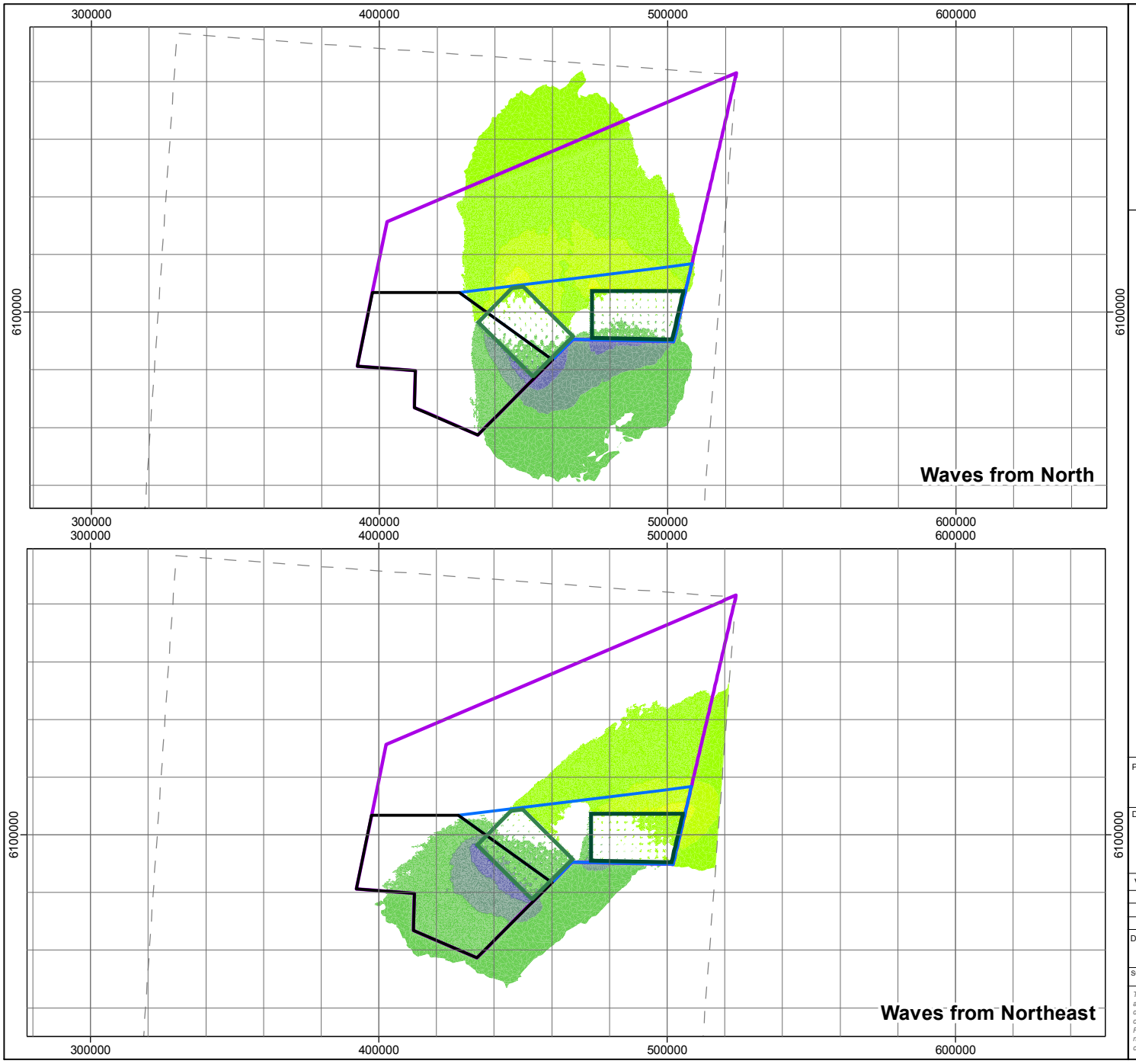
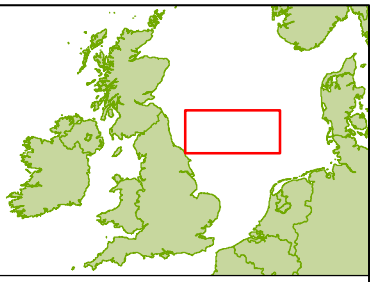


## LEGEND

Change in Significant Wave Height (m)

- Above 0.09
- 0.08 - 0.09
- 0.07 - 0.08
- 0.06 - 0.07
- 0.05 - 0.06
- 0.04 - 0.05
- 0.03 - 0.04
- 0.02 - 0.03
- 0.01 - 0.02
- 0.00 - 0.01
- -0.01 - 0.00
- -0.02 - -0.01
- -0.03 - -0.02
- -0.04 - -0.03
- -0.05 - -0.04
- -0.06 - -0.05
- -0.07 - -0.06
- -0.08 - -0.07
- -0.09 - -0.08
- Below -0.09
- Model Boundary

- Dogger Bank Zone
- Tranche A Boundary
- Tranche B Boundary
- Dogger Bank Teesside A
- Dogger Bank Teesside B

0 50

Kilometres

Data Source:
© UKDeal
Round 3 © TCE, 2013.

PROJECT TITLE

*DOGGER BANK TEESSIDE A & B*

DRAWING TITLE

**Figure 5.8 Changes to Significant Wave Height for One-year Waves from the North and Northeast Caused by 6MW Conical GBS#1 Foundations**

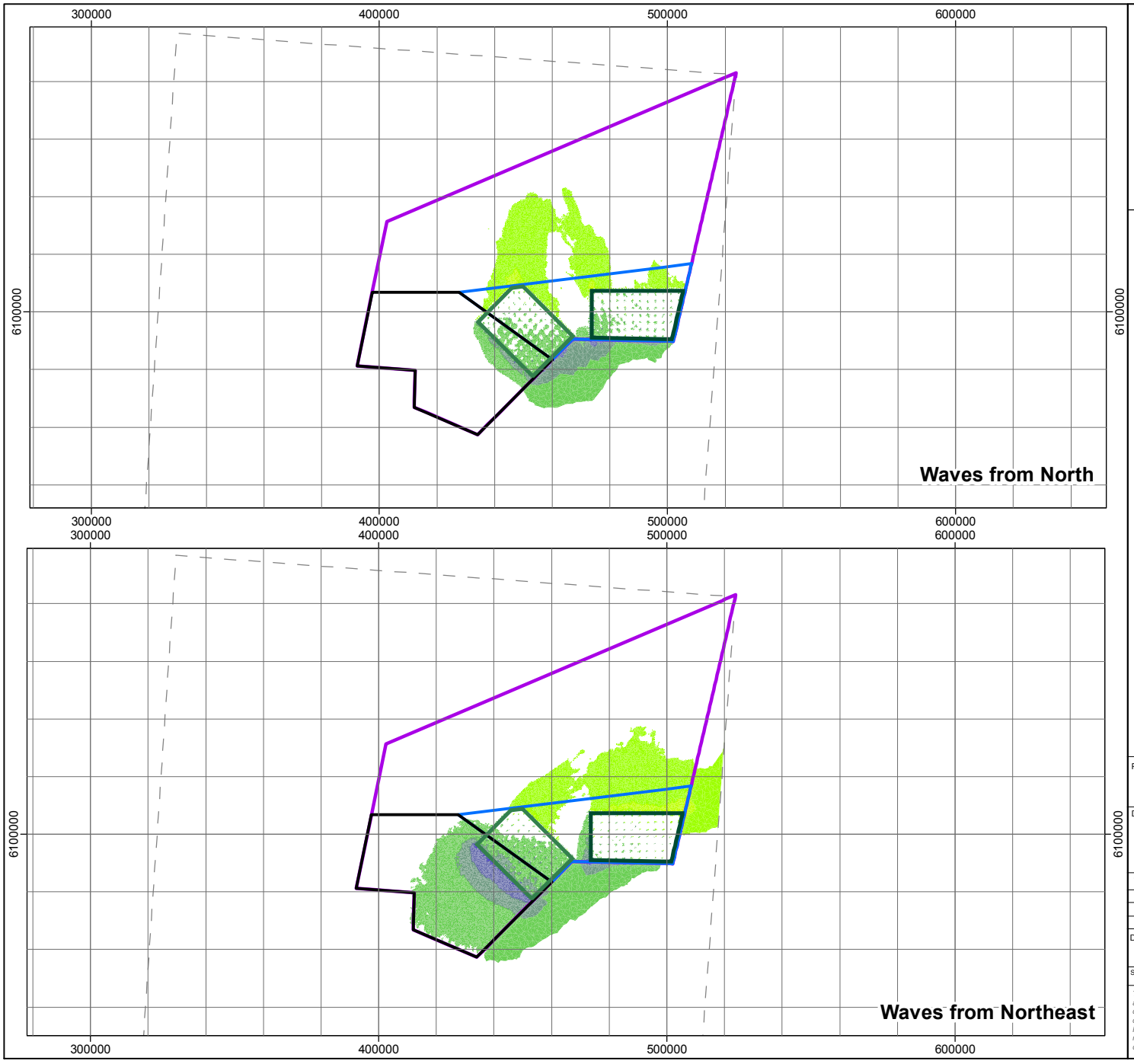
| VER | DATE | REMARKS | Drawn | Checked |
|---|---|---|---|---|
| 1 | 02/04/2013 | Draft | FK | DB |
| 2 | 01/10/2013 | Final | LW | DB |
| | | | | |

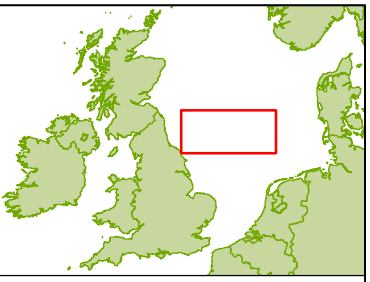
DRAWING NUMBER: **9X5889/04/93**

| SCALE | PLOT SIZE | DATUM | PROJECTION |
|---|---|---|---|
| 1:2,000,000 | A4 | WGS84 | UTM31N |



FOREWIND



## LEGEND

Change in Significant Wave Height (m)

- Above 0.09
- 0.08 - 0.09
- 0.07 - 0.08
- 0.06 - 0.07
- 0.05 - 0.06
- 0.04 - 0.05
- 0.03 - 0.04
- 0.02 - 0.03
- 0.01 - 0.02
- 0.00 - 0.01
- -0.01 - 0.00
- -0.02 - -0.01
- -0.03 - -0.02
- -0.04 - -0.03
- -0.05 - -0.04
- -0.06 - -0.05
- -0.07 - -0.06
- -0.08 - -0.07
- -0.09 - -0.08
- Below -0.09
- Model Boundary

- Dogger Bank Zone
- Tranche A Boundary
- Tranche B Boundary
- Dogger Bank Teesside A
- Dogger Bank Teesside B

0 50

Kilometres

Data Source:
© UKDeal
Round 3 © TCE, 2013.

PROJECT TITLE

*DOGGER BANK TEESSIDE A & B*

DRAWING TITLE

**Figure 5.9 Changes to Significant Wave Height for 50-year Waves from the North and Northwest Caused by 6MW Conical GBS#1 Foundations**

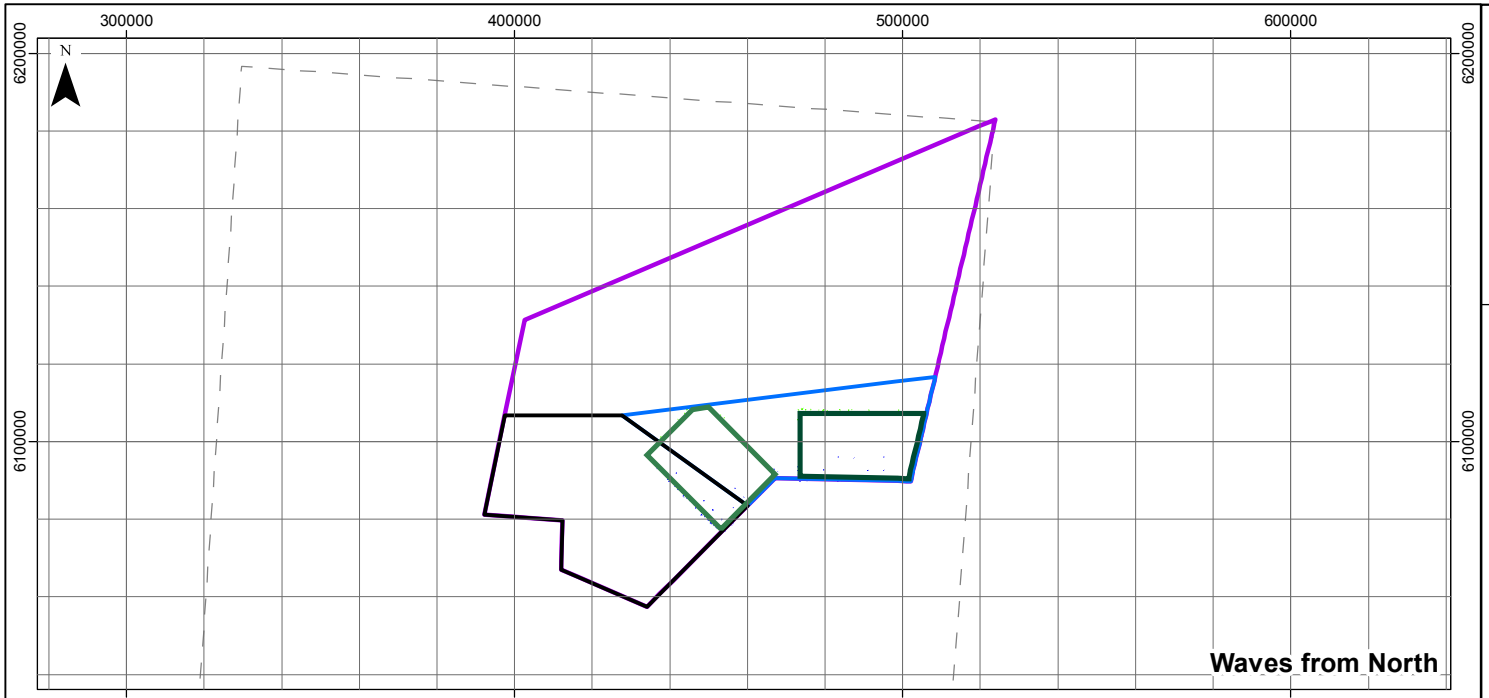
| VER | DATE | REMARKS | Drawn | Checked |
|---|---|---|---|---|
| 1 | 02/04/2013 | Draft | FK | DB |
| 2 | 01/10/2013 | Final | LW | DB |
| | | | | |

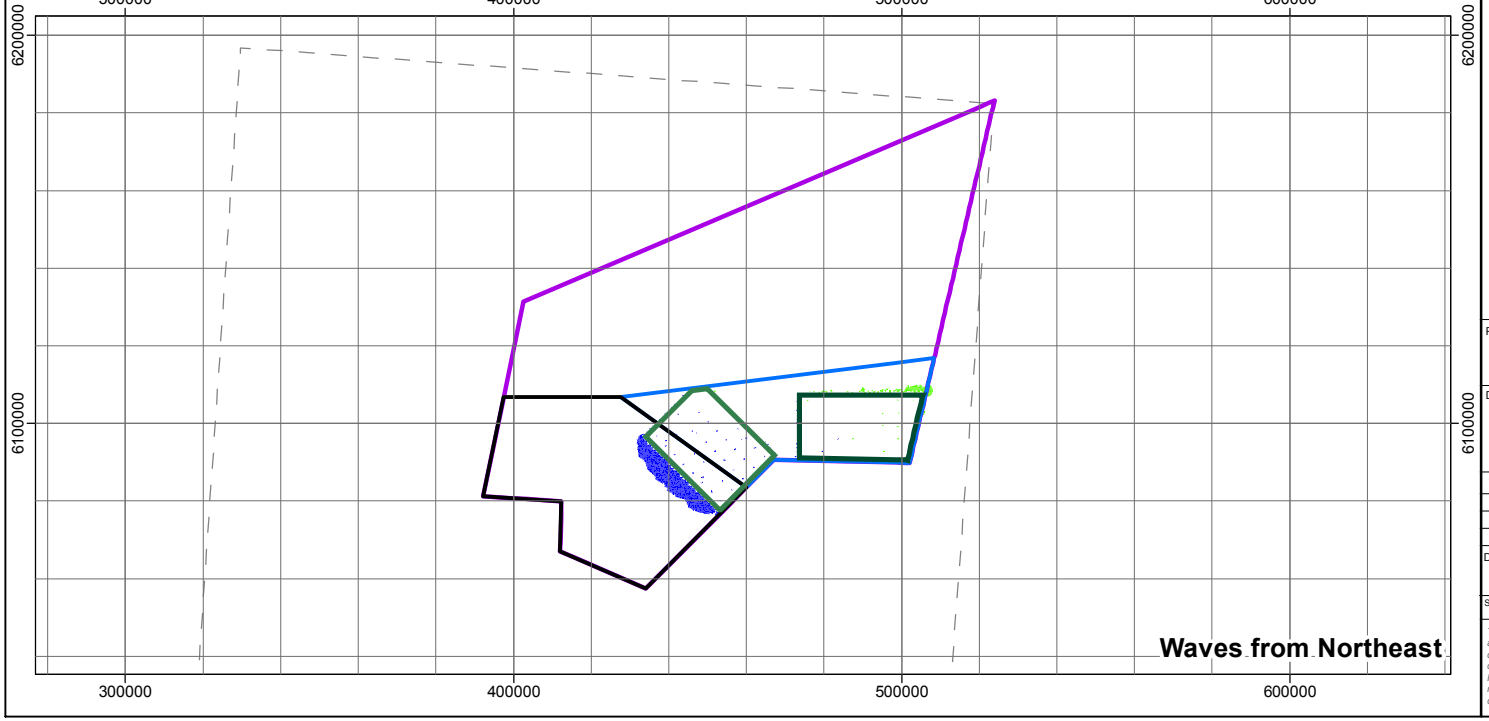
DRAWING NUMBER: **9X5889/04/94**

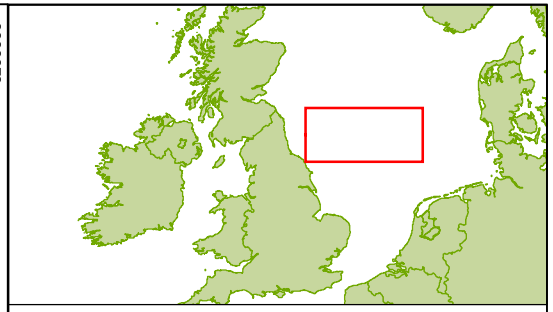
| SCALE | PLOT SIZE | DATUM | PROJECTION |
|---|---|---|---|
| 1:2,000,000 | A4 | WGS84 | UTM31N |



FOREWIND



**LEGEND**

- Dogger Bank Zone
- Tranche A Boundary
- Tranche B Boundary
- Dogger Bank Teesside A
- Dogger Bank Teesside B

Wave Height Difference (%)

- 1.5 - 2
- 1 - 1.5
- 0.5 - 1
- 0 - 0.5
- -0.5 - 0
- -1.0 - -0.5
- -1.5 - -1.0
- Below - 1.5
- Model Boundary

0 50

Kilometres



PROJECT TITLE

*DOGGER BANK TEESSIDE A & B*

DRAWING TITLE

**Figure 5.10 Percentage Change to Significant Wave Height for One-year Waves from the North and Northeast Caused by 10MW Conical GBS#1 Foundations**

| VER | DATE | REMARKS | Drawn | Checked |
|---|---|---|---|---|
| 1 | 02/04/2013 | Draft | FK | DB |
| 2 | 01/10/2013 | Final | LW | DB |
| | | | | |

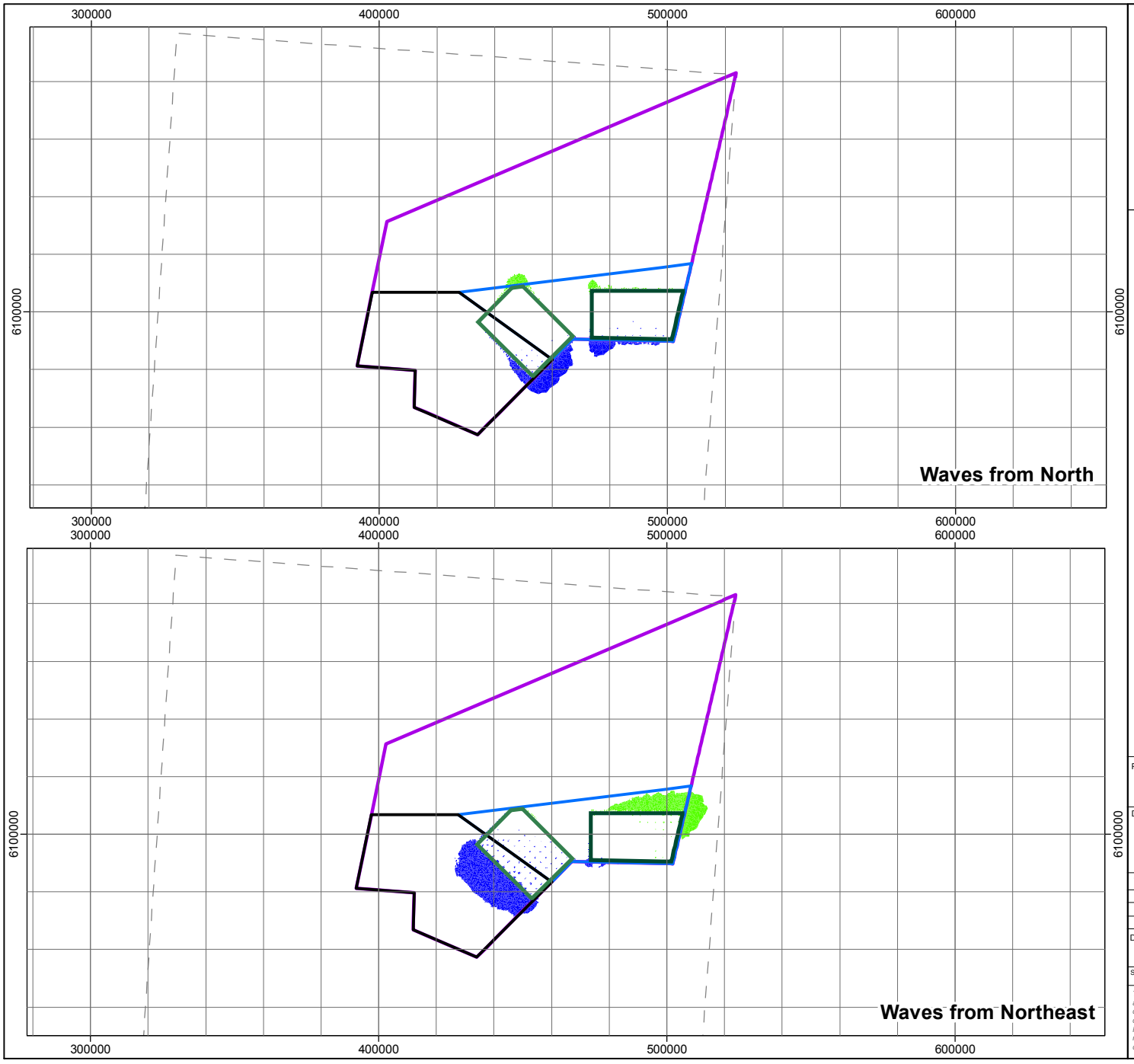
DRAWING NUMBER:

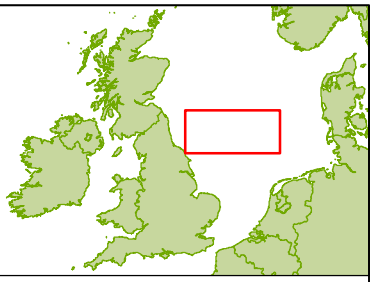
**9X5889/04/95**

| SCALE | PLOT SIZE | DATUM | PROJECTION |
|---|---|---|---|
| 1:1,950,000 | A4 | WGS84 | UTM31N |



FOREWIND



**LEGEND**

- Dogger Bank Zone
- Tranche A Boundary
- Tranche B Boundary
- Dogger Bank Teesside A
- Dogger Bank Teesside B

Wave Height Difference (%)

- 1.5 - 2
- 1 - 1.5
- 0.5 - 1
- 0 - 0.5
- -0.5 - 0
- -1.0 - -0.5
- -1.5 - -1.0
- Below - 1.5
- Model Boundary

0 50

Kilometres

Data Source:
© UKDeal
Round 3 © TCE, 2013.

PROJECT TITLE

*DOGGER BANK TEESSIDE A & B*

DRAWING TITLE

**Figure 5.11 Percentage Change to Significant Wave Height for One-year Waves from the North and Northeast Caused by 6MW Conical GBS# 1 Foundations**

| VER | DATE | REMARKS | Drawn | Checked |
|---|---|---|---|---|
| 1 | 02/04/2013 | Draft | FK | DB |
| 2 | 01/10/2013 | Final | LW | DB |
| | | | | |

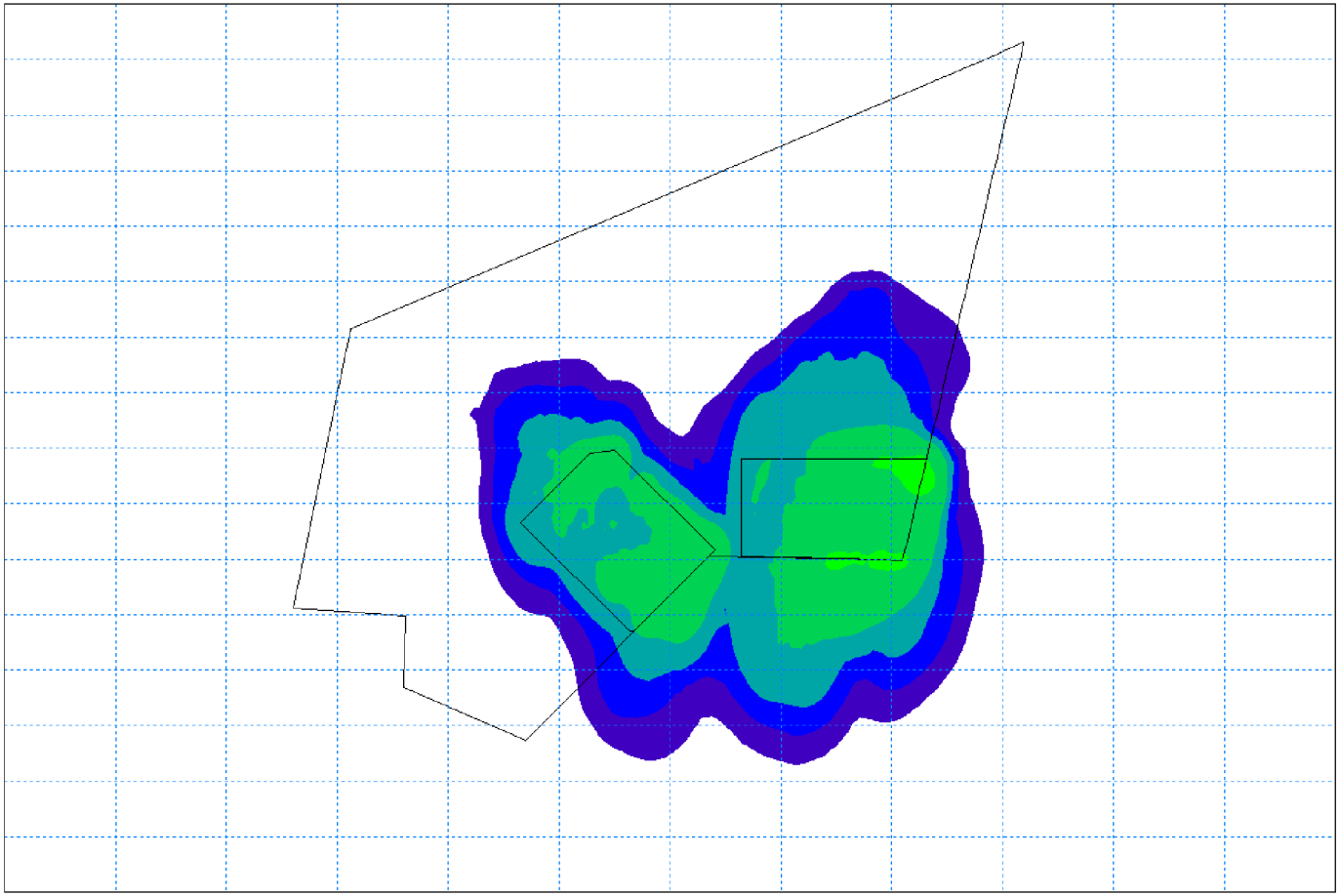
DRAWING NUMBER:

**9X5889/04/96**

| SCALE | PLOT SIZE | DATUM | PROJECTION |
|---|---|---|---|
| 1:2,000,000 | A4 | WGS84 | UTM31N |



FOREWIND



**LEGEND**

Suspended Sediment Concentration (mg/l)

- Above 200
- 100 - 200
- 50 - 100
- 20 - 50
- 10 - 20
- 5 - 10
- 2 - 5
- Below 2

0 20

Kilometres

Data Source:
Image supplied by Danish Hydraulic Institute

PROJECT TITLE

*DOGGER BANK TEESSIDE A & B*

DRAWING TITLE

**Figure 5.12 Maximum SSC in the Bottom Layer Predicted over the Simulation Period after One Year of Operation using the Re-suspension of Fractions 1 and 2 Method**

| VER | DATE | REMARKS | Drawn | Checked |
|---|---|---|---|---|
| 1 | 15/04/2013 | Draft | FK | DB |
| 2 | 26/09/2013 | Final | LW | DB |
| | | | | |

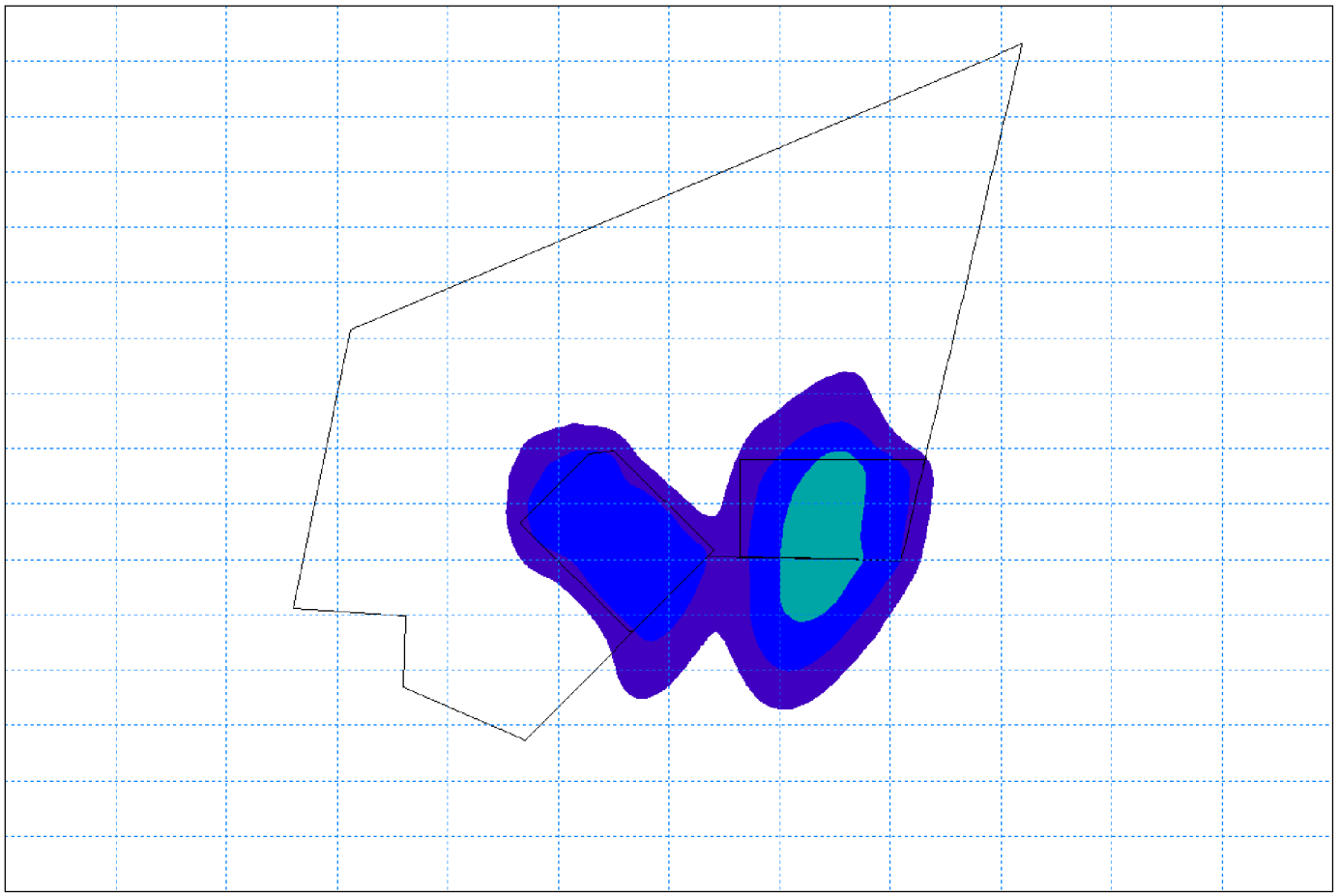
DRAWING NUMBER:

**5X5889/04/97**

| SCALE | PLOT SIZE | DATUM | PROJECTION |
|---|---|---|---|
| Taken from image | A4 | WGS84 | UTM31N |



FOREWIND



**LEGEND**

Suspended Sediment Concentration (mg/l)

- Above 200
- 100 - 200
- 50 - 100
- 20 - 50
- 10 - 20
- 5 - 10
- 2 - 5
- Below 2

0 20

Kilometres

Data Source:
Image supplied by Danish Hydraulic Institute

PROJECT TITLE

*DOGGER BANK TEESSIDE A & B*

DRAWING TITLE

**Figure 5.13 Average SSC in the Bottom Layer Predicted over the Simulation Period after One Year of Operation using the Re-suspension of Fractions 1 and 2 Method**

| VER | DATE | REMARKS | Drawn | Checked |
|---|---|---|---|---|
| 1 | 15/04/2013 | Draft | FK | DB |
| 2 | 26/09/2013 | Final | LW | DB |
| | | | | |

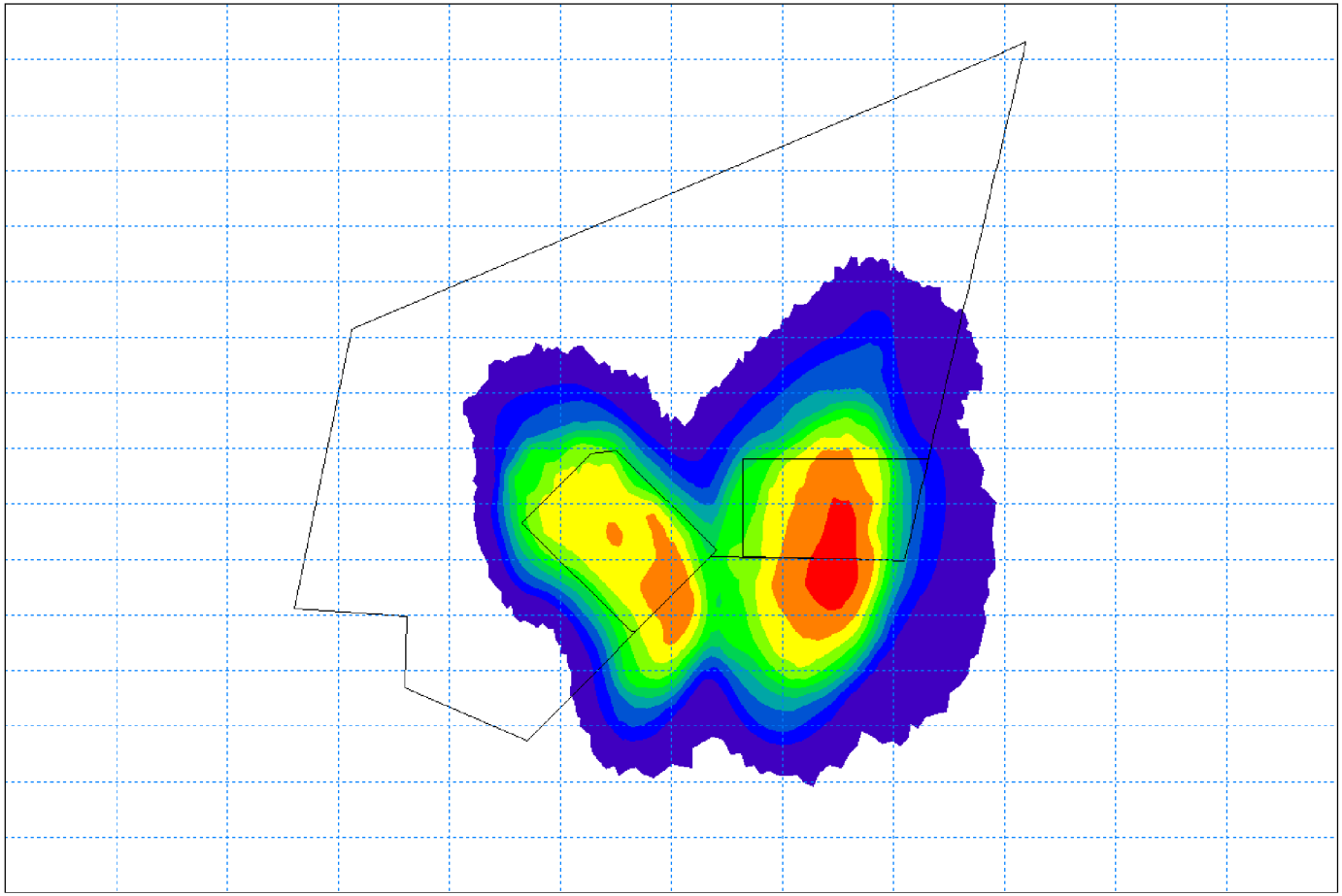
DRAWING NUMBER:

**5X5889/04/98**

| SCALE | PLOT SIZE | DATUM | PROJECTION |
|---|---|---|---|
| Taken from image | A4 | WGS84 | UTM31N |



FOREWIND



**LEGEND**

Exceedance of 2 mg/l (%)

- Above 90
- 80 - 90
- 70 - 80
- 60 - 70
- 50 - 60
- 40 - 50
- 30 - 40
- 20 - 30
- 10 - 20
- 0 - 10
- Below 0

0 20

Kilometres

Data Source:
Image supplied by Danish Hydraulic Institute

PROJECT TITLE

*DOGGER BANK TEESSIDE A & B*

DRAWING TITLE

**Figure 5.14 Percentage of Time Predicted over the Simulation Period where SSC of 2mg/l is exceeded in the Bottom Layer after One Year of Operation using the Re-suspension of Fractions 1 and 2 Method**

| VER | DATE | REMARKS | Drawn | Checked |
|---|---|---|---|---|
| 1 | 15/04/2013 | Draft | FK | DB |
| 2 | 26/09/2013 | Final | LW | DB |
| | | | | |

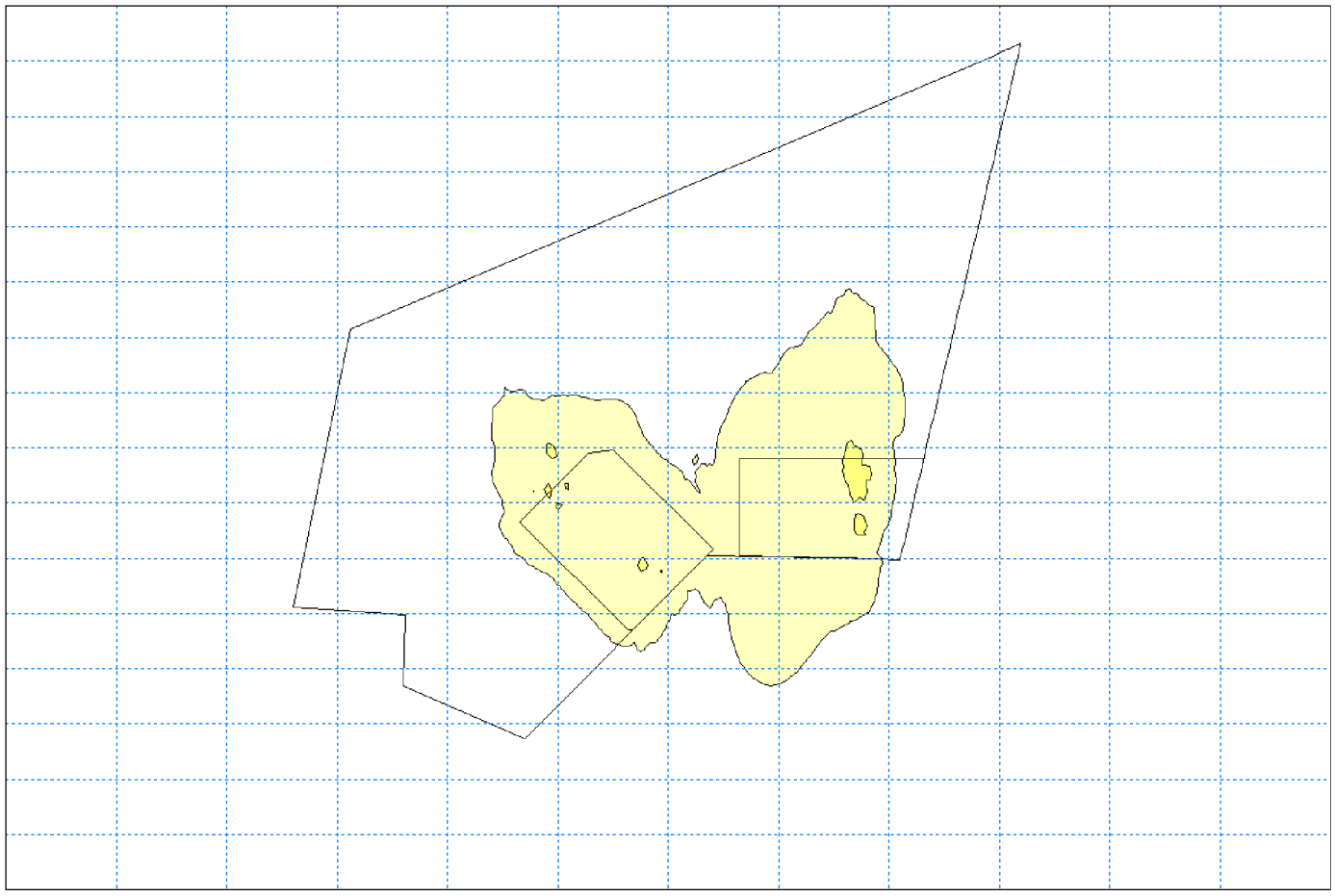
DRAWING NUMBER:

**5X5889/04/99**

| SCALE | PLOT SIZE | DATUM | PROJECTION |
|---|---|---|---|
| Taken from image | A4 | WGS84 | UTM31N |



FOREWIND



**LEGEND**

Sediment Thickness (mm)

- Above 100
- 50 - 100
- 10 - 50
- 5 - 10
- 1 - 5
- 0.5 - 1
- 0.1 - 0.5
- Below 0.1

0 20

Kilometres

Data Source:
Image supplied by Danish Hydraulic Institute

PROJECT TITLE

*DOGGER BANK TEESSIDE A & B*

DRAWING TITLE

**Figure 5.15 Maximum Deposition Predicted over the Simulation Period after One Year of Operation using the Re-suspension of Fractions 1 and 2 Method**

| VER | DATE | REMARKS | Drawn | Checked |
|---|---|---|---|---|
| 1 | 15/04/2013 | Draft | FK | DB |
| 2 | 26/09/2013 | Final | LW | DB |
| | | | | |

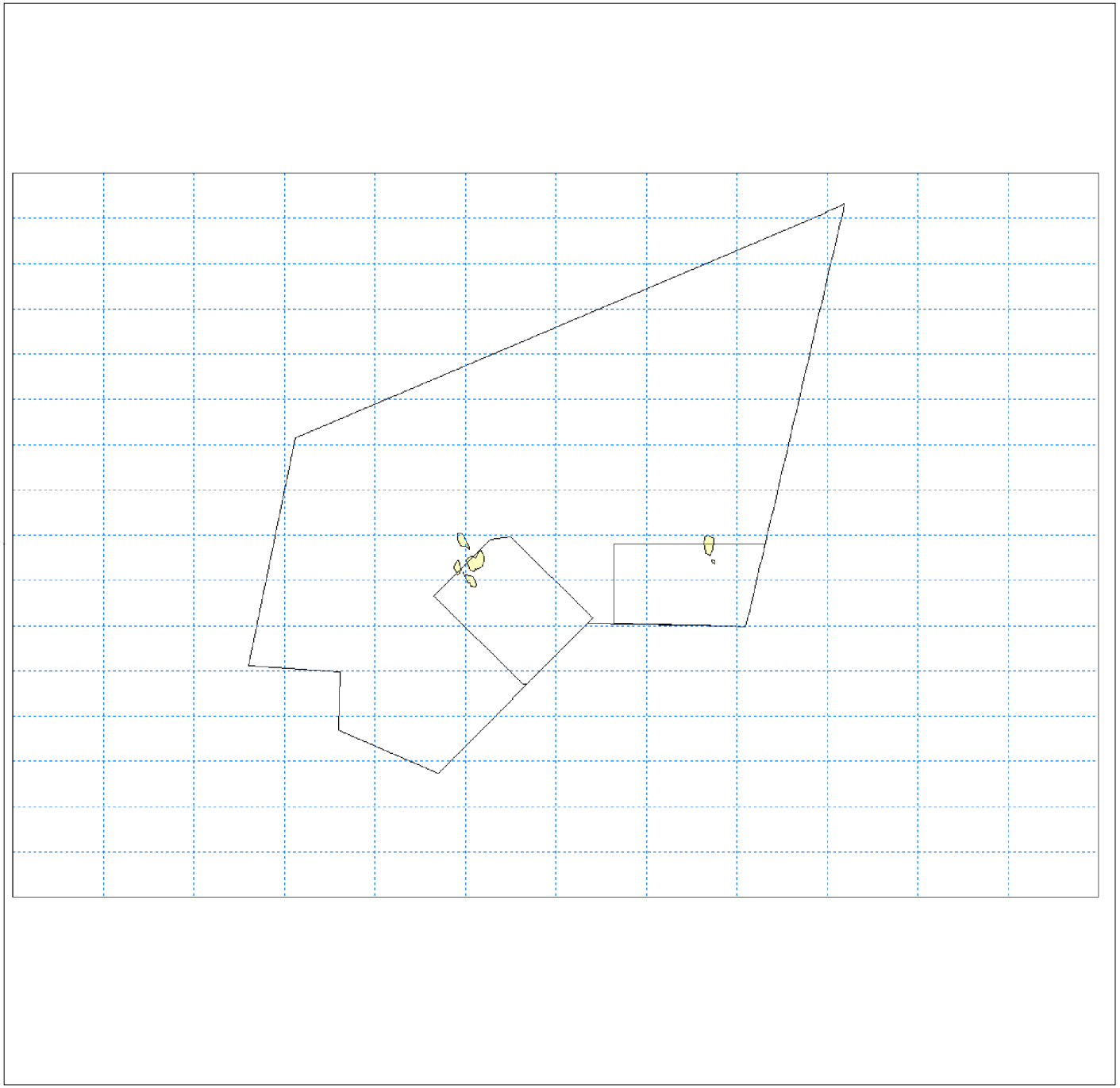
DRAWING NUMBER:

**5X5889/04/100**

| SCALE | PLOT SIZE | DATUM | PROJECTION |
|---|---|---|---|
| Taken from image | A4 | WGS84 | UTM31N |



FOREWIND



**LEGEND**

Sediment Thickness (mm)

- Above 100
- 50 - 100
- 10 - 50
- 5 - 10
- 1 - 5
- 0.5 - 1
- 0.1 - 0.5
- Below 0.1

0 20

Kilometres

Data Source:
Image supplied by Danish Hydraulic Institute

PROJECT TITLE

*DOGGER BANK TEESSIDE A & B*

DRAWING TITLE

**Figure 5.16 Average Deposition Predicted over the Simulation Period after One Year of Operation using the Re-suspension of Fractions 1 and 2 Method**

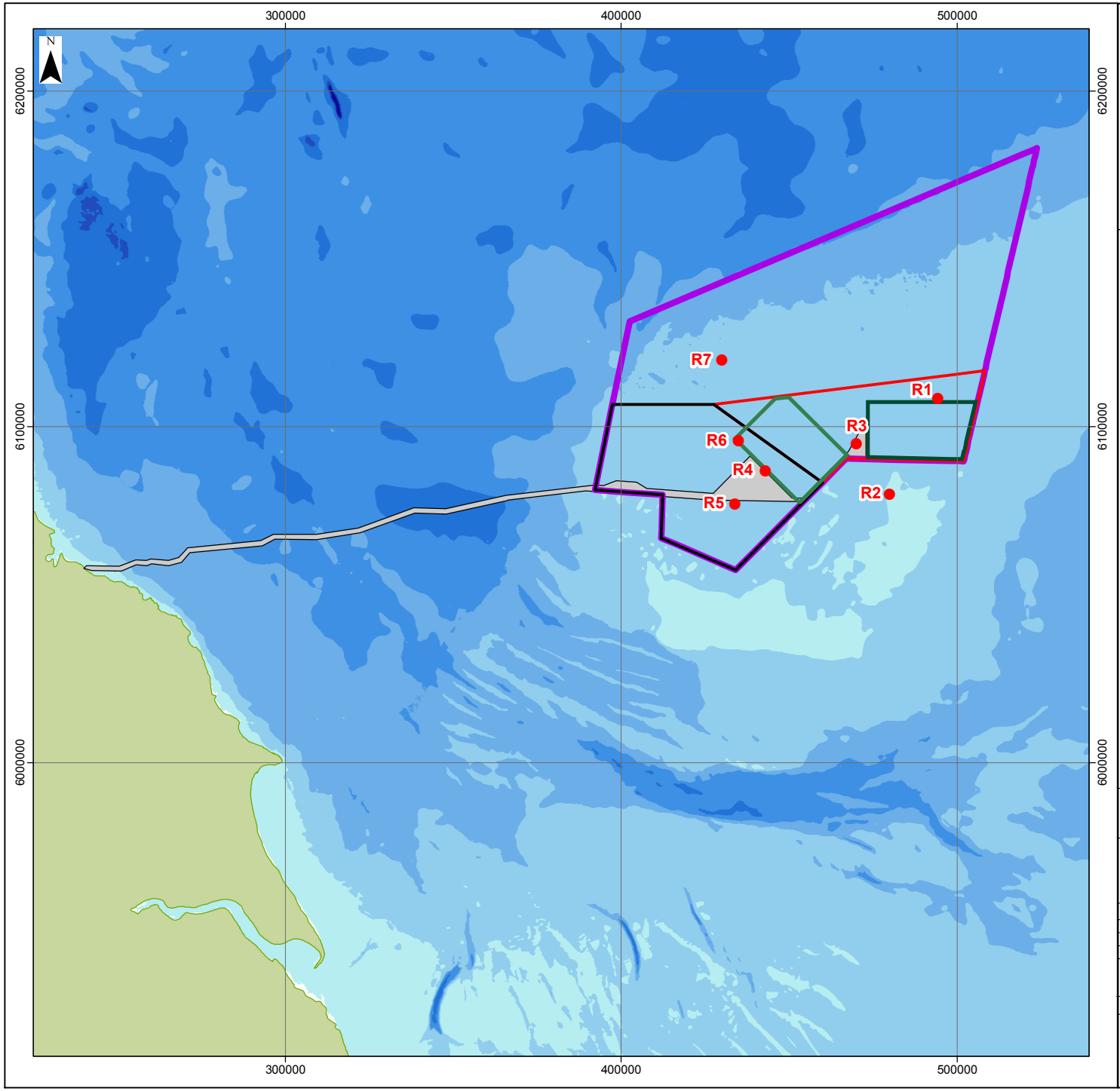
| VER | DATE | REMARKS | Drawn | Checked |
|---|---|---|---|---|
| 1 | 15/04/2013 | Draft | FK | DB |
| 2 | 26/09/2013 | Final | LW | DB |
| | | | | |

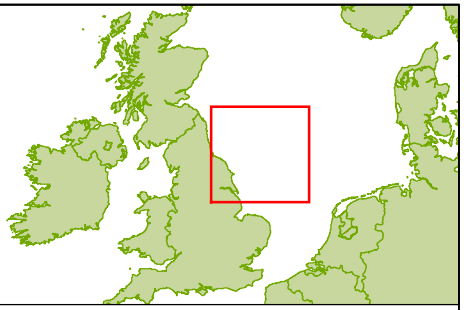
DRAWING NUMBER: **5X5889/04/101**

| SCALE | PLOT SIZE | DATUM | PROJECTION |
|---|---|---|---|
| Taken from image | A4 | WGS84 | UTM31N |



FOREWIND



**LEGEND**

- Dogger Bank Zone
- Tranche A Boundary
- Tranche B Boundary
- Dogger Bank Teesside A
- Dogger Bank Teesside B
- Dogger Bank Teesside A & B Export Cable Corridor
- Sediment Thickness Time Series Analysis Point

Bathymetry (m below mean sea level)

- 0 - 20
- 20 - 40
- 40 - 60
- 60 - 80
- 80 - 100
- 100 - 120
- 120 - 140
- >140

0 20 40
Kilometres

Data Source:
© UKDeal
Sediment data © Danish Hydraulic Institute, 2012
Background bathymetry image derived in part from © TCarta data 2009.

PROJECT TITLE

*DOGGER BANK TEESSIDE A & B*

DRAWING TITLE

**Figure 5.17 Location of Points for Sediment Thickness Time Series Analysis for the Operational Phase**

| VER | DATE | REMARKS | Drawn | Checked |
|---|---|---|---|---|
| 1 | 15/04/2013 | Draft | FK | DB |
| 2 | 15/10/2013 | Final | LW | DB |
| | | | | |

DRAWING NUMBER: **9X5889/04/102**

| SCALE | 1:1,700,000 | PLOT SIZE | A4 | DATUM | WGS84 | PROJECTION | UTM31N |
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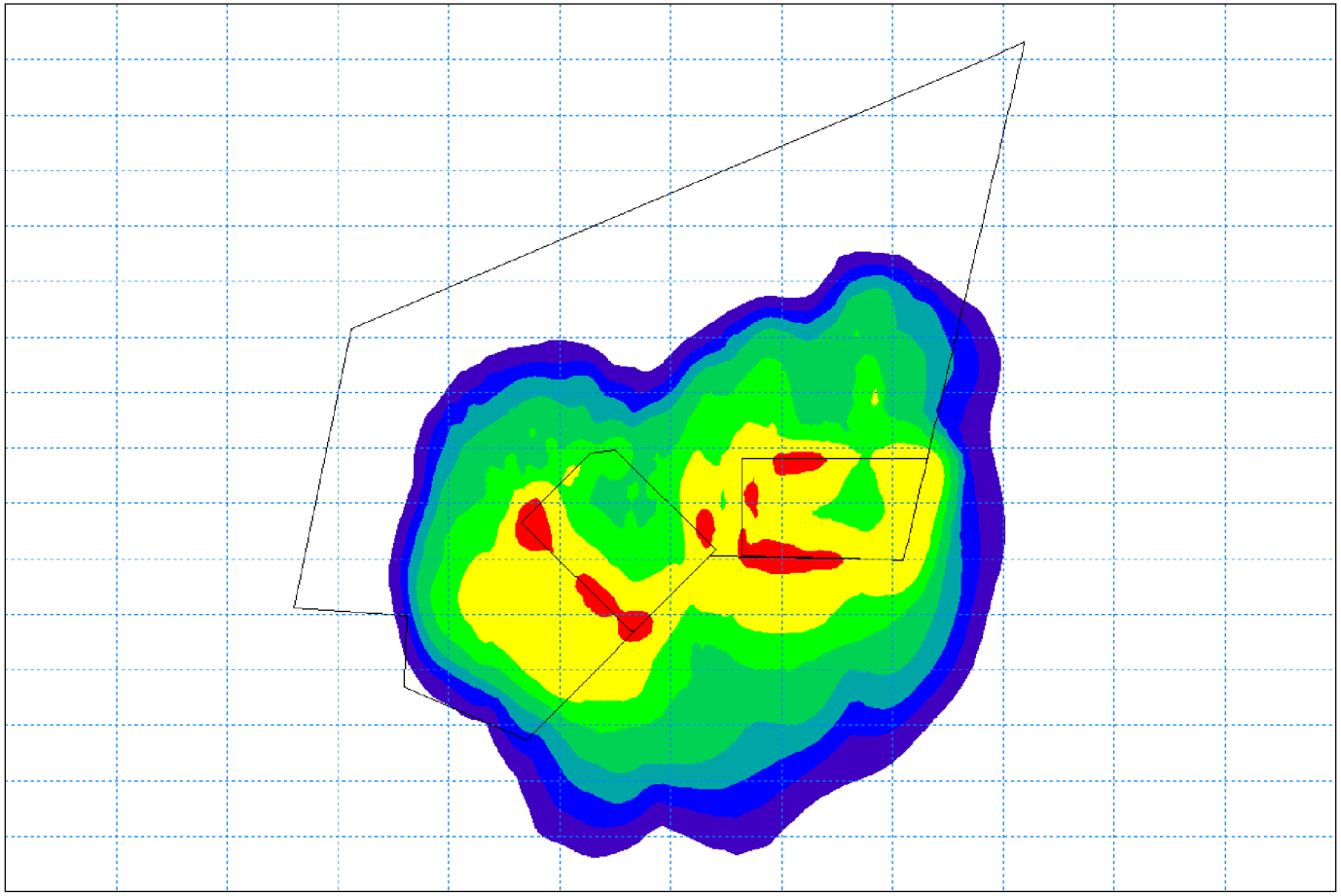
FOREWIND



**LEGEND**

Suspended Sediment Concentration (mg/l)

- Above 200
- 100 - 200
- 50 - 100
- 20 - 50
- 10 - 20
- 5 - 10
- 2 - 5
- Below 2

0 20

Kilometres

Data Source:
Image supplied by Danish Hydraulic Institute

PROJECT TITLE

*DOGGER BANK TEESSIDE A & B*

DRAWING TITLE

**Figure 5.18 Maximum SSC in the Bottom Layer Predicted over the Simulation Period after Two Years of Operation using the Re-suspension of Fractions 1 and 2 Method**

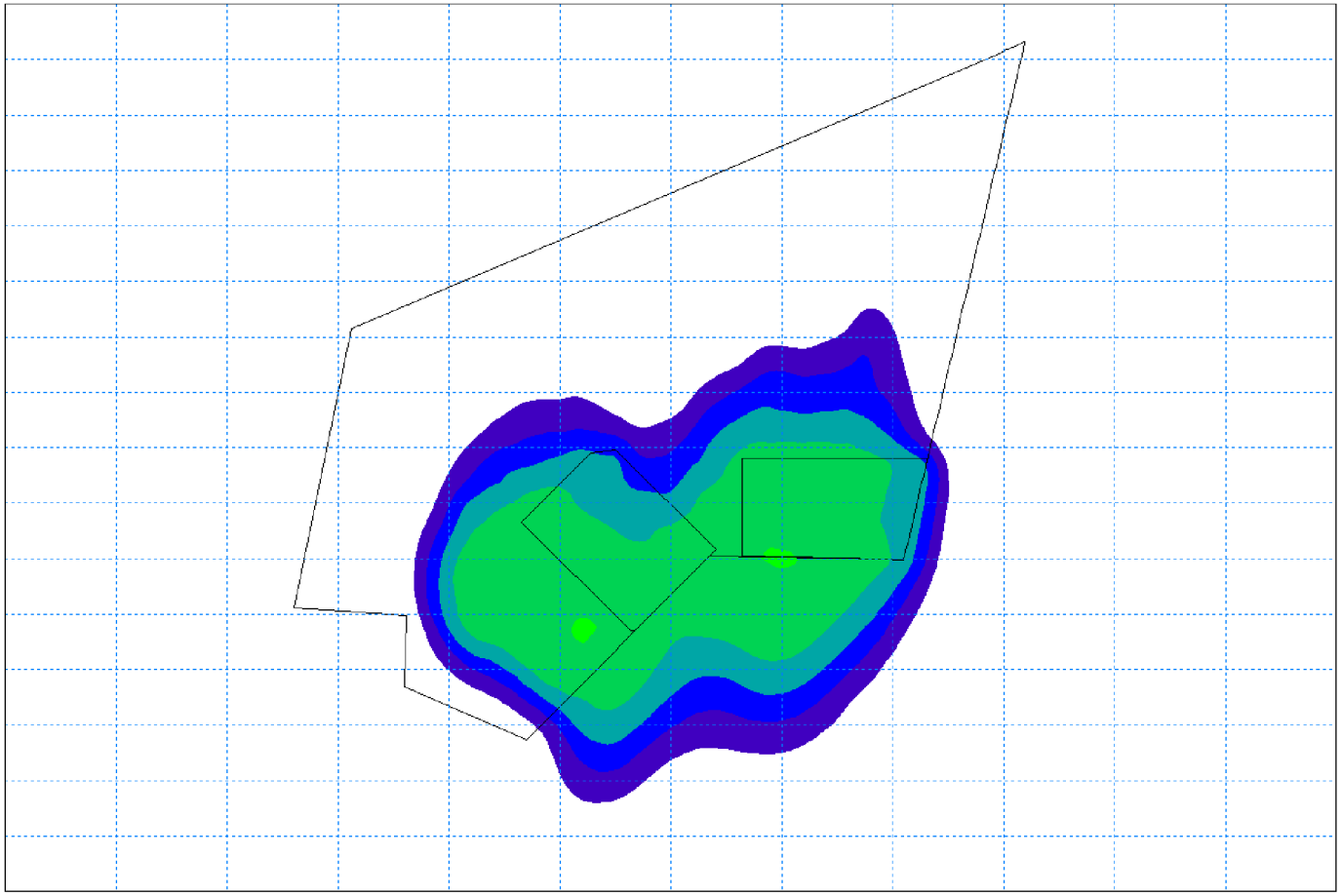
| VER | DATE | REMARKS | Drawn | Checked |
|---|---|---|---|---|
| 1 | 08/04/2013 | Draft | FK | DB |
| 2 | 01/10/2013 | Final | LW | DB |
| | | | | |

DRAWING NUMBER: **9X5889/04/103**

| SCALE | Taken from image | PLOT SIZE | A4 | DATUM | WGS84 | PROJECTION | UTM31N |
|---|---|---|---|---|---|---|---|



FOREWIND



**LEGEND**

Suspended Sediment Concentration (mg/l)

- Above 200
- 100 - 200
- 50 - 100
- 20 - 50
- 10 - 20
- 5 - 10
- 2 - 5
- Below 2

0 20

Kilometres

Data Source:
Image supplied by Danish Hydraulic Institute

PROJECT TITLE

*DOGGER BANK TEESSIDE A & B*

DRAWING TITLE

**Figure 5.19 Average SSC in the Bottom Layer Predicted over the Simulation Period after Two Years of Operation using the Re-suspension of Fractions 1 and 2 Method**

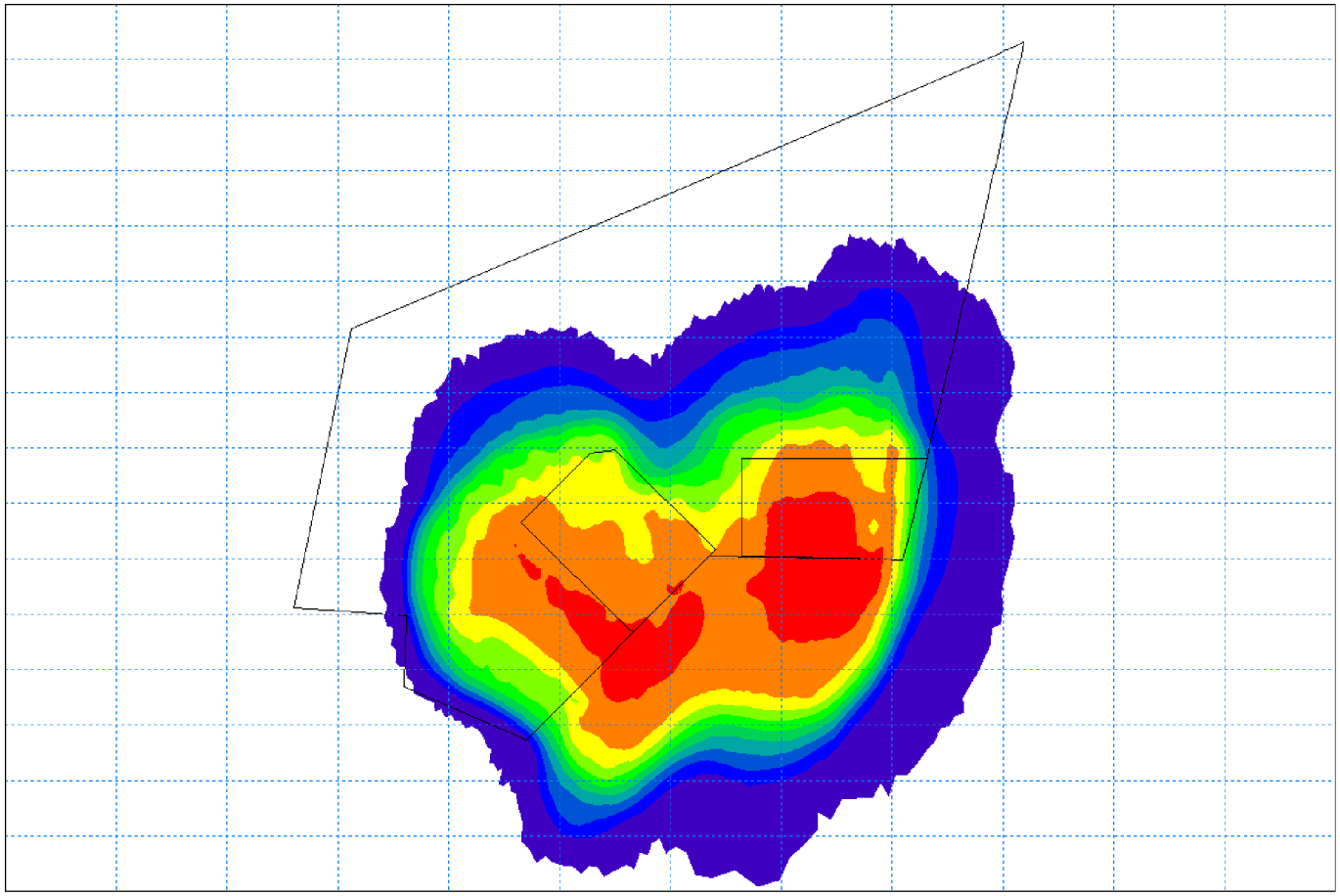
| VER | DATE | REMARKS | Drawn | Checked |
|---|---|---|---|---|
| 1 | 08/04/2013 | Draft | FK | DB |
| 2 | 01/10/2013 | Final | LW | DB |
| | | | | |

DRAWING NUMBER: **9X5889/04/104**

| SCALE | PLOT SIZE | DATUM | PROJECTION |
|---|---|---|---|
| Taken from image | A4 | WGS84 | UTM31N |



FOREWIND



**LEGEND**

Exceedance of 2 mg/l (%)

- Above 90
- 80 - 90
- 70 - 80
- 60 - 70
- 50 - 60
- 40 - 50
- 30 - 40
- 20 - 30
- 10 - 20
- 0 - 10
- Below 0

0 20

Kilometres

Data Source:
Image supplied by Danish Hydraulic Institute

PROJECT TITLE

*DOGGER BANK TEESSIDE A & B*

DRAWING TITLE

**Figure 5.20 Percentage of Time Predicted over the Simulation Period where SSC of 2mg/l is exceeded in the Bottom Layer after Two Years of Operation using the Re-suspension of Fractions 1 and 2 Method**

| VER | DATE | REMARKS | Drawn | Checked |
|---|---|---|---|---|
| 1 | 08/04/2013 | Draft | FK | DB |
| 2 | 01/10/2013 | Final | LW | DB |
| | | | | |

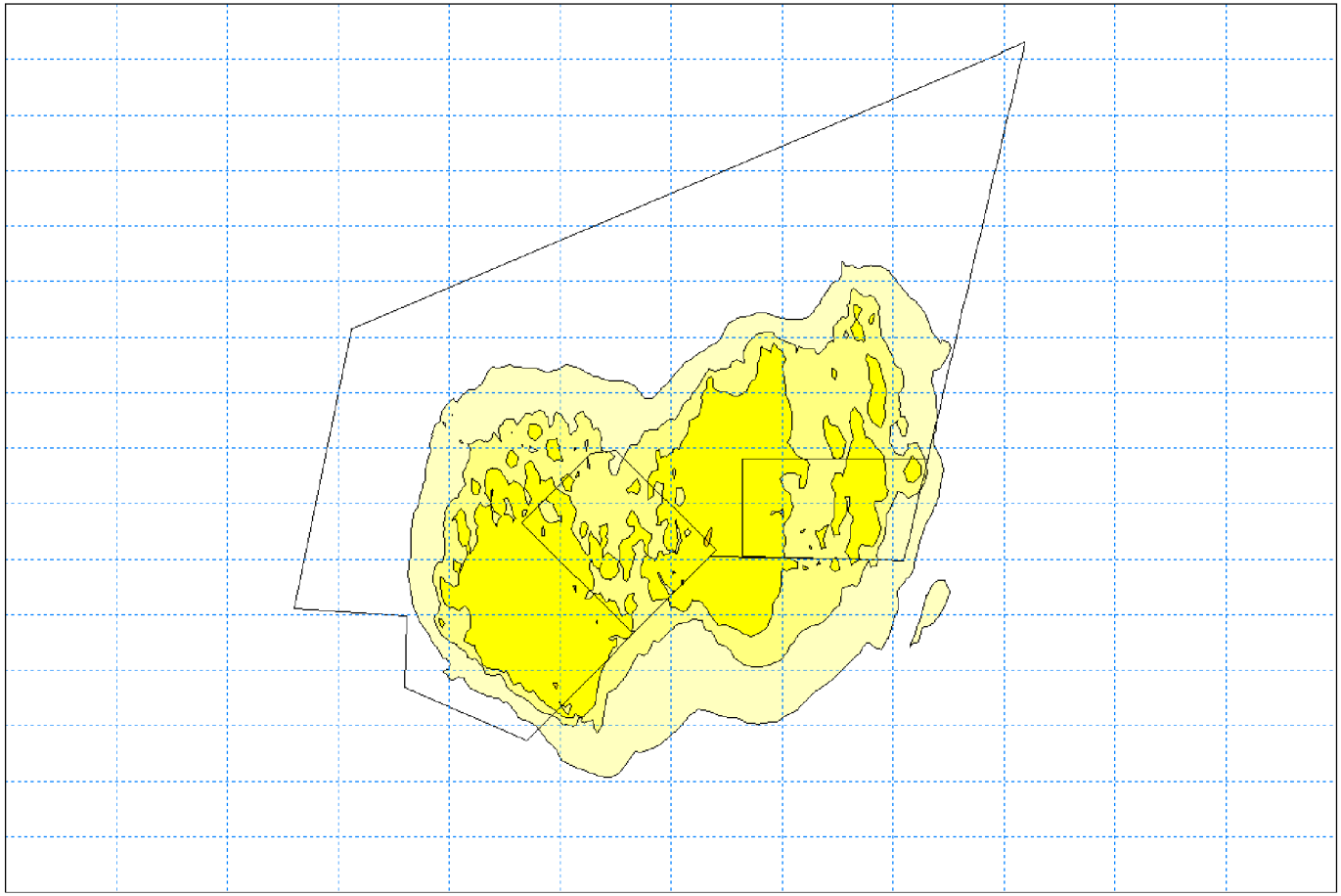
DRAWING NUMBER:

**9X5889/04/105**

| SCALE | PLOT SIZE | DATUM | PROJECTION |
|---|---|---|---|
| Taken from image | A4 | WGS84 | UTM31N |



FOREWIND



**LEGEND**

Sediment Thickness (mm)

- Above 100
- 50 - 100
- 10 - 50
- 5 - 10
- 1 - 5
- 0.5 - 1
- 0.1 - 0.5
- Below 0.1

0 20

Kilometres

Data Source:
Image supplied by Danish Hydraulic Institute

PROJECT TITLE

*DOGGER BANK TEESSIDE A & B*

DRAWING TITLE

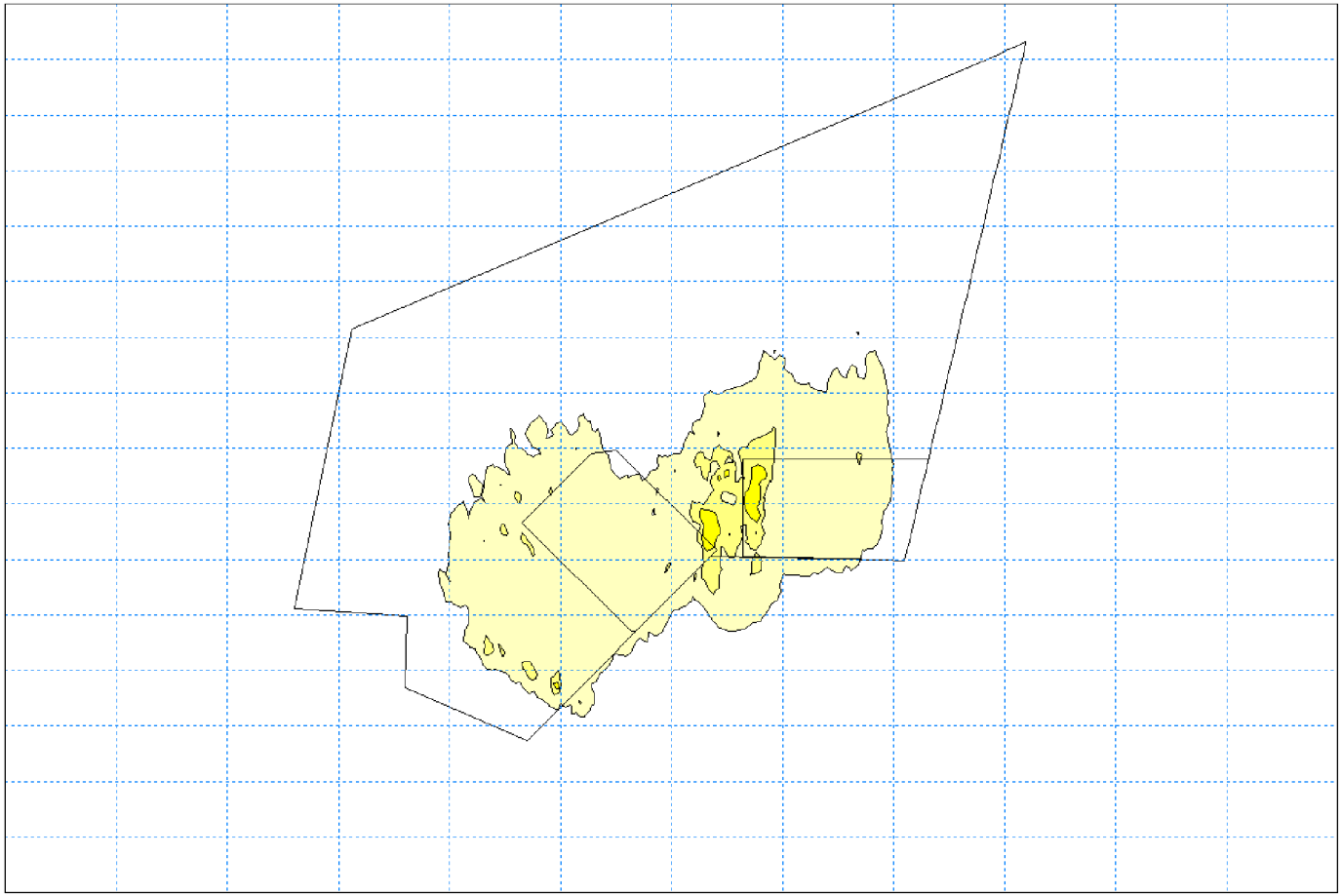
**Figure 5.21 Maximum Deposition Predicted over the Simulation Period after Two Years of Operation using the Re-suspension of Fractions 1 and 2 Method**

| VER | DATE | REMARKS | Drawn | Checked |
|---|---|---|---|---|
| 1 | 08/04/2013 | Draft | FK | DB |
| 2 | 01/10/2013 | Final | LW | DB |
| | | | | |

DRAWING NUMBER:

**9X5889/04/106**

| SCALE | PLOT SIZE | DATUM | PROJECTION |
|---|---|---|---|
| Taken from image | A4 | WGS84 | UTM31N |



**LEGEND**

Sediment Thickness (mm)

- Above 100
- 50 - 100
- 10 - 50
- 5 - 10
- 1 - 5
- 0.5 - 1
- 0.1 - 0.5
- Below 0.1

0 20

Kilometres

Data Source:
Image supplied by Danish Hydraulic Institute

PROJECT TITLE

*DOGGER BANK TEESSIDE A & B*

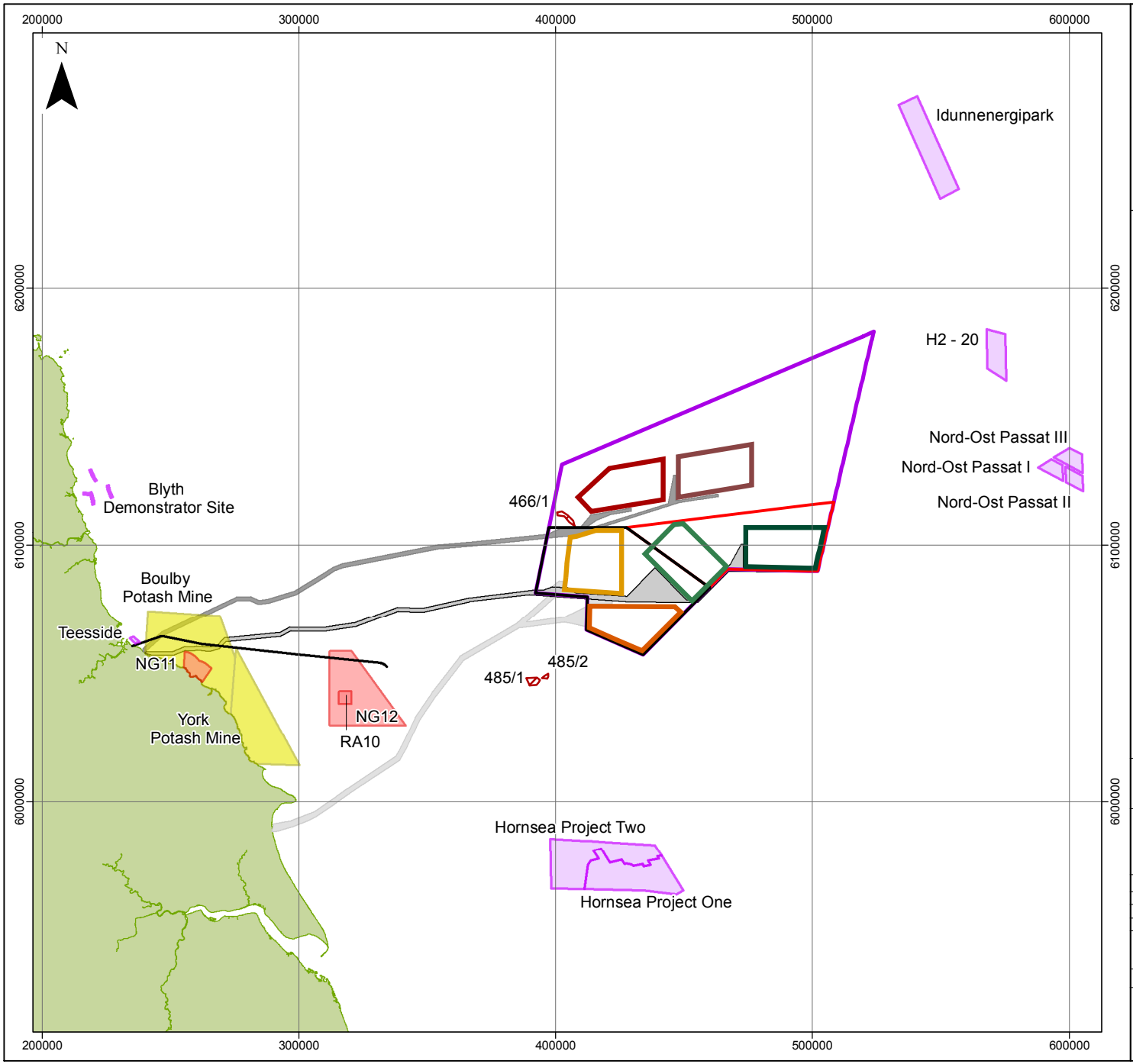
DRAWING TITLE

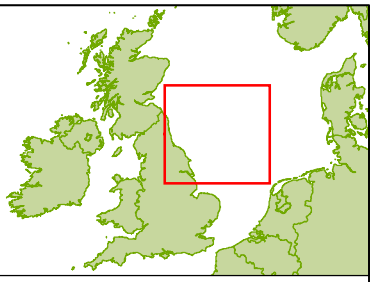
**Figure 5.22 Average Deposition Predicted over the Simulation Period after Two Years of Operation using the Re-suspension of Fractions 1 and 2 Method**

| VER | DATE | REMARKS | Drawn | Checked |
|---|---|---|---|---|
| 1 | 08/04/2013 | Draft | FK | DB |
| 2 | 01/10/2013 | Final | LW | DB |
| | | | | |

DRAWING NUMBER: **9X5889/04/107**

| SCALE | PLOT SIZE | DATUM | PROJECTION |
|---|---|---|---|
| Taken from image | A4 | WGS84 | UTM31N |



**LEGEND**

- Dogger Bank Zone
- Tranche A Boundary
- Tranche B Boundary
- Dogger Bank Creyke Beck A
- Dogger Bank Creyke Beck B
- Dogger Bank Teesside A
- Dogger Bank Teesside B
- Dogger Bank Teesside C
- Dogger Bank Teesside D
- Dogger Bank Teesside A & B Export Cable Corridor
- Dogger Bank Creyke Beck A & B ExportCable Corridor
- Dogger Bank Teesside C & D Export Cable Corridor
- Aggregate Application
- Recommended Marine Conservation Zone (NG) & Recommended Reference Area (NG RA)
- Wind Farm
- Breagh Pipeline
- Potash Mine

0 20 40
Kilometres

Data Source:
Potash mines data © The Crown Estate, 2012
Breagh pipeline data provided by RWE Dea UK
Aggregate dredging areas © The Crown Estate, 2013
Offshore wind farm boundaries © Crown Copyright, 2013

PROJECT TITLE

*DOGGER BANK TEESSIDE A & B*

DRAWING TITLE

**Figure 7.1 Cumulative Effects Considered for Marine Physical Processes**

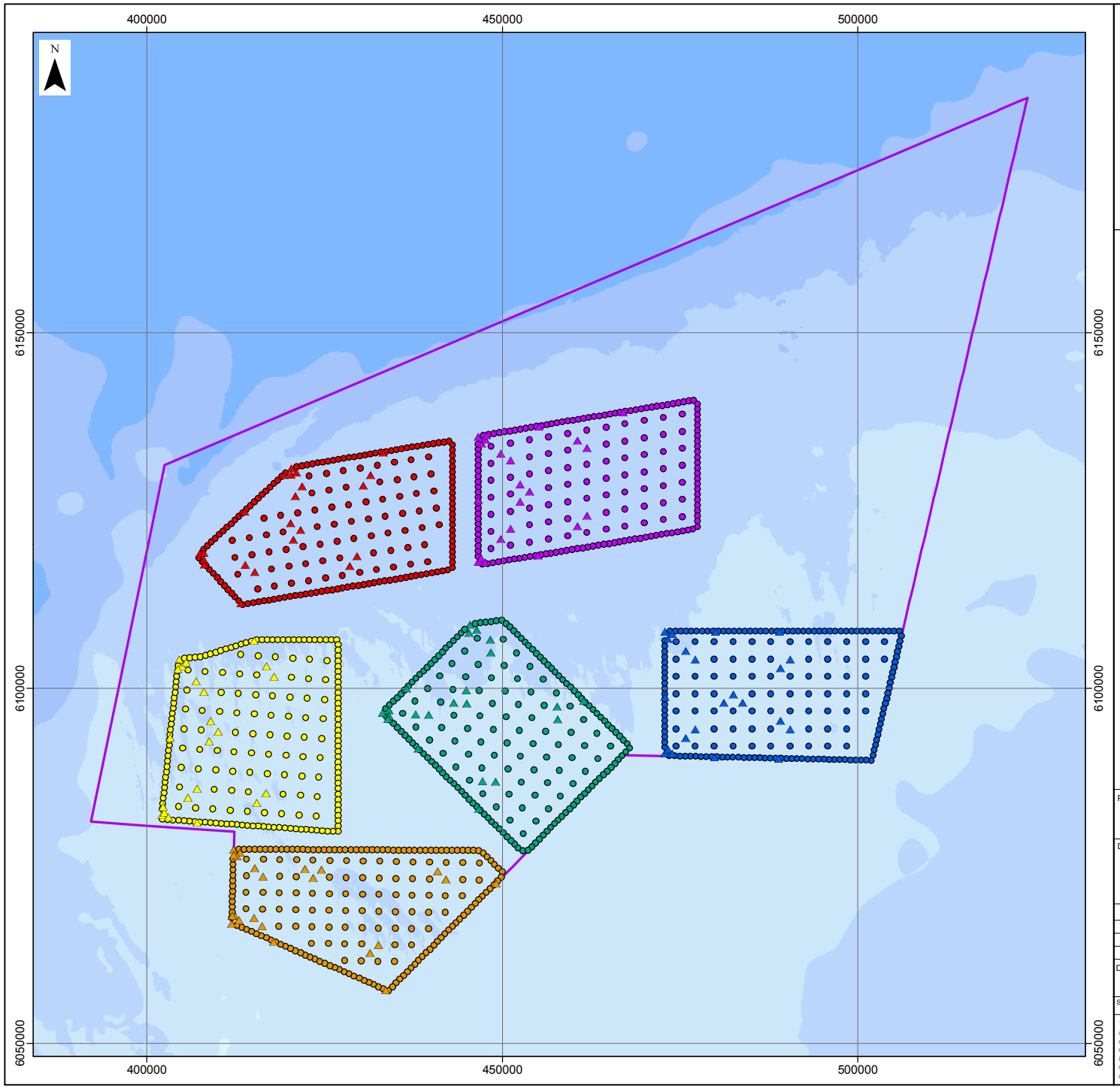
| VER | DATE | REMARKS | Drawn | Checked |
|---|---|---|---|---|
| 1 | 21/02/2013 | Draft | FK | DB |
| 2 | 15/10/2013 | Final | LW | DB |
| | | | | |

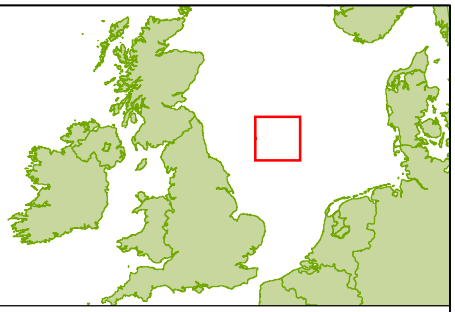
DRAWING NUMBER: **9X5889/04/108**

| SCALE | PLOT SIZE | DATUM | PROJECTION |
|---|---|---|---|
| 1:2,250,000 | A4 | WGS84 | UTM31N |



FOREWIND



**LEGEND**

- Dogger Bank Zone

Dogger Bank Creyke Beck A 6MW
- Turbine
- Other Structure

Dogger Bank Creyke Beck B 6MW
- Turbine
- Other Structure

Dogger Bank Teesside A 6MW
- Turbine
- Other Structure

Dogger Bank Teesside B 6MW
- Turbine
- Other Structure

Dogger Bank Teesside C 6MW
- Turbine
- Other Structure

Dogger Bank Teesside D 6MW
- Turbine
- Other Structure

0 25

Kilometres

Data Source:
© UKDeal
Round 3 © TCE, 2010.
Background bathymetry image derived in part from TCarta data © 2009

PROJECT TITLE

*DOGGER BANK TEESSIDE A & B*

DRAWING TITLE

**Figure 7.2 Cumulative 6MW Layouts for Teesside A, B, C and D, and Creyke Beck A and B**

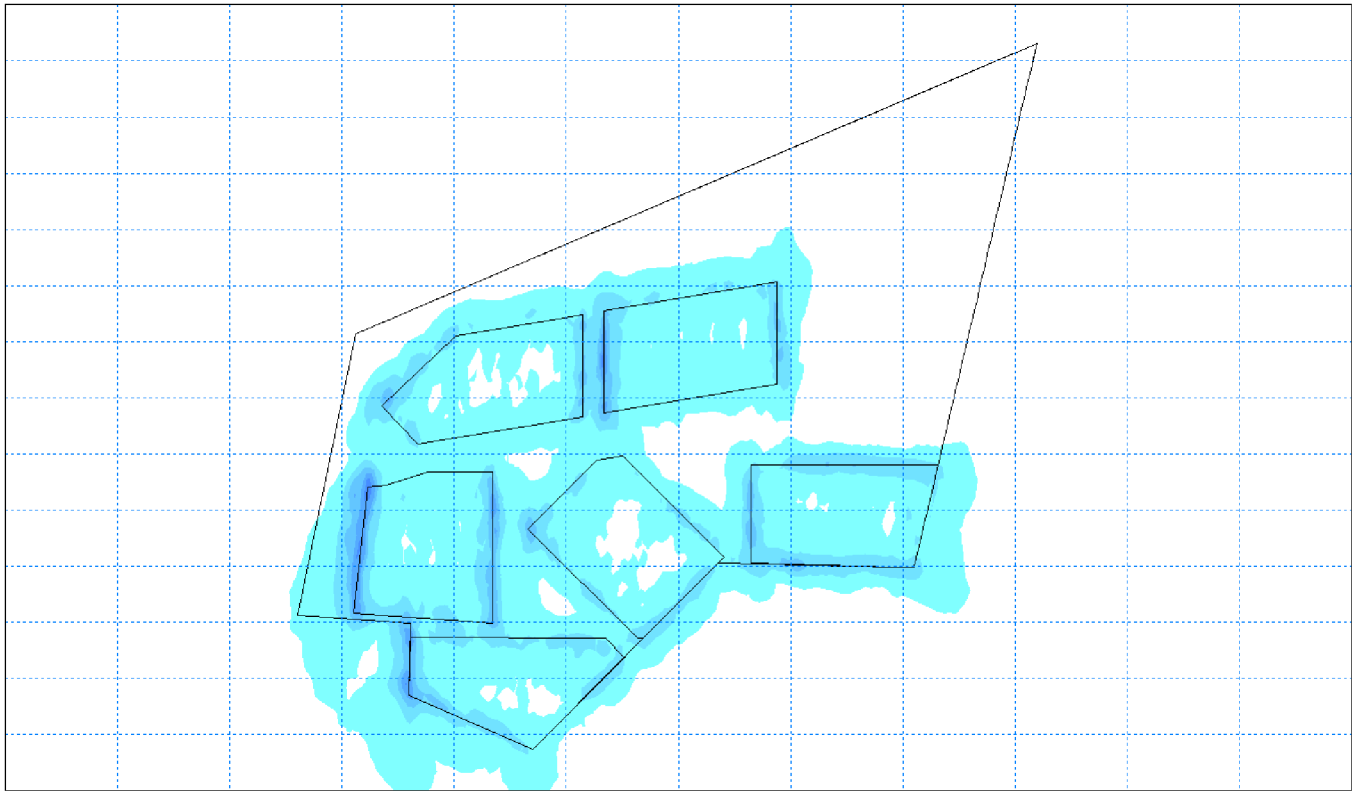
| VER | DATE | REMARKS | Drawn | Checked |
|---|---|---|---|---|
| 1 | 30/04/2013 | Draft | FK | DB |
| 2 | 15/10/2013 | Final | LW | DB |
| | | | | |

DRAWING NUMBER: **9X5889/04/109**

| SCALE | PLOT SIZE | DATUM | PROJECTION |
|---|---|---|---|
| 1:800,000 | A4 | WGS84 | UTM31N |



FOREWIND



**LEGEND**

Change in Current Velocity (m/s)

- Above 0.020
- 0.018 - 0.020
- 0.016 - 0.018
- 0.014 - 0.016
- 0.012 - 0.014
- 0.010 - 0.012
- 0.008 - 0.010
- 0.006 - 0.008
- 0.004 - 0.006
- 0.002 - 0.004
- Below 0.002

0 20

Kilometres

Data Source:
Image supplied by Danish Hydraulic Institute

PROJECT TITLE

*DOGGER BANK TEESSIDE A & B*

DRAWING TITLE

**Figure 7.3 Maximum Predicted Cumulative Change in Depth-averaged Tidal Current Velocity Caused by 6MW Conical GBS# 1 Foundations**

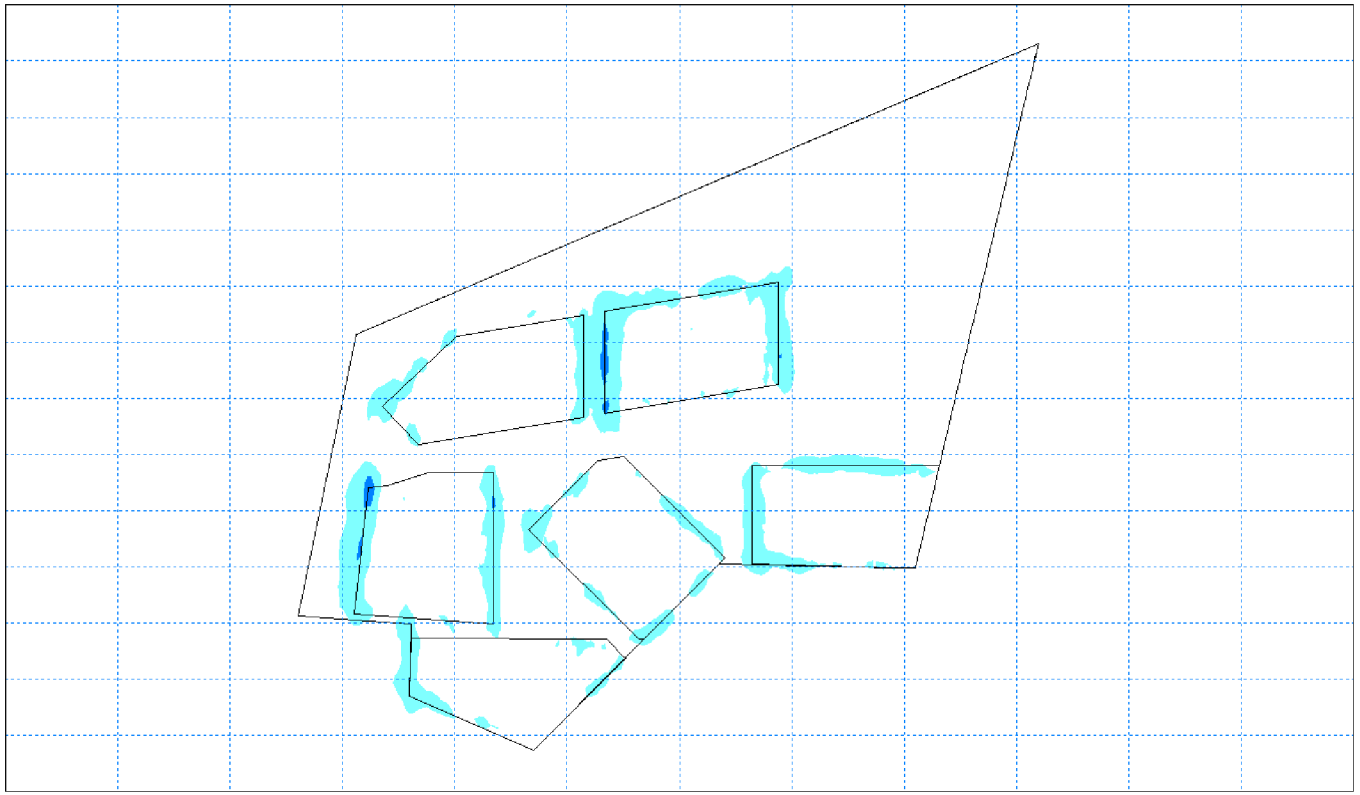
| VER | DATE | REMARKS | Drawn | Checked |
|---|---|---|---|---|
| 1 | 08/04/2013 | Draft | FK | DB |
| 2 | 01/10/2013 | Final | LW | DB |
| | | | | |

DRAWING NUMBER: **9X5889/04/110**

| SCALE | PLOT SIZE | DATUM | PROJECTION |
|---|---|---|---|
| Taken from image | A4 | WGS84 | UTM31N |



FOREWIND



**LEGEND**

Change in Current Velocity (%)

- Above 5
- 4 - 5
- 3 - 4
- 2 - 3
- 1 - 2
- Below 1

0 20

Kilometres

Data Source:
Image supplied by Danish Hydraulic Institute

PROJECT TITLE

*DOGGER BANK TEESSIDE A & B*

DRAWING TITLE

**Figure 7.4 Maximum Percentage Cumulative Change in Depth-averaged Tidal Current Velocity Caused by 6MW Conical GBS# 1 Foundations**

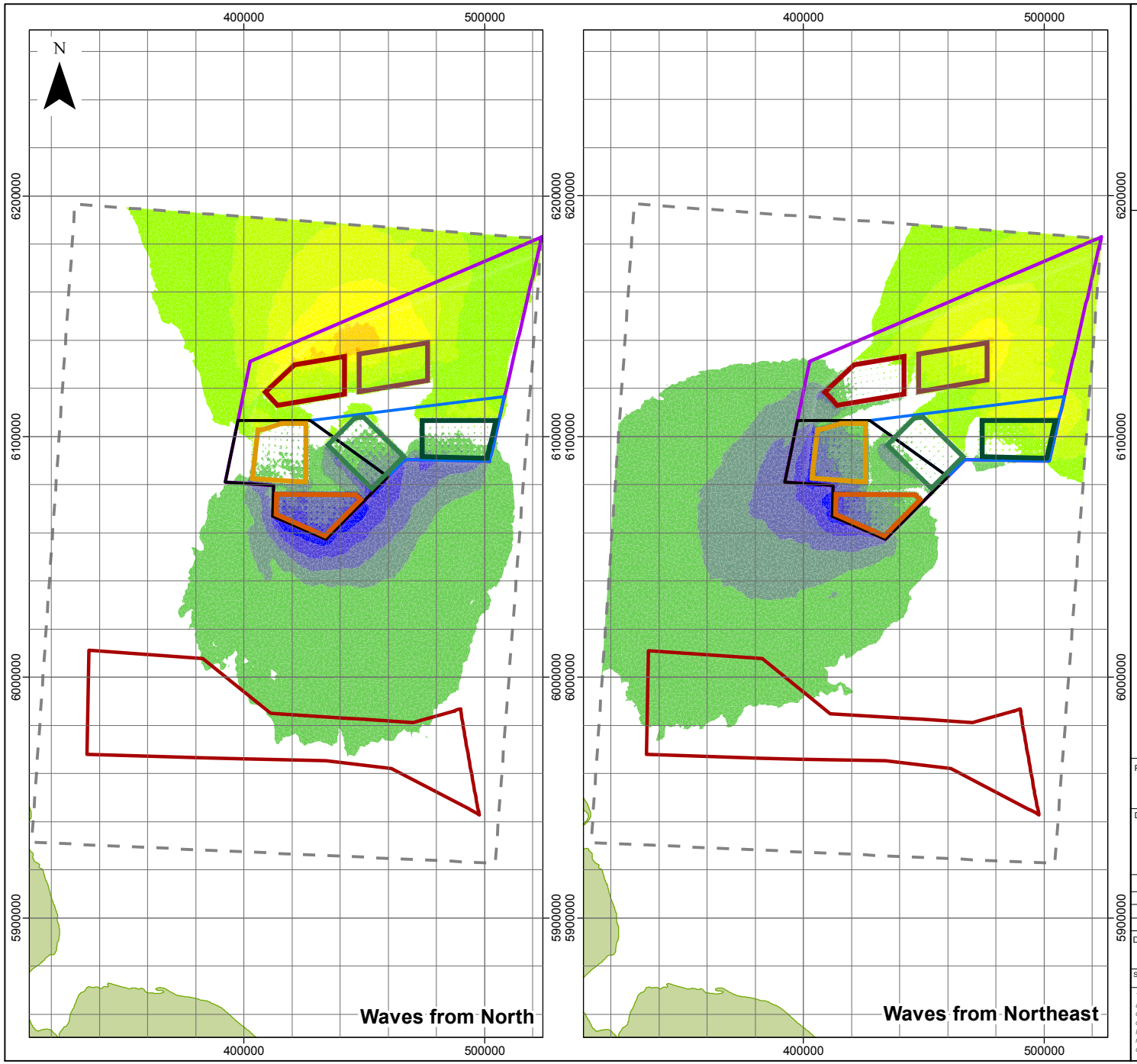
| VER | DATE | REMARKS | Drawn | Checked |
|---|---|---|---|---|
| 1 | 08/04/2013 | Draft | FK | DB |
| 2 | 01/10/2013 | Final | LW | DB |
| | | | | |

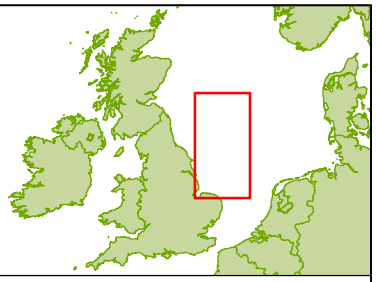
DRAWING NUMBER: **9X5889/04/111**

| SCALE | PLOT SIZE | DATUM | PROJECTION |
|---|---|---|---|
| Taken from image | A4 | WGS84 | UTM31N |



FOREWIND



## LEGEND

Change in Significant Wave Height (m)

- Above 0.09
- 0.08 - 0.09
- 0.07 - 0.08
- 0.06 - 0.07
- 0.05 - 0.06
- 0.04 - 0.05
- 0.03 - 0.04
- 0.02 - 0.03
- 0.01 - 0.02
- 0.00 - 0.01
- -0.01 - 0.00
- -0.02 - -0.01
- -0.03 - -0.02
- -0.04 - -0.03
- -0.05 - -0.04
- -0.06 - -0.05
- -0.07 - -0.06
- -0.08 - -0.07
- -0.09 - -0.08
- Below -0.09

- Dogger Bank Zone
- Dogger Bank Creyke Beck A
- Dogger Bank Creyke Beck B
- Dogger Bank Teesside A
- Dogger Bank Teesside B
- Dogger Bank Teesside C
- Dogger Bank Teesside D
- Tranche A Boundary
- Tranche B Boundary
- Hornsea Offshore Wind Farm
- Model Boundary

0 50

Kilometres

Data Source:
Round 3 offshore wind farm boundary © Crown Copyright, 2013

PROJECT TITLE

*DOGGER BANK TEESSIDE A & B*

DRAWING TITLE

**Figure 7.5 Cumulative Changes to Significant Wave Height for One-year Waves from the North and Northeast Caused by 6MW Conical GBS#1 Foundations**

| VER | DATE | REMARKS | Drawn | Checked |
|---|---|---|---|---|
| 1 | 26/06/2013 | Draft | FK | DB |
| 2 | 01/10/2013 | Final | LW | DB |
| | | | | |

DRAWING NUMBER: **9X5889/04/112**

| SCALE | PLOT SIZE | DATUM | PROJECTION |
|---|---|---|---|
| 1:2,400,000 | A4 | WGS84 | UTM31N |



FOREWIND