



# MORAY WEST

## OFFSHORE WINDFARM

Offshore Wind Farm and Offshore Transmission Infrastructure (OfTI) Application Addendum

Moray Offshore Windfarm (West) Limited

Volume 2: Figures

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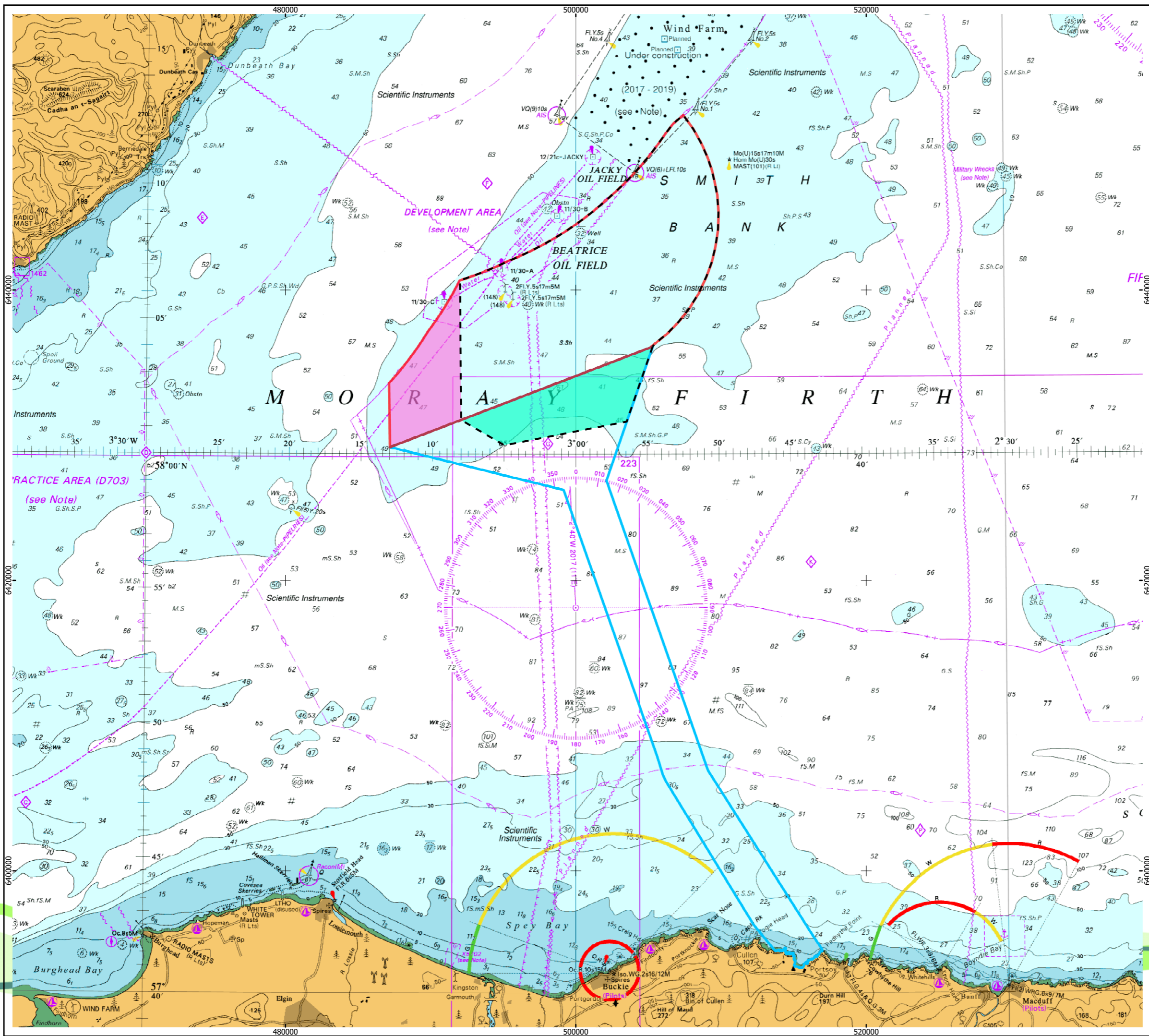
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# MORAY WEST OFFSHORE WINDFARM

- KEY**
- Alternative Moray West Site
  - Current Moray West Site
  - Offshore Export Cable Corridor
  - Proposed Mitigation Area
  - Proposed Variation Area

Horizontal Scale: 1:250,000 A3 Chart  
 0 4,800 9,600 Meters

Geodetic Parameters: WGS84 UTM Zone 30N

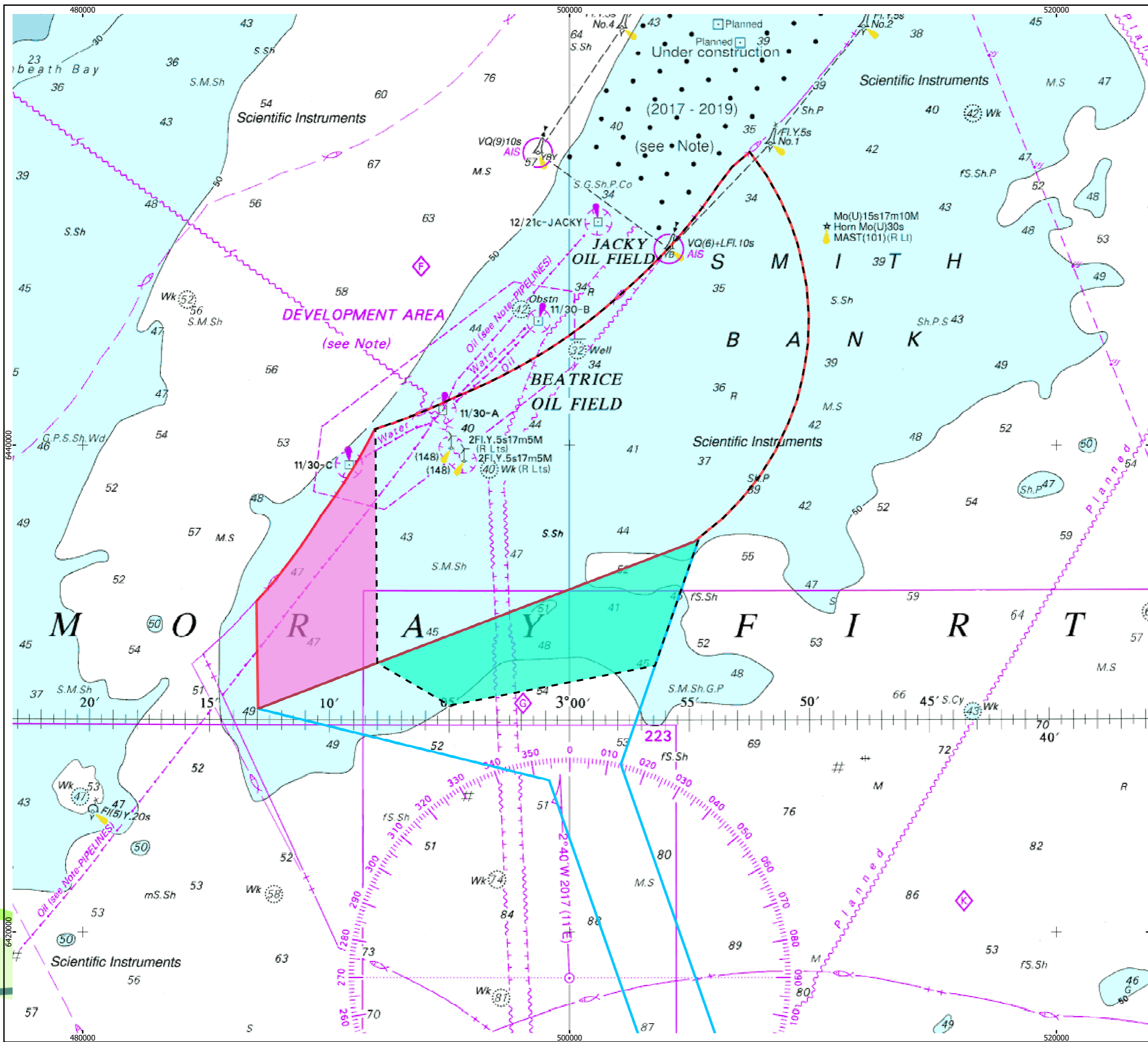
Produced: MG  
 Reviewed: DO  
 Approved: SE

Date: 15/11/2018 Revision: B  
 REF: 8460005-DBDC01C-MWW-MAP-000001

**Figure 1.1: Overview of Site Boundary Amendments**

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- KEY**
- Alternative Moray West Site
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  - Offshore Export Cable Corridor
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  - Proposed Variation Area

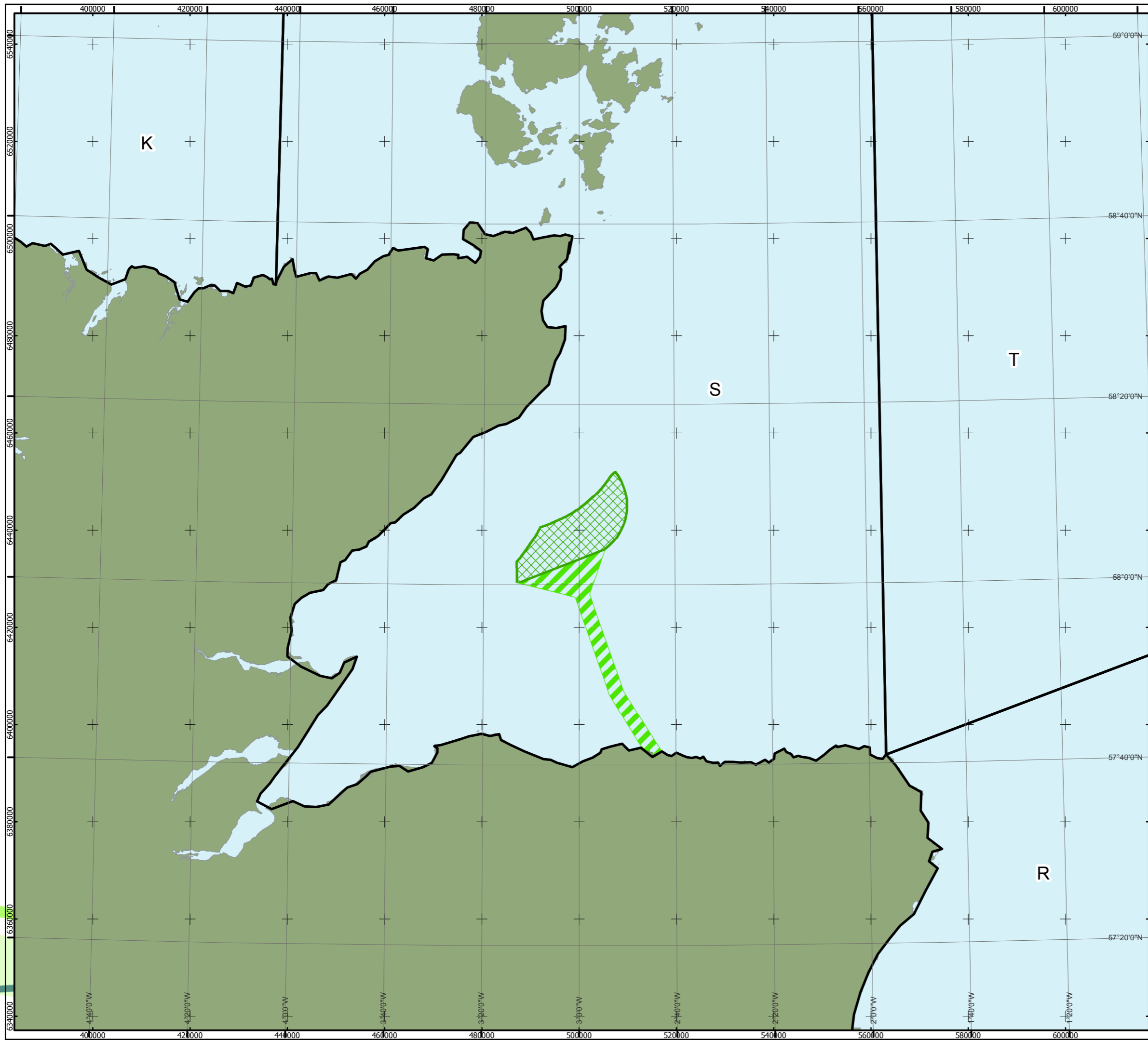
Horizontal Scale: 1:150,000 A3 Chart

Geodetic Parameters: WGS84 UTM Zone 30N	
Produced: MG	
Reviewed: DO	
Approved: SE	
Date: 15/11/2018	Revision: B
REF: 8460005-DBDC01C-MWW-MAP-000002	

**Figure 1.2:**  
Boundary Amendments




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# MORAY WEST OFFSHORE WINDFARM

## KEY

-  Moray West Site
-  Offshore Export Cable Corridor
-  SCANS-III survey blocks

Horizontal Scale: 1:750,000

A3 Chart

0 15,000 30,000 Meters

N

Geodetic Parameters: WGS84 UTM Zone 30N

Produced: RP  
Reviewed: RC  
Approved: SE

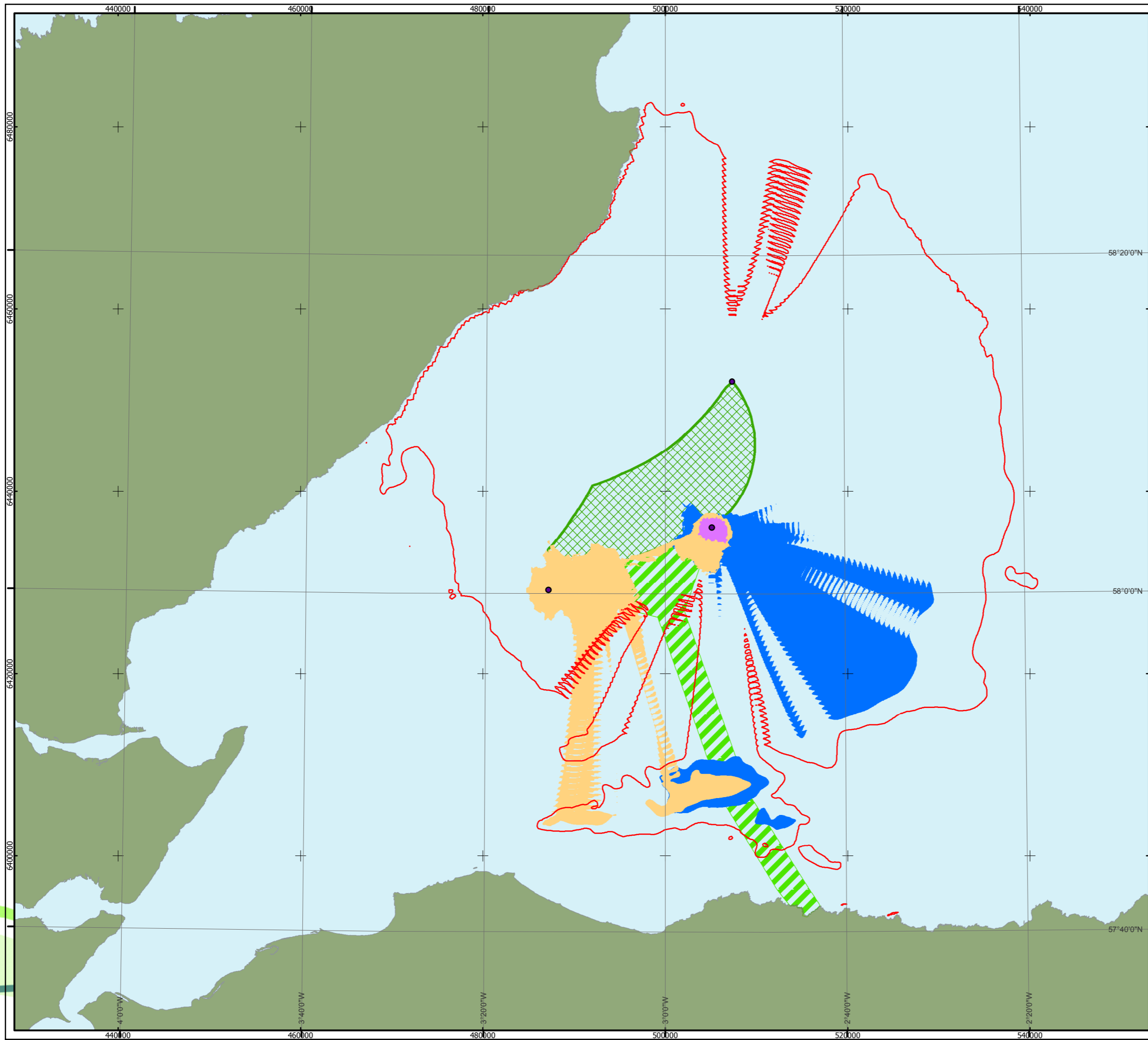
Date: 20/11/2018 Revision: A

REF: 8460005-DBDB03-SMR-MAP-001

Figure 2 SCANS III  
Survey Blocks

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# MORAY WEST OFFSHORE WINDFARM

## KEY

-  Moray West Site
-  Offshore Export Cable Corridor
-  Noise Modelling Locations
-  Concurrent Pin-piles
-  Single Monopile
-  Concurrent Monopiles
-  Single Pin-pile

Horizontal Scale: 1:400,000

A3 Chart

0 8,250 16,500 Meters

N

Geodetic Parameters: WGS84 UTM Zone 30N

Produced: RP  
Reviewed: RC  
Approved: SE

Date: 20/11/2018

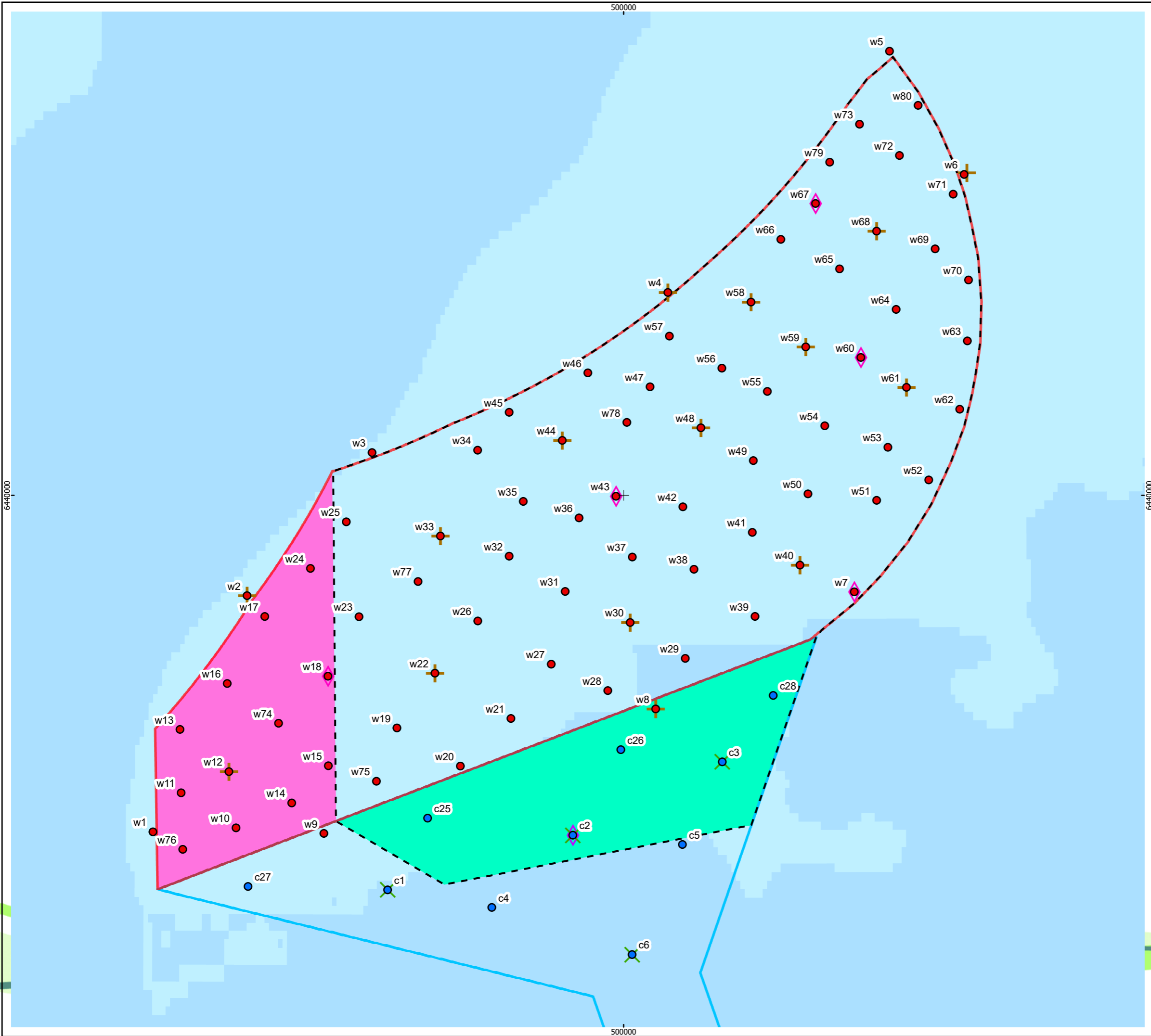
Revision: A

REF: 8460005-DBDB03-SMR-MAP-002

Figure 3 Minke Whale  
PTS Impact Ranges

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# MORAY WEST OFFSHORE WINDFARM

**KEY**

- Moray West DDV & Grab Sites
- Moray West Offshore Export Cable Corridor DDV Sites
- ✕ Moray West Export Cable Corridor PSA Sites
- ◇ Moray West Contaminant Sites
- ◇ Moray West Offshore Export Cable Corridor Contaminant Sites
- ✚ Moray West Beam Trawls
- ⬜ Alternative Moray West Site
- ⬜ Current Moray West Site
- ⬜ Offshore Export Cable Corridor
- Proposed Mitigation Area
- Proposed Variation Area

**Bathymetry (m LAT)**

- ≤100
- ≤50

Horizontal Scale: 1:100,000      A3 Chart      N

Geodetic Parameters: WGS84 UTM Zone 30N

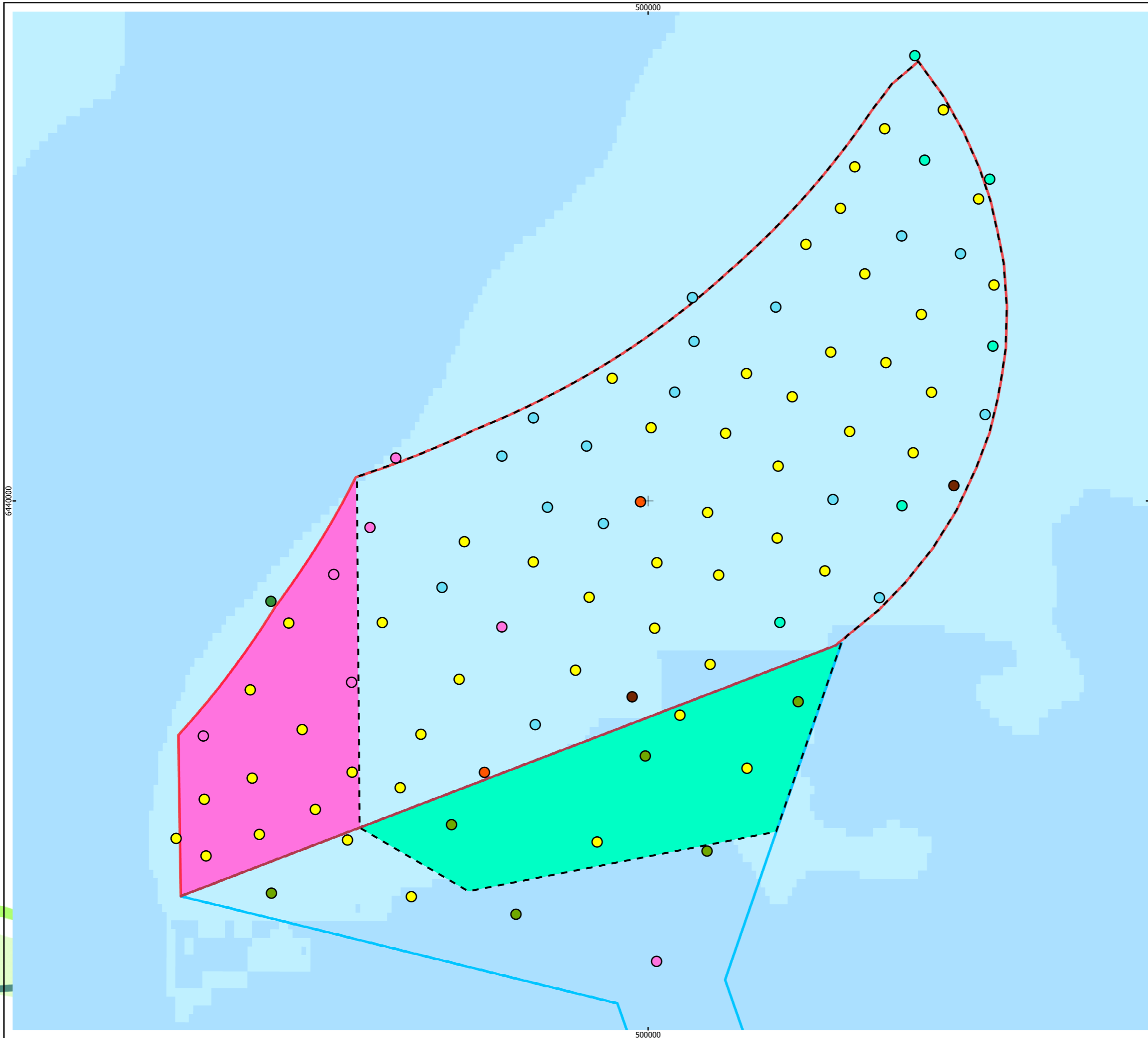
Produced: MG  
Reviewed: LF  
Approved: SE

Date: 14/11/2018      Revision: B

REF:8460005-DBDC04C-MWW-MAP-000001

**Figure 4.1: Benthic Ecology  
Baseline Characterisation Survey  
Area & Stations**

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# MORAY WEST OFFSHORE WINDFARM

## KEY

- Alternative Moray West Site
- Current Moray West Site
- Offshore Export Cable Corridor
- Proposed Mitigation Area
- Proposed Variation Area

## Sediment Type

- Gravel
- Sandy Gravel
- Gravelly Sand
- Slightly Gravelly Sand
- Sand
- Slightly Gravelly Muddy Sand
- Gravelly Muddy Sand
- Muddy Sandy Gravel
- Sandy Mud
- Rippled (slightly muddy) sand often with shell debris

## Bathymetry (m LAT)

- <=100
- <=50

Horizontal Scale: 1:100,000

A3 Chart N

0 1,700 3,400 Meters

Geodetic Parameters: WGS84 UTM Zone 30N

Produced: MG  
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Approved: SE

Date: 15/11/2018

Revision: B

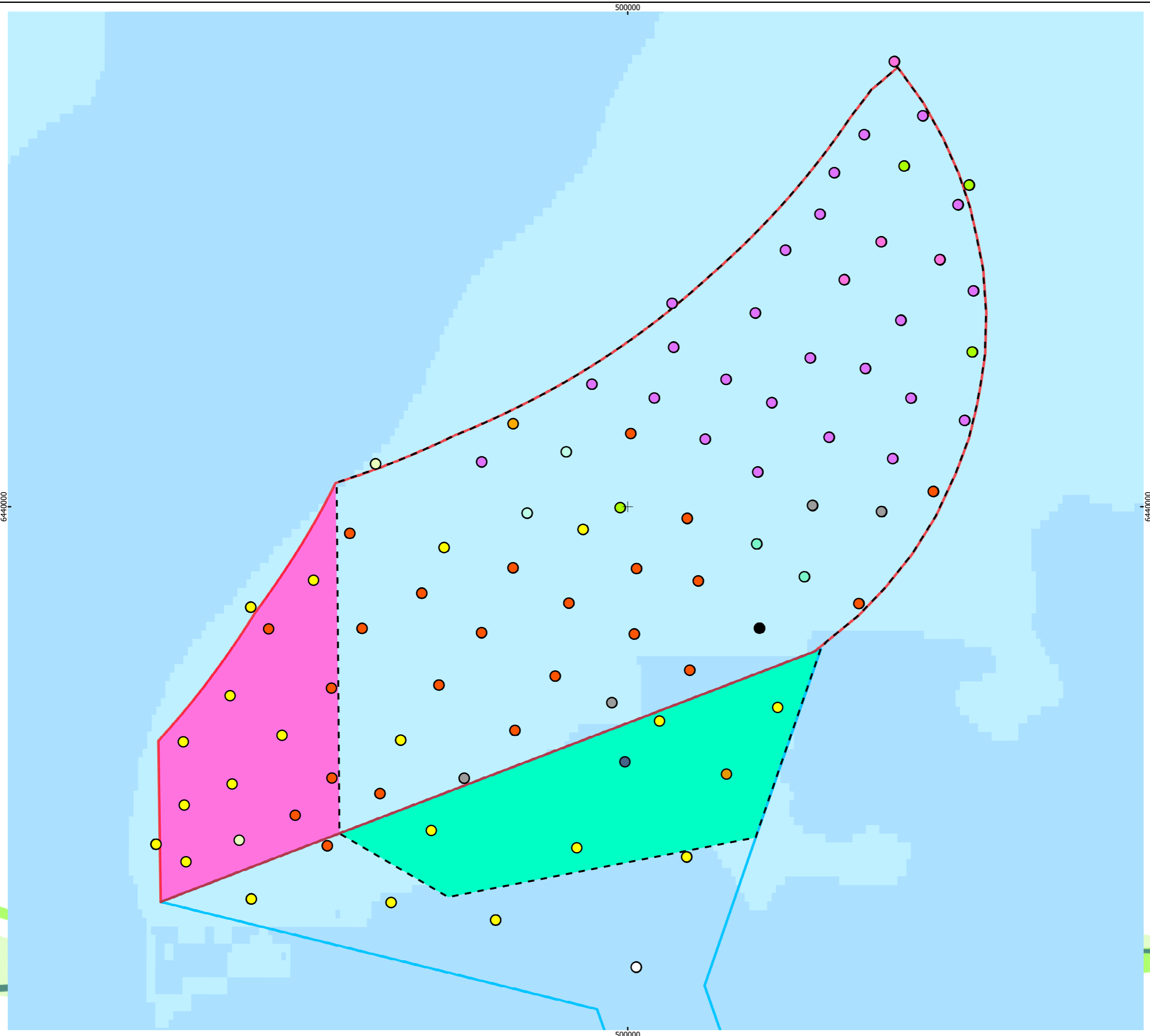
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Figure 4.2: Seabed Sediments  
(derived from survey)

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# MORAY WEST OFFSHORE WINDFARM

- KEY**
- Alternative Moray West Site
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  - Proposed Mitigation Area
  - Proposed Variation Area

- Biotope**
- SS.SCS.ICs.MoeVen
  - SS.SCS.CCS
  - SS.SCS.CCS (SS.SCS.CCS.MedLumVen)
  - SS.SCS.CCS/SS.SMx.CMx
  - SS.SCS.CCS/SS.SMx.CMx (& stony reef)
  - SS.SCS.CCS / SS.SSa.CFiSa.EpusOborApri ?
  - SS.SSa
  - SS.SSa.CFiSa.EpusOborApri (transitional with SS.SCS.ICs.MoeVen?)
  - SS.SSa.CFiSa.EpusOborApri (transitional with SS.SSa.IMuSa.FfabMag ?)
  - SS.SSa.IMuSa.FfabMag ?
  - SSA (SSa.IMuSa.FfabMag ?)
  - SS.SSa/SS.SCS.CCS
  - SS.SSa/SS.SMx.CMx
  - SS.SSa/SS.SMu.CFiMu.SpMmeg ?

- Bathymetry (m LAT)**
- <=100
  - <=50

Horizontal Scale: 1:100,000 A3 Chart

Geodetic Parameters: WGS84 UTM Zone 30N

Produced: MG  
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**Figure 4.3: Biotopes  
(derived from survey)**

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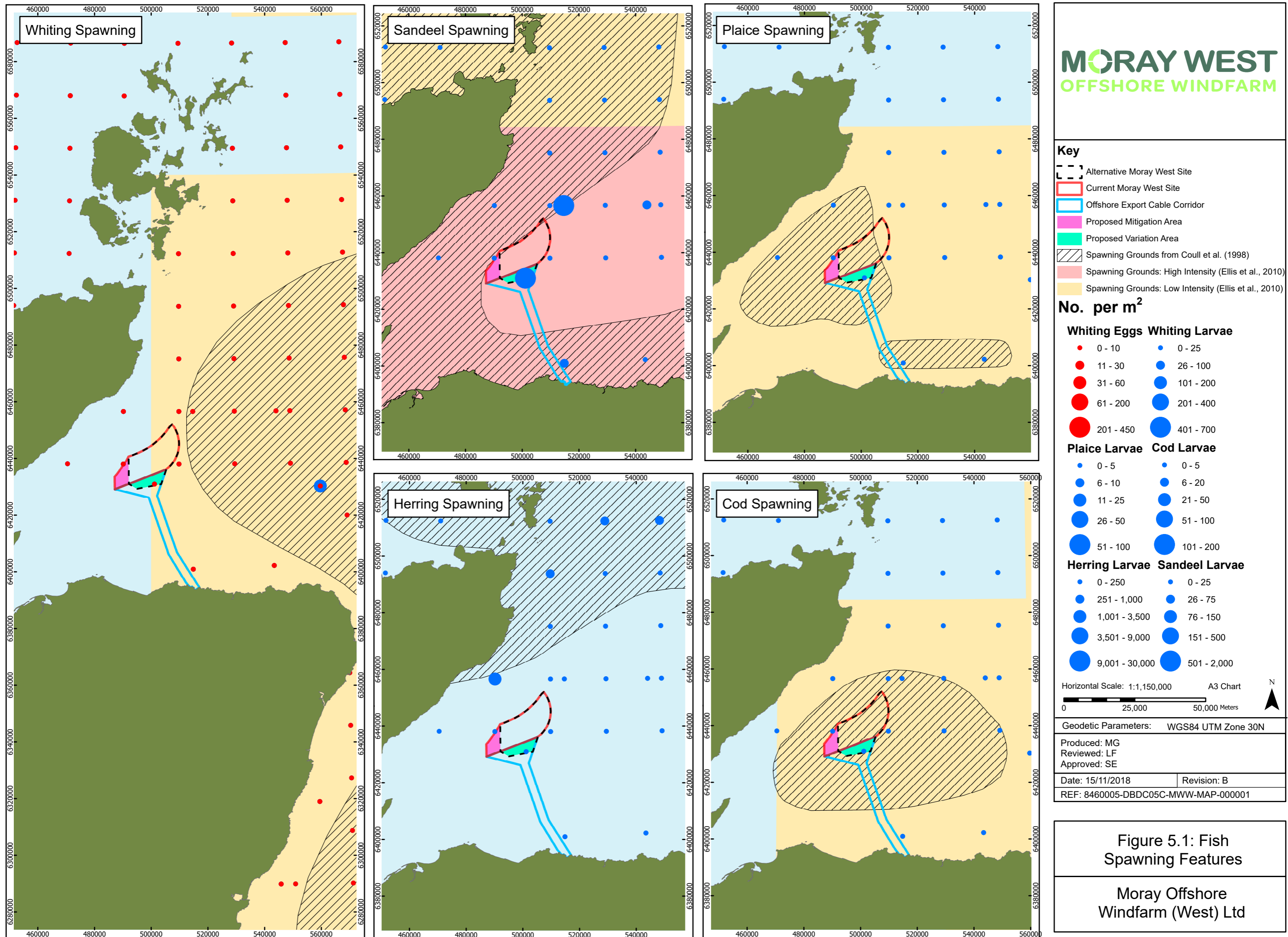
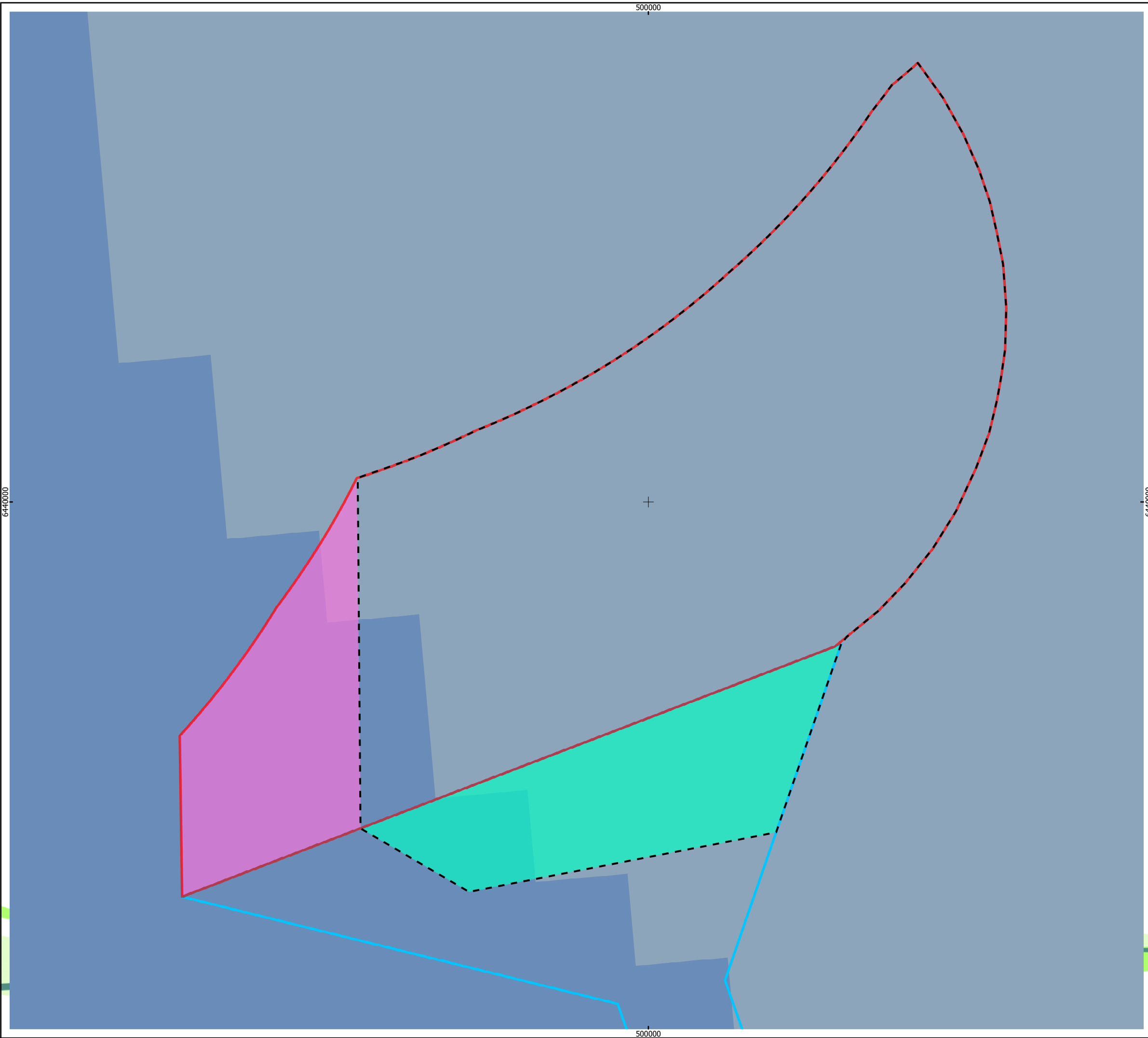


Figure 5.1: Fish Spawning Features

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## KEY

- Alternative Moray West Site
- Current Moray West Site
- Offshore Export Cable Corridor
- Proposed Mitigation Area
- Proposed Variation Area

## IHLS 2007/08-2016/17 data - total per m<sup>2</sup>

- 0.1 - 7,000
- 7,001 - 24,500

Horizontal Scale: 1:100,000      A3 Chart      N

Geodetic Parameters: WGS84 UTM Zone 30N

Produced: MG  
Reviewed: LF  
Approved: SE

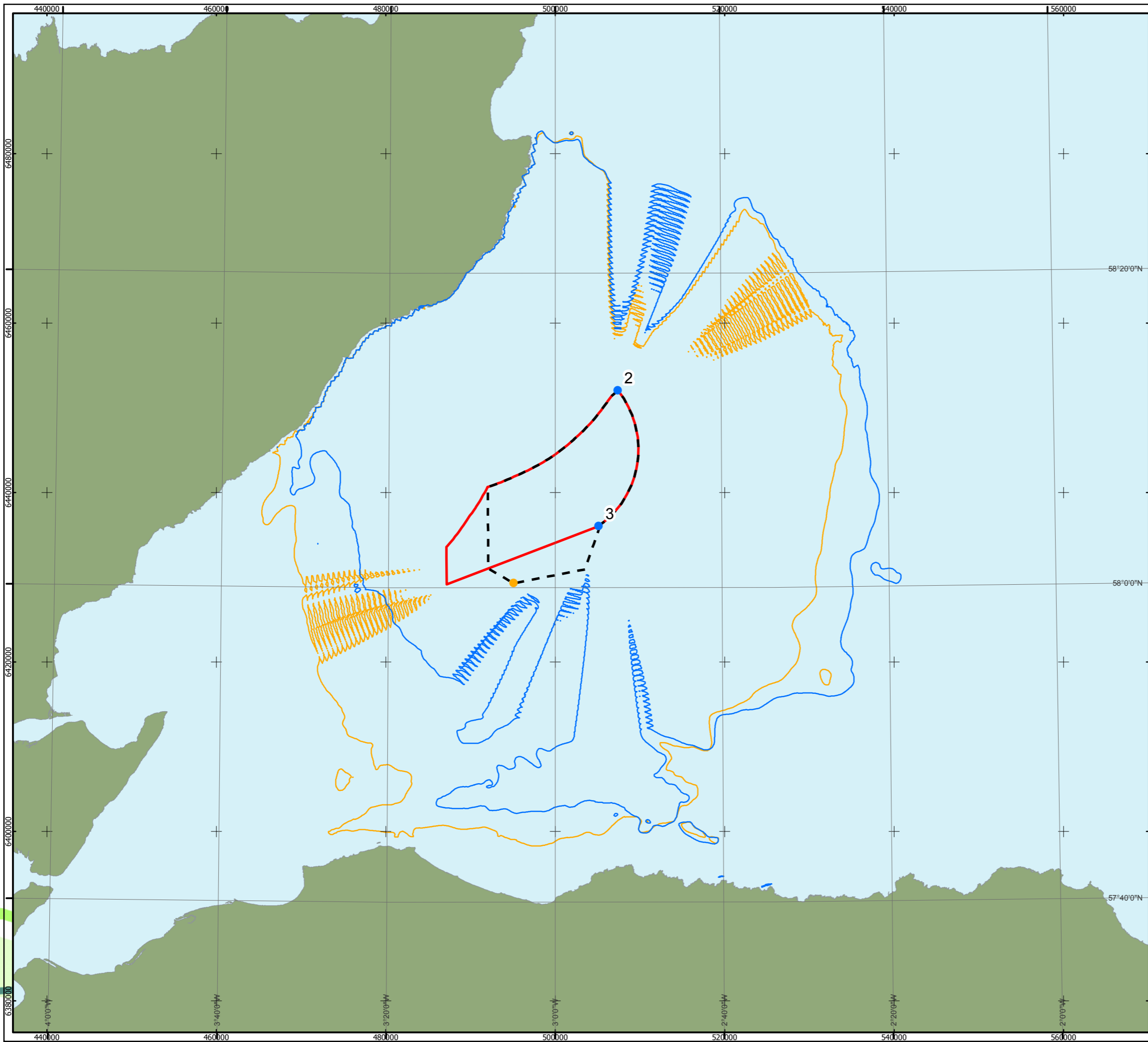
Date: 15/11/2018      Revision: B

REF: 8460005-DBDC05C-MWW-MAP-000002

Figure 5.2: Herring Spawning - IHLS Abundance Heatmap

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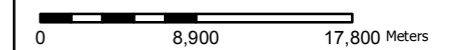
# MORAY WEST OFFSHORE WINDFARM

## KEY

- Alternative Moray West Site
- Current Moray West Site
- Model Locations 2 & 3
- Model Location N
- Location 2&3 Pin-Pile 1% CF
- Location N&2 Pin-Pile 1%CF

Horizontal Scale: 1:431,000

A3 Chart



Geodetic Parameters: WGS84 UTM Zone 30N

Produced: RP  
Reviewed: MG  
Approved: SE

Date: 13/11/2018

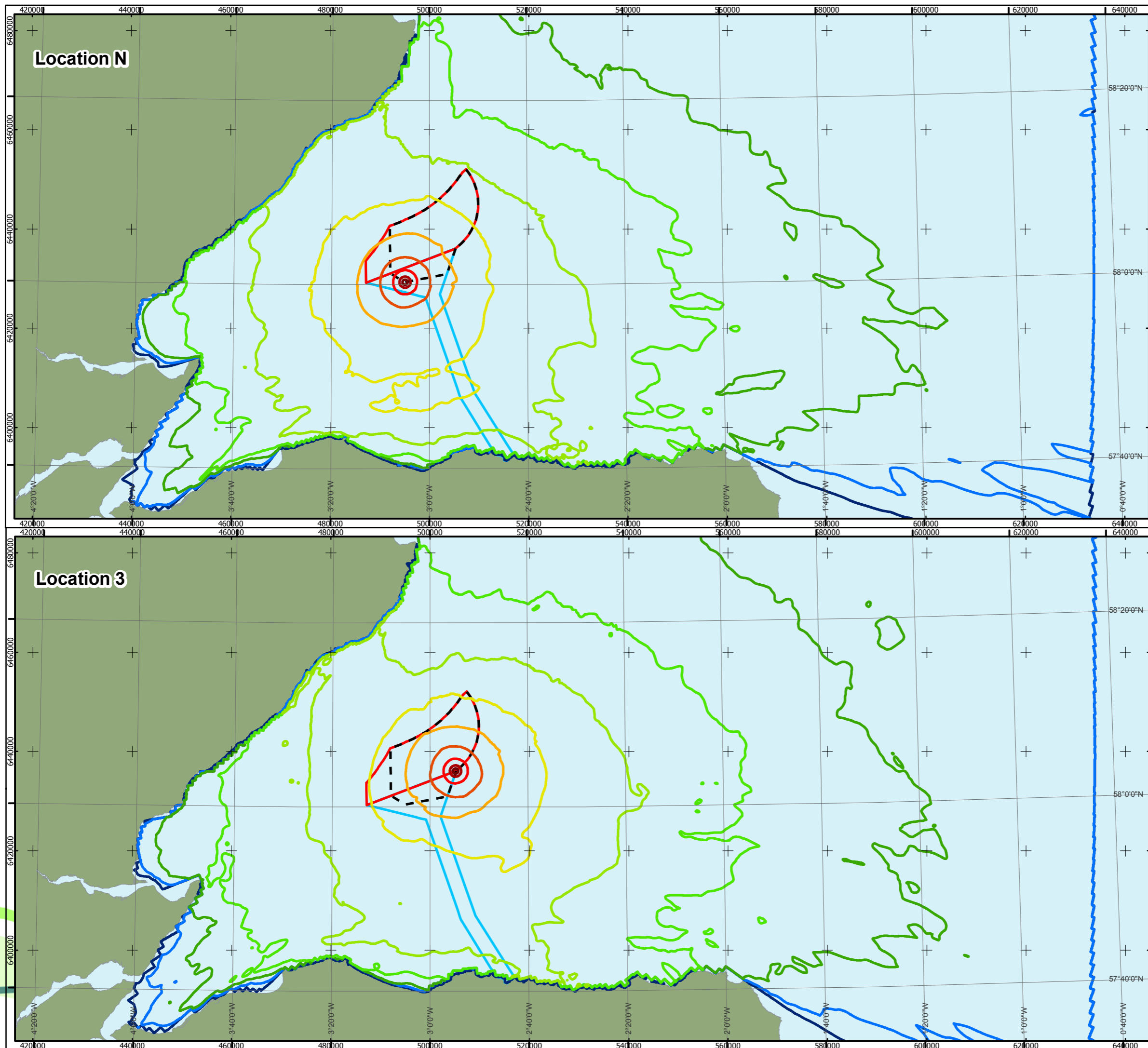
Revision: B

REF: 8460005-DBDD06C-SMR-MAP-000001

Figure 6.1 Minke Whale PTS  
Concurrent Pin-Pile 1% CF

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# MORAY WEST OFFSHORE WINDFARM

## KEY

- Alternative Moray West Site
- Current Moray West Site
- Offshore Export Cable Corridor

### Monopile 5000kJ 0.5%CF

#### Unweighted SELss Noise Contours

- 120 dB
- 125 dB
- 130 dB
- 135 dB
- 140 dB
- 145 dB
- 150 dB
- 155 dB
- 160 dB
- 165 dB
- 170 dB

Horizontal Scale: 1:734,533

A3 Chart

0 15,000 30,000 Meters

Geodetic Parameters: WGS84 UTM Zone 30N

Produced: RP  
Reviewed: MG  
Approved: SE

Date: 13/11/2018

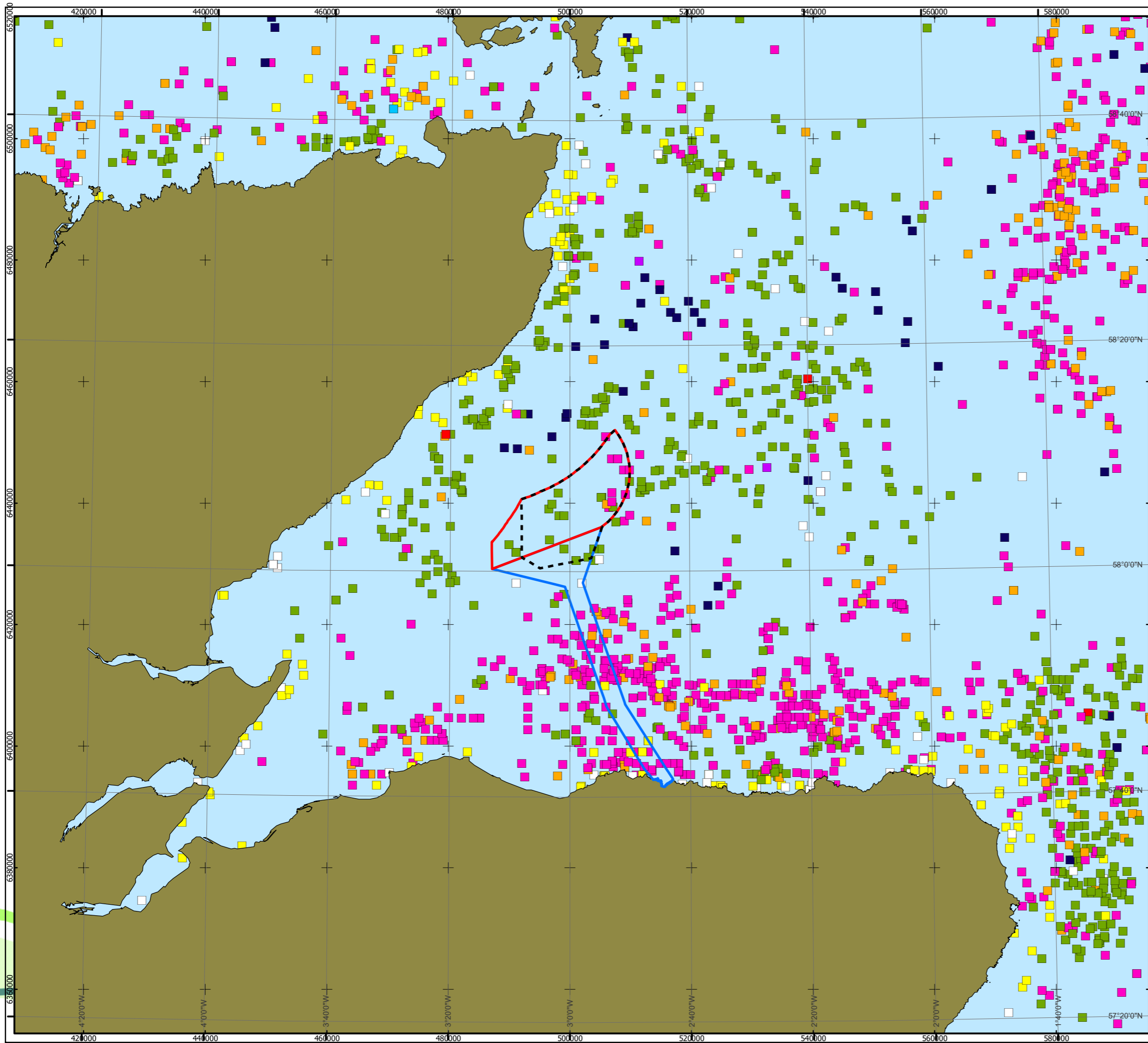
Revision: B

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Figure 6.2 Disturbance Noise  
Contours at Location N & 3

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# MORAY WEST OFFSHORE WINDFARM

## KEY

- Alternative Moray West Site
- Current Moray West Site
- Offshore Export Cable Corridor

## Surveillance Sightings by Method

- Long Liner
- Trawler (Unspecified)
- Creeler
- Beam Trawler
- Demersal Trawler
- Scallop Dredger
- Gill Netter
- Seine Netter
- Other Methods

Horizontal Scale: 1:600,000

0 10,000 20,000 Meters

A3 Chart

N

Geodetic Parameters: WGS84 UTM Zone 30N

Produced: SX  
Reviewed: MG  
Approved: SE

Date: 14/11/2018

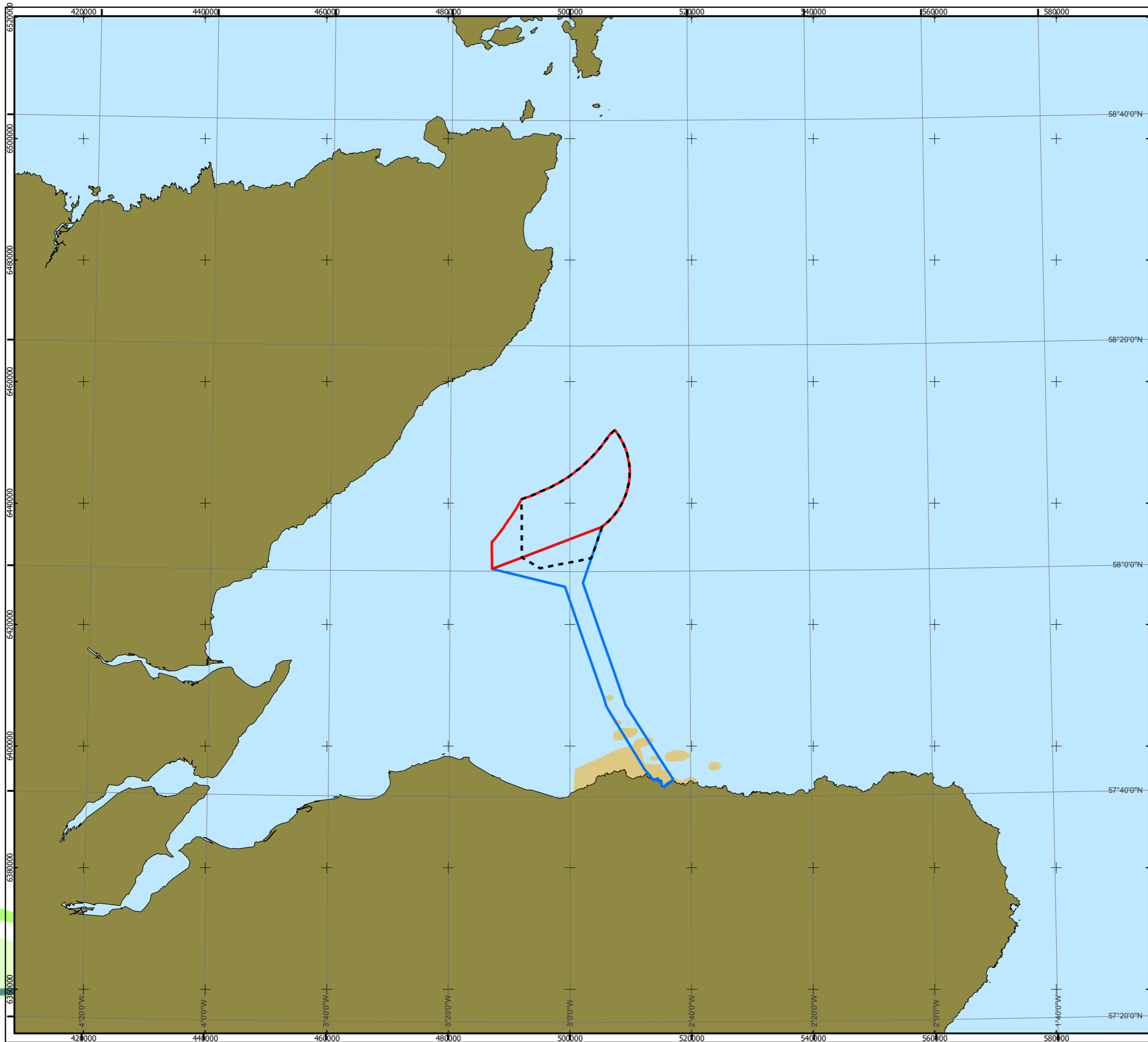
Revision: B

REF: 8460005-DBDD08C-BMM-MAP-000001

Figure 8.1 Surveillance  
Sightings by Method (2012 to 2016)

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# MORAY WEST OFFSHORE WINDFARM

## KEY

- Alternative Moray West Site
- Current Moray West Site
- Offshore Export Cable Corridor
- Creel Fishing Grounds

Horizontal Scale: 1:600,000

0 10,000 20,000 Meters



Geodetic Parameters: WGS84 UTM Zone 30N

Produced: SX  
Reviewed: MG  
Approved: SE

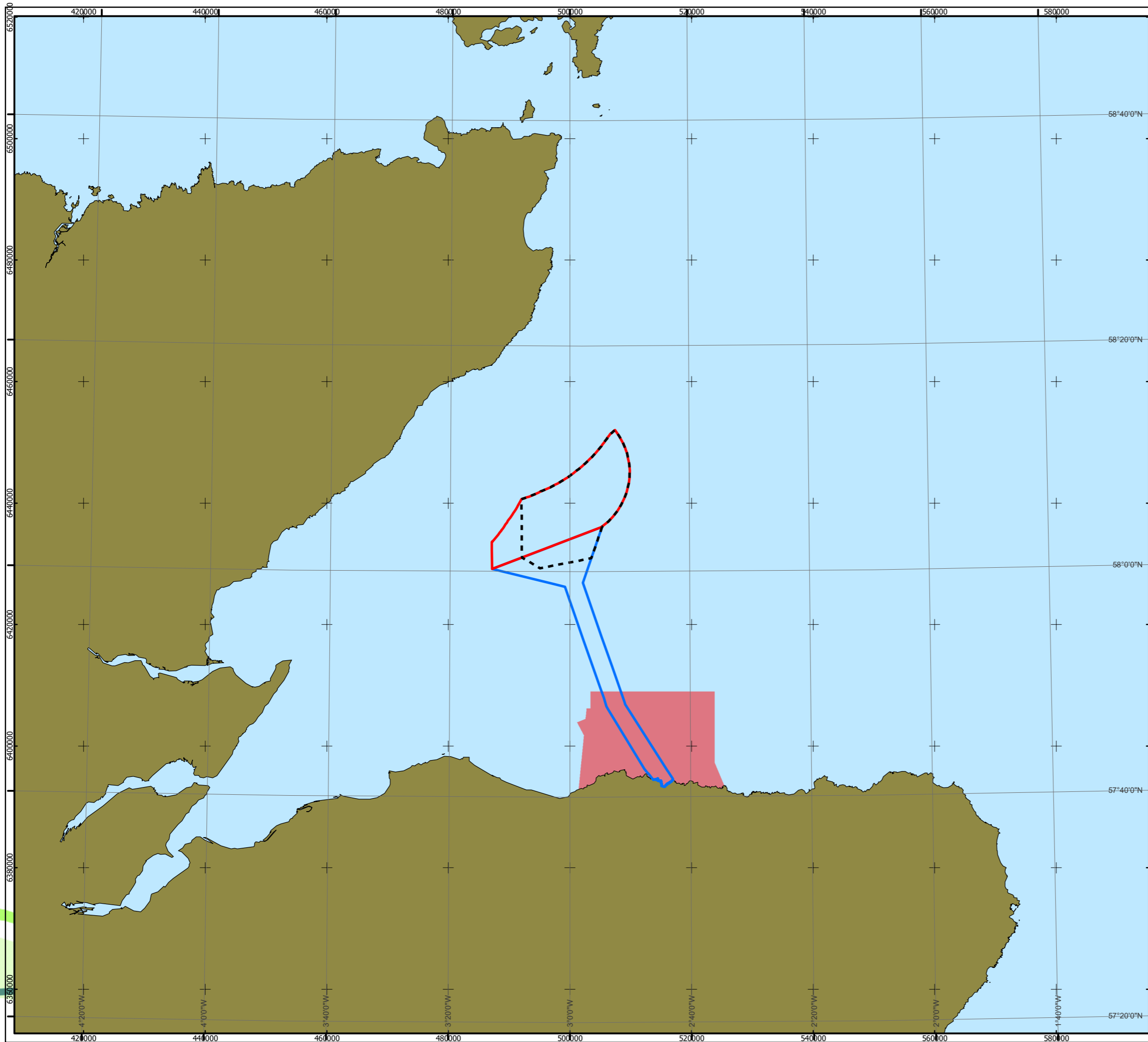
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Figure 8.2  
Creel Fishing Grounds

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# MORAY WEST OFFSHORE WINDFARM

- KEY**
- Alternative Moray West Site
  - Current Moray West Site
  - Offshore Export Cable Corridor
  - Mackerel Fishing Grounds

Horizontal Scale: 1:600,000  
0 10,000 20,000 Meters  
A3 Chart

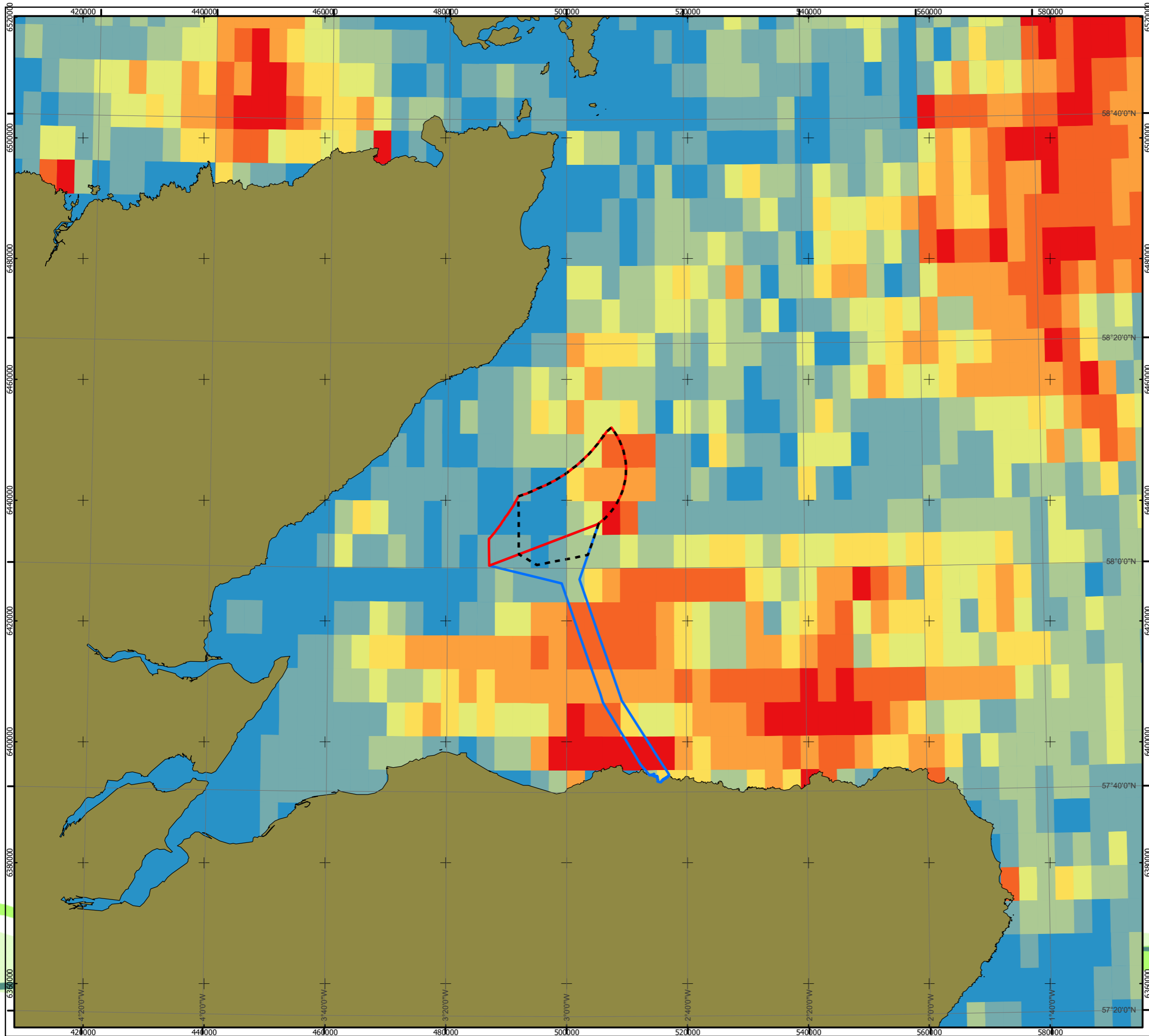
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Reviewed: MG  
Approved: SE  
Date: 14/11/2018 Revision B  
REF: 8460005-DBDD08C-BMM-MAP-000003

Figure 8.3  
Mackerel Fishing Grounds

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# MORAY WEST OFFSHORE WINDFARM

**KEY**

- Alternative Moray West Site
- Current Moray West Site
- Offshore Export Cable Corridor

**Average UK VMS Value (Pound) for Demersal Mobile Nets (2012-2016)**

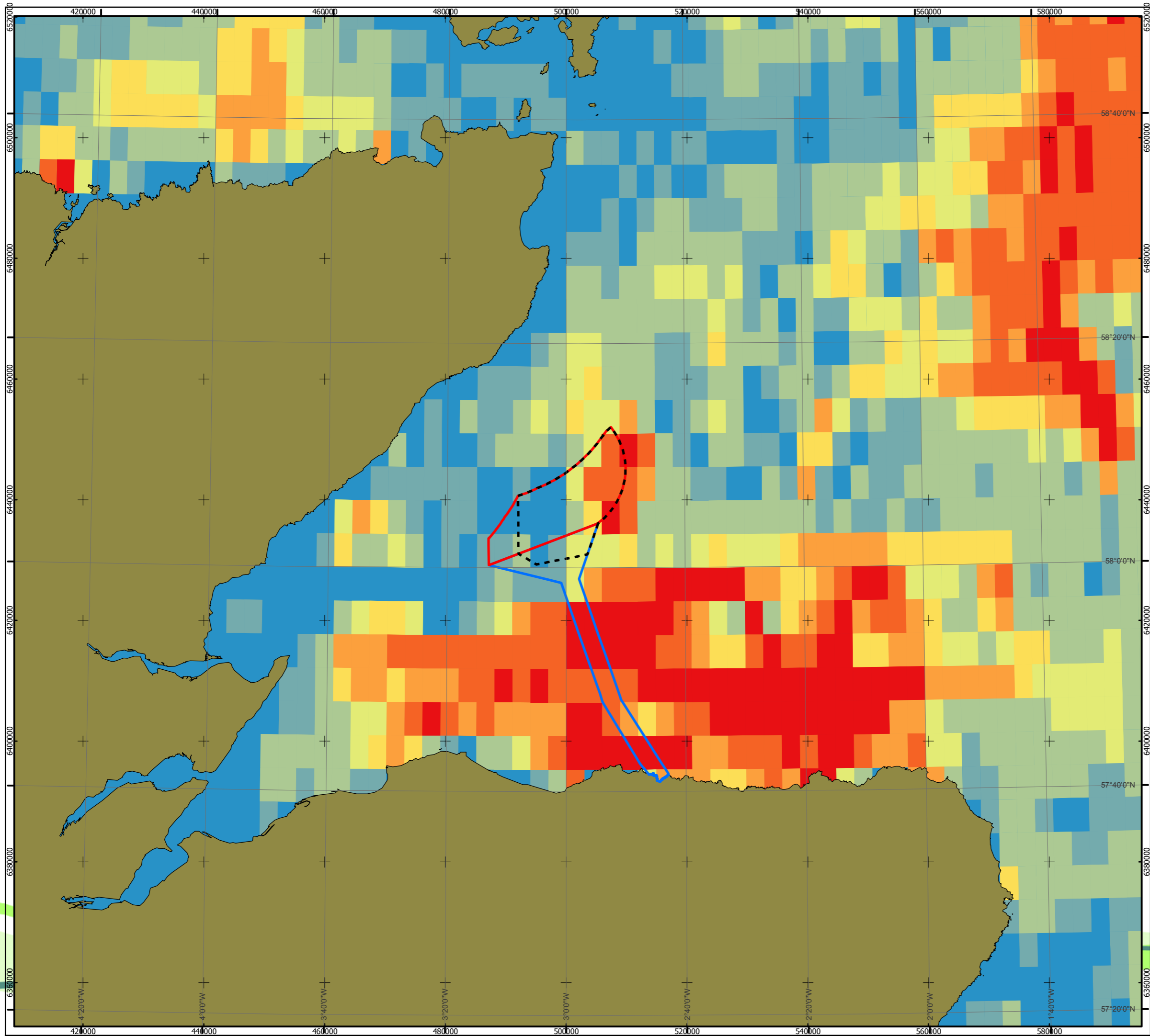
- No value
- Less than £1,000
- £1,000 to £3,000
- £3,000 to £6,000
- £6,000 to £10,000
- £10,000 to £20,000
- £20,000 to £35,000
- More than £35,000

Horizontal Scale: 1:600,000  
0 10,000 20,000 Meters  
A3 Chart

Geodetic Parameters: WGS84 UTM Zone 30N  
Produced: SX  
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Approved: SE  
Date: 14/11/2018  
Revision: B  
REF: 8460005-DBDD08C-BMM-MAP-000004

Figure 8.4 Average UK VMS Value (Pound) for Demersal Mobile Nets (2012-2016)  
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# MORAY WEST OFFSHORE WINDFARM

## KEY

- Alternative Moray West Site
- Current Moray West Site
- Offshore Export Cable Corridor

### Average UK VMS Effort (Days) for Demersal Mobile Nets (2012-2016)

- No value
- Less than 1 hour
- 1 to 5 hours
- 5 to 10 hours
- 10 to 20 hours
- 20 to 50 hours
- 50 to 100 hours
- Over 100 hours

Horizontal Scale: 1:600,000

0 10,000 20,000 Meters

A3 Chart

N

Geodetic Parameters: WGS84 UTM Zone 30N

Produced: SX  
Reviewed: MG  
Approved: SE

Date: 14/11/2018

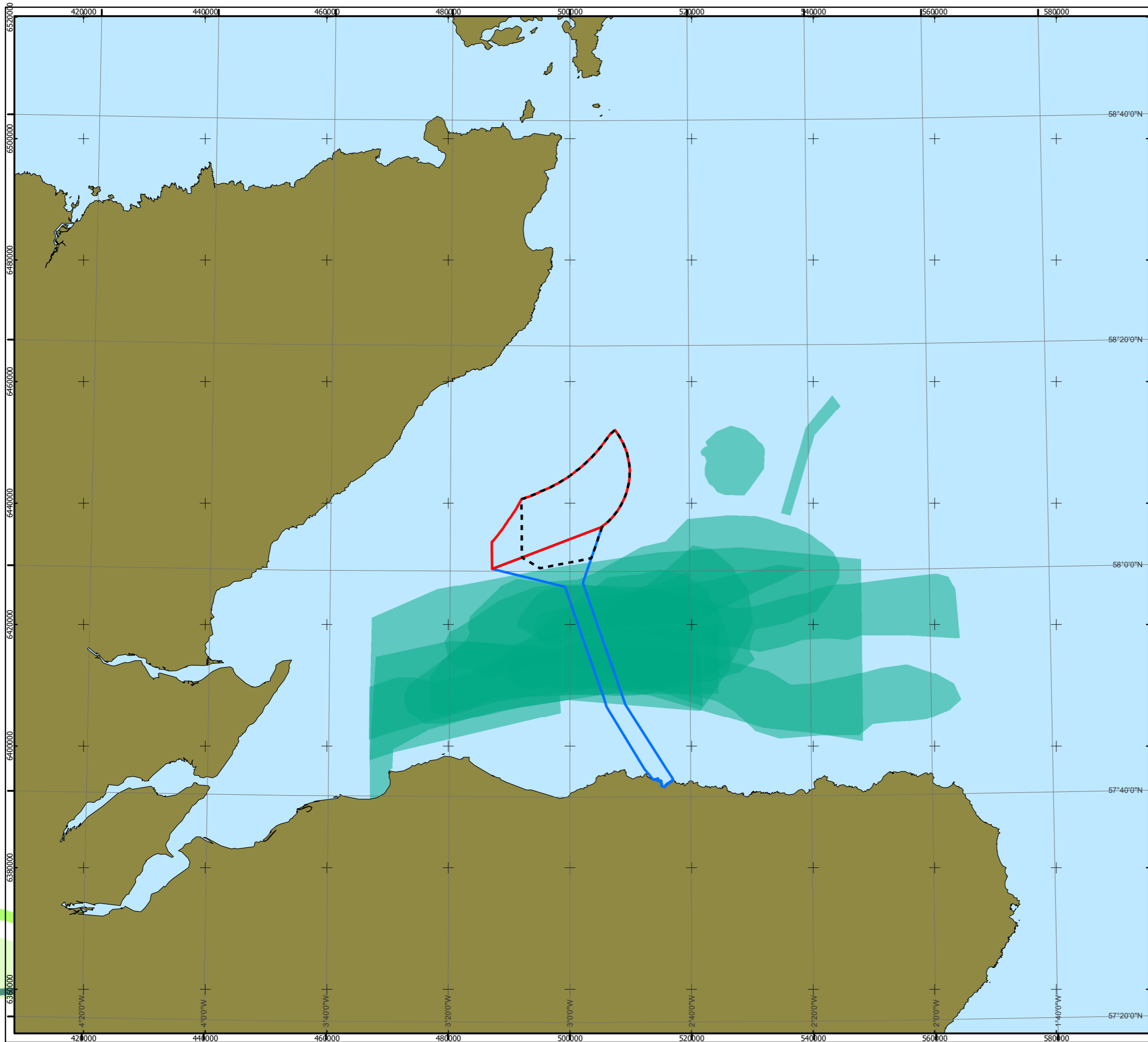
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REF: 8460005-DBDD08C-BMM-MAP-000005

Figure 8.5 Average UK VMS Effort (Days) for Demersal Mobile Nets (2012-2016)

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# MORAY WEST OFFSHORE WINDFARM

## KEY

- Alternative Moray West Site
- Current Moray West Site
- Offshore Export Cable Corridor
- Nephrop Fishing Grounds

Horizontal Scale: 1:600,000

0 10,000 20,000 Meters

A3 Chart

N

Geodetic Parameters: WGS84 UTM Zone 30N

Produced: SX  
Reviewed: MG  
Approved: SE

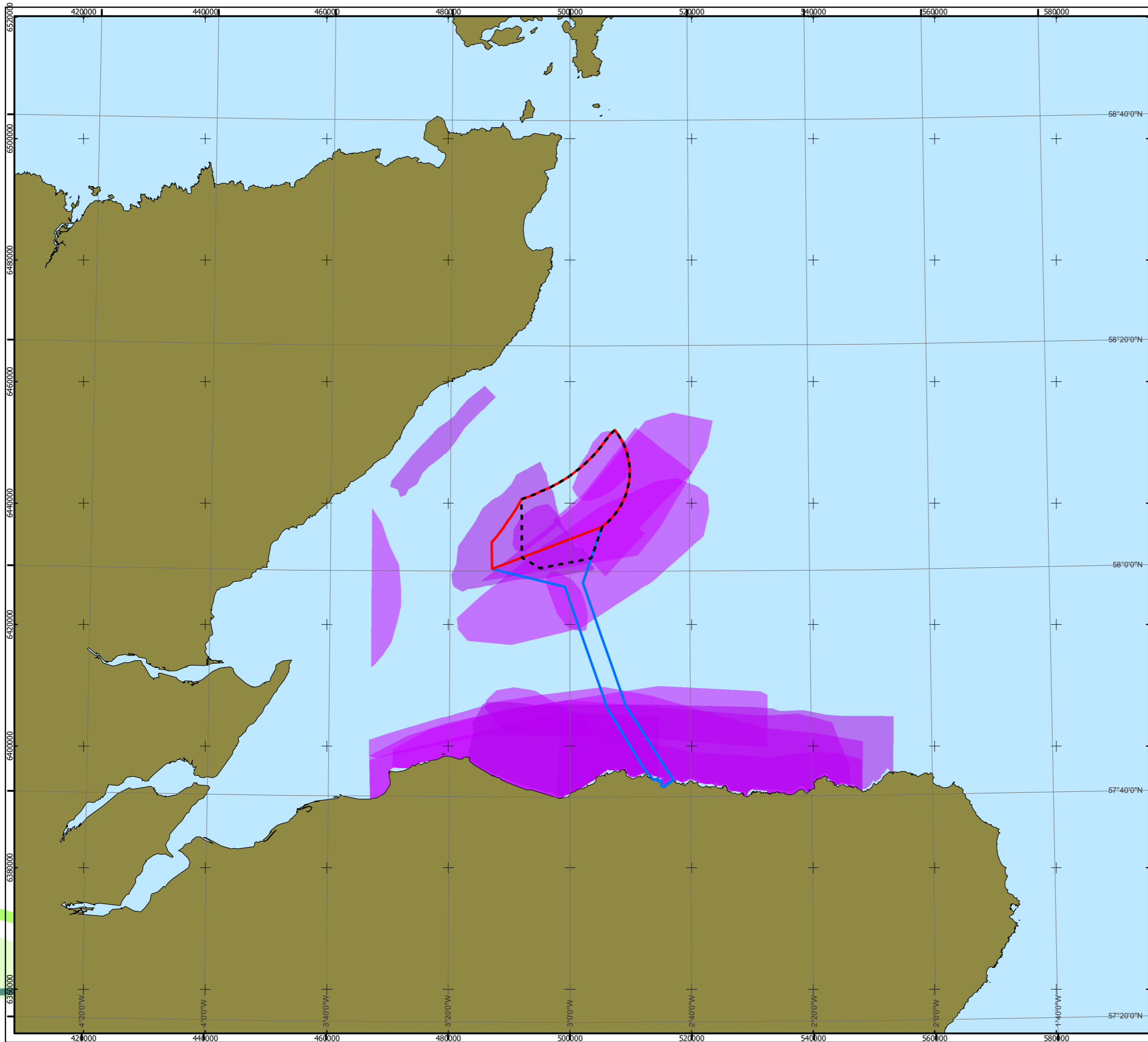
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Figure 8.6  
Nephrops Fishing Grounds





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# MORAY WEST OFFSHORE WINDFARM

## KEY

-  Alternative Moray West Site
-  Current Moray West Site
-  Offshore Export Cable Corridor
-  Squid Fishing Grounds

Horizontal Scale: 1:600,000

0 10,000 20,000 Meters



Geodetic Parameters: WGS84 UTM Zone 30N

Produced: SX  
Reviewed: MG  
Approved: SE

Date: 14/11/2018

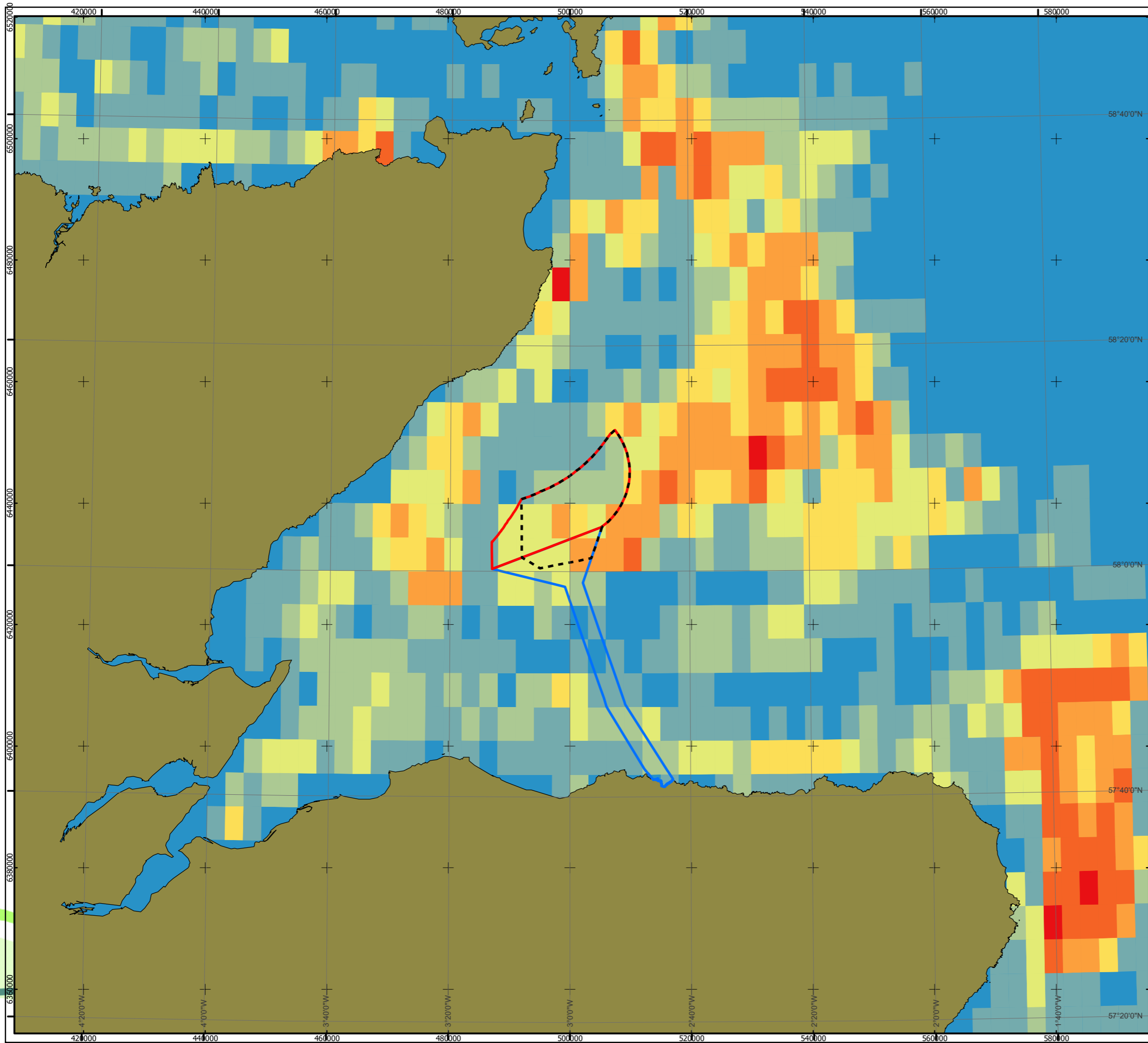
Revision: B

REF: 8460005-DBDD08C-BMM-MAP-000007

Figure 8.7  
Squid Fishing Grounds

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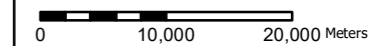
## KEY

- Alternative Moray West Site
- Current Moray West Site
- Offshore Export Cable Corridor

## Average UK VMS Value (Pounds) for Scallop Dredge (2011-2016)

- No value
- Less than £1,000
- £1,000 to £3,000
- £3,000 to £6,000
- £6,000 to £10,000
- £10,000 to £20,000
- £20,000 to £35,000
- More than £35,000

Horizontal Scale: 1:600,000



A3 Chart



Geodetic Parameters: WGS84 UTM Zone 30N

Produced: SX  
Reviewed: MG  
Approved: SE

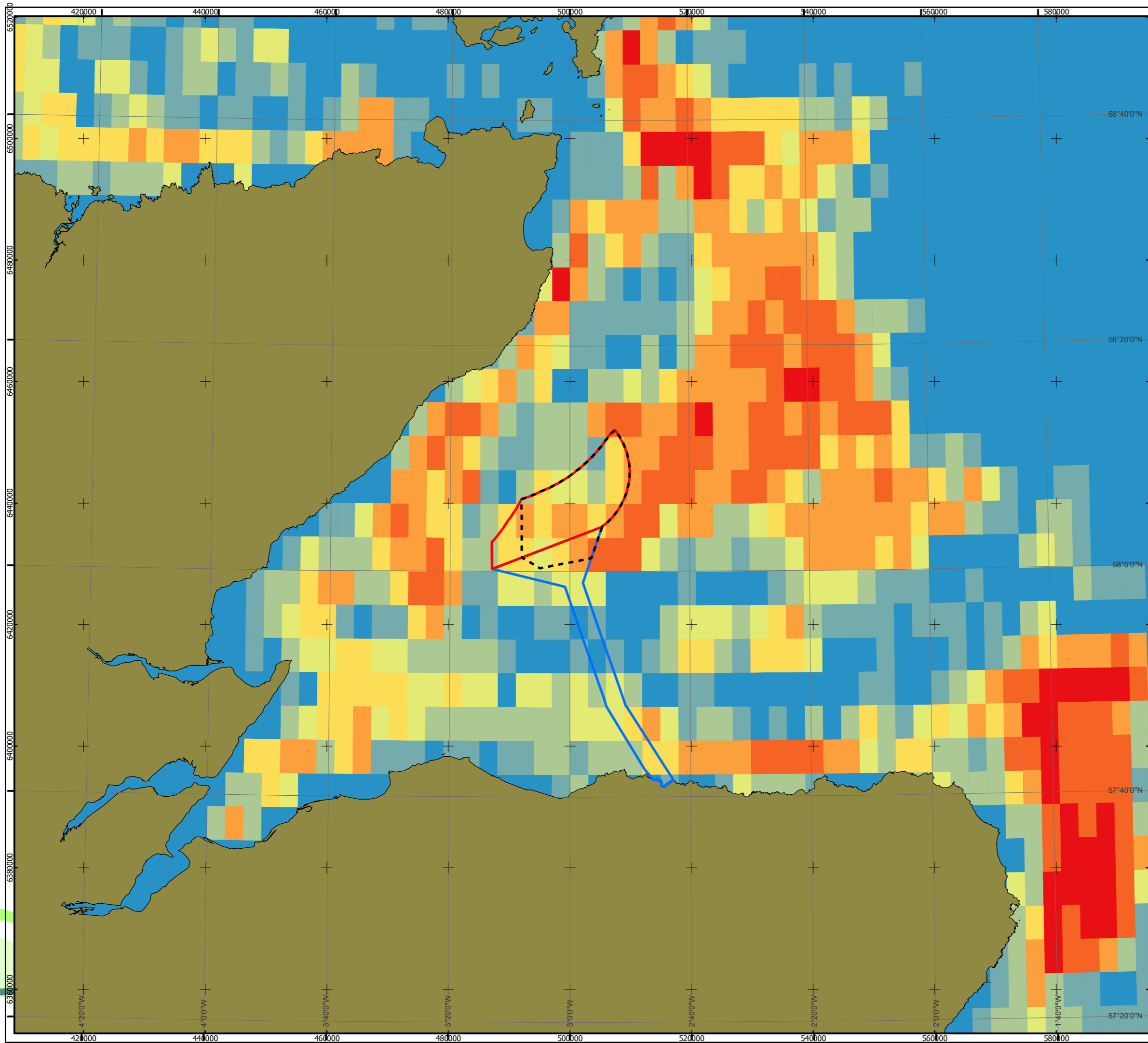
Date: 14/11/2018      Revision: B

REF: 8460005-DBDD08C-BMM-MAP-000008

Figure 8.8 Average UK VMS Value (Pounds) for Scallop Dredge (2012-2016)

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# MORAY WEST OFFSHORE WINDFARM

## KEY

- Alternative Moray West Site
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## Average UK VMS Effort (Days) for Scallop Dredge (2012-2016)

- No value
- Less than 1 hour
- 1 to 5 hours
- 5 to 10 hours
- 10 to 20 hours
- 20 to 50 hours
- 50 to 100 hours
- Over 100 hours

Horizontal Scale: 1:600,000

0 10,000 20,000 Meters

A3 Chart

N

Geodetic Parameters: WGS84 UTM Zone 30N

Produced: SX  
Reviewed: MG  
Approved: SE

Date: 14/11/2018

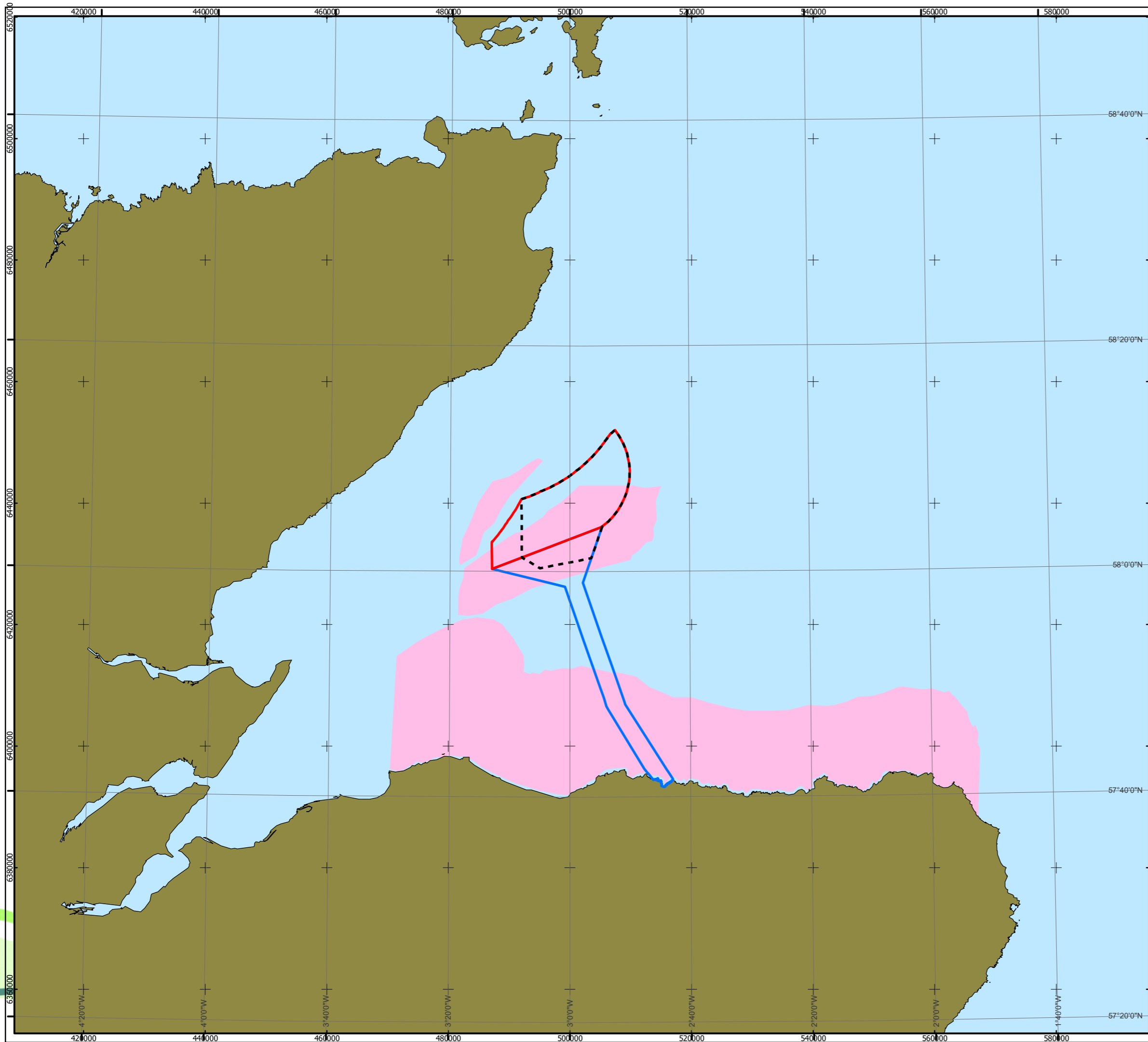
Revision: B

REF: 8460005-DBDD08C-BMM-MAP-000009

Figure 8.9 Average UK VMS Effort (Days) for Scallop Dredge (2012-2016)

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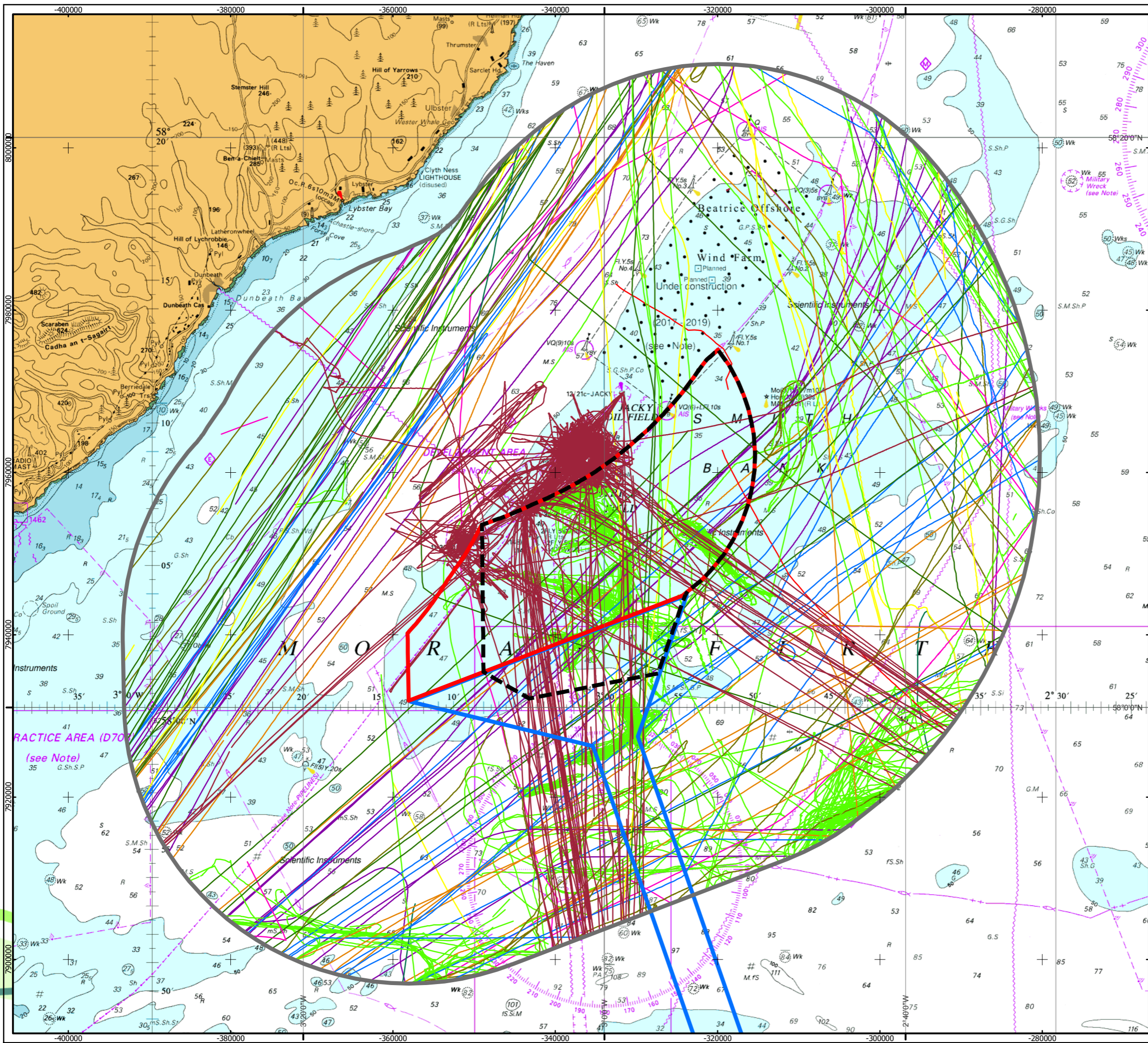
# MORAY WEST OFFSHORE WINDFARM

- KEY**
- Alternative Moray West Site
  - Current Moray West Site
  - Offshore Export Cable Corridor
  - Scallop Fishing Grounds

Horizontal Scale: 1:600,000  
0 10,000 20,000 Meters  
A3 Chart

Geodetic Parameters: WGS84 UTM Zone 30N  
Produced: SX  
Reviewed: MG  
Approved: SE  
Date: 14/11/2018  
Revision: B  
REF: 8460005-DBDD08C-BMM-MAP-000010

Figure 8.10  
Scallop Fishing Grounds  
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Windfarm (West) Ltd



# MORAY WEST OFFSHORE WINDFARM

- KEY**
- Alternative Moray West Site
  - Current Moray West Site
  - Offshore Wind Farm Study Area
  - Offshore Export Cable Corridor
- Vessel Type**
- Fishing
  - Dredger
  - Tug
  - Passenger
  - Cargo
  - Tanker
  - Other Ship
  - Recreational
  - Oil and Gas
  - Wind Farm
  - Beatrice Oil and Gas

Horizontal Scale: 1:450,000 A3 Chart

Geodetic Parameters: World Mercator

Produced: DS  
Reviewed: AF  
Approved: AF

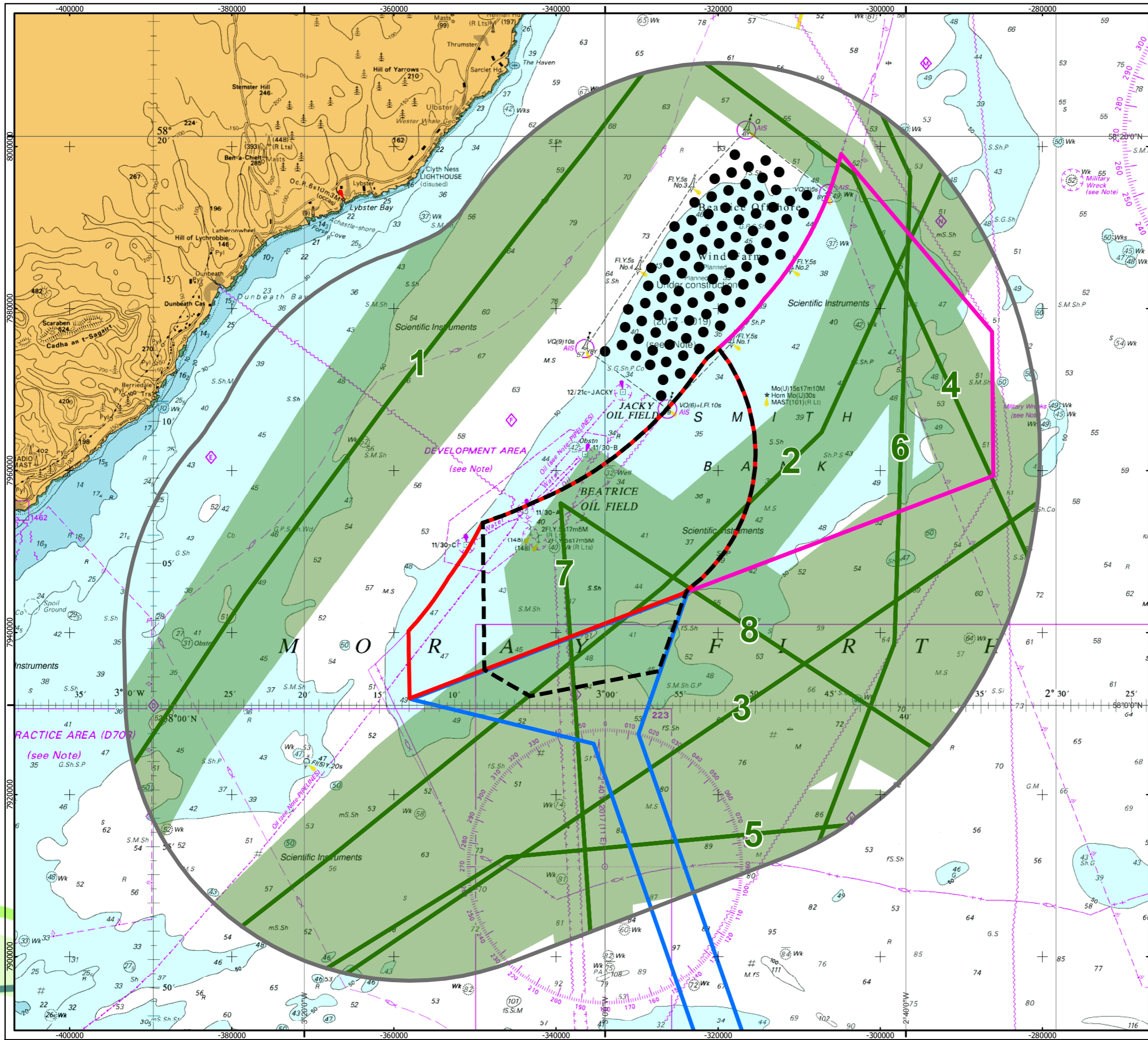
Date: 15/11/2018 Revision: B  
REF: 8460005-DBDD09C-ANA-MAP-000001

**Figure 9.1**  
Marine Traffic Data by Vessel Type  
Relative to Alternative Site Boundary

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# MORAY WEST OFFSHORE WINDFARM

- KEY**
- Alternative Moray West Site
  - Current Moray West Site
  - Offshore Wind Farm Study Area
  - Offshore Export Cable Corridor
  - Other Projects**
  - Moray East Site
  - Beatrice Structure
  - Vessel Routing**
  - Main Route
  - 90th Percentile

Horizontal Scale: 1:450,000 A3 Chart

Geodetic Parameters: World Mercator

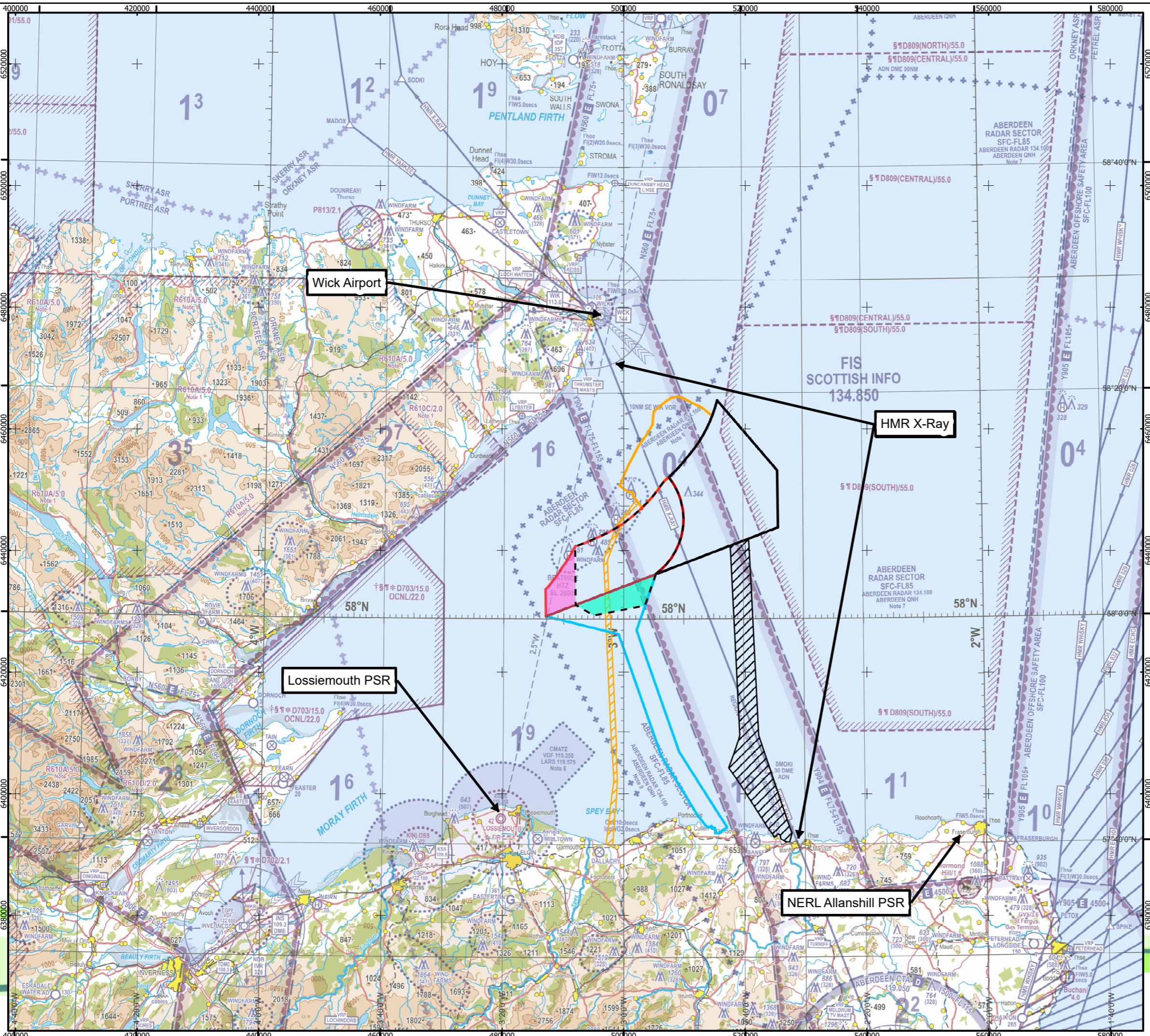
Produced: DS  
 Reviewed: AF  
 Approved: AF

Date: 15/11/2018 Revision: B  
 REF: 8460005-DBDD09C-ANA-MAP-000002

**Figure 9.2**  
 Baseline Vessel Routing Relative  
 to Alternative Site Boundary

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# MORAY WEST OFFSHORE WINDFARM

- KEY**
- Alternative Moray West Site
  - Current Moray West Site
  - Offshore Export Cable Corridor
  - Proposed Mitigation Area
  - Proposed Variation Area
  - Moray East Site
  - Beatrice Offshore Wind Farm
  - Moray East Offshore Export Cable Corridor
  - BOWL Offshore Export Cable Corridor

Horizontal Scale: 1:600,000      A3 Chart

Geodetic Parameters: WGS84 UTM Zone 30N

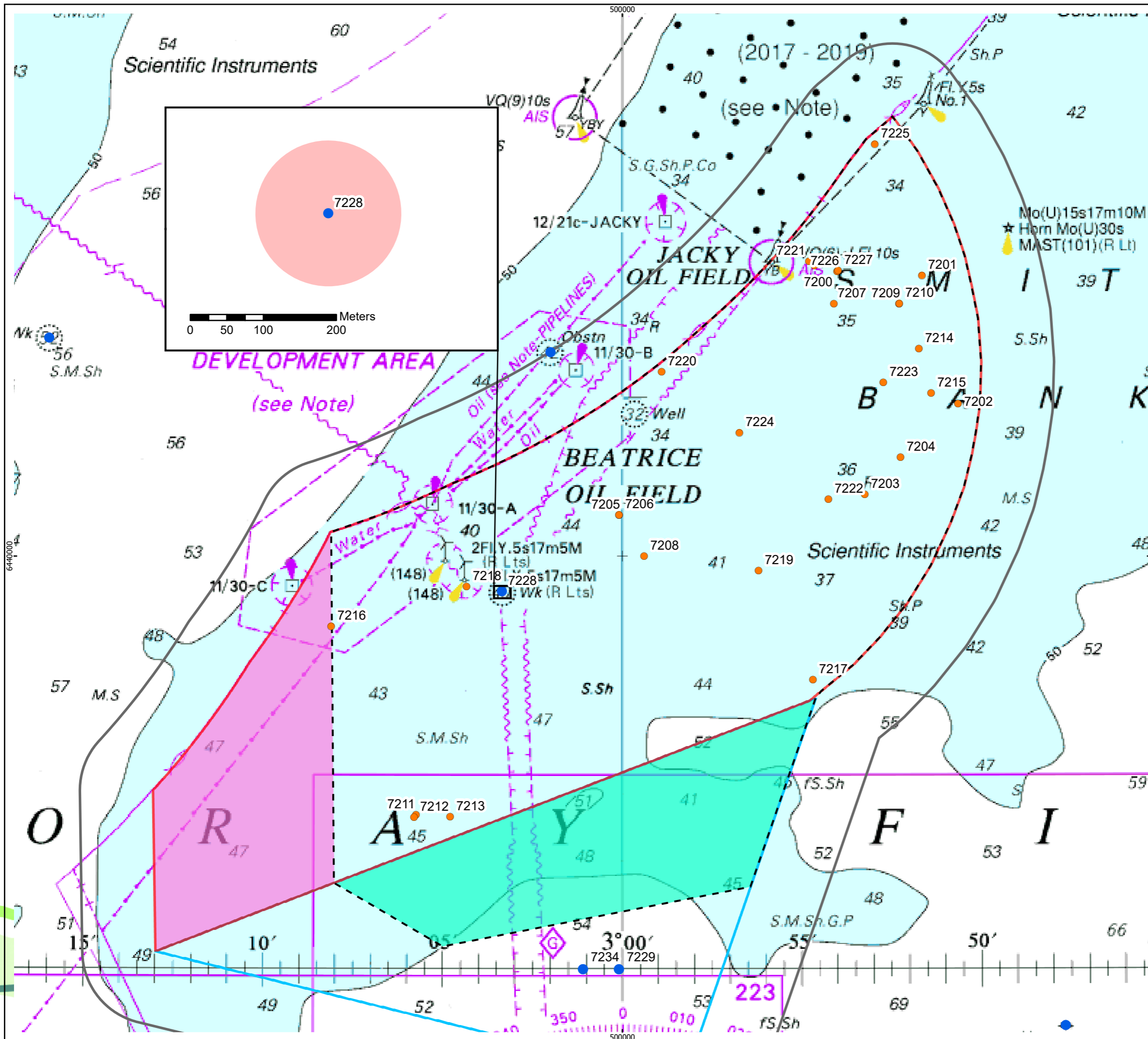
Produced: MG  
 Reviewed: DO  
 Approved: SE

Date: 16/11/2018      Revision: B  
 REF: 8460005-DBDC10C-MWW-MAP-000001

Figure 10.1: Study Area

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# MORAY WEST OFFSHORE WINDFARM

**KEY**

- Alternative Moray West Site
- Current Moray West Site
- Offshore Export Cable Corridor
- Proposed Mitigation Area
- Proposed Variation Area
- Development Archaeological Study Area (ASA)
- A2 (Uncertain origin of possible archaeological interest)
- A3 (Historic record of possible archaeological interest with no corresponding geophysical anomaly)

- Note features 7229 and 7234:  
No geophysical data available for the Offshore Export Cable Corridor

7228 100m Archaeological Exclusion Zone

Horizontal Scale: 1:100,000 A3 Chart

Geodetic Parameters: WGS84 UTM Zone 30N

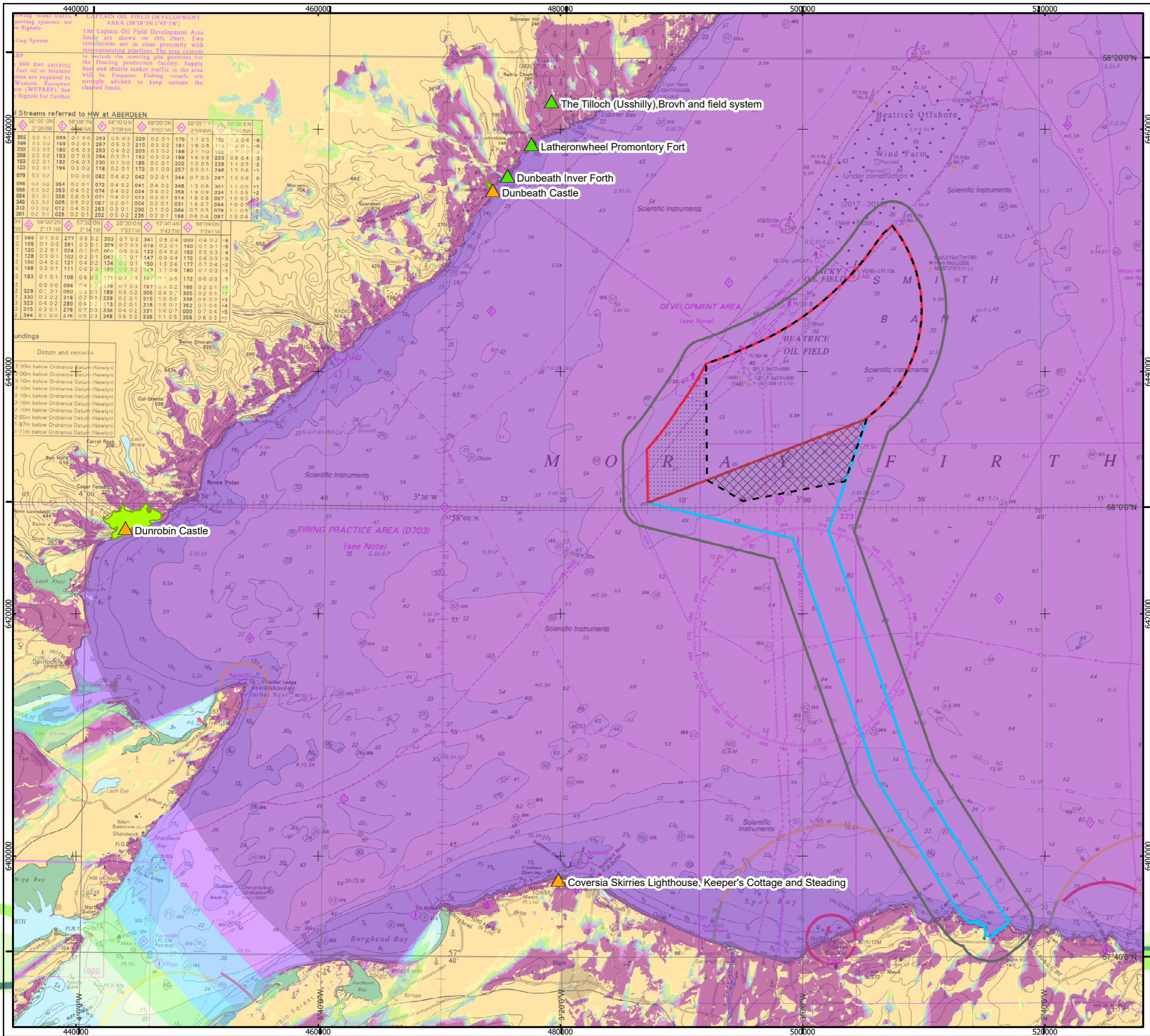
Produced: MG  
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Approved: SE

Date: 15/11/2018 Revision: B

REF: 8460005-DBDC13C-MWW-MAP-000001

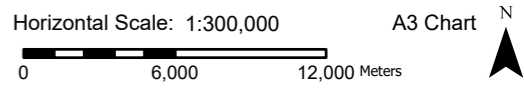
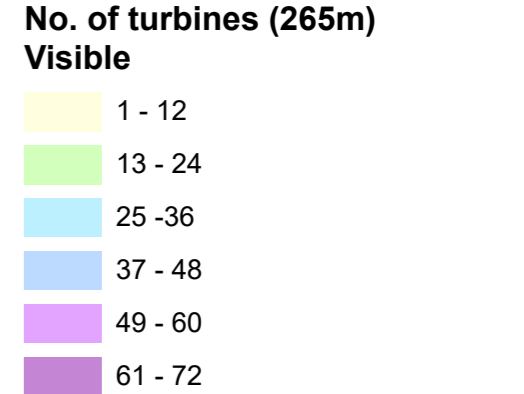
**Figure 13.1: Seabed Features of Archaeological Potential**

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# MORAY WEST OFFSHORE WINDFARM

- KEY**
- ▲ Category\_A-listed\_Structure\_...
  - ▲ Scheduled Monuments
  - Garden and Designed Landscapes
  - Alternative Moray West Site
  - Current Moray West Site
  - Proposed Mitigation Area
  - Proposed Variation Area
  - Offshore Export Cable Corridor
  - Development Archaeological Study Area (ASA)



Geodetic Parameters: WGS84 UTM Zone 30N

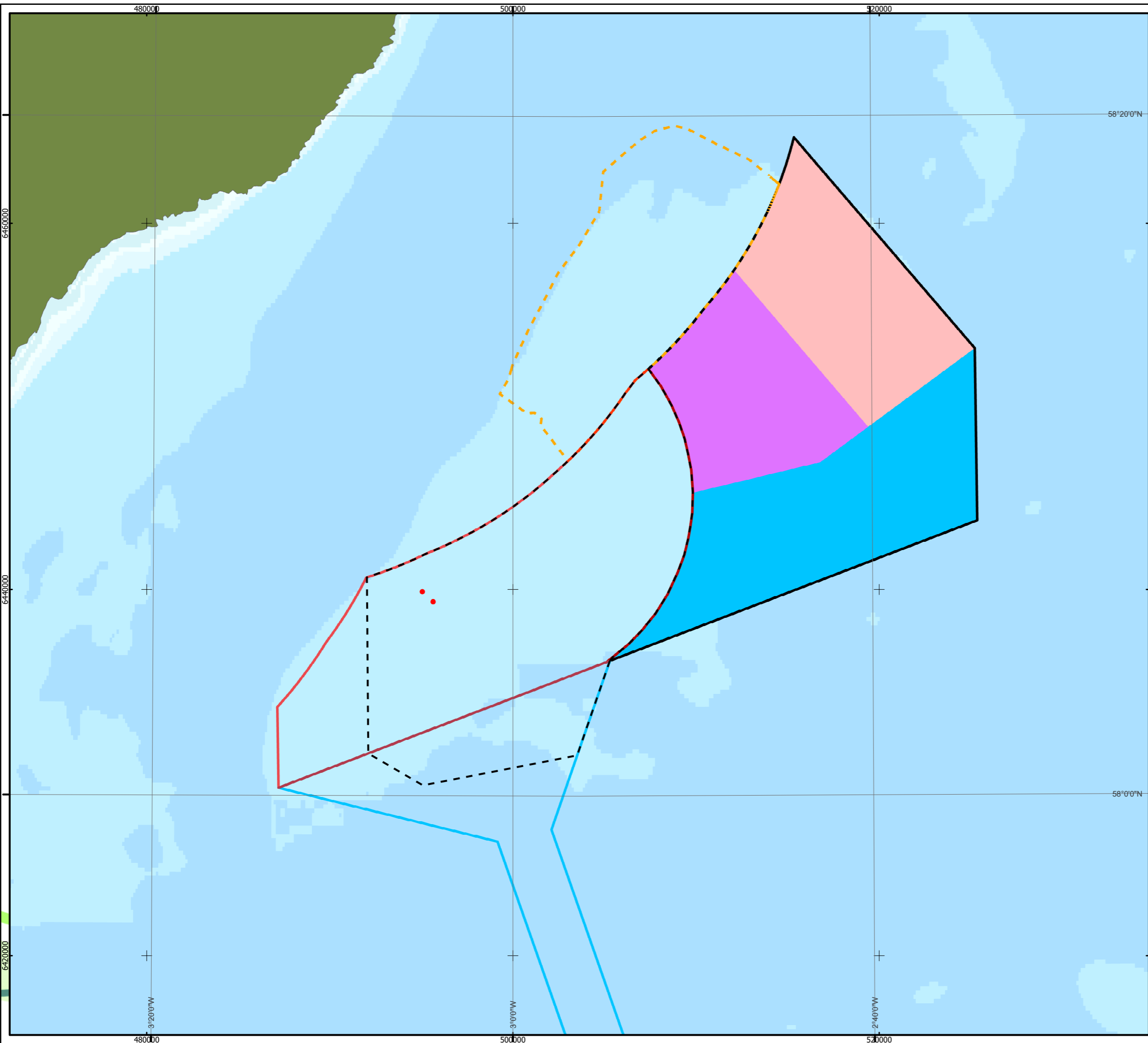
Produced: MG  
Reviewed: LF  
Approved: SE

Date: 16/11/2018 Revision: B  
REF: 8460005-DBDC13C-MWW-MAP-000002

**Figure 13.2: Onshore receptors within the ZTV identified for setting impacts**

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# MORAY WEST OFFSHORE WINDFARM

## KEY

- Alternative Moray West Site
- Current Moray West Site
- Offshore Export Cable Corridor
- Beatrice Demonstrator Turbine
- Beatrice Offshore Wind Farm
- Moray East Offshore Wind Farm Site
- MacColl Offshore Wind Farm
- Stevenson Offshore Wind Farm
- Telford Offshore Wind Farm

## Bathymetry (m LAT)

- ≤100
- ≤50
- ≤20
- ≤10

Horizontal Scale: 1:200,000 A3 Chart

Geodetic Parameters: WGS84 UTM Zone 30N

Produced: MG  
Reviewed: LF  
Approved: SE

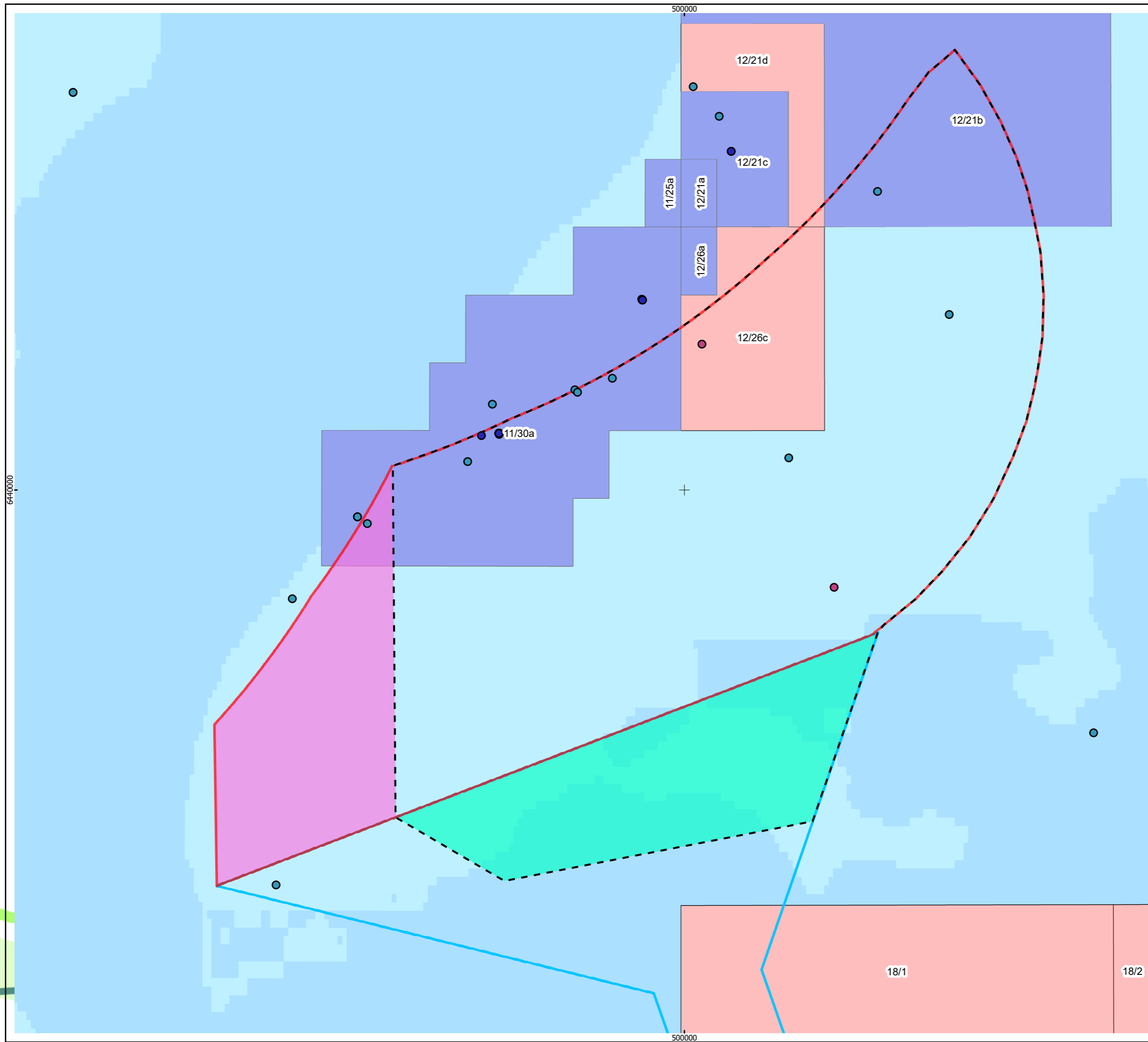
Date: 15/11/2018 Revision: B

REF: 8460005-DBDC14C-MWW-MAP-000001

Figure 14.1: Other Offshore Wind Developments

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# MORAY WEST

## OFFSHORE WINDFARM

### KEY

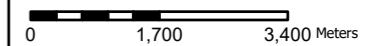
- Oil and/or Gas Well**
- Completed
  - Plugged and Abandoned
  - Suspended
- Alternative Moray West Site  
 Current Moray West Site  
 Offshore Export Cable Corridor  
 Proposed Mitigation Area  
 Proposed Variation Area  
 Licensed Offshore Oil and Gas Blocks  
 28th Round Second Tranche Blocks Provisionally Awarded

### Bathymetry (m LAT)

- ≤100
- ≤50

Horizontal Scale: 1:100,000

A3 Chart



Geodetic Parameters: WGS84 UTM Zone 30N

Produced: MG  
 Reviewed: LF  
 Approved: SE

Date: 15/11/2018

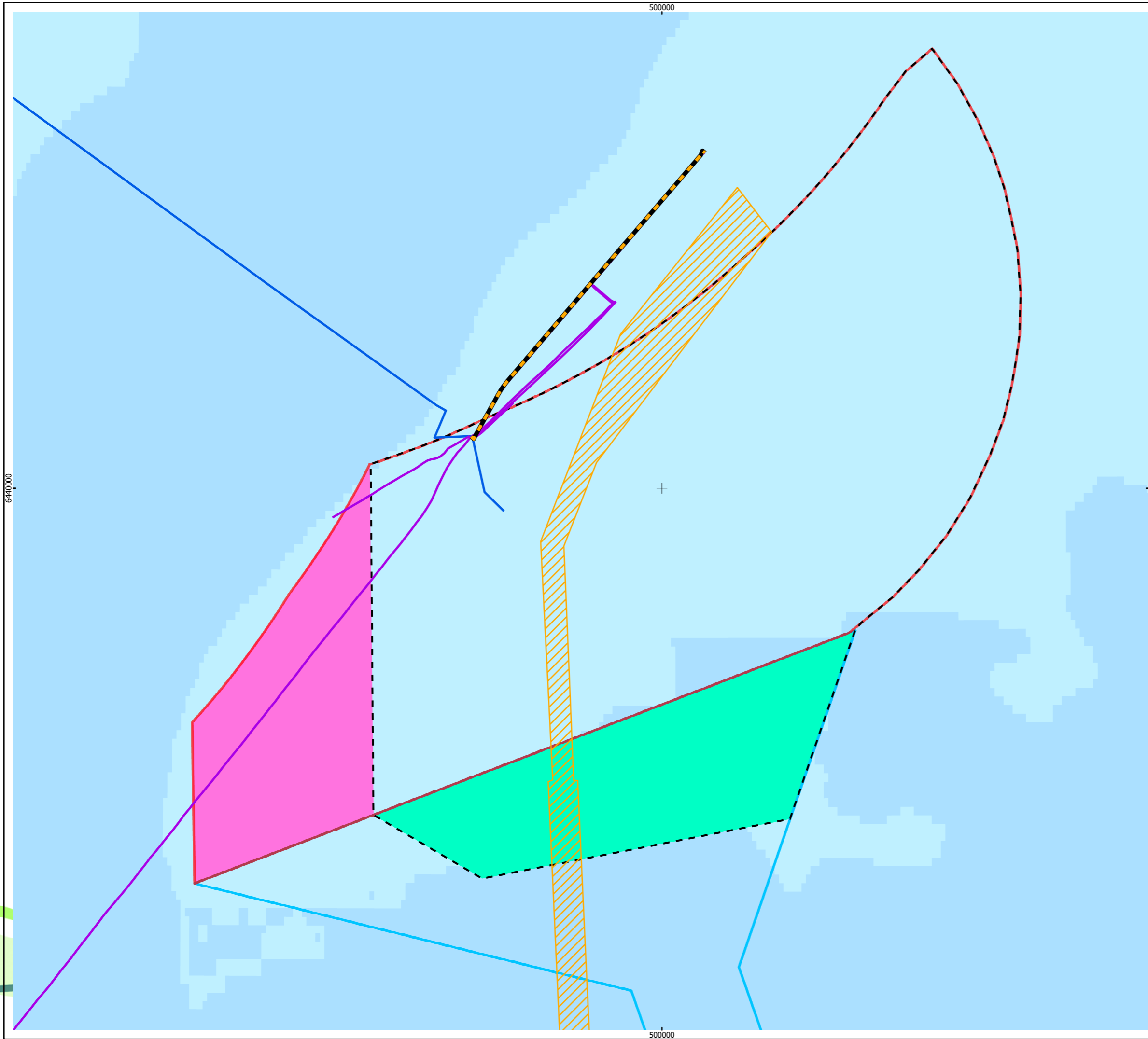
Revision: B

REF: 8460005-DBDC14C-MWW-MAP-000002

**Figure 14.2: Oil and Gas Infrastructure and Licenced Blocks**

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# MORAY WEST OFFSHORE WINDFARM

## KEY

- Beatrice Offshore Wind Farm Export Cable Corridor
- PLU2561 Beatrice AP to Jacky 86.5mm Power Cable
- Alternative Moray West Site
- Current Moray West Site
- Offshore Export Cable Corridor
- Proposed Mitigation Area
- Proposed Variation Area
- Beatrice Pipeline
- Beatrice SubseaCable

## Bathymetry (m LAT)

- <=100
- <=50

Horizontal Scale: 1:100,000  
0 1,700 3,400 Meters



Geodetic Parameters: WGS84 UTM Zone 30N

Produced: MG  
Reviewed: LF  
Approved: SE

Date: 15/11/2018      Revision: B

REF: 8460005-DBDC14C-MWW-MAP-000003

Figure 14.3: Subsea Cables and Pipelines

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