

Moray Offshore Renewables Ltd

KEY

MORL Zone Boundary

Windfarm Boundaries

Scenario M3

Significant Wave Height Difference

- Above -0.05
- 0.10 - -0.05
- 0.20 - -0.10
- 0.30 - -0.20
- 0.40 - -0.30
- 0.50 - -0.40
- 0.60 - -0.50
- 0.70 - -0.60
- Below -0.70

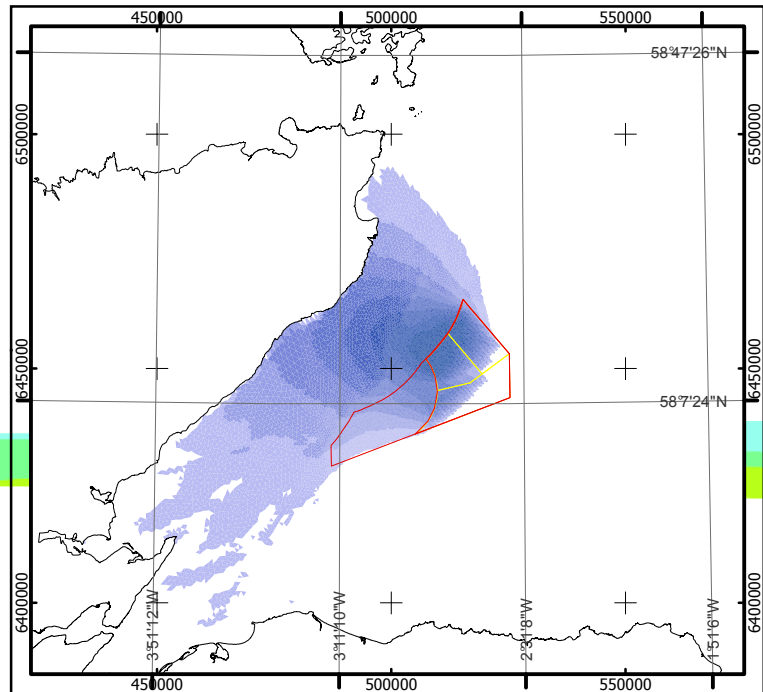
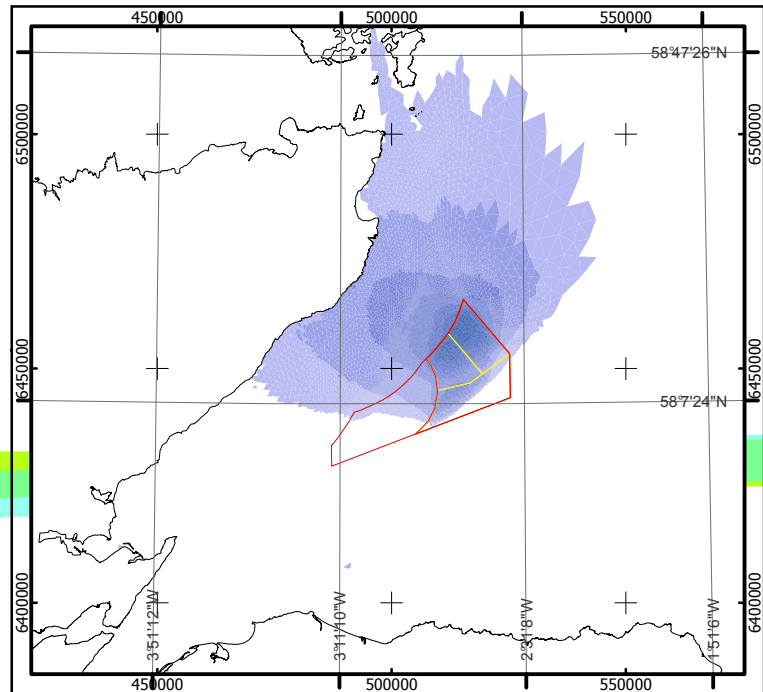
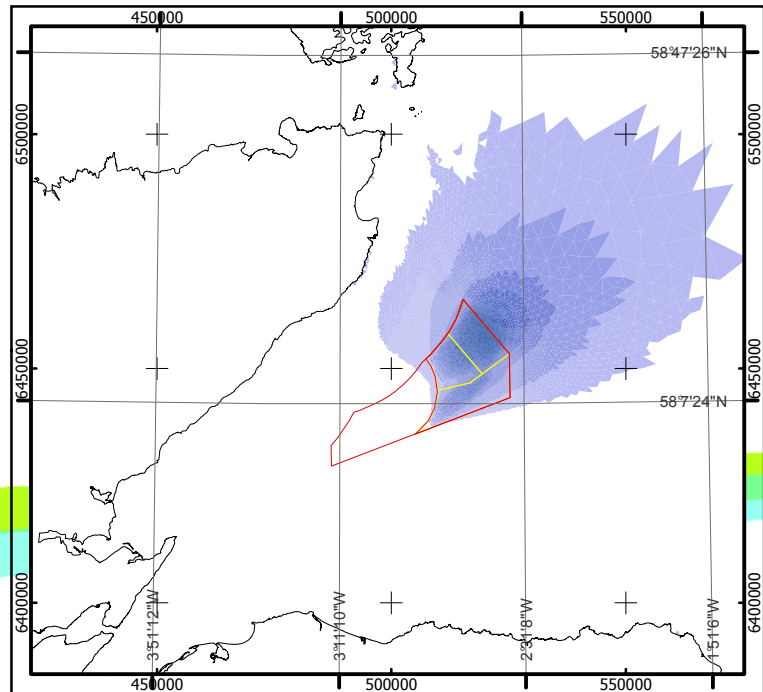
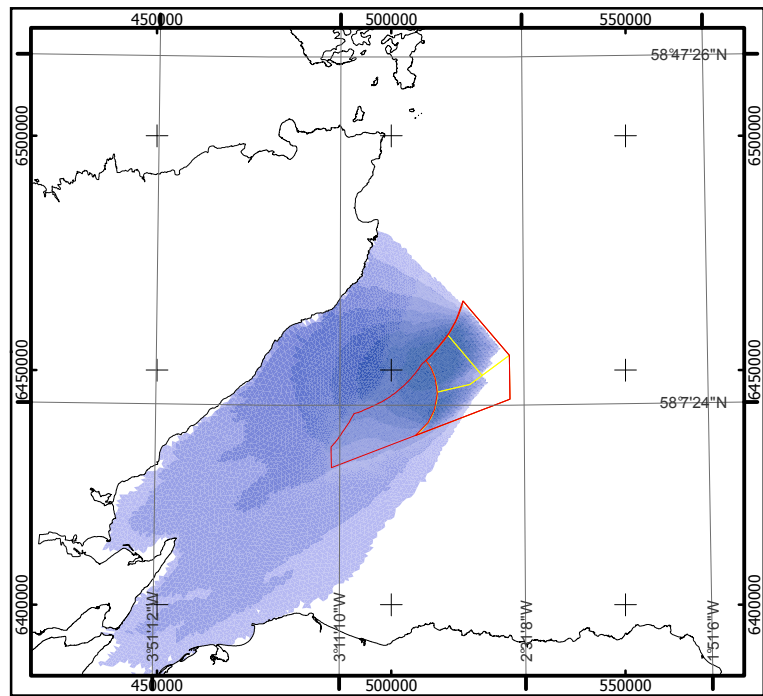
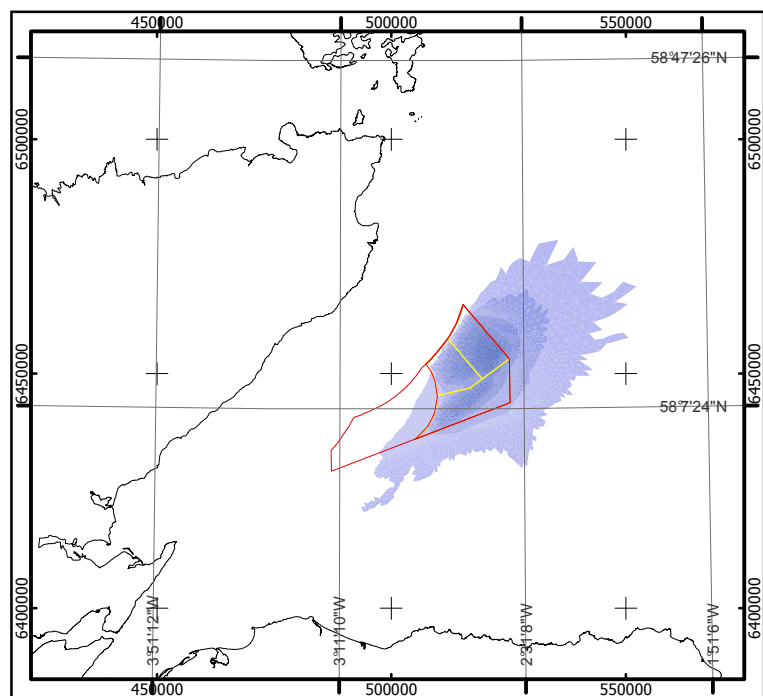
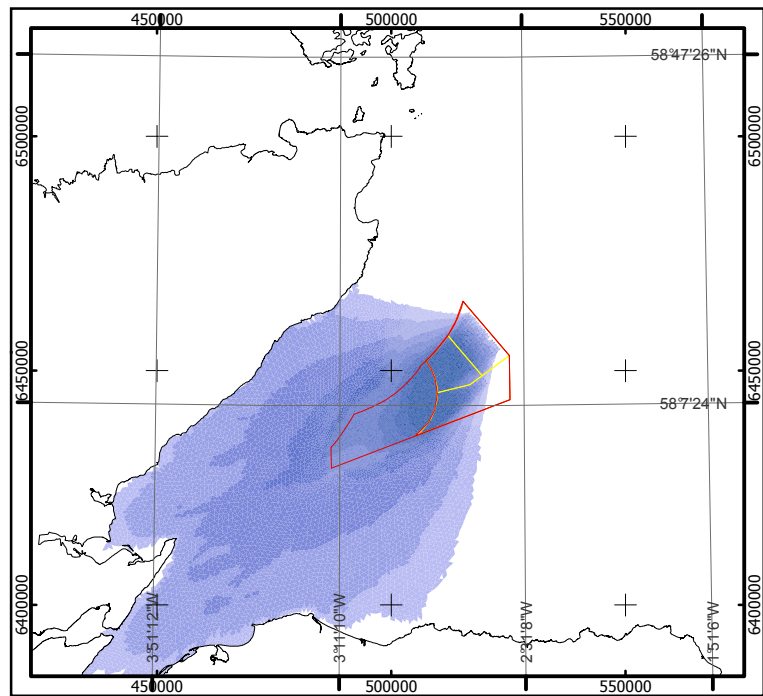
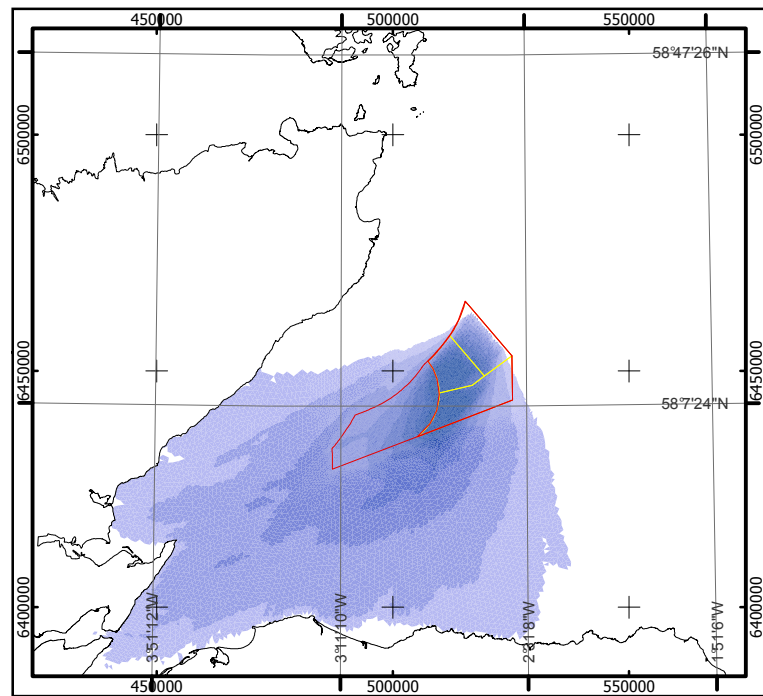
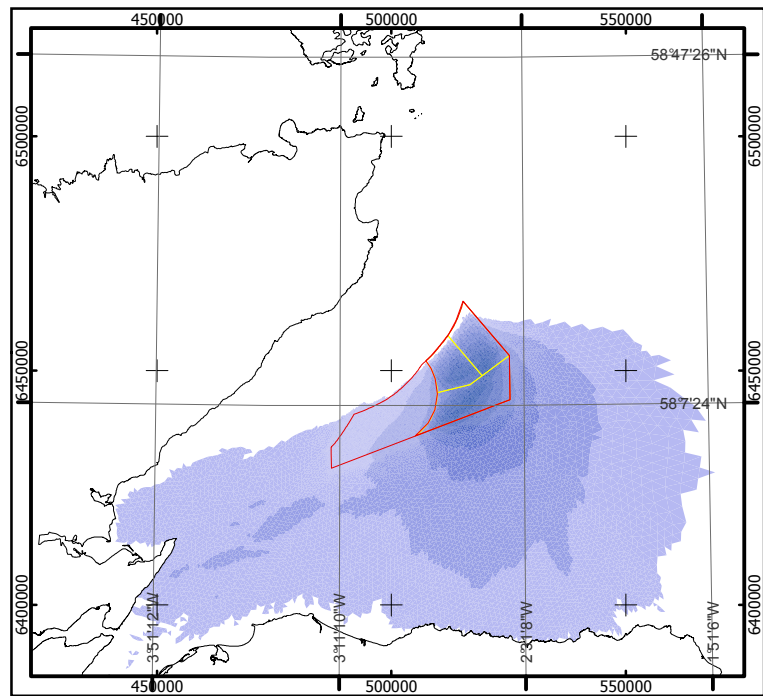
Horizontal Scale: 1:1,600,000 A3 Chart

Geodetic Parameters: WGS84 UTM Zone 30N

Produced: MCE
 Reviewed: NMW
 Approved: PH

Date: 09/05/2012 Revision: B
 REF:8460001-PPW0201-ABP-MAP-014

Fig 6.1-5 Effect of the Project on Wave Height (M3, 1in50yr)



Moray Offshore Renewables Ltd

KEY

MORL Zone Boundary

Windfarm Boundaries

Scenarios T3, S5, M5

Significant Wave Height Difference

Above -0.05

-0.10 - -0.05

-0.20 - -0.10

-0.30 - -0.20

-0.40 - -0.30

-0.50 - -0.40

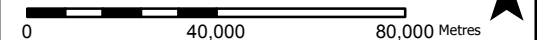
-0.60 - -0.50

-0.70 - -0.60

Below -0.70

Horizontal Scale: 1:1,600,000

A3 Chart



Geodetic Parameters: WGS84 UTM Zone 30N

Produced: MCE

Reviewed: NMW

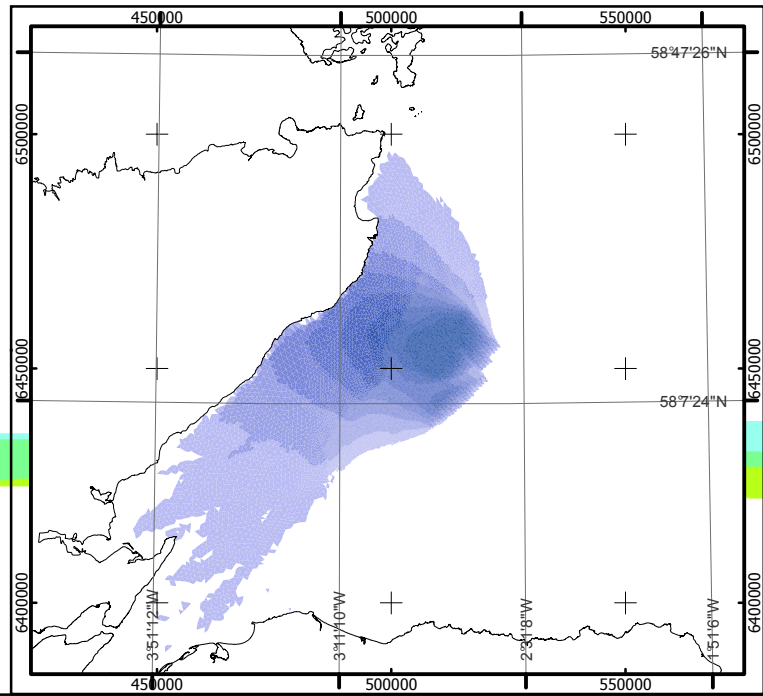
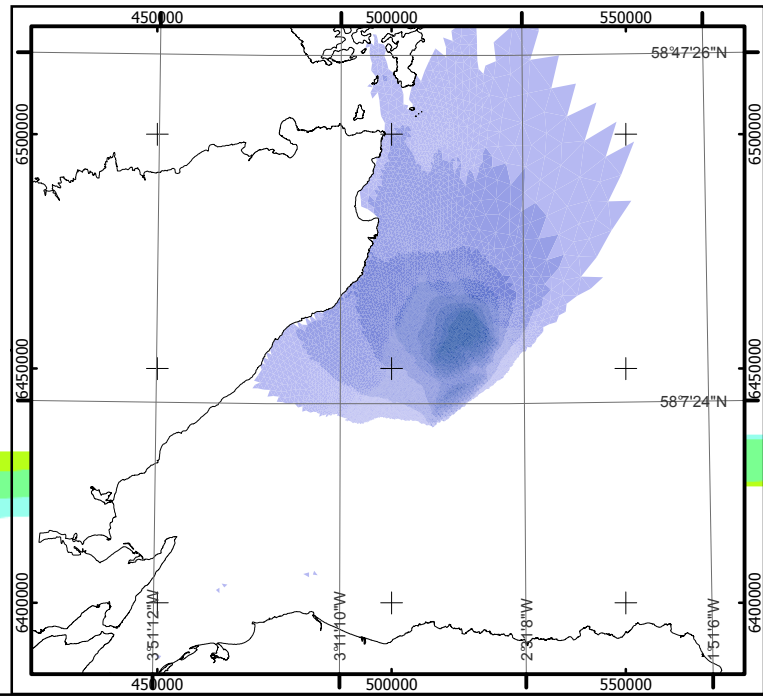
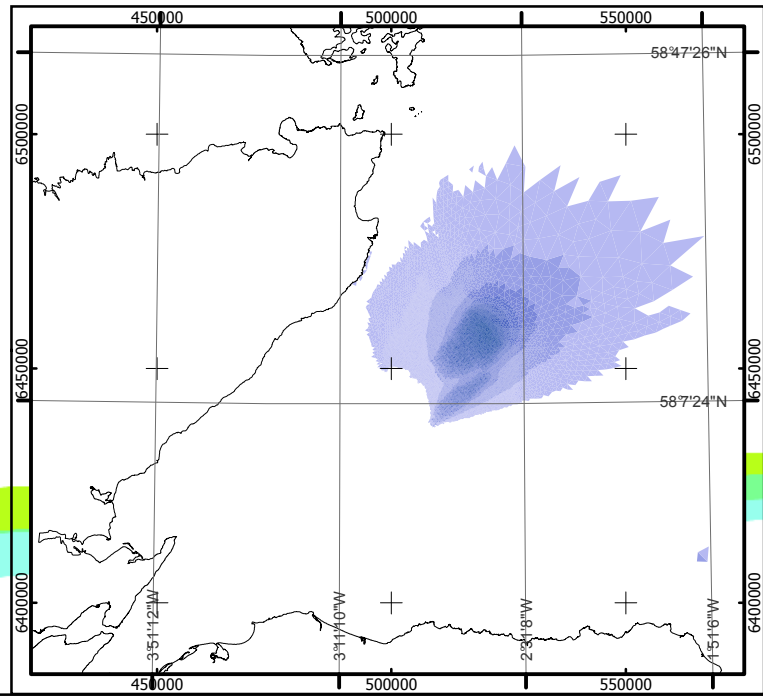
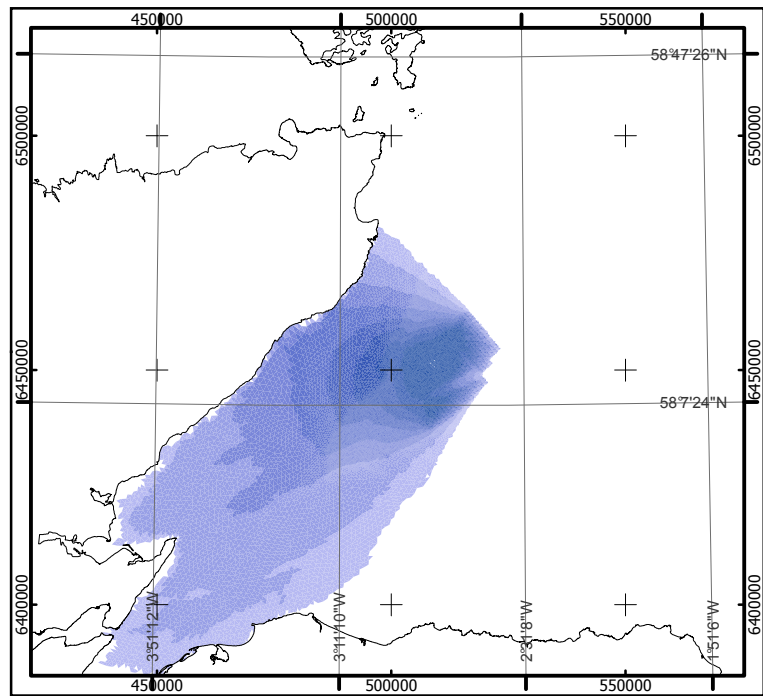
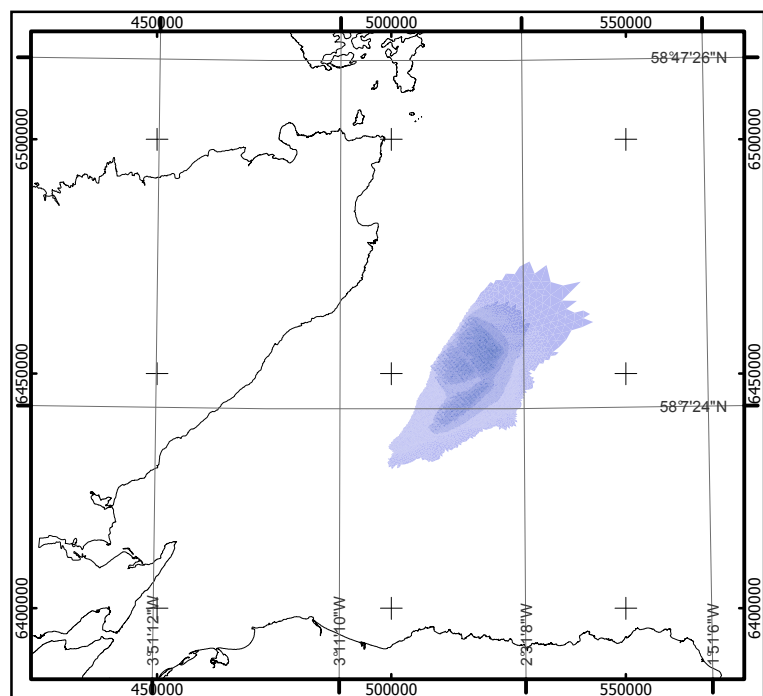
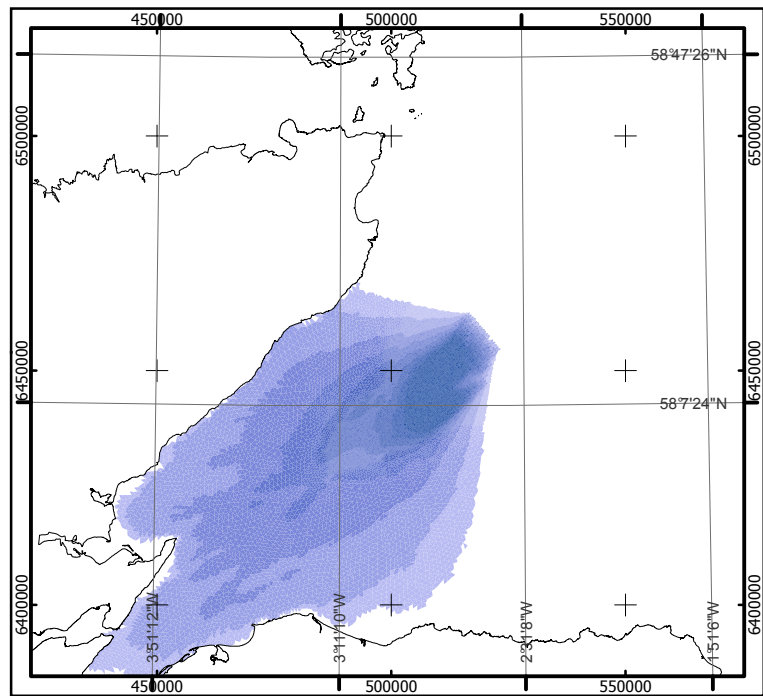
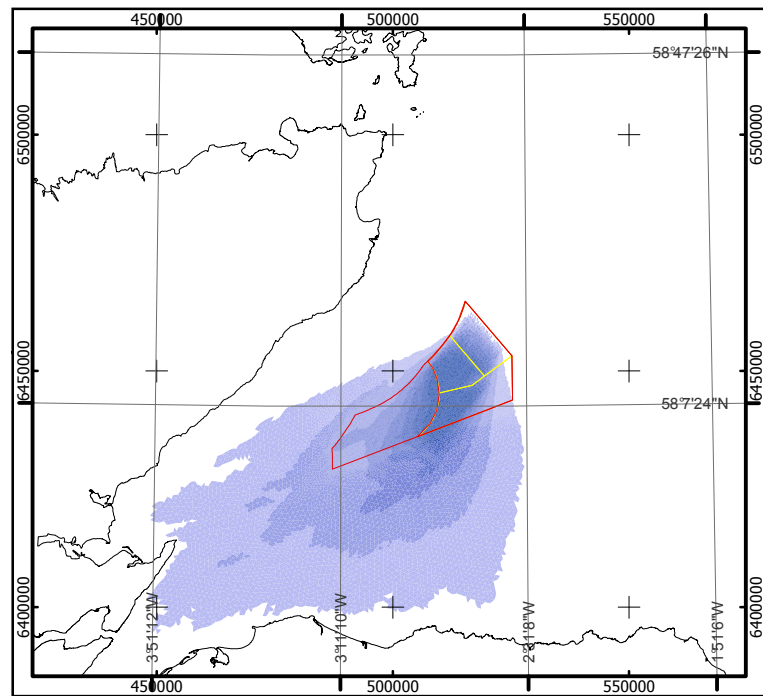
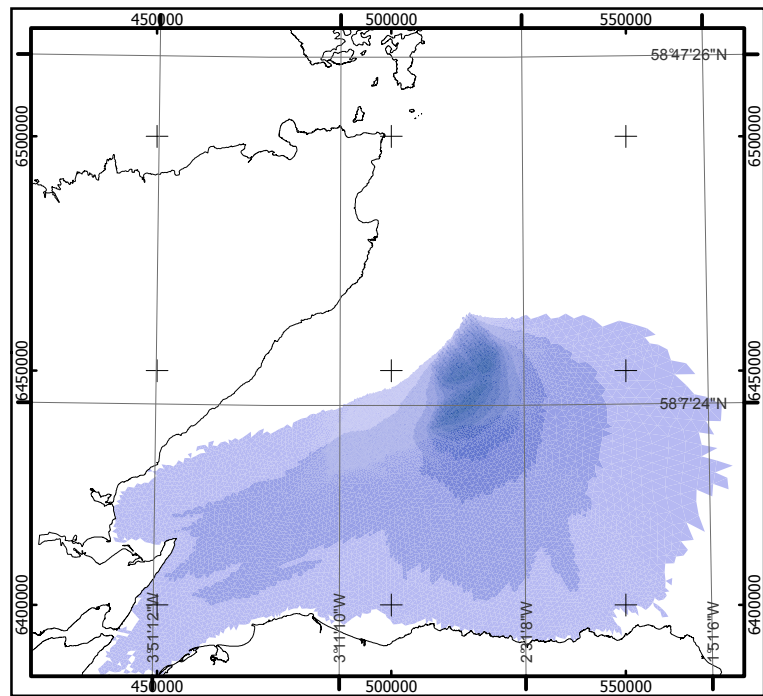
Approved: DOL

Date: 08/05/2012

Revision: B

REF: 8460001-PPW0201-ABP-MAP-015

Fig 6.1- 6 Effect of the Project on Wave Height (T3, S5, M5) 1 in 1 yr



Moray Offshore Renewables Ltd

KEY

- MORL Zone Boundary
- Windfarm Boundaries

Scenarios T3, S5, M5

Significant Wave Height Difference

- 0.09 - -0.05
- 0.19 - -0.10
- 0.29 - -0.20
- 0.39 - -0.30
- 0.49 - -0.40
- 0.59 - -0.50
- 0.69 - -0.60
- 1.99 - -0.70
- 1.30 - -2.00

Horizontal Scale: 1:1,600,000 A3 Chart

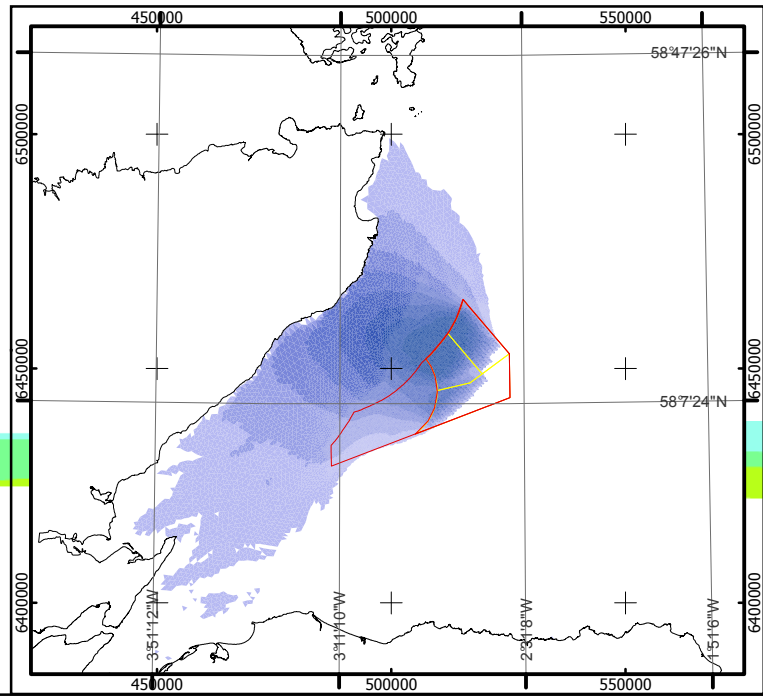
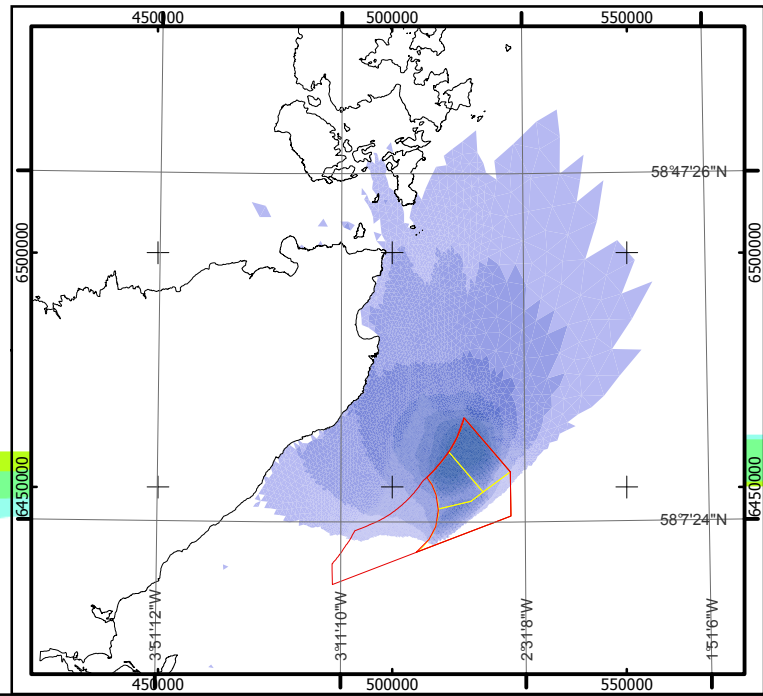
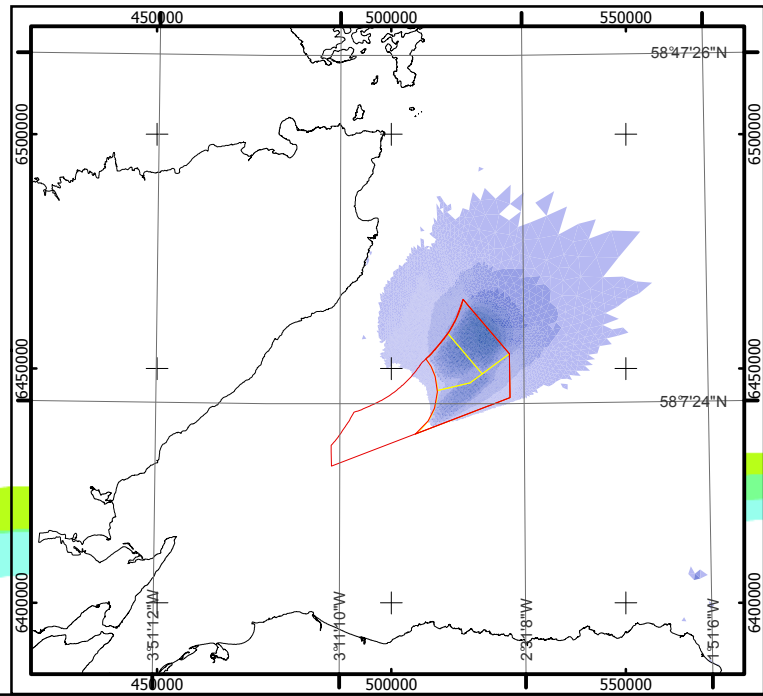
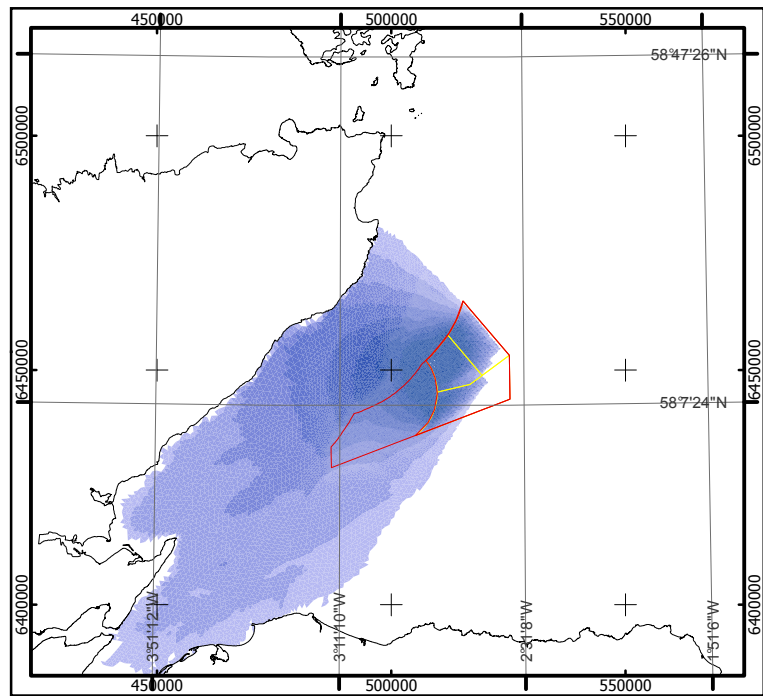
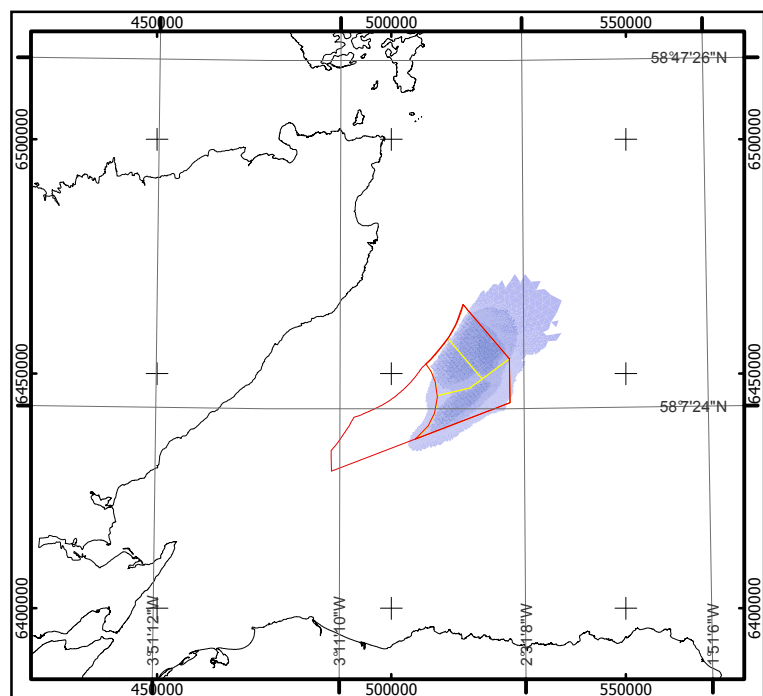
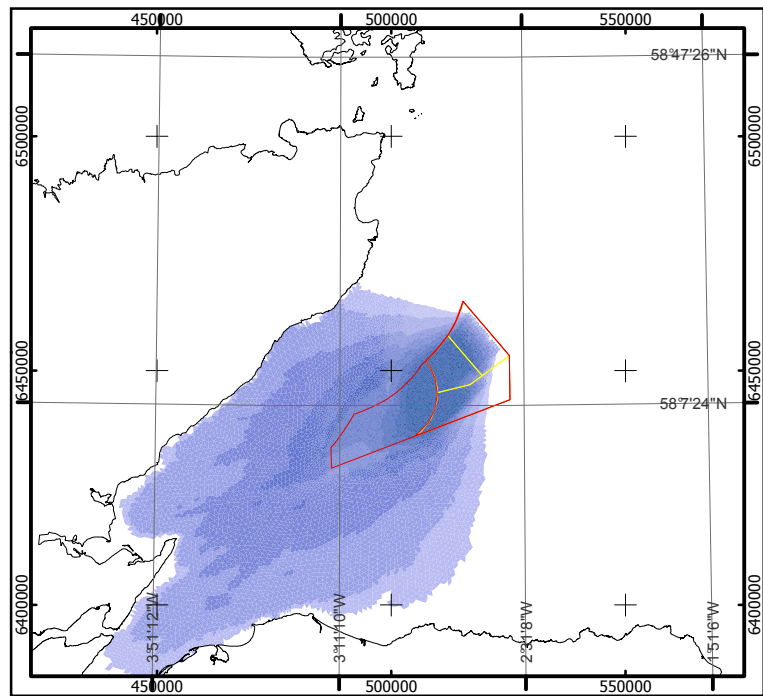
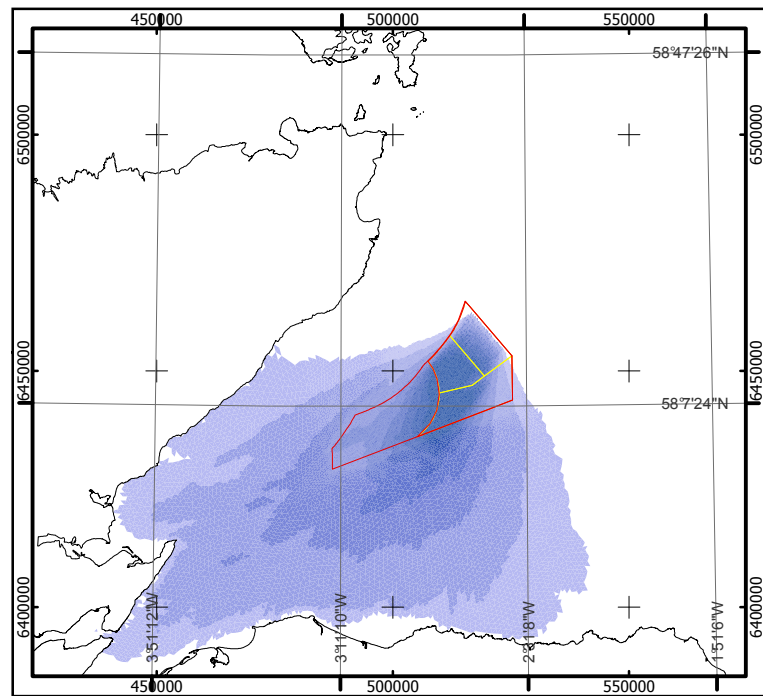
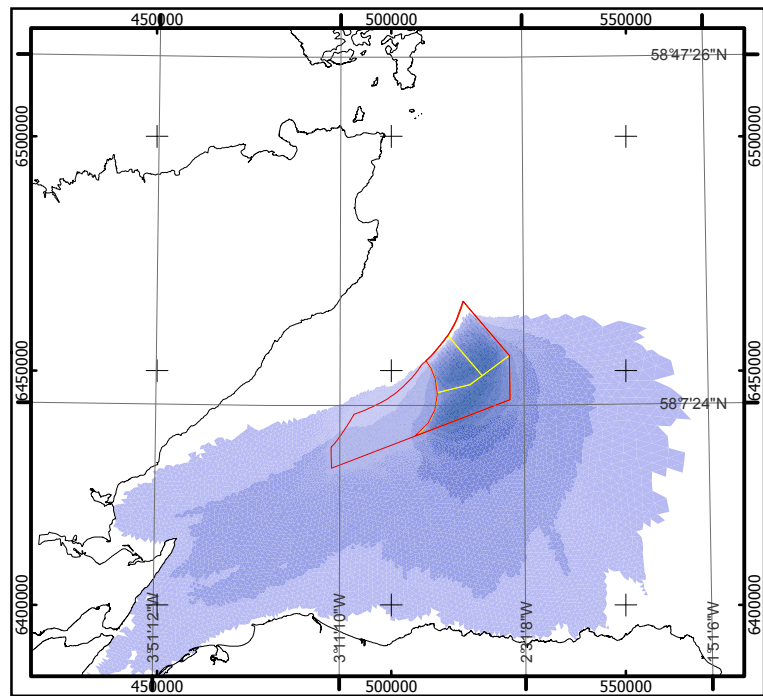
Geodetic Parameters: WGS84 UTM Zone 30N

Produced: MCE
 Reviewed: NMW
 Approved: DOL

Date: 08/05/2012 Revision: B
 REF: 8460001-PPW0201-ABP-MAP-016

Fig 6.1-7 - Effect of the Project on Wave Height (T3, S5, M5) 1 in 10yrs

Moray Offshore Renewables Ltd



Moray Offshore Renewables Ltd

KEY

- MORL Zone Boundary
- Windfarm Boundaries

Scenario T3, S5, M5

Significant Wave Height Difference

- Above -0.05
- 0.10 - -0.05
- 0.20 - -0.10
- 0.30 - -0.20
- 0.40 - -0.30
- 0.50 - -0.40
- 0.60 - -0.50
- 0.70 - -0.60
- Below -0.70

Horizontal Scale: 1:1,600,000 A3 Chart

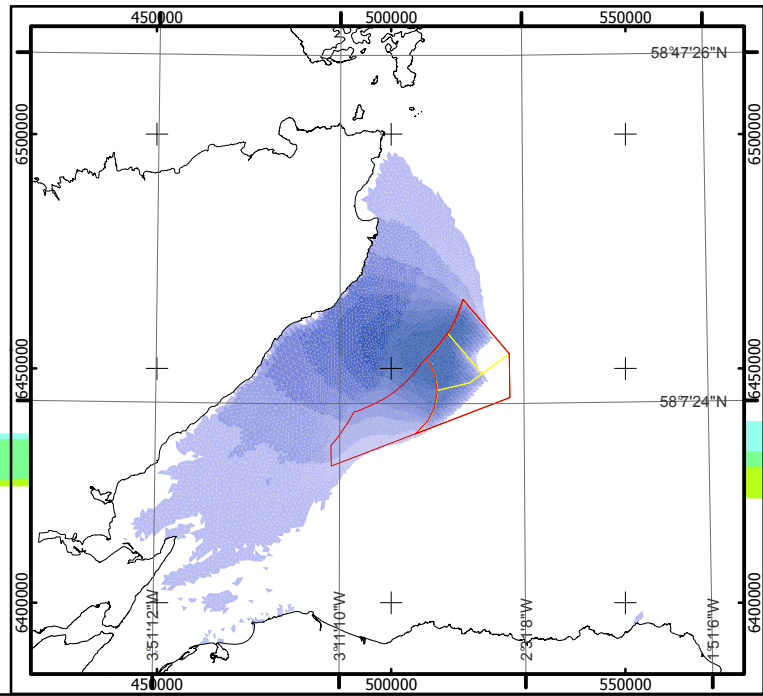
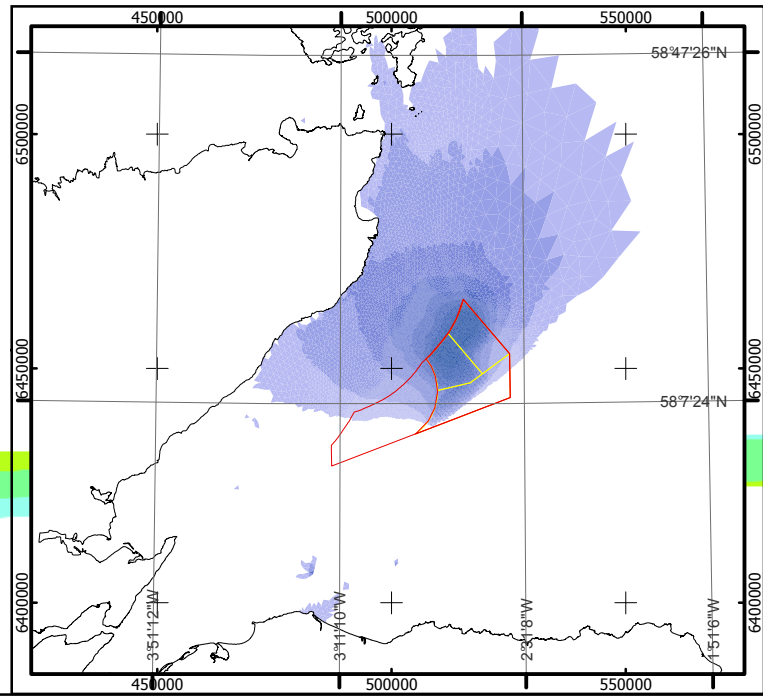
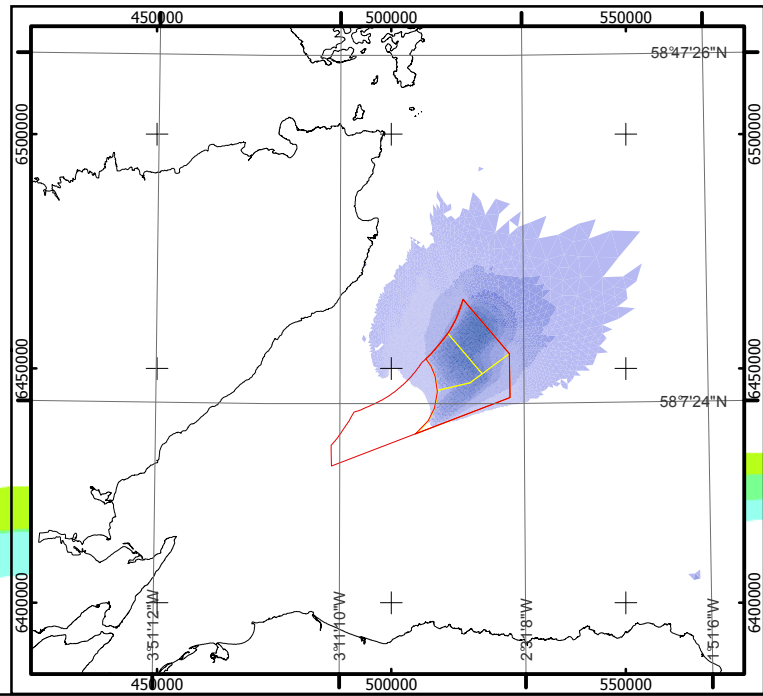
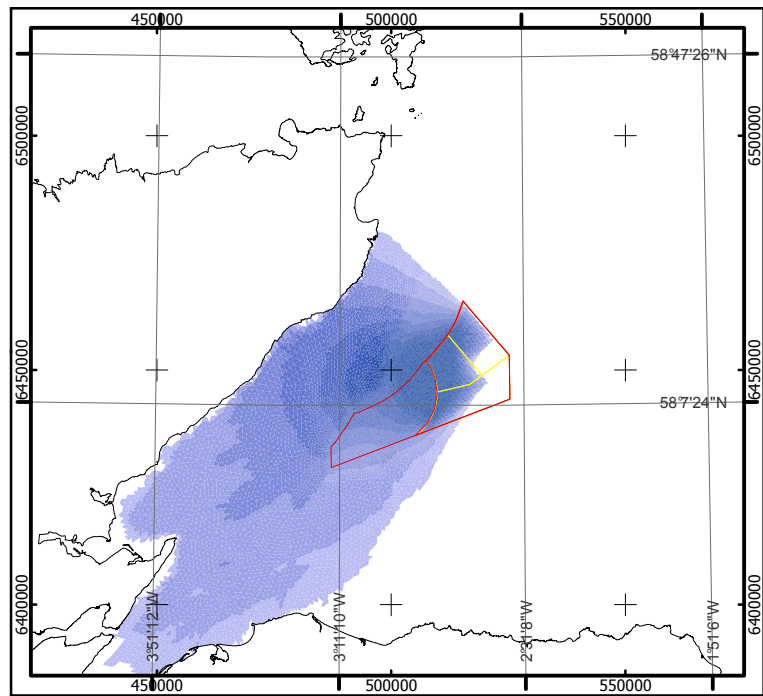
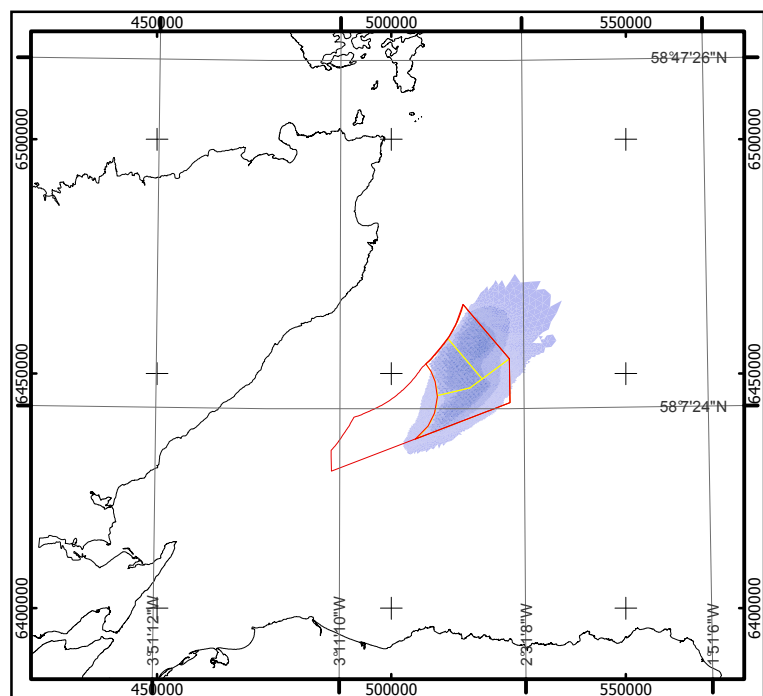
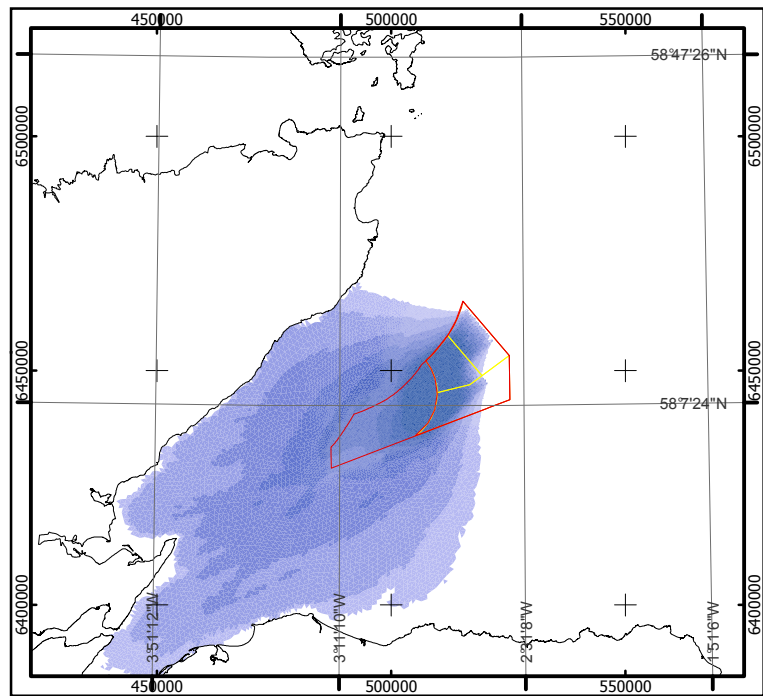
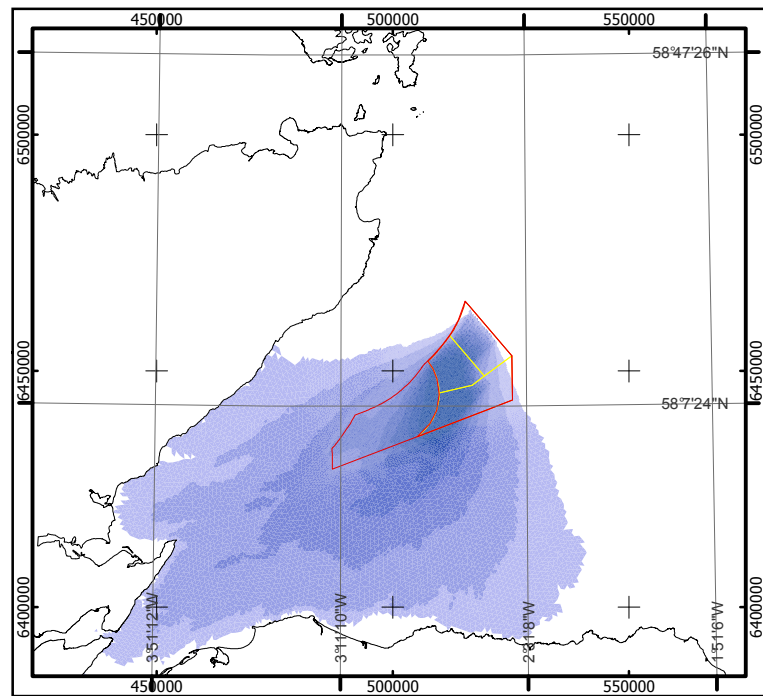
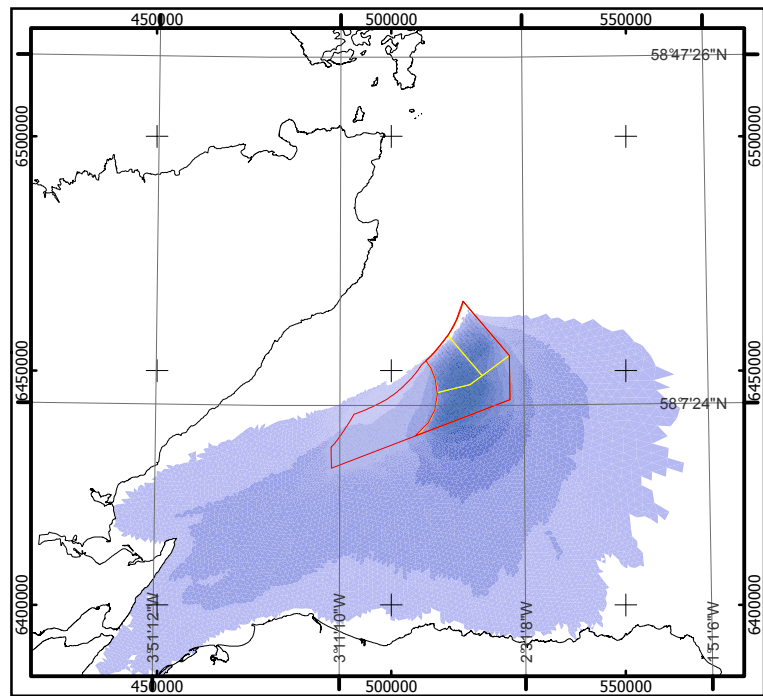
Geodetic Parameters: WGS84 UTM Zone 30N

Produced: MCE
 Reviewed: NMW
 Approved: PH

Date: 08/05/2012 Revision: B
 REF: 8460001-PPW0201-ABP-MAP-017

Fig 6.1-8 Effect of the Project on Wave Height (T3, S5, M5) 1 in 50 yrs

Moray Offshore Renewables Ltd



Moray Offshore Renewables Ltd

KEY

- MORL Zone Boundary
- Windfarm Boundaries

Scenarios T5 S3, M5

Significant Wave Height Difference

- 0.04 - 0.50
- 0.09 - -0.05
- 0.19 - -0.10
- 0.29 - -0.20
- 0.39 - -0.30
- 0.49 - -0.40
- 0.59 - -0.50
- 0.69 - -0.60
- 1.99 - -0.70
- 1.36 - -2.00

Horizontal Scale: 1:1,600,000 A3 Chart

 0 40,000 80,000 Meters

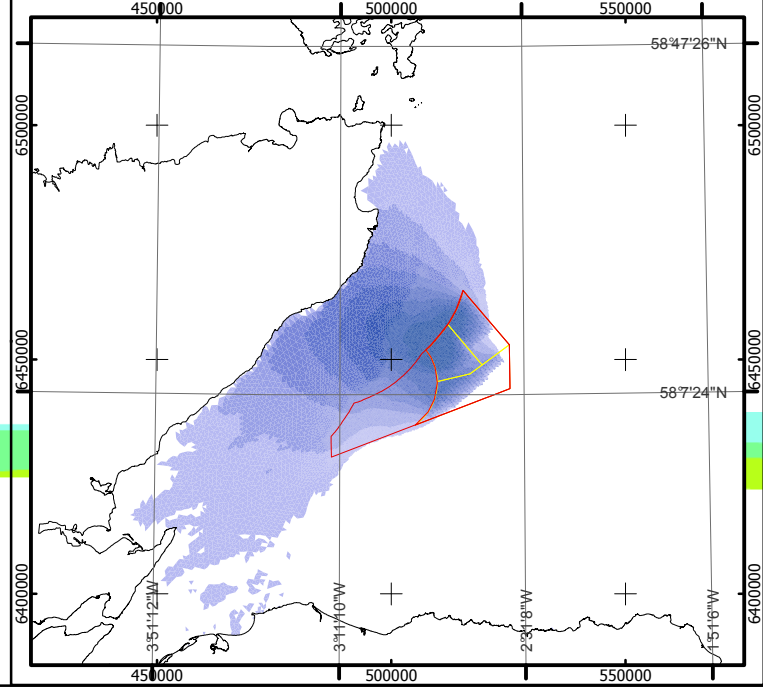
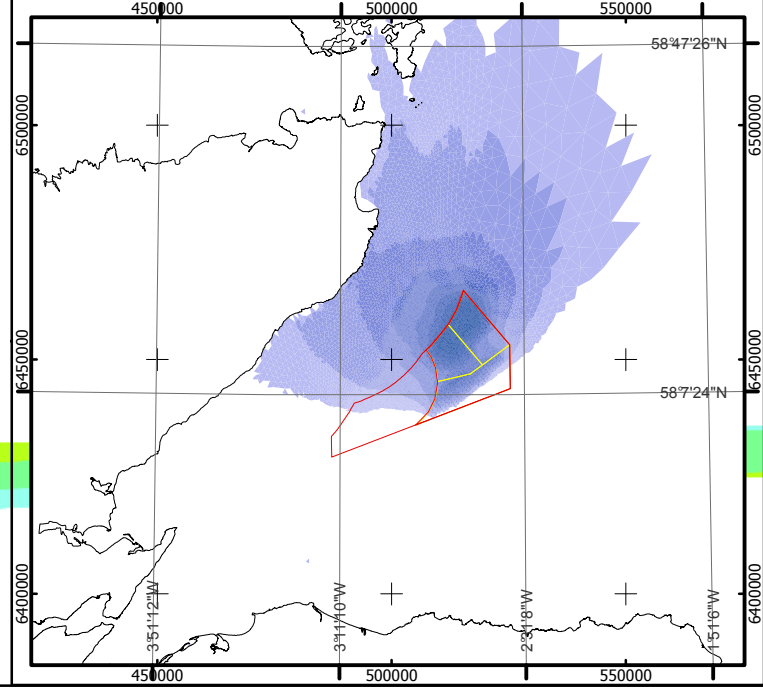
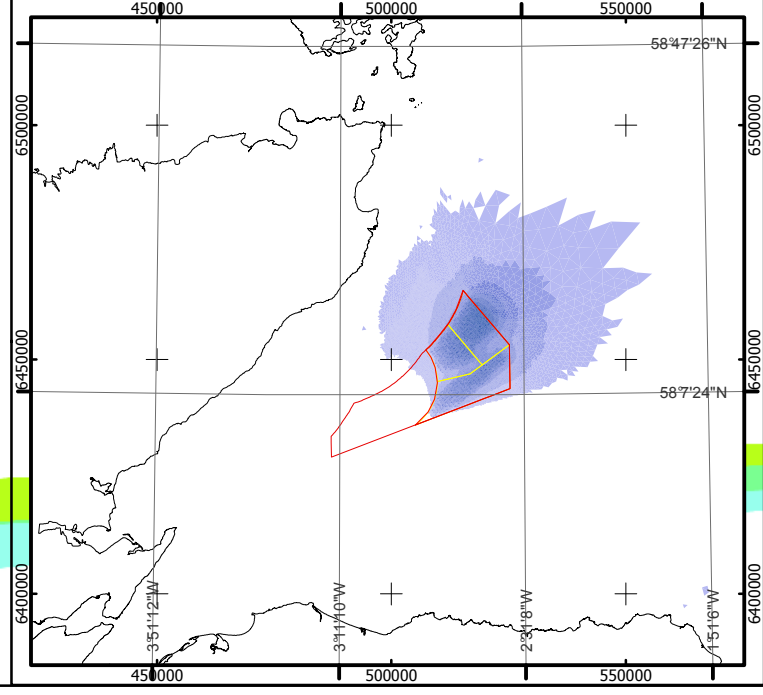
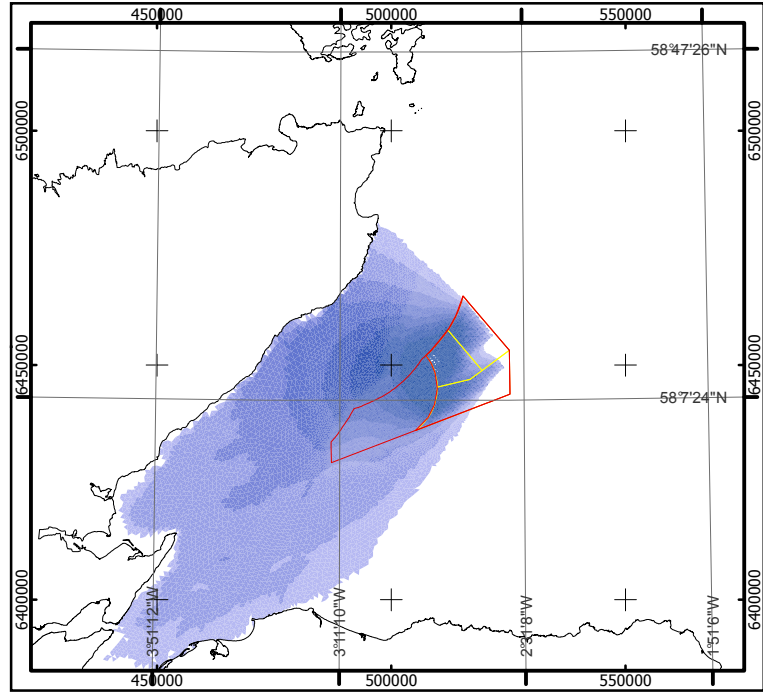
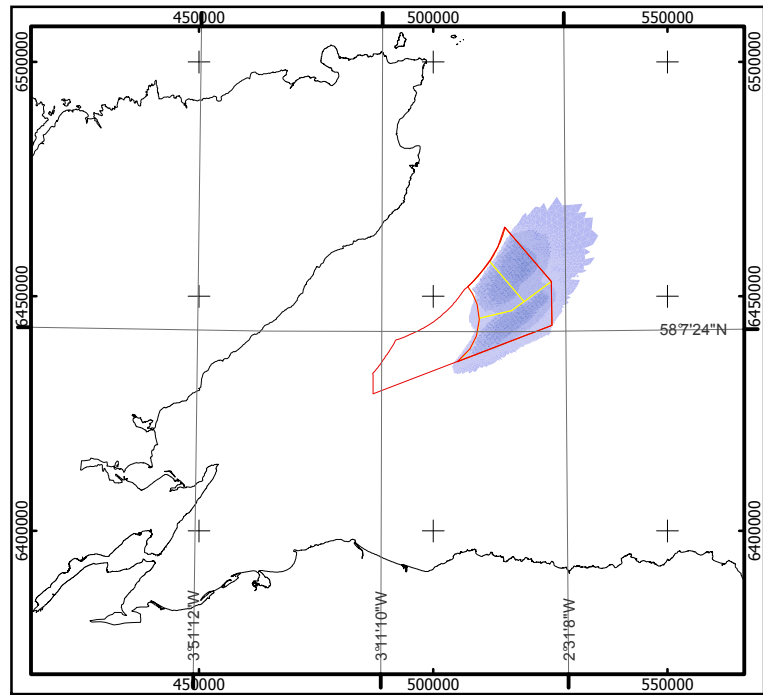
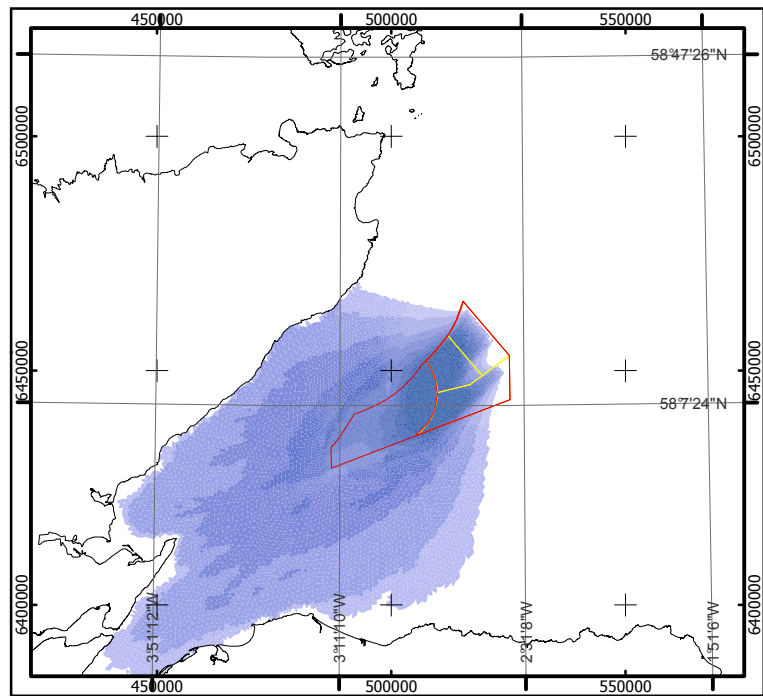
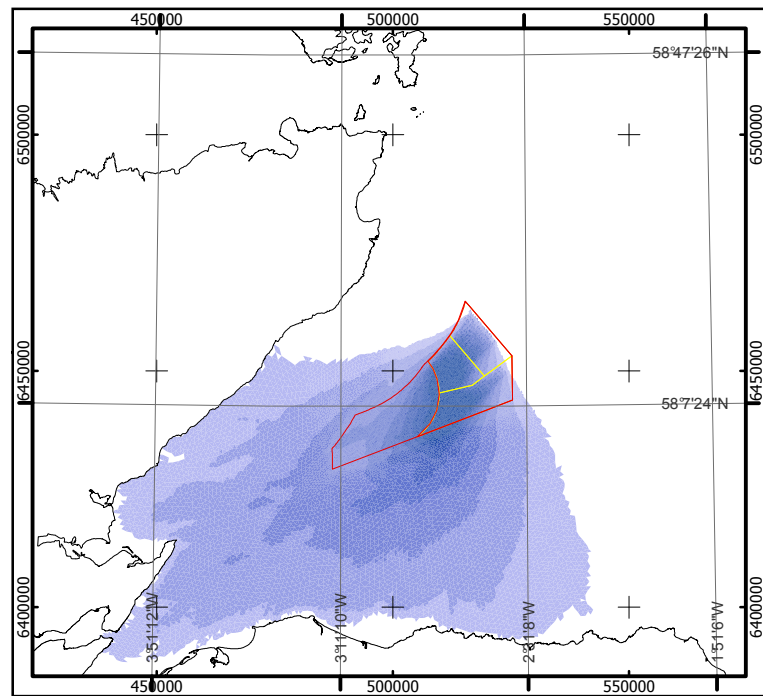
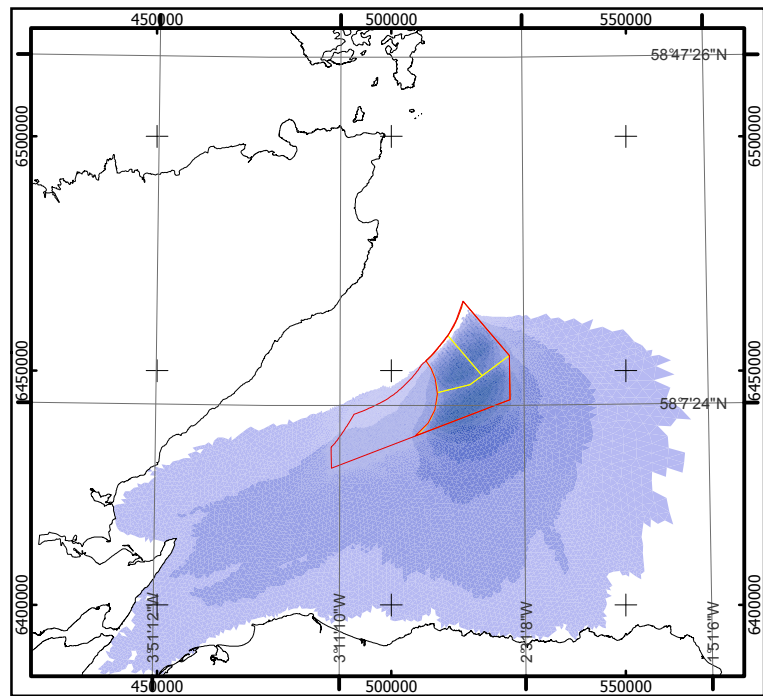
Geodetic Parameters: WGS84 UTM Zone 30N

Produced: MCE
 Reviewed: DOL
 Approved: PH

Date: 08/05/2012 Revision: B
 REF: 8460001-PPW0201-ABP-MAP-018

Fig 6.1-9 - Effect of the Project on Wave Height (T5, S3, M5) 1 in 50yrs

Moray Offshore Renewables Ltd



Moray Offshore Renewables Ltd

KEY

MORL Zone Boundary

Windfarm Boundaries

Scenarios T5, S5, M3

Significant Wave Height Difference

Above -0.05

-0.10 - -0.05

-0.20 - -0.10

-0.30 - -0.20

-0.40 - -0.30

-0.50 - -0.40

-0.60 - -0.50

-0.70 - -0.60

Below -0.70

Horizontal Scale: 1:1,600,000



A3 Chart
0 40,000 80,000 Metres

Geodetic Parameters: WGS84 UTM Zone 30N

Produced: MCE

Reviewed: NMW

Approved: PH

Date: 08/05/2012

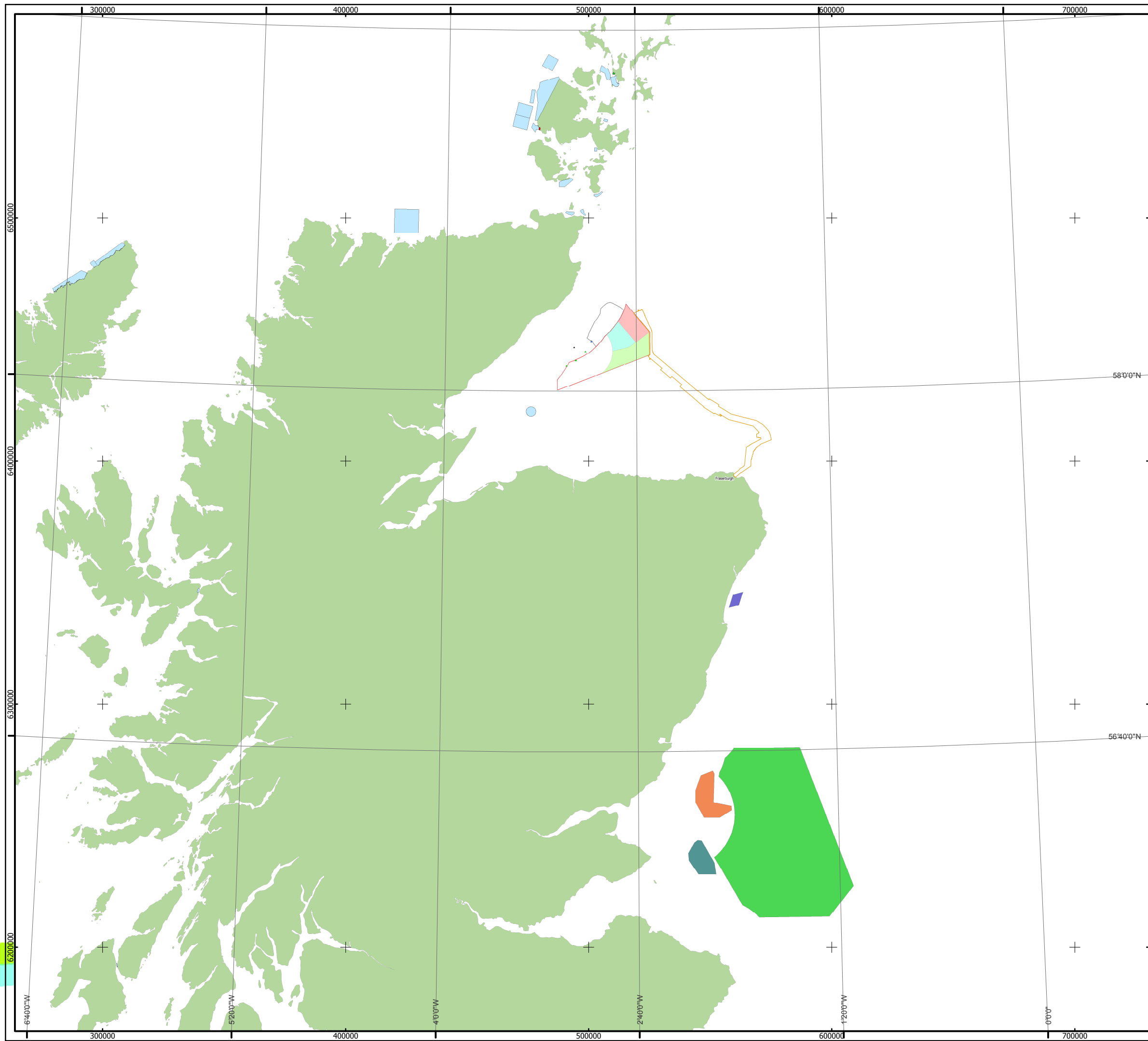
Revision: B

REF: 8460001-PPW0201-ABP-MAP-019

Fig 6.1-10 - Effect of the Project on Wave Height (T5, S5, M3) 1 in 50yrs













Moray Offshore Renewables Ltd

© ABPmer. All rights reserved, 2012. This document is the property of contractors and sub-contractors and shall not be reproduced nor transmitted without prior written approval.



Moray Offshore Renewables Ltd

KEY

-  Jacky Platform
-  Beatrice Platforms
-  Beatrice Demonstrator Turbines
-  Offshore Export Cable Route
-  MacColl Windfarm
-  Stevenson Windfarm
-  Telford Windfarm
-  MORL Zone Boundary
-  Beatrice Offshore Wind Farm
-  EMEC Tidal Power Test Facility
-  EMEC Wave Power Test Facility
-  TCE Lease Areas for Tide & Wave
-  European Wind Development Centre
-  Firth of Forth
-  Inch Cape
-  Neart na Gaoithe

Horizontal Scale: 1:1,500,000 A3 Chart
0 37,000 74,000 Metres

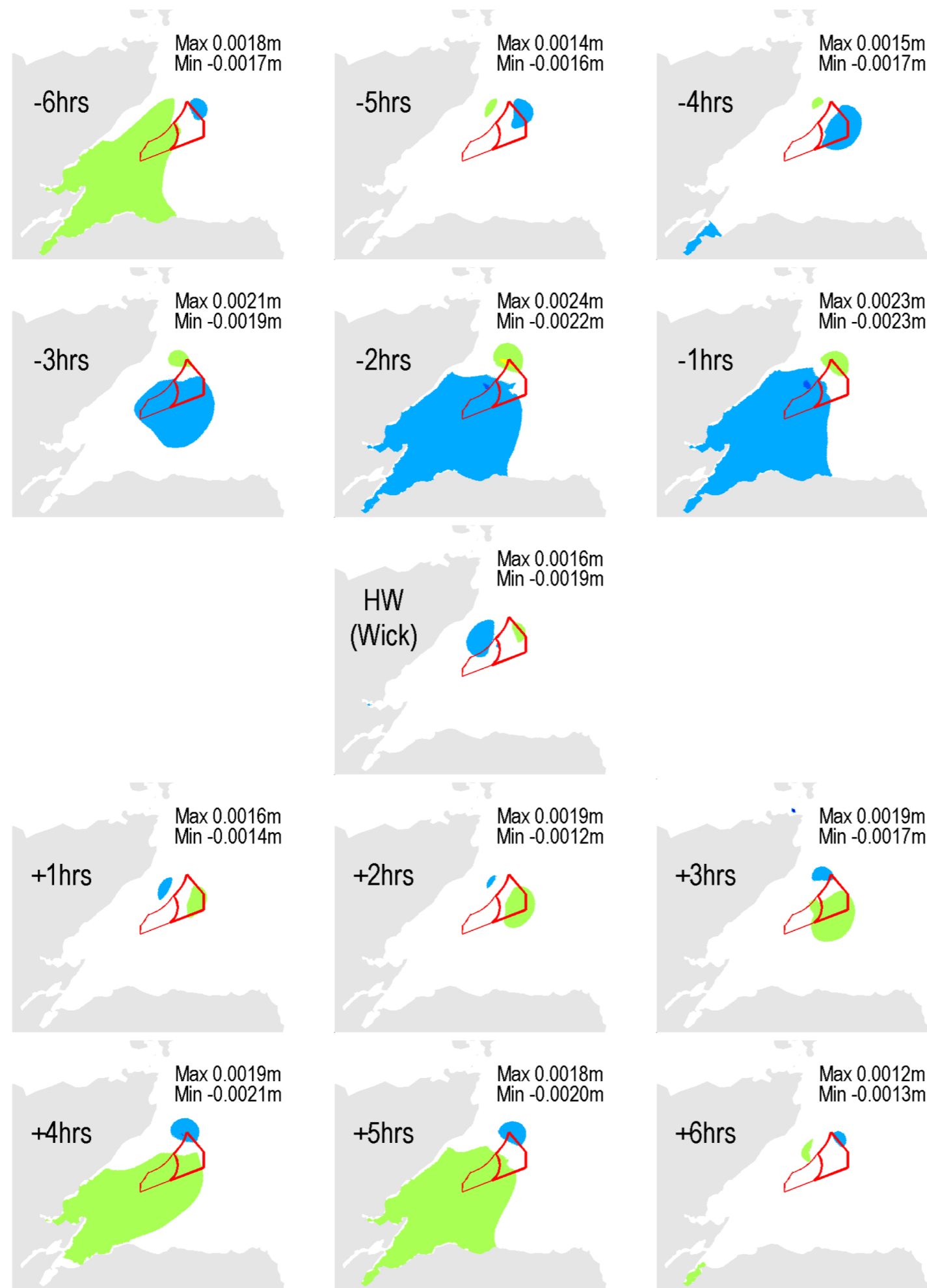
Geodetic Parameters: WGS84 UTM Zone 30N

Produced: MCE
Reviewed: NMW
Approved: PH

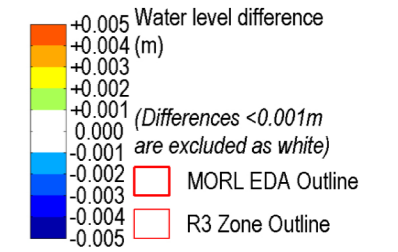
Date: 04/05/2012 Revision: A
REF: 8460001-PPW0201-ABP-MAP-020

Fig 13.1-1 - Location of Cumulative Developments

Moray Offshore Renewables Ltd



Moray Offshore Renewables Ltd



Corresponding effects on neap tides and for jackets at all times are <0.001m

A3 Chart

Produced: DOL
Reviewed: CLH
Approved: PH

Date: 30/5/12

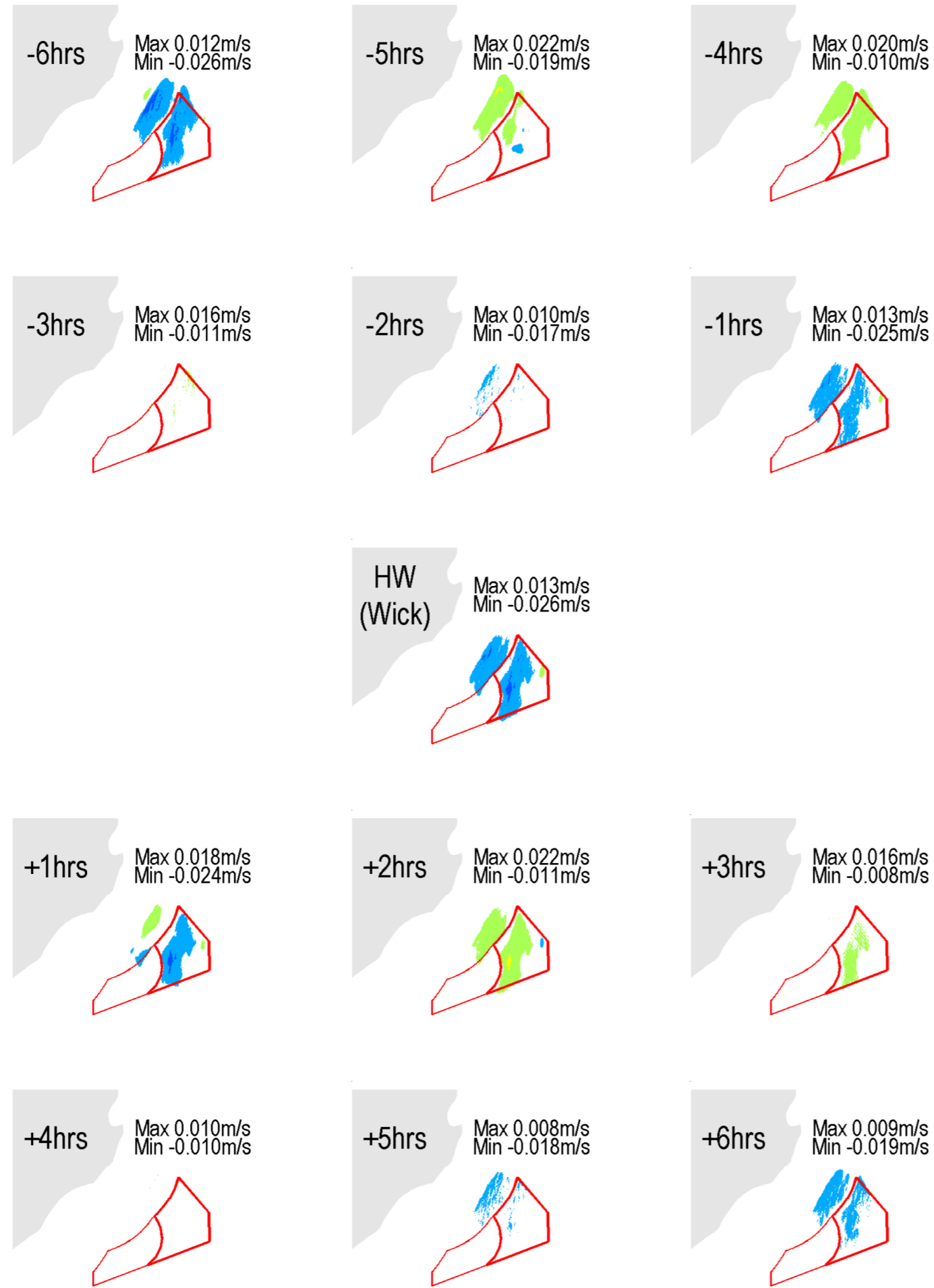
Revision: A

REF: 8460001-PPW0201-ABP-MAP-022

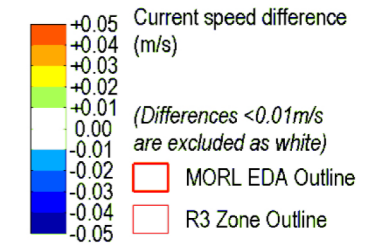
Fig 13.1-2 - Cumulative Effect of MORL and BOWL Developments on Tidal Water Levels

Moray Offshore Renewables Ltd

(GBS, MORL Development Scenario T3_S5_M5, plus BOWL (3.6MW), Spring Tide)



Moray Offshore Renewables Ltd



Corresponding effects on neap tides and for jackets at all times are < 0.01 m/s

A3 Chart

Produced: DOL
Reviewed: CLH
Approved: PH

Date: 30/5/12

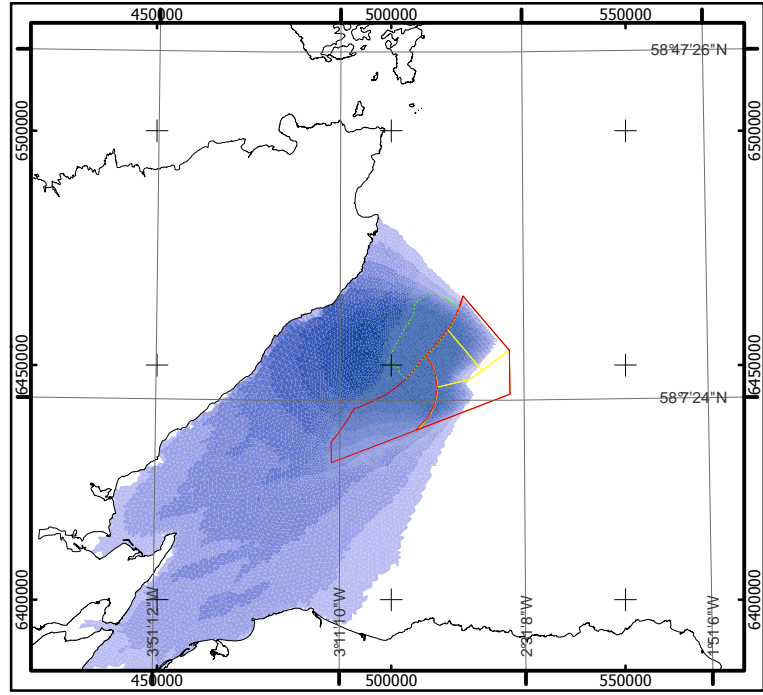
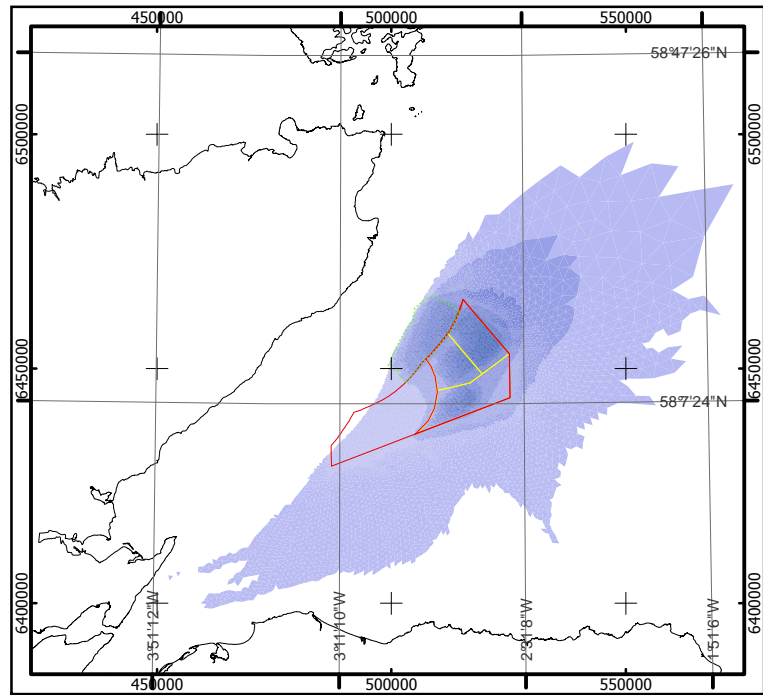
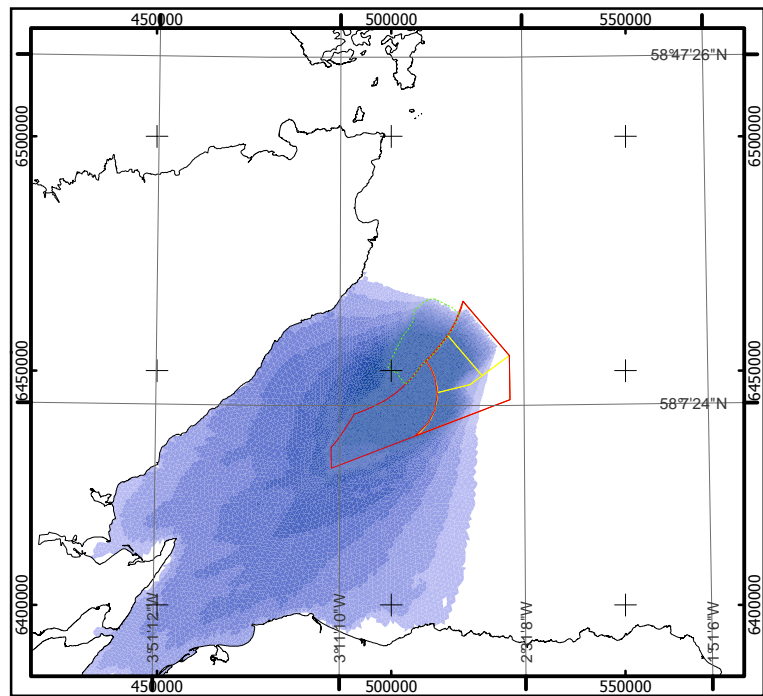
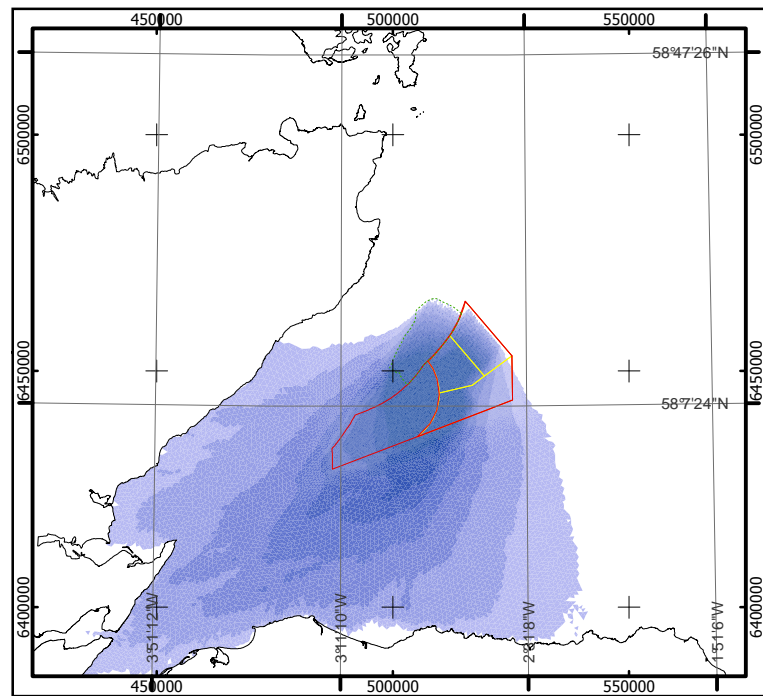
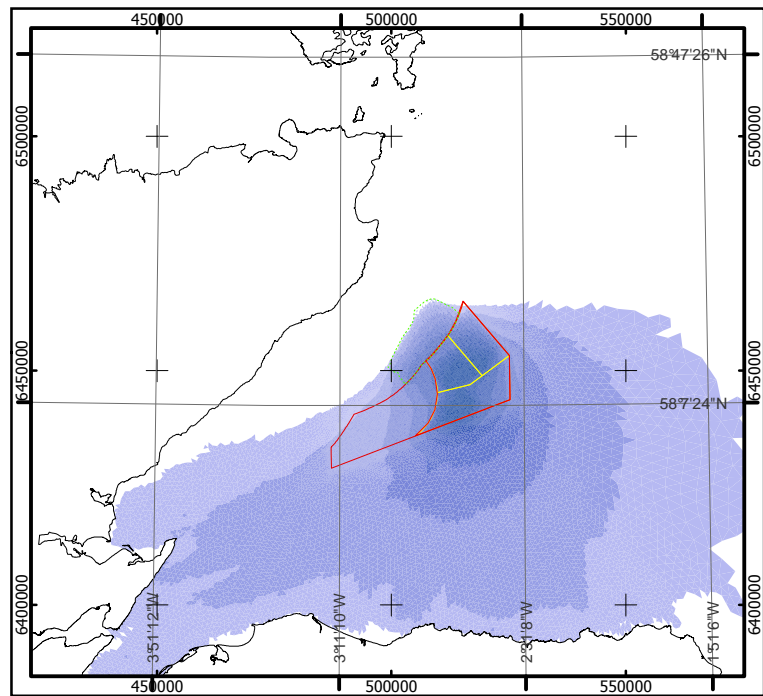
Revision: A

REF: 8460001-PPW0201-ABP-MAP-023

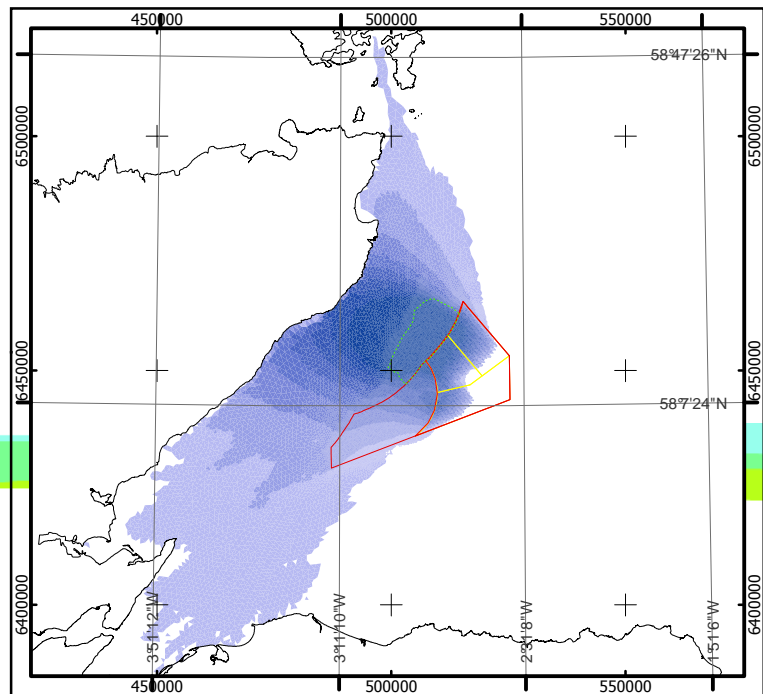
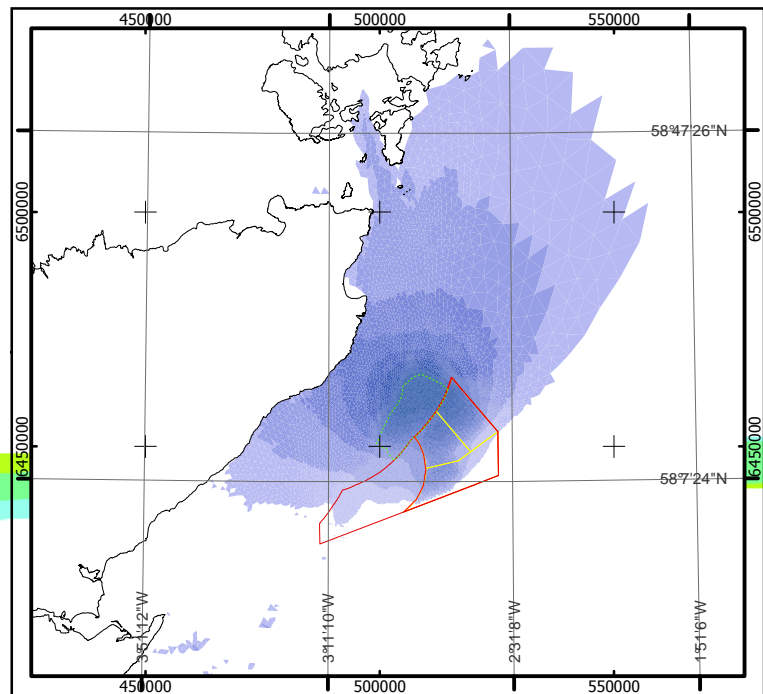
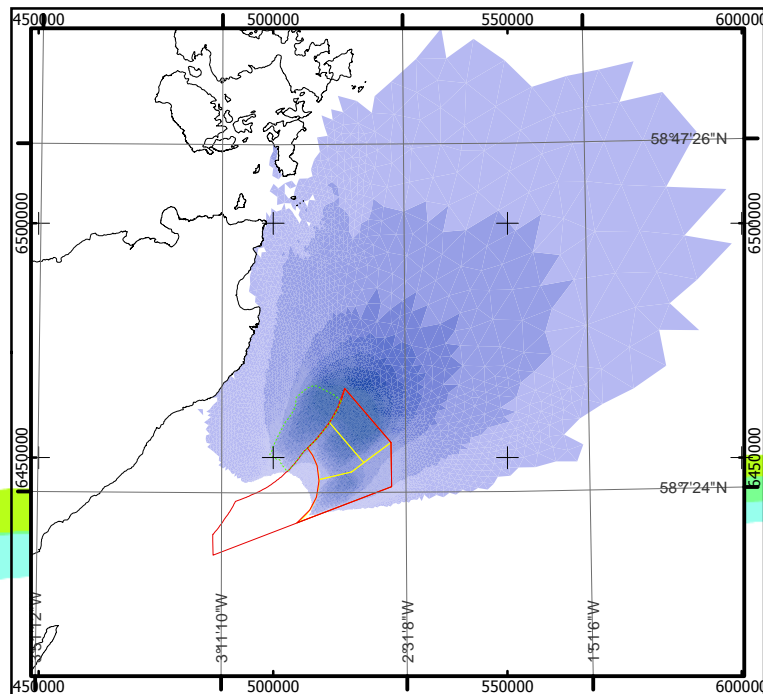
Fig 13.1-3 - Cumulative Effect of MORL and BOWL Developments on Tidal Current Speed

Moray Offshore Renewables Ltd

(GBS, MORL Development Scenario T3_S5_M5, plus BOWL (3.6MW), Mean Spring Tide)



Combined Effect of the MORL
(Development Scenario 4)
and BOWL Developments



Moray Offshore Renewables Ltd

KEY

- BOWL Zone Boundary
- MORL Zone Boundary
- Windfarm Boundaries

Significant Wave Height Difference

- 0.04 - 0.50
- 0.09 - -0.05
- 0.19 - -0.10
- 0.29 - -0.20
- 0.39 - -0.30
- 0.49 - -0.40
- 0.59 - -0.50
- 0.69 - -0.60
- Below -0.70

Horizontal Scale: 1:1,600,000 A3 Chart

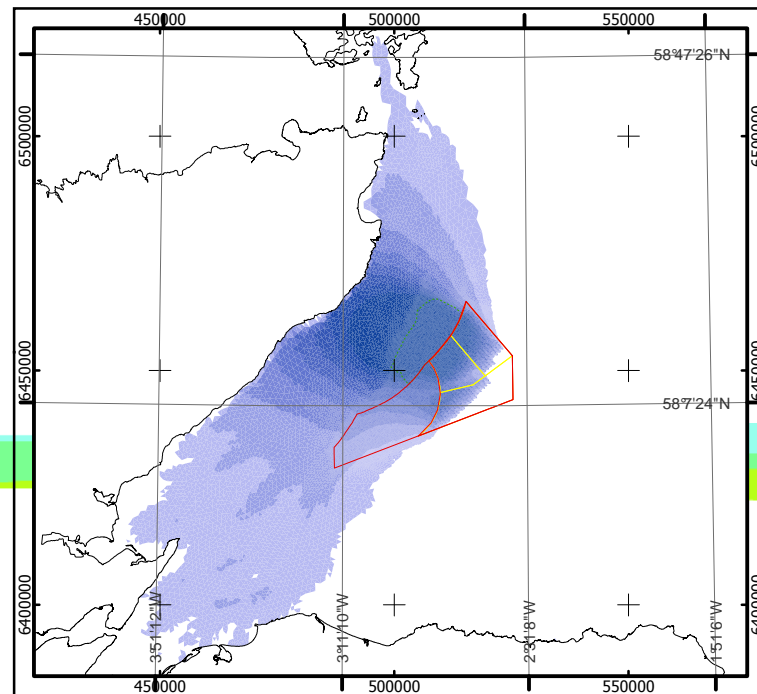
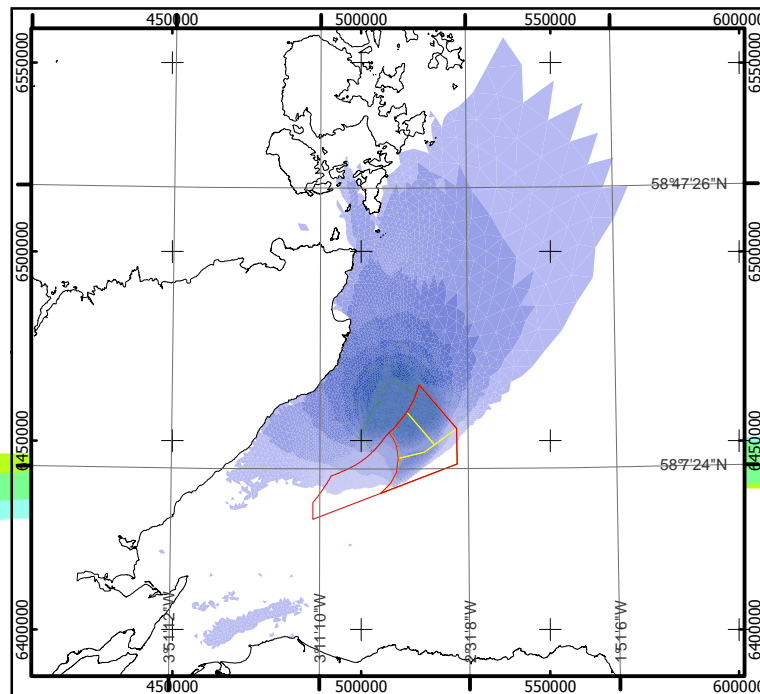
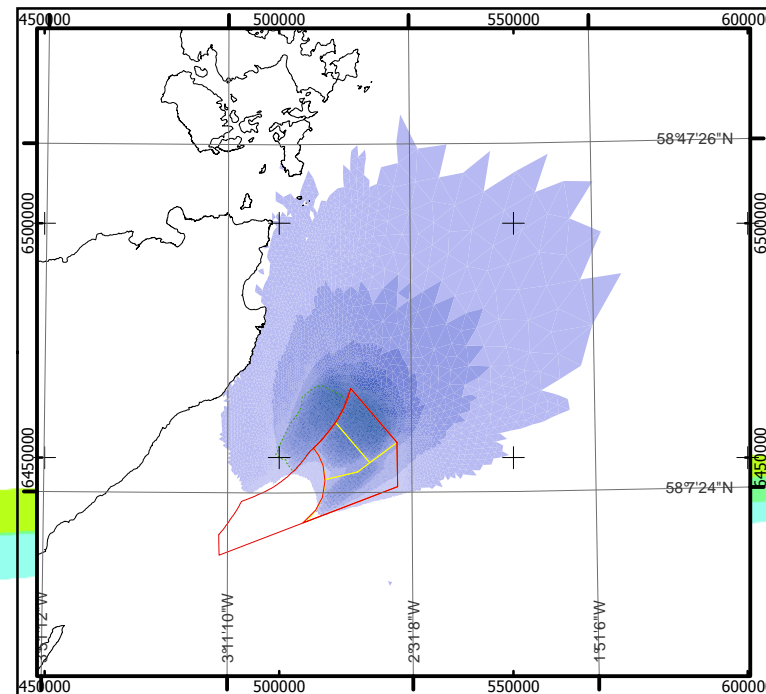
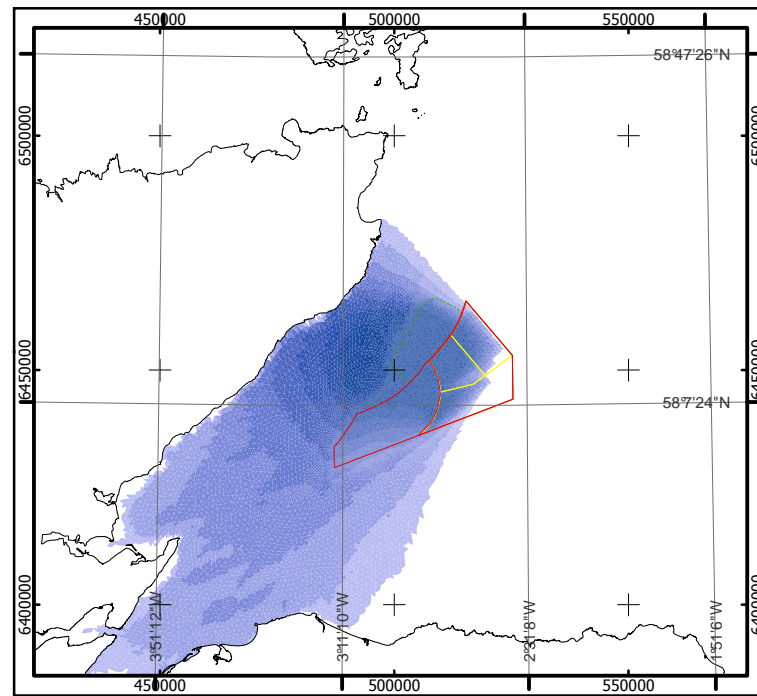
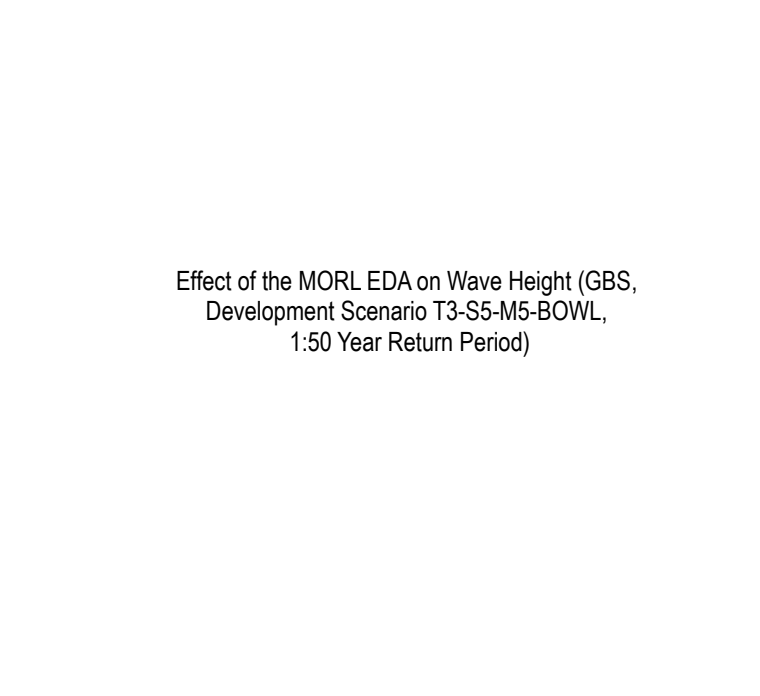
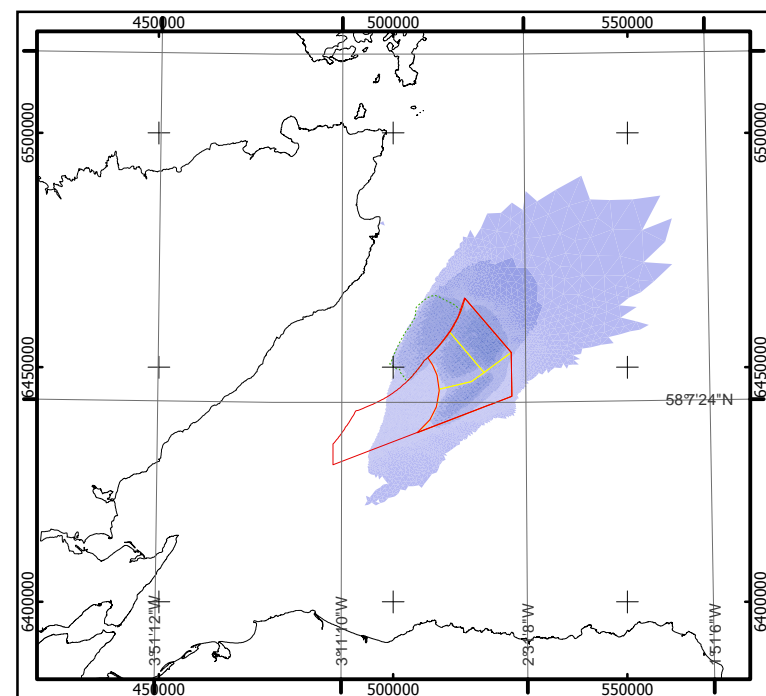
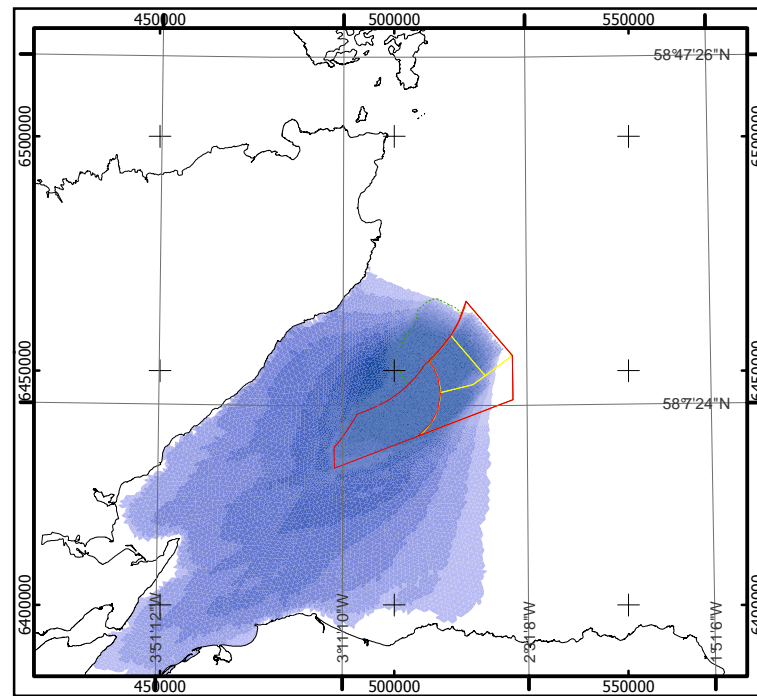
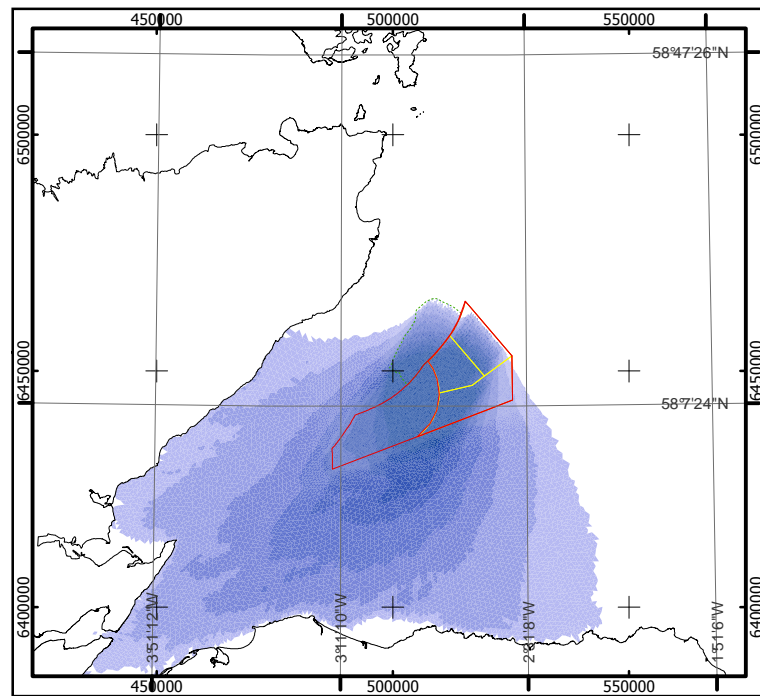
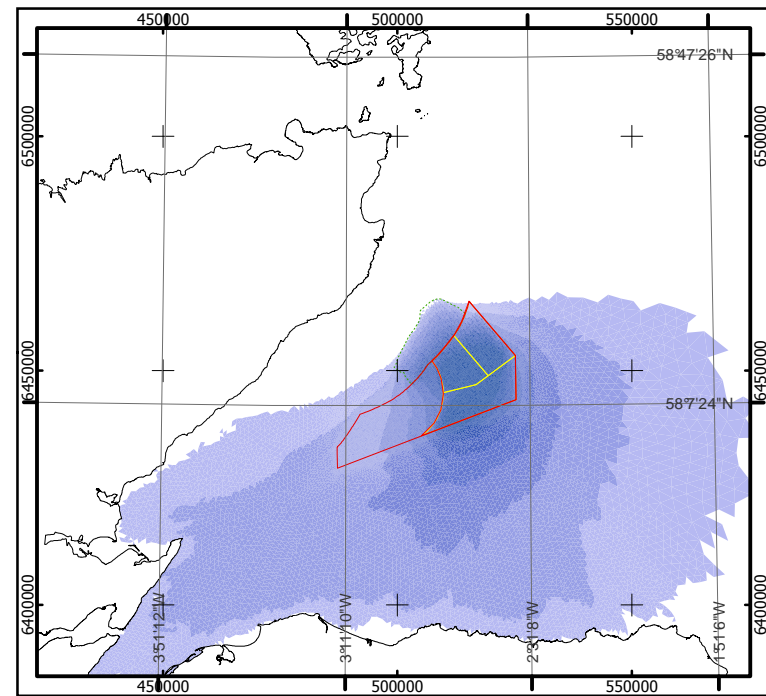
Geodetic Parameters: WGS84 UTM Zone 30N

Produced: MCE
 Reviewed: NMW
 Approved: PH

Date: 23/11/2011 Revision: A
 REF: 8460001-PPW0201-ABP-MAP-023

Fig 13.1-4 - Cumulative Effect of MORL and BOWL Developments on Wave Height (1in1yr)

Moray Offshore Renewables Ltd



Effect of the MORL EDA on Wave Height (GBS, Development Scenario T3-S5-M5-BOWL, 1:50 Year Return Period)



Moray Offshore Renewables Ltd

KEY

- MORL Zone Boundary
- Windfarm Boundaries
- BOWL Zone Boundary

Significant Wave Height Difference

- 0.04 - 0.50
- 0.09 - -0.05
- 0.19 - -0.10
- 0.29 - -0.20
- 0.39 - -0.30
- 0.49 - -0.40
- 0.59 - -0.50
- 0.69 - -0.60
- Below -0.70

Horizontal Scale: 1:1,600,000 A3 Chart

Geodetic Parameters: WGS84 UTM Zone 30N

Produced: MCE
 Reviewed: NMW
 Approved: PH

Date: 17/05/2012 Revision: B
 REF: 8460001-PPW0201-ABP-MAP-024

Fig 13.1-5 - Cumulative Effect of MORL and BOWL Developments on Wave Height (1in50yr)

Moray Offshore Renewables Ltd