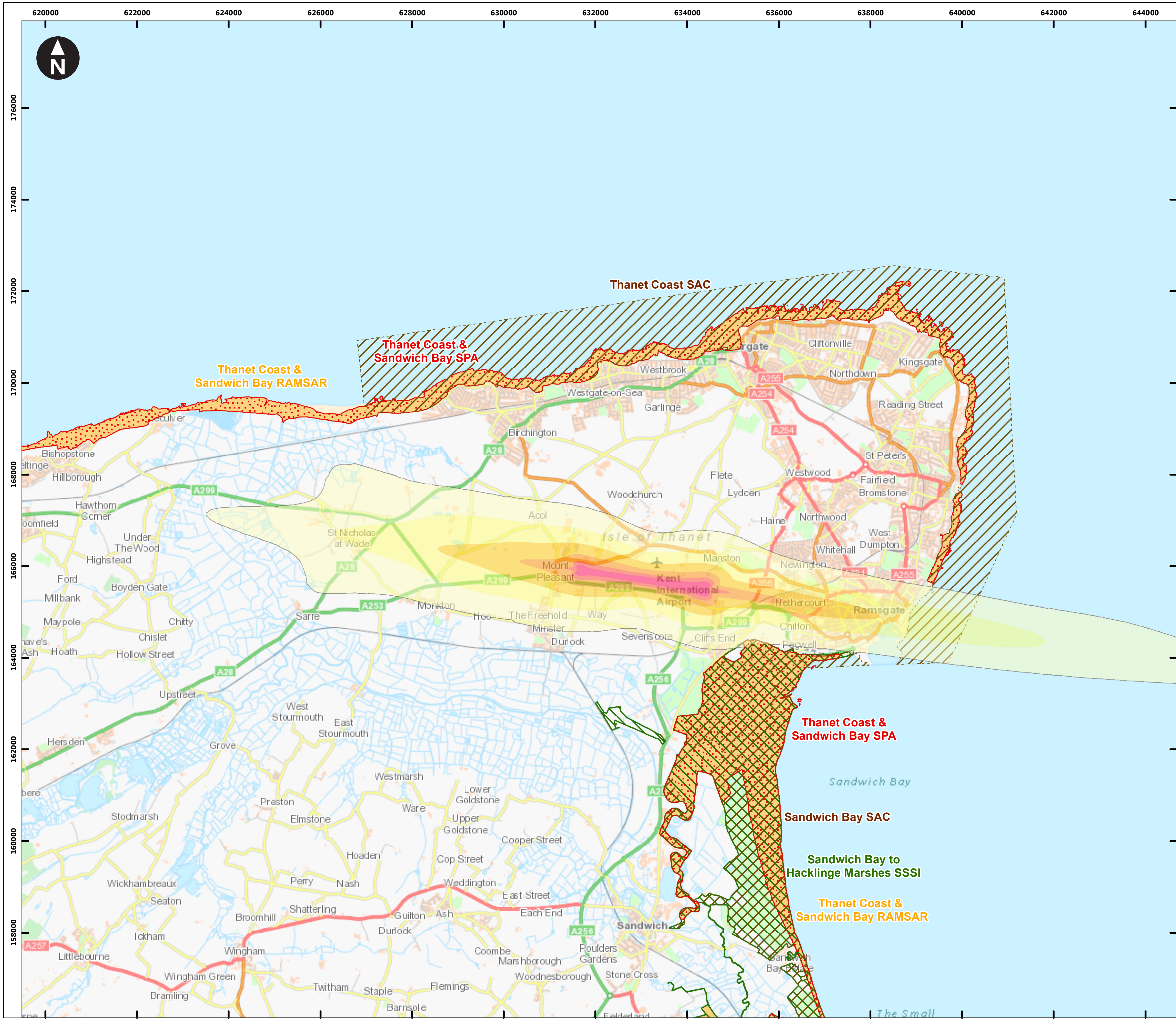
Issued by	Approved by
.....	.....
Andy Brooks	**Mark Linsley**

Copyright and non-disclosure notice

Third party disclaimer

Management systems

This document has been produced by Wood Environment & Infrastructure Solutions UK Limited in full compliance with the management systems, which have been certified to ISO 9001, ISO 14001 and OHSAS 18001 by LRQA.



Key

- SSSI
- SAC
- SPA
- RAMSAR

LAeq8h (dB)

- 40 - 45
- 45 - 50
- 50 - 55
- 55 - 60
- 60 - 65
- 65 - 70

Client

RSP

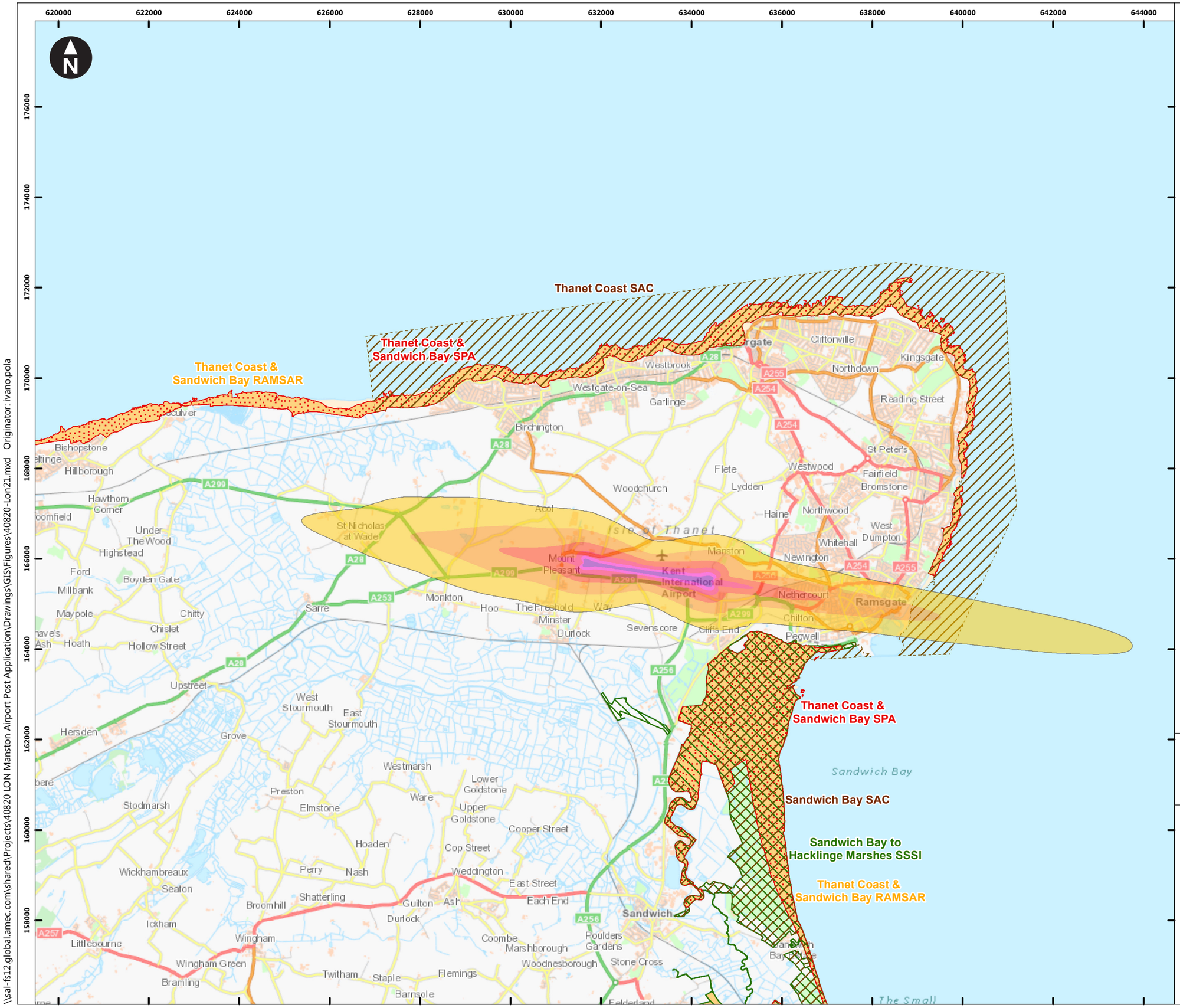
Manston Airport DCO
Environmental Statement

Y20 Aircraft Air Noise - LAeq,8hr (night) - excluding GA

March 2019

wood.

\\sal-fs12.global.amec.com\shared\Projects\40820 LON Manston Airport Post Application\Drawings\GIS\Figures\40820-Lon20.mxd Originator: ivano.pola



Key

- SSSI
- SAC
- SPA
- RAMSAR

LAeq16h (dB)

- 50 - 55
- 55 - 60
- 60 - 65
- 65 - 70
- 70 - 75
- > 75

0 1,000 2,000 3,000 4,000 m

Scale at A3: 1:80,000

Client

RSP

Manston Airport DCO
Environmental Statement

Y20 Aircraft Air Noise - LAeq,16hr (daytime) - excluding GA

March 2019

wood.

\\sal-fs12.global.amec.com\shared\Projects\40820 LON Manston Airport Post Application\Drawings\GIS\Figures\40820-Lon21.mxd Originator: ivano.pola

620000 622000 624000 626000 628000 630000 632000 634000 636000 638000 640000 642000 644000

176000 174000 172000 170000 168000 166000 164000 162000 160000 158000

N

Thanet Coast SAC

Thanet Coast & Sandwich Bay RAMSAR

Thanet Coast & Sandwich Bay SPA

Sandwich Bay SAC

Thanet Coast & Sandwich Bay SPA

Thanet Coast & Sandwich Bay RAMSAR

Sandwich Bay to Hacklinge Marshes SSSI

Isle of Thanet

Sandwich Bay

Kent International Airport

Ramsgate

Sandwich

Westgate-on-Sea

Birchington

Garlinge

Cliftonville

Kingsgate

Northdown

Reading Street

Westbrook

Margate

Westwood

St Peter's

Fairfield

Bromstone

Flete

Lydden

Woodchurch

Acol

Haine

Northwood

West Dumpton

Whitehall

Manston

Newington

Mount Pleasant

Minster

Durlock

Monkton

Hoo

The Freehold

Way

Sevenscore

Cliffs End

Nethercourt

Chilton

Pegwell

Poulders Gardens

Stone Cross

Woodnesborough

Coombe

Marshborough

Ash

Guilton

Shatterling

Broomhill

Wingham

Littlebourne

Wingham Green

Bramling

Twitham

Staple

Barnsole

Flemings

Felderland

Ickham

Wickhambreaux

Seaton

Stodmarsh

Preston

Elmstone

Ware

Westmarsh

Lower Goldstone

Upper Goldstone

Cooper Street

Cop Street

Weddington

East Street

Each End

Hoaden

Perry

Nash

Grove

Hersden

Upstreet

West Stourmouth

East Stourmouth

Sarre

Chislet

Chitty

Maypole

Hollow Street

Hoath

Ford

Boyden Gate

Millbank

Highstead

Under The Wood

Hawthorn Corner

Hillborough

Bishopstone

Sculver

St Nicholas at Wade

A28 A299 A253 A256 A255 A254 A257

55 60 65 70 75 80

Key

SSSI

SAC

SPA

RAMSAR

LAmax (dB)

55

60

65

70

75

80

0 1,000 2,000 3,000 4,000 m

Scale at A3: 1:80,000

Client

RSP

Manston Airport DCO
Environmental Statement

Aircraft noise - Boeing 747-400 - Arriving from the east

March 2019

wood.

\\sal-fs12.global.amec.com\shared\Projects\40820 LON Manston Airport Post Application\Drawings\GIS\Figures\40820-Lon22.mxd Originator: ivano.pola

\\sal-fs12.global.amec.com\shared\Projects\40820 LON Manston Airport Post Application\Drawings\GIS\Figures\40820-Lon23.mxd Originator: ivano.pola

614000 616000 618000 620000 622000 624000 626000 628000 630000 632000 634000 636000

176000 174000 172000 170000 168000 166000 164000 162000 160000 158000

N

Thanet Coast SAC

Thanet Coast & Sandwich Bay RAMSAR

Thanet Coast & Sandwich Bay SPA

Sandwich Bay to Hacklinge Marshes SSSI

Sandwich Bay SAC

Thanet Coast & Sandwich Bay SPA

Thanet Coast & Sandwich Bay RAMSAR

Herne Bay
Reculver
Bishopstone
Beltinge
Hillborough
Hampton
Studd Hill
Greenhill
Eddington
Swalecliffe
Hunters Forstal
Broomfield
Hawthorn Corner
Under The Wood
Highstead
St Nicholas at Wade
Chestfield
West End
Bullockstone
Herne
Ford
Boyden Gate
Millbank
Herne Common
Maypole
Chitty
Chislet
Knave's Ash
Hoath
Hollow Street
Radfall
Hicks Forstal
Upstreet
Calcott
Hersden
Broad Oak
Tyler Hill
Westbere
Sturry
Fordwich
Stodmarsh
Hales Place
Common
St Stephen's
St Dunstan's
Northgate
Canterbury
Scotland Hills
Wickhambreaux
Seaton
Ickham
Littlebourne
Thanington
Bekesbourne
Wingham
Wingham Green
Bramling
Broomhill
Shatterling
Guilton
Ash
Durlock
Preston
Elmstone
Perry
Nash
Hoaden
Cop Street
Weddington
East Street
Each End
Ware
Upper Goldstone
Lower Goldstone
Cooper Street
Westmarsh
West Stourmouth
East Stourmouth
Grove
Twitham
Staple
Flemings
Barnsole
Coombe
Marshborough
Woodnesborough
Poulders Gardens
Stone Cross
Sandwich
Felderland
Sandwich Bay Estate
Isle of Thanet
Acol
Woodchurch
Mount Pleasant
Monkton
Hoo
The Freehold
Minster
Durlock
Sarre
Ken International Airport
Way
Sevenscore
Cliffs End
Manston
Haine
Flete
Lydden
Westwood
Northwood
Whitehall
Newington
Nethercourt
Chilton
Pegwell
Cliftonville
Westbrook
Westgate-on-Sea
Garlinge
Birchington
A28 A299 A2990 A291 A257 A2050 A2 A256 A255 A254 A20 A253 A299

70 75 55 60 65

Key

- SSSI
- SAC
- SPA
- RAMSAR

LAmax (dB)

- 55
- 60
- 65
- 70
- 75
- 80

0 1,000 2,000 3,000 4,000 m

Scale at A3: 1:80,000

Client

RSP

Manston Airport DCO
Environmental Statement

Aircraft noise - Boeing 747-400 - Arriving from the west

March 2019

wood.

620000 622000 624000 626000 628000 630000 632000 634000 636000 638000 640000 642000 644000

176000 174000 172000 170000 168000 166000 164000 162000 160000 158000

N

Thanet Coast SAC

Thanet Coast & Sandwich Bay RAMSAR

Thanet Coast & Sandwich Bay SPA

Sandwich Bay SAC

Thanet Coast & Sandwich Bay SPA

Thanet Coast & Sandwich Bay RAMSAR

Sandwich Bay to Hacklinge Marshes SSSI

Isle of Thanet

Kent International Airport

Sandwich Bay

The Small

Westgate-on-Sea
Garlinge
Birchington
Westbrook
Cliftonville
Kingsgate
Northdown
Reading Street
St Peter's
Westwood
Fairfield
Bromstone
Flete
Woodchurch
Lydden
Acol
Minster
Monkton
Hoo
The Freehold
Minster
Durlock
Severnscore
Cliffs End
Ramsgate
Nethercourt
Chilton
Pegwell
Manston
Haine
Northwood
West Dumpton
Whitehall
Newington
Sarre
St Nicholas at Wade
Bishopstone
Hillborough
Hawthorn Corner
Under The Wood
Highstead
Ford
Boyden Gate
Millbank
Maypole
Chitty
Chislet
Hollow Street
Hoath
Upstreet
West Stourmouth
East Stourmouth
Hersden
Grove
Westmarsh
Lower Goldstone
Preston
Ware
Upper Goldstone
Elmstone
Stodmarsh
Cooper Street
Hoaden
Cop Street
Perry
Nash
Weddington
East Street
Wickhambreaux
Seaton
Shatterling
Broomhill
Guilton
Ash
Each End
Durlock
Sandwich
Ickham
Littlebourne
Wingham
Coombe
Marshborough
Poulders Gardens
Woodnesborough
Stone Cross
Wingham Green
Bramling
Twitham
Staple
Flemings
Barnsole
Felderland

55 60 65 70 75 80

A28 A299 A253 A256 A255 A254 A257

Key

SSSI
SAC
SPA
RAMSAR

LAmax (dB)

55
60
65
70
75
80

0 1,000 2,000 3,000 4,000 m

Scale at A3: 1:80,000

Client

RSP

Manston Airport DCO
Environmental Statement

Aircraft noise - Boeing 747-400 - Departing to the east

March 2019

wood.

\\sal-fs12.global.amec.com\shared\Projects\40820 LON Manston Airport Post Application\Drawings\GIS\Figures\40820-Lon24.mxd Originator: ivano.pola

620000 622000 624000 626000 628000 630000 632000 634000 636000 638000 640000 642000 644000

176000 174000 172000 170000 168000 166000 164000 162000 160000 158000

N

Thanet Coast SAC

Thanet Coast & Sandwich Bay RAMSAR

Thanet Coast & Sandwich Bay SPA

Sandwich Bay SAC

Thanet Coast & Sandwich Bay SPA

Thanet Coast & Sandwich Bay RAMSAR

Sandwich Bay to Hacklinge Marshes SSSI

Isle of Thanet

Sandwich Bay

Kent International Airport

Ramsgate

Sandwich

Westgate-on-Sea

Margate

Cliftonville

Kingsgate

Northdown

Reading Street

Westbrook

Garlinge

Birchington

Bishopstone

Hillborough

Hawthorn Corner

Under The Wood

Highstead

Ford

Boyden Gate

Millbank

Maypole

Chitty

Chislet

Hollow Street

Hoath

Upstreet

Hersden

Grove

West Stourmouth

East Stourmouth

Westmarsh

Preston

Elmstone

Stodmarsh

Ware

Lower Goldstone

Upper Goldstone

Cooper Street

Hoaden

Cop Street

Wickhambreaux

Seaton

Perry

Nash

Weddington

East Street

Each End

Shatterling

Broomhill

Guilton

Ash

Durlock

Ickham

Littlebourne

Wingham

Wingham Green

Bramling

Twitham

Staple

Flemings

Barnsole

Coombe

Marshborough

Woodnesborough

Poulders Gardens

Stone Cross

Sandwich Bay Estate

Felderland

Acol

St Nicholas at Wade

Sarre

Monkton

Hoo

The Freehold

Minster

Durlock

Mount Pleasant

Monkton Way

Sevenscore

Cliffs End

Manston

Newington

Whitehall

West Dumpton

Haine

Northwood

Nethercourt

Chilton

Pegwell

Flete

Woodchurch

Lydden

Westwood

St Peter's

Fairfield

Bromstone

Reading Street

A28 A299 A256 A255 A254 A257

75 80 70 65 60 55

Key

SSSI

SAC

SPA

RAMSAR

LAmax (dB)

55

60

65

70

75

80

0 1,000 2,000 3,000 4,000 m

Scale at A3: 1:80,000

Client

RSP

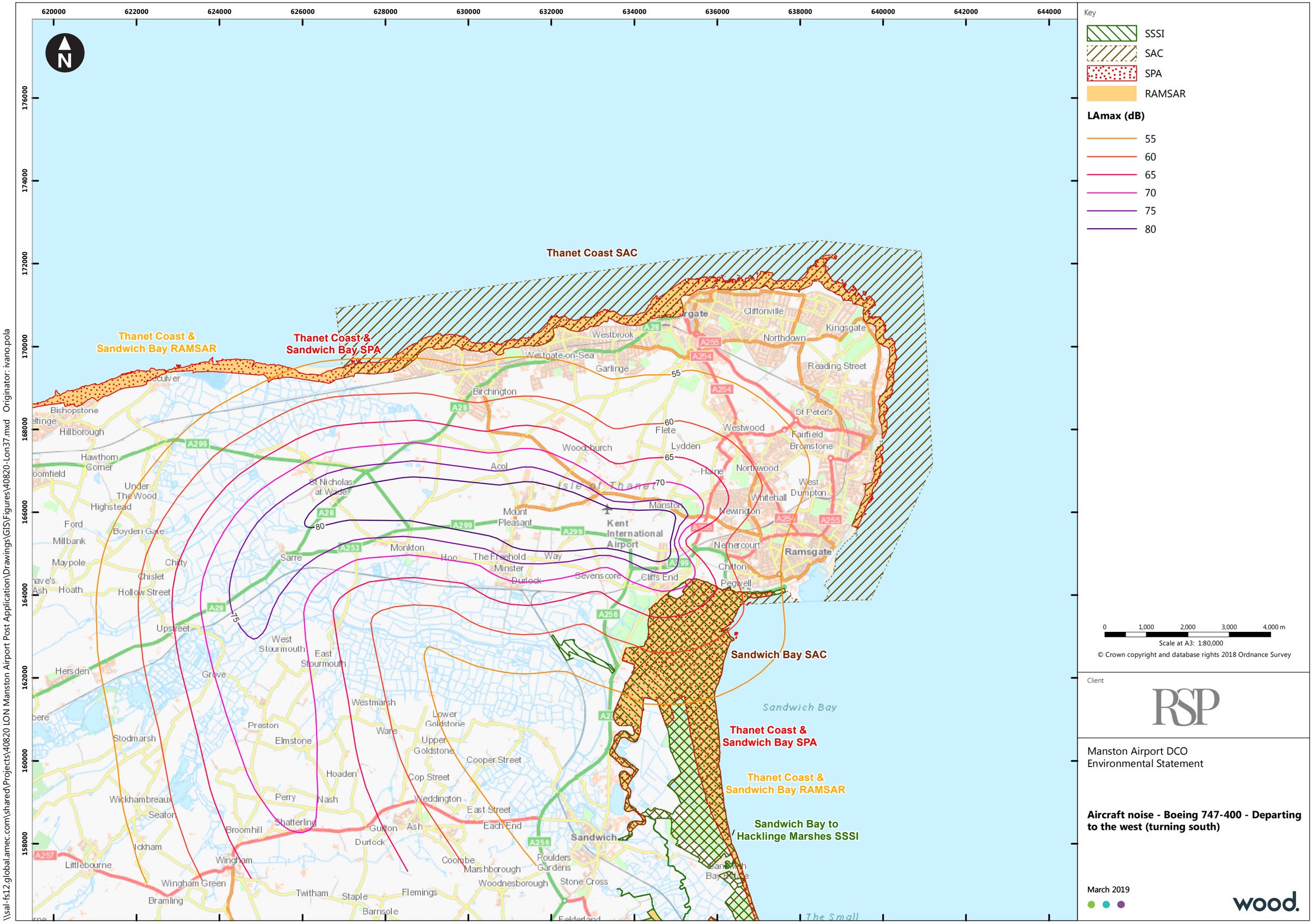
Manston Airport DCO
Environmental Statement

Aircraft noise - Boeing 747-400 - Departing to the west (turning north)

March 2019

wood.

\\sal-fs12.global.amec.com\shared\Projects\40820 LON Manston Airport Post Application\Drawings\GIS\Figures\40820-Lon25.mxd Originator: ivano.pola



\\sal-fs12.global.amec.com\shared\Projects\40820 LON Manston Airport Post Application\Drawings\GIS\Figures\40820-Lon37.mxd Originator: ivano.pola

620000 622000 624000 626000 628000 630000 632000 634000 636000 638000 640000 642000 644000

176000 174000 172000 170000 168000 166000 164000 162000 160000 158000

N

Thanet Coast SAC

Thanet Coast & Sandwich Bay RAMSAR

Thanet Coast & Sandwich Bay SPA

Sandwich Bay SAC

Thanet Coast & Sandwich Bay SPA

Thanet Coast & Sandwich Bay RAMSAR

Sandwich Bay to Hacklinge Marshes SSSI

Isle of Thanet

Sandwich Bay

The Small

Westgate-on-Sea
Garlinge
Birchington
Westbrook
Cliftonville
Kingsgate
Northdown
Reading Street
Margate
Ramsgate
Broadstairs
Westwood
St Peter's
Fairfield
Bromstone
Flete
Lydden
Woodchurch
Acol
Haine
Northwood
West Dumpton
Whitehall
Manston
Newington
Mount Pleasant
Kent International Airport
Nethercourt
Chilton
Cliffs End
Pegwell
Monkton
Hoo
The Freehold
Minster
Durlock
Sevenscore
Way
Sarre
St Nicholas at Wade
Hawthorn Corner
Under The Wood
Highstead
Ford
Boyden Gate
Millbank
Maypole
Chitty
Chislet
Hollow Street
Hoath
Upstreet
West Stourmouth
East Stourmouth
Hersden
Grove
Westmarsh
Preston
Elmstone
Ware
Lower Goldstone
Upper Goldstone
Cooper Street
Hoaden
Cop Street
Stodmarsh
Wickhambreaux
Perry
Nash
Weddington
East Street
Each End
Seaton
Broomhill
Shatterling
Guilton
Ash
Durlock
Sandwich
Ickham
Littlebourne
Wingham
Coombe
Marshborough
Poulders Gardens
Woodnesborough
Stone Cross
Wingham Green
Bramling
Twitham
Staple
Flemings
Barnsole
Felderland
Bishopstone
Hillborough
Sculver

A28 A299 A253 A256 A254 A255 A257

55 60 65 70 75 80

Key

SSSI
SAC
SPA
RAMSAR

LAmax (dB)

55
60
65
70
75
80

0 1,000 2,000 3,000 4,000 m

Scale at A3: 1:80,000

Client

RSP

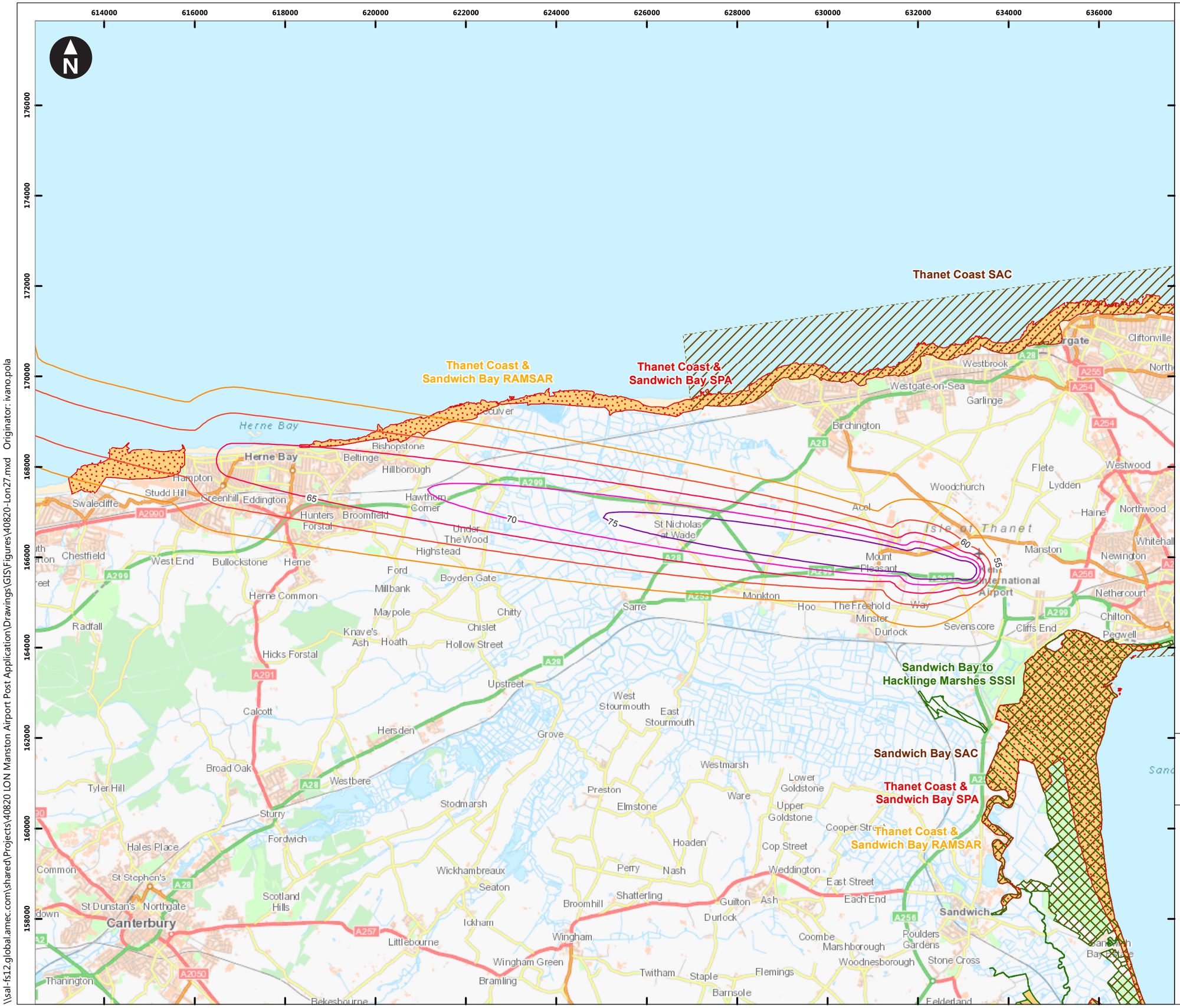
Manston Airport DCO
Environmental Statement

Aircraft noise - Boeing 737-800 - Arriving from the east

March 2019

wood.

\\sal-fs12.global.amec.com\shared\Projects\40820 LON Manston Airport Post Application\Drawings\GIS\Figures\40820-Lon26.mxd Originator: ivano.pola



Key

- SSSI
- SAC
- SPA
- RAMSAR

LAmax (dB)

- 55
- 60
- 65
- 70
- 75
- 80

0 1,000 2,000 3,000 4,000 m

Scale at A3: 1:80,000

Client

RSP

Manston Airport DCO
Environmental Statement

Aircraft noise - Boeing 737-800 - Arriving from the west

March 2019

wood.

\\sal-fs12.global.amec.com\shared\Projects\40820 LON Manston Airport Post Application\Drawings\GIS\Figures\40820-Lon27.mxd Originator: ivano.pola

620000 622000 624000 626000 628000 630000 632000 634000 636000 638000 640000 642000 644000

176000 174000 172000 170000 168000 166000 164000 162000 160000 158000

N

Thanet Coast SAC

Thanet Coast & Sandwich Bay RAMSAR

Thanet Coast & Sandwich Bay SPA

Sandwich Bay SAC

Thanet Coast & Sandwich Bay SPA

Thanet Coast & Sandwich Bay RAMSAR

Sandwich Bay to Hacklinge Marshes SSSI

Isle of Thanet

Kent International Airport

Sandwich Bay

The Small

Cliftonville
Kingsgate
Northdown
Westbrook
Westgate-on-Sea
Garlinge
Reading Street
Birchington
St Peter's
Flete
Westwood
Fairfield
Bromstone
Woodchurch
Lydden
Haine
Northwood
West Dumpton
Whitehall
Manston
Newington
Nethercourt
Ramsgate
Chilton
Cliffs End
Ringwell
Sevenscore
Minster
Monkton
Hoo
The Freehold
Way
Sarre
Acol
Bishopstone
Hillborough
Hawthorn Corner
Under The Wood
Highstead
St Nicholas at Wade
Ford
Boyden Gate
Millbank
Maypole
Chitty
Chislet
Hoath
Hollow Street
Upstreet
West Stourmouth
East Stourmouth
Hersden
Grove
Westmarsh
Lower Goldstone
Preston
Ware
Upper Goldstone
Stodmarsh
Elmstone
Cooper Street
Hoaden
Cop Street
Wickhambreaux
Perry
Nash
Weddington
East Street
Seaton
Shatterling
Broomhill
Guilton
Ash
Each End
Durlock
Ickham
Wingham
Littlebourne
Coombe
Marshborough
Poulders Gardens
Sandwich
Sandwich Bay Estate
Wingham Green
Woodnesborough
Stone Cross
Bramling
Twitham
Staple
Flemings
Barnsole
Felderland

55 60 65 70 75 80

A28 A299 A253 A257 A256 A254 A255 A2

Key

SSSI
SAC
SPA
RAMSAR

LAmax (dB)

55
60
65
70
75
80

0 1,000 2,000 3,000 4,000 m

Scale at A3: 1:80,000

Client

RSP

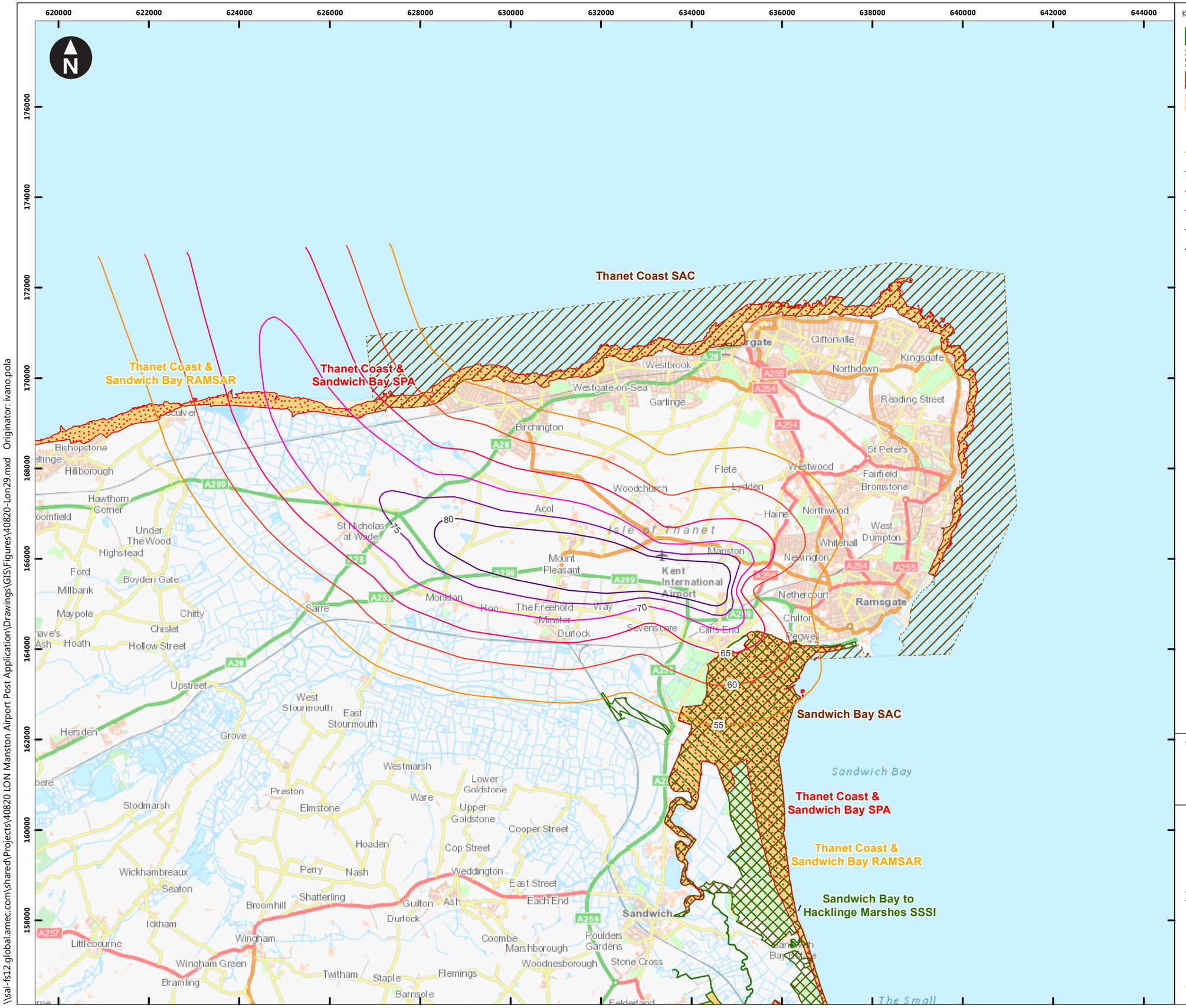
Manston Airport DCO
Environmental Statement

Aircraft noise - Boeing 737-800 - Departing to the east

March 2019

wood.

\\sal-fs12.global.amec.com\shared\Projects\40820 LON Manston Airport Post Application\Drawings\GIS\Figures\40820-Lon28.mxd Originator: ivano.pola



Key

- SSSI
- SAC
- SPA
- RAMSAR

LAmax (dB)

- 55
- 60
- 65
- 70
- 75
- 80

Client

RSP

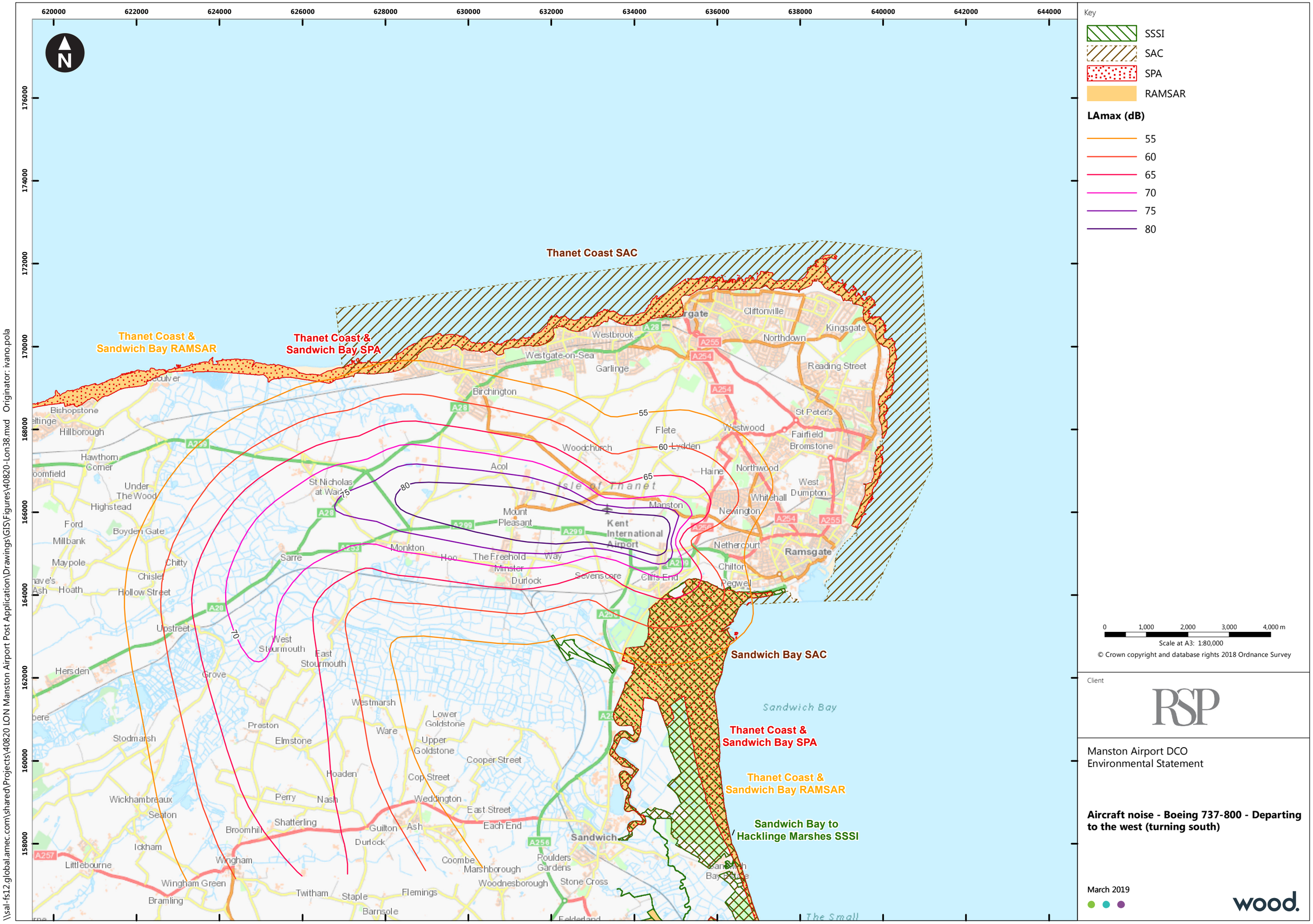
Manston Airport DCO
Environmental Statement

Aircraft noise - Boeing 737-800 - Departing to the west (turning north)

March 2019

wood.

\\sal-fs12.global.amec.com\shared\Projects\40820 LON Manston Airport Post Application\Drawings\GIS\Figures\40820-Lon29.mxd Originator: ivano.pola



Client

RSP

Manston Airport DCO
Environmental Statement

Aircraft noise - Boeing 737-800 - Departing to the west (turning south)

March 2019

wood.

\\sal-fs12.global.amec.com\shared\Projects\40820 LON Manston Airport Post Application\Drawings\GIS\Figures\40820-Lon38.mxd Originator: ivano.pola

620000 622000 624000 626000 628000 630000 632000 634000 636000 638000 640000 642000 644000

176000 174000 172000 170000 168000 166000 164000 162000 160000 158000

N

Thanet Coast SAC

Thanet Coast & Sandwich Bay RAMSAR

Thanet Coast & Sandwich Bay SPA

Sandwich Bay SAC

Thanet Coast & Sandwich Bay SPA

Thanet Coast & Sandwich Bay RAMSAR

Sandwich Bay to Hacklinge Marshes SSSI

Isle of Thanet

Sandwich Bay

Westbrook
Westgate-on-Sea
Garlinge
Birchington
Cliftonville
Kingsgate
Northdown
Reading Street
Westwood
St Peter's
Fairfield
Bromstone
Flete
Lydden
Woodchurch
Acol
Haine
Northwood
West Dumpton
Whitehall
Manston
Newington
Ramsgate
Chilton
Cliffs End
Pegwell
Sevenscore
Minster
The Freehold
Hoo
Monkton
Sarre
Mount Pleasant
Durlock
Ash
Hoath
Hollow Street
Chislet
Chitty
Maypole
Boyden Gate
Ford
Millbank
Highstead
Under The Wood
St Nicholas at Wade
Hillborough
Hawthorn Corner
Bishopstone
Reculver
Upstreet
West Stourmouth
East Stourmouth
Hersden
Grove
Westmarsh
Lower Goldstone
Upper Goldstone
Ware
Preston
Elmstone
Stodmarsh
Cooper Street
Hoaden
Cop Street
Wickhambreaux
Seaton
Perry
Nash
Weddington
East Street
Each End
Shatterling
Broomhill
Guilton
Ash
Durlock
Ickham
Littlebourne
Wingham
Wingham Green
Bramling
Twitham
Staple
Flemings
Barnsole
Coombe
Marshborough
Woodnesborough
Poulders Gardens
Stone Cross
Sandwich
Sandwich Bay Estate
Felderland
The Small

A28 A299 A253 A256 A257 A254 A255

55 60 65 70 75 80 85 90

Key

- SSSI
- SAC
- SPA
- RAMSAR

LAmax (dB)

- 55
- 60
- 65
- 70
- 75
- 80
- 85
- 90

0 1,000 2,000 3,000 4,000 m

Scale at A3: 1:80,000

Client

RSP

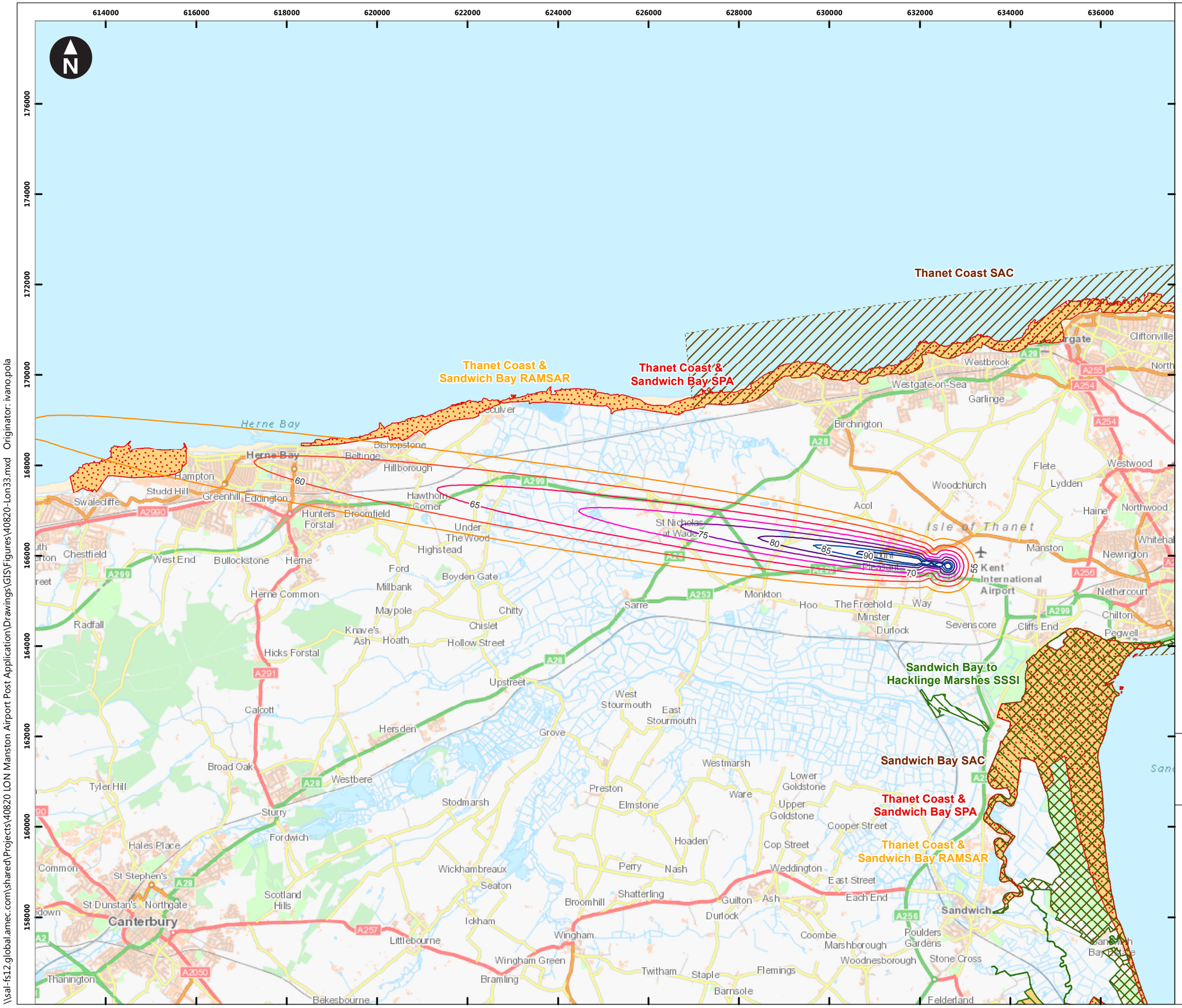
Manston Airport DCO
Environmental Statement

Aircraft noise - ATR 72 - Arriving from the east

March 2019

wood.

\\sal-fs12.global.amec.com\shared\Projects\40820 LON Manston Airport Post Application\Drawings\GIS\Figures\40820-Lon32.mxd Originator: ivano.pola



Key

- SSSI
- SAC
- SPA
- RAMSAR

LAmax (dB)

- 55
- 60
- 65
- 70
- 75
- 80
- 85
- 90

0 1,000 2,000 3,000 4,000 m

Scale at A3: 1:80,000

Client

RSP

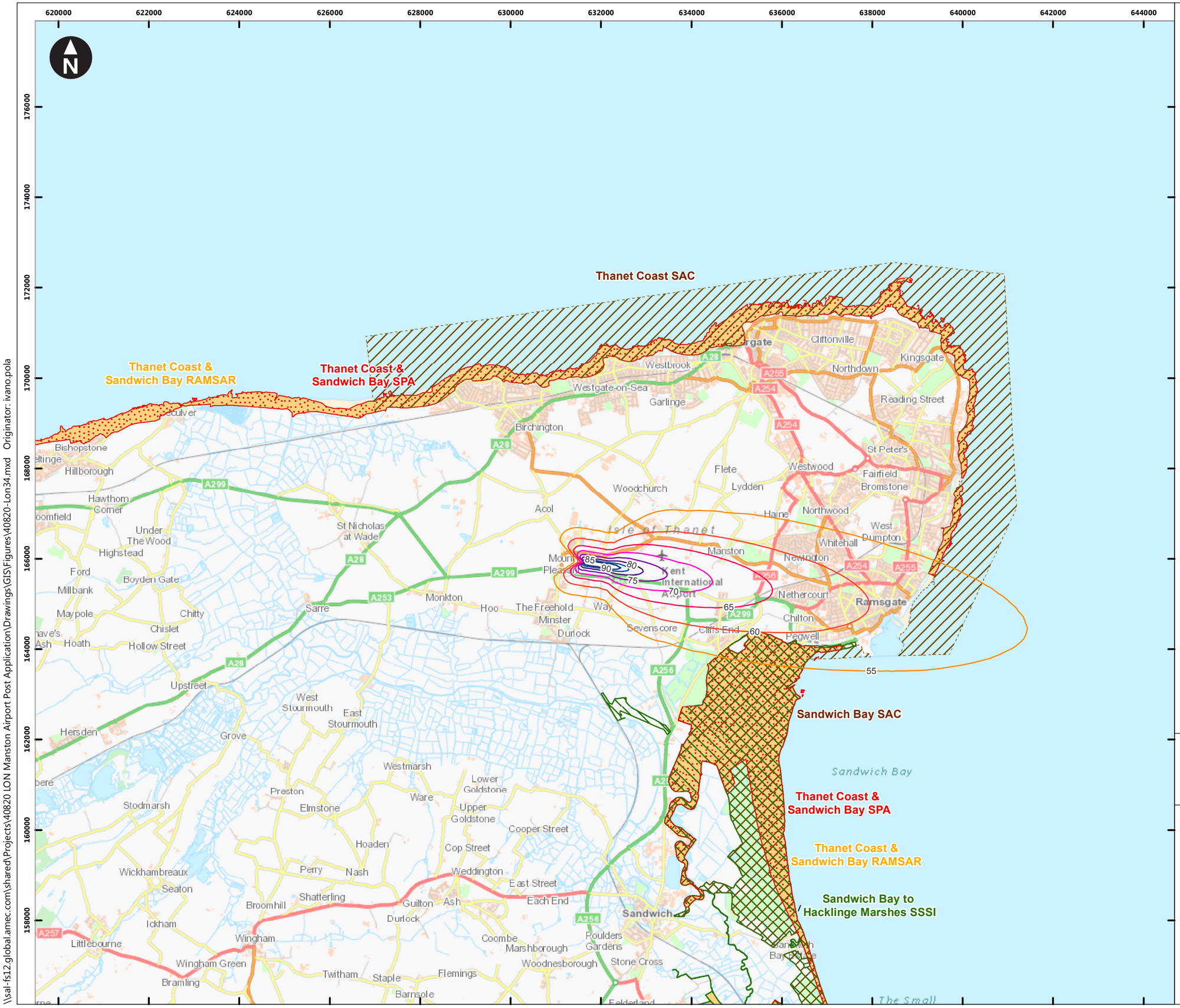
Manston Airport DCO
Environmental Statement

Aircraft noise - ATR 72 - Arriving from the west

March 2019

wood.

\\sal-fs12.global.amec.com\shared\Projects\40820 LON Manston Airport Post Application\Drawings\GIS\Figures\40820-Lon33.mxd Originator: ivano.pola



Key

- SSSI
- SAC
- SPA
- RAMSAR

LAmax (dB)

- 55
- 60
- 65
- 70
- 75
- 80
- 85
- 90

0 1,000 2,000 3,000 4,000 m

Scale at A3: 1:80,000

Client

RSP

Manston Airport DCO
Environmental Statement

Aircraft noise - ATR 72 - Departing to the east

March 2019

wood.

\\sal-fs12.global.amec.com\shared\Projects\40820 LON Manston Airport Post Application\Drawings\GIS\Figures\40820-Lon34.mxd Originator: ivano.pola

\\sal-fs12.global.amec.com\shared\Projects\40820 LON Manston Airport Post Application\Drawings\GIS\Figures\40820-Lon35.mxd Originator: ivano.pola

620000 622000 624000 626000 628000 630000 632000 634000 636000 638000 640000 642000 644000

176000 174000 172000 170000 168000 166000 164000 162000 160000 158000

N

Thanet Coast SAC

Thanet Coast & Sandwich Bay RAMSAR

Thanet Coast & Sandwich Bay SPA

Sandwich Bay SAC

Thanet Coast & Sandwich Bay SPA

Thanet Coast & Sandwich Bay RAMSAR

Sandwich Bay to Hacklinge Marshes SSSI

Isle of Thanet

Sandwich Bay

Manston Airport

Ramsgate

Sandwich

Westgate-on-Sea

Birchington

Garlinge

Cliftonville

Kingsgate

Northdown

Reading Street

Westbrook

Margate

Westwood

Fairfield

Bromstone

St Peter's

Flete

Lydden

Woodchurch

Acol

Haine

Northwood

West Dumpton

Whitehall

Newington

Manston

Mount Pleasant

Nethercourt

Chilton

Pegwell

Cliffs End

Minster

The Freehold

Monkton

Hoo

Sarre

St Nicholas at Wade

Hillborough

Bishopstone

Hawthorn Corner

Under The Wood

Highstead

Ford

Boyden Gate

Millbank

Maypole

Chitty

Chislet

Hollow Street

Hoath

Upstreet

Hersden

West Stourmouth

East Stourmouth

Grove

Westmarsh

Lower Goldstone

Upper Goldstone

Ware

Preston

Elmstone

Stodmarsh

Cooper Street

Hoaden

Cop Street

Perry

Nash

Weddington

East Street

Each End

Wickhambreaux

Seaton

Shatterling

Broomhill

Guilton

Ash

Durlock

Ickham

Wingham

Littlebourne

Wingham Green

Bramling

Coombe

Marshborough

Woodnesborough

Poulders Gardens

Stone Cross

Twitham

Staple

Flemings

Barnsole

Sandwich Bay Estate

The Small

A28 A299 A256 A254 A255 A253 A257

55 60 65 70 75 80 85 90

Key

SSSI

SAC

SPA

RAMSAR

LAmax (dB)

55

60

65

70

75

80

85

90

0 1,000 2,000 3,000 4,000 m

Scale at A3: 1:80,000

Client

RSP

Manston Airport DCO
Environmental Statement

Aircraft noise - ATR 72 - Departing to the west (turning north)

March 2019

wood.

620000 622000 624000 626000 628000 630000 632000 634000 636000 638000 640000 642000 644000

176000 174000 172000 170000 168000 166000 164000 162000 160000 158000

N

Thanet Coast SAC

Thanet Coast & Sandwich Bay RAMSAR

Thanet Coast & Sandwich Bay SPA

Sandwich Bay SAC

Thanet Coast & Sandwich Bay SPA

Thanet Coast & Sandwich Bay RAMSAR

Sandwich Bay to Hacklinge Marshes SSSI

Isle of Thanet

Sandwich Bay

The Small

Ramsgate

Sandwich

Cliftonville

Kingsgate

Northdown

Westbrook

Westgate-on-Sea

Garlinge

Reading Street

Birchington

Westwood

St Peter's

Fairfield

Bromstone

Flete

Lydden

Woodchurch

Acol

St Nicholas at Wade

Haine

Northwood

West Dumpton

Whitehall

Manston

Newington

Mount Pleasant

Nethercourt

Chilton

Pegwell

Cliffs End

Sevenscore

Minster

The Freehold

Monkton

Hoo

Sarre

Ash

Hoath

Hollow Street

Chislet

Chitty

Maypole

Millbank

Ford

Boyden Gate

Highstead

Under The Wood

Hawthorn Corner

Hillborough

Bishopstone

Upstreet

West Stourmouth

East Stourmouth

Grove

Hersden

Westmarsh

Lower Goldstone

Upper Goldstone

Ware

Preston

Elmstone

Stodmarsh

Cooper Street

Cop Street

Hoaden

Wickhambreaux

Seaton

Perry

Nash

Weddington

East Street

Each End

Broomhill

Shatterling

Guilton

Ash

Durlock

Ickham

Wingham

Littlebourne

Wingham Green

Bramling

Coombe

Marshborough

Woodnesborough

Poulders Gardens

Stone Cross

Twitham

Staple

Flemings

Barnsole

Felderland

Sandwich Bay Estate

55 60 65 70 75 80 85 90

A28 A299 A253 A257 A256 A254 A255

Key

SSSI

SAC

SPA

RAMSAR

LAmax (dB)

55

60

65

70

75

80

85

90

0 1,000 2,000 3,000 4,000 m

Scale at A3: 1:80,000

Client

RSP

Manston Airport DCO
Environmental Statement

Aircraft noise - ATR 72 - Departing to the west (turning south)

March 2019

wood.

\\sal-fs12.global.amec.com\shared\Projects\40820 LON Manston Airport Post Application\Drawings\GIS\Figures\40820-Lon36.mxd Originator: ivano.pola