Great Yarmouth
Third River Crossing Order 202[*]

Document NCC/GY3RC/EX/078: Response to Written Representations from the Environment Agency at Deadline 6

Planning Act 2008

Infrastructure Planning

The Infrastructure Planning (Examination Procedure) Rules 2010

Planning Inspectorate Reference Number: TR010043

Author: Norfolk County Council

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Date: 3 March 2020

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Foreword

This Response to the Written Submission made by the Environment Agency at Deadline 6 relates to an application ('the Application') submitted by Norfolk County Council ('the Council' / 'the Applicant') to the Secretary of State for a Development Consent Order ('DCO') under the Planning Act 2008.

If made by the Secretary of State, the DCO would grant development consent for the construction, operation and maintenance of a new bascule bridge highway crossing over the River Yare in Great Yarmouth, and which is referred to in the Application as the Great Yarmouth Third River Crossing (or 'the Scheme').

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Glossary of Abbreviations and Defined Terms

AEP	Annual Exceedance Probability
DCO	Development Consent Order
EIA	Environmental Impact Assessment
FRA	Flood Risk Assessment, Appendix 12B to the Environmental Statement (Document Reference 6.2, Planning Inspectorate Reference APP-135)
IDB	Internal Drainage Board
Outline CoCP	Outline Code of Construction Practice (Document Reference 6 NCC/GY3RC/EX/073, Planning Inspectorate Reference REP6-014)
OS	Ordnance Survey
SFRA	Strategy Flood Risk Assessment
SoCG	Statement of Common Ground
The Applicant	Norfolk County Council (in its capacity as Highway Authority and promoter of the Scheme)

1 Introduction

1.1 Purpose of this Report

1.1.1 This response, submitted for Deadline 7 of the Examination, contains the Applicant's responses to the Written Submission made by the Environment Agency (REP6-018) at Deadline 6, 11th February 2020.

1.1.2 The response summarises the methodology, results and next steps for tidal residual (breach) analysis undertaken by the Applicant to respond to the queries raised by the Environment Agency, as part of the examination process, in their Response to the Examining Authority's Second Written Questions (REP5-011) at Deadline 6.

1.1.3 The following matters are not discussed within this response as they are covered in detail in the Applicant's response to the Request for Further Information (Rule 17) (Document Reference NCC/GY3RC/EX/077):

- The Applicant's position with regard to tidal residual (breach) analysis;
- An explanation as to how the over-topping modelling presented in the Flood Risk Assessment (FRA) (Document Reference 6.2, Planning Inspectorate Reference APP-135) allows the Applicant to assess the effects of the Scheme on flood characteristics once water has left the channel, allowing a professional judgment to be made on the effects of the Scheme on flow paths and the breach locations that are likely to lead to maximum hazard; and
- The Applicant's explanation as to why it is considered more appropriate to carry out the tidal residual (breach) analysis prior to the Scheme opening for public use and the preparation of the Emergency Preparedness and Response Plan, pursuant to Requirement 10 of the draft DCO (Document Reference NCC/GY3RC/EX/082).

1.1.4 A record of the continued engagement undertaken with the Environment Agency is provided in Table 2.1 of the Statement of Common Ground with the Environment Agency submitted at Deadline 7 of the Examination (Document Reference NCC/GY3RC/EX/085).

2 Methodology

2.1 Introduction

2.1.1 Further to the Applicant's Response to Written Representations submitted by the Environment Agency at Deadline 5 (Document Reference NCC/GY3RC/EX/064, Planning Inspectorate Reference REP6-005) the Applicant has considered the Environment Agency's queries relating to tidal residual (breach) analysis to see if a common position can be reached.

2.1.2 Since Deadline 5, the Applicant has further engaged with the Environment Agency and, following Deadline 6, offered to undertake tidal residual (breach) analysis to respond to their queries. The scope of the tidal residual (breach) analysis was discussed with and submitted to the Environment Agency in writing on the 18th February 2020. The scope was based on guidance from the Environment Agency in their letter dated the 10th February 2020.

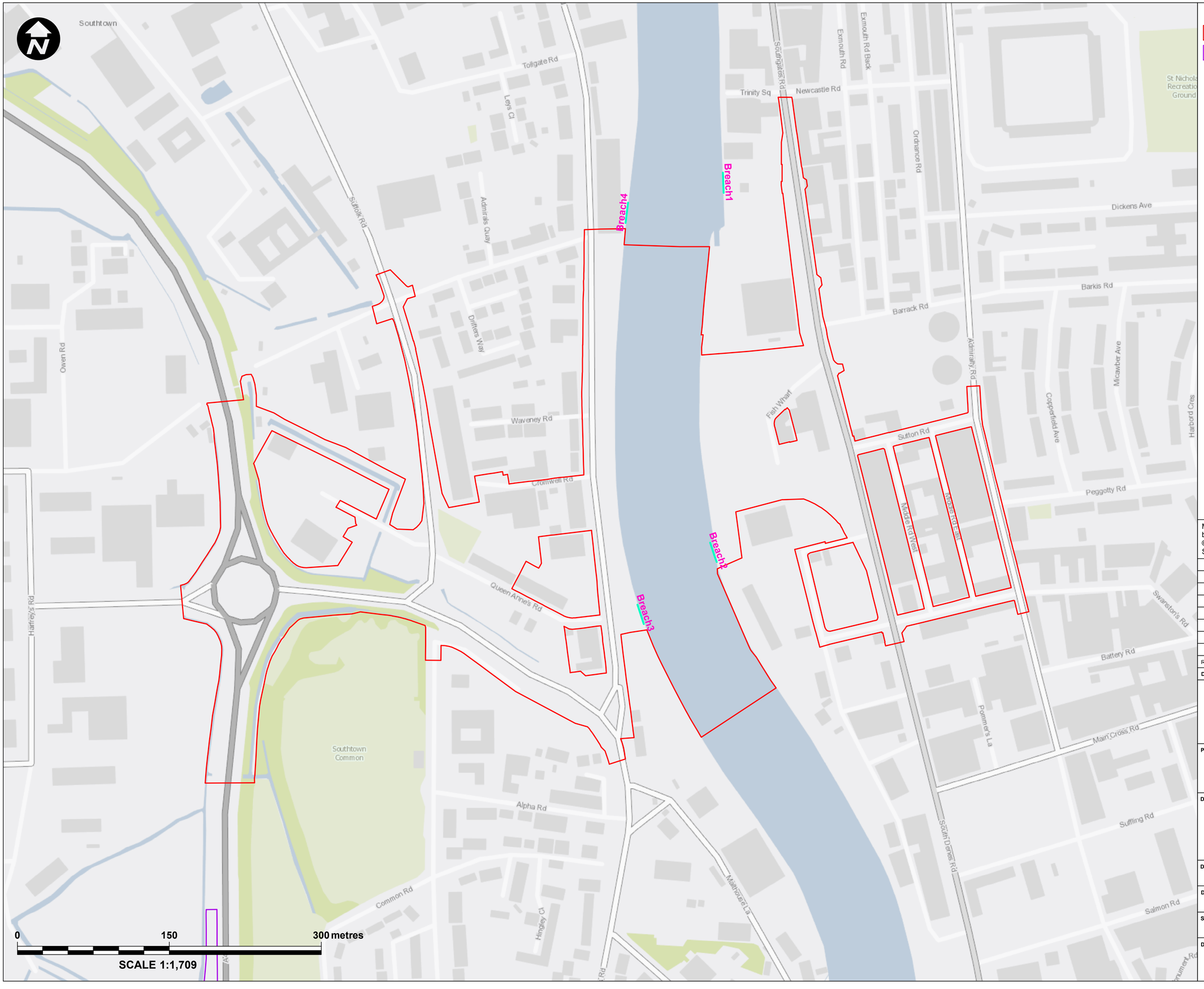
2.1.3 On the 20th February 2020 the Environment Agency provided an initial response stating that the Applicant's proposed scope for the tidal residual (breach) analysis was unlikely to be considered acceptable, and that a formal opinion would be provided during the week commencing the 24th February 2020. Subsequently on the 27th February 2020 the Environment Agency advised the Applicant to carry out the analysis based on the maximum water levels seen during the tidal surge event which occurred in Great Yarmouth in 2013.

2.1.4 On the 18th February, in order to ensure timely progression of the tidal residual (breach) analysis, the Applicant proceeded with the scope proposed to the Environment Agency on the 18th February 2020. It is not possible for the Applicant to complete the extensive tidal residual (breach) analysis requested by the Environment Agency on the 24th and 27th February within the timeframes of the examination.

2.1.5 A summary of the breach locations, events considered, breach geometry and result outputs are provided in the subsequent sections.

2.2 Breach Locations

2.2.1 Tidal residual (breach) analysis has been undertaken by the Applicant for four individual breach locations based on guidance from the Environment Agency in their letter dated the 10th February 2020. The locations are shown in Figure 2.1 overleaf. Two locations are to the south and two to the north of the bascule bridge comprised in the Scheme, one each in the east and west bank coastal flood defences.



Key:

- Principal Application Site
- Satellite Application Sites

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DESCRIPTION

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PROJECT TITLE

GREAT YARMOUTH THIRD RIVER CROSSING

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Figure 2.1: Breach Locations

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NCC/GY3RC/EX/078 - Figure 2.1

2.2.2 Locations were selected close to the bascule bridge crossing where the impact on water levels is greatest within the channel, at low points in the existing ground levels and where over-topping runs confirm a flow path to groupings of receptors. Both Table 6.9 of the FRA (Document Reference 6.2, Planning Inspectorate Reference APP-135) and Table 6.9 of the second stage of further sensitivity testing (Appendix B of the Applicant's response to the Request for Further Information (Rule 17) (Document Reference NCC/GY3RC/EX/077)) have shown that the maximum difference in flood depth occurs south of the bascule bridge, and thus breach locations 2 and 3 will give the largest adverse effects on residual flood risk arising from the Scheme. Moreover, given the larger number of receptors at risk on the east bank of the river, breach location 2 is expected to represent the worse-case scenario.

2.3 Events Considered

2.3.1 In the Environment Agency's letter dated the 10th February 2020, it was requested that analysis be undertaken for a tide which peaked just below the crest level of the coastal flood defences. The 5% AEP event was selected for the assessment as it had been derived for the FRA (Document Reference 6.2, Planning Inspectorate Reference APP-135) and the model results show that the flood defences are not over-topped by the 5% AEP event at the location of the bascule bridge crossing. The 5% AEP event just over-tops the west bank flood defences at Malthouse Lane approximately 410m downstream of the bascule bridge (as shown in the Applicant's Response to Written Submissions made by the Environment Agency at Deadline 5 (Document Reference: NCC/GY3RC/EX/064, Planning Inspectorate Reference REP6-005). However, this does not impact on the tidal residual (breach) analysis results as ground levels rise to the west of the river at this location and flooding does not extend west of Riverside Road which runs adjacent and parallel to the river.

2.3.2 Following the commencement of the tidal (breach) analysis using the 5% AEP event, the Environment Agency advised the Applicant to carry out the analysis for the 0.5% and 0.1% AEP events with and without climate change on the 20th February 2020. Subsequently on the 27th February 2020 the Environment Agency advised the Applicant to carry out the analysis based on the maximum water levels seen during the tidal surge event which occurred in Great Yarmouth in 2013 (which, based on levels provided by the Environment Agency, is equivalent to an event of approximately 0.57% AEP). The Applicant remains of the view that the maximum change in the residual flood risk with the Scheme in place will be evident for the 5% AEP event because for higher flood flows (0.1% and 0.5% AEP events) the effect of a breach will be masked by the effects of over-topping of the flood defences.

2.4 Breach Geometry

2.4.1 The tidal residual (breach) analysis has been undertaken in compliance with the applicable Environment Agency's guidance[1]. Thus, the width of the breach (for hard defences) was set to 20m and the base of the breach set to the typical ground level immediately adjacent to the defence (i.e. the base of the approach roads to the bascule bridge). Each breach event was set to remain open for 72 hours (i.e. three tidal cycles).

2.5 Results Outputs

2.5.1 The Environment Agency's letter dated the 10th February 2020 makes no direct reference to the specific outputs that the Applicant should present from the analysis in order to respond to their queries. The Environment Agency's guidance[1] is considered to be onerous in respect of the number and detail of outputs required at this stage in the examination process and so careful consideration has been undertaken by the Applicant to ensure that sufficient information was provided within the limited timeframes. Therefore, the Applicant has provided a series of figures depicting:

- The flood extent;
- The maximum velocity
- The difference in maximum depth; and
- The maximum hazard.

2.5.2 The figures have been provided for both the baseline and with Scheme scenarios for the four individual breaches shown in Figure 2-1 (a total of 28 figures).

2.5.3 The results of tidal residual (breach) analysis undertaken to respond to the Environment Agency's queries are presented in Section 3 of this response.

[1] Environment Agency Requirements for Hazard Mapping v8. Breach Analysis.

3 Results

3.1 Depth Difference

3.1.1 The series of figures shown in Appendix A depict the difference in maximum depth between the baseline and with Scheme runs for the four breach locations.

3.1.2 The results for locations 1 and 4 confirm that with the Scheme in place the reduction in maximum water levels upstream of the bascule bridge crossing reduce the maximum water levels on the floodplain resulting from a breach (as shown in Appendix A – Figures 17 and 20).

3.1.3 The results for location 2 show that, following a breach, water levels increase immediately to the south of the approach roads sloping from the bascule bridge to the existing ground level on either side of the River Yare, are within the range of 0.1m to 0.3m but that flood water (as at present) would be confined to the west of South Denes Road (as shown in Appendix A - Figure 18). There is an increase in flood extent and depth in Blackfriars Road as flood water just spills over Queens Drive. There are isolated areas of 'danger for most'[2] but these are consistent with the locations in the baseline hazard map (as shown in Appendix A – Figures 22 and 26). Overall, the slight changes in flood extent (as shown in Appendix A – Figures 2 and 6), depth (as shown in Appendix A – Figure 18) and velocity (as shown in Appendix A – Figures 10 and 14) are not significant when the flood hazard is compared. The Scheme does not lead to new areas of 'danger to most' and indicates that existing access routes can be maintained.

3.1.4 The results for location 3 show that there is a slight increase in depth as a result of the Scheme (as shown in Appendix A - Figure 19). Within a very localised area between Queen Anne's Drive and Enterprise Park the maximum flood depth increases by between 0.1m and 0.473m as a result of water being obstructed by the approach roads. With the Scheme in place the area of flooding extends northwards beyond Boundary Road (shown in Appendix A – Figures 3 and 7), but the velocities predominantly fall in the range 0 to 0.1 ms^{-1} (shown in Appendix A – Figure 15) and therefore the hazard does not exceed 'danger for some' (shown in Appendix A – Figures 23

[2] Flood hazard is expressed as a combination of flood depth and velocity (Defra / Environment Agency Flood and Coastal Defence R&D Programme FD2321/TR2 Guidance Document (2006)).

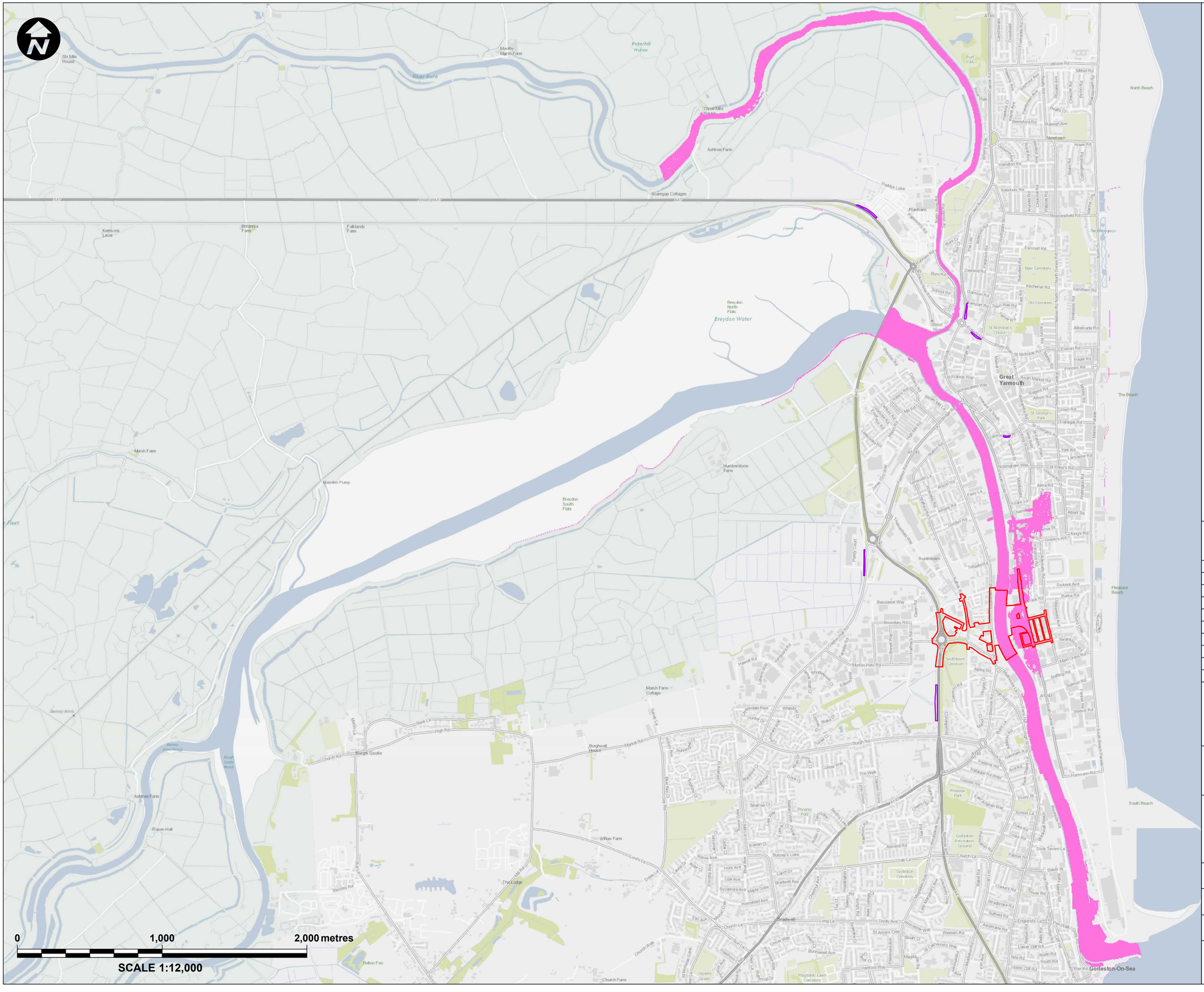
and 27). In summary, the overall effect of the Scheme does not lead to new areas being at risk or an increase in hazard within the flooded area.

4 Next Steps

4.1.1 The results of the tidal (breach) analysis for the 5% AEP event, as presented in Section 3, confirm the judgements made in preparing the FRA (Document Reference 6.2, Planning Inspectorate Reference APP-135). Breach events, with the Scheme in place, lead to very localised flood risk effects (extent, depth, velocity and hazard) and do not lead to greater numbers of receptors being at risk of flooding when compared to over-topping events. Such risks will be mitigated for in the Emergency Preparedness and Response Plan, pursuant to Requirement 10 of the draft DCO (Document Reference NCC/GY3RC/EX/082).

4.1.2 The Applicant has previously engaged with the Environment Agency and has indicated that it is willing to carry out tidal residual (breach) analysis prior to the Scheme opening. The Applicant is prepared to undertake further tidal residual (breach) analysis to inform the Emergency Preparedness and Response Plan, pursuant to Requirement 10 of revision 5 of the draft DCO (Document Reference NCC/GY3RC/EX/082) which has been amended to reflect this approach. The further analysis will be used to review and update the existing contingency actions following a breach and to assist the agencies in determining trigger water levels for these actions. For example, procedures used for alerting those at risk, actions taken by the emergency services and co-ordination during an incident, the identification of safe evacuation routes and the measures taken to repair a breach. These locations will reflect the Environment Agency's knowledge of the state of the existing defences (i.e. any defence improvements since the hydraulic modelling undertaken to inform the FRA (Document Reference 6.2, Planning Inspectorate Reference APP-135)), the detailed design of the Scheme, and the model results will allow a review of the procedures in existing emergency plans for managing tidal residual (breach) flood risk.

Appendix A



Key:

- Principal Application Site
- Satellite Application Sites
- 5% Annual Exceedance Probability (AEP) Event

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DESCRIPTION				

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PROJECT TITLE

GREAT YARMOUTH THIRD RIVER CROSSING

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FIGURE 1 (APPENDIX A) – BASELINE PRESENT DAY SCENARIO - 5% AEP MODELLED FLOOD EXTENTS (LOCATION 1)

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NCC/GY3RC/EX/078 - Figure 1

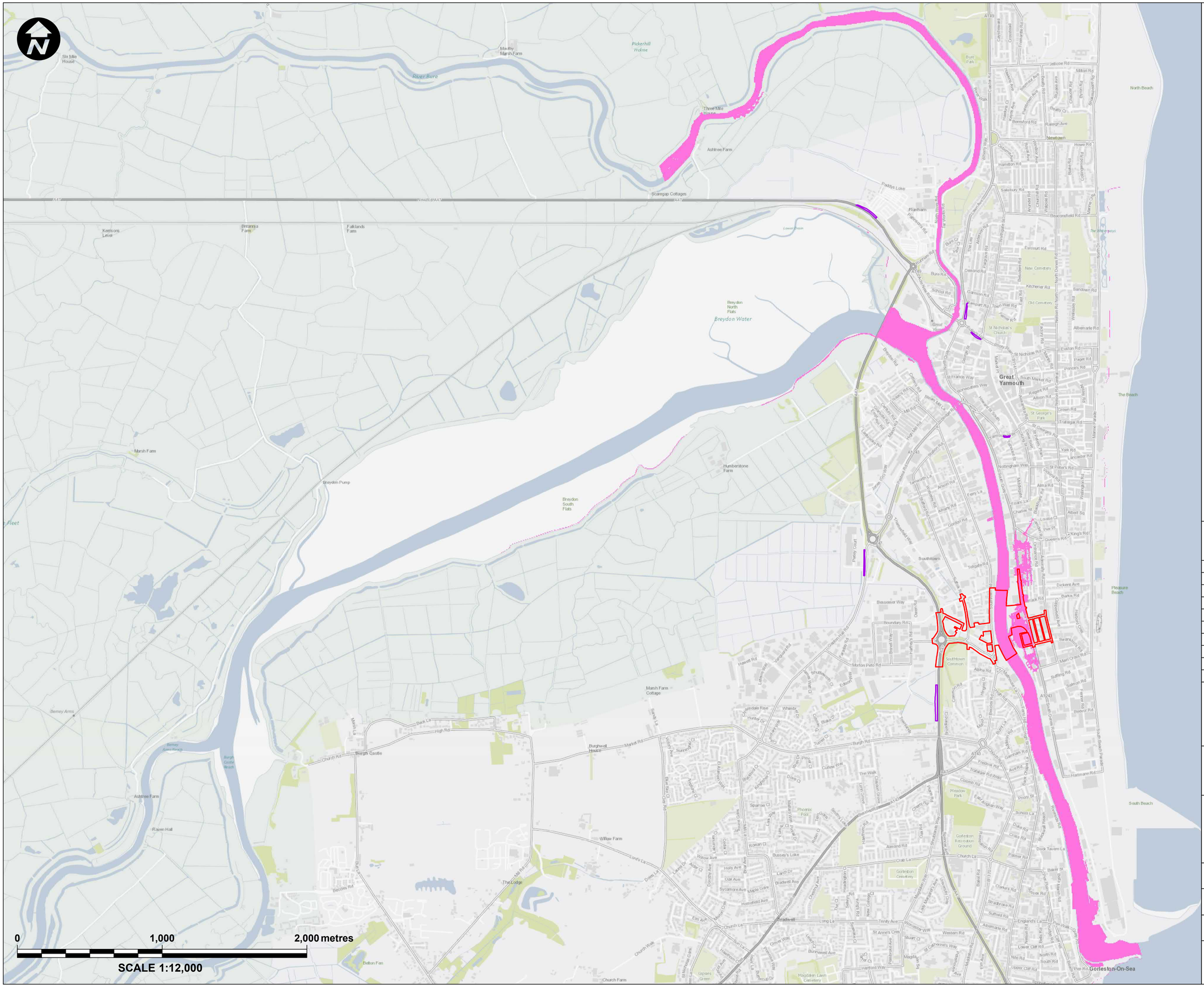

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FIGURE 2 (APPENDIX A) – BASELINE PRESENT DAY SCENARIO - 5% AEP MODELLED FLOOD EXTENTS (LOCATION 2)

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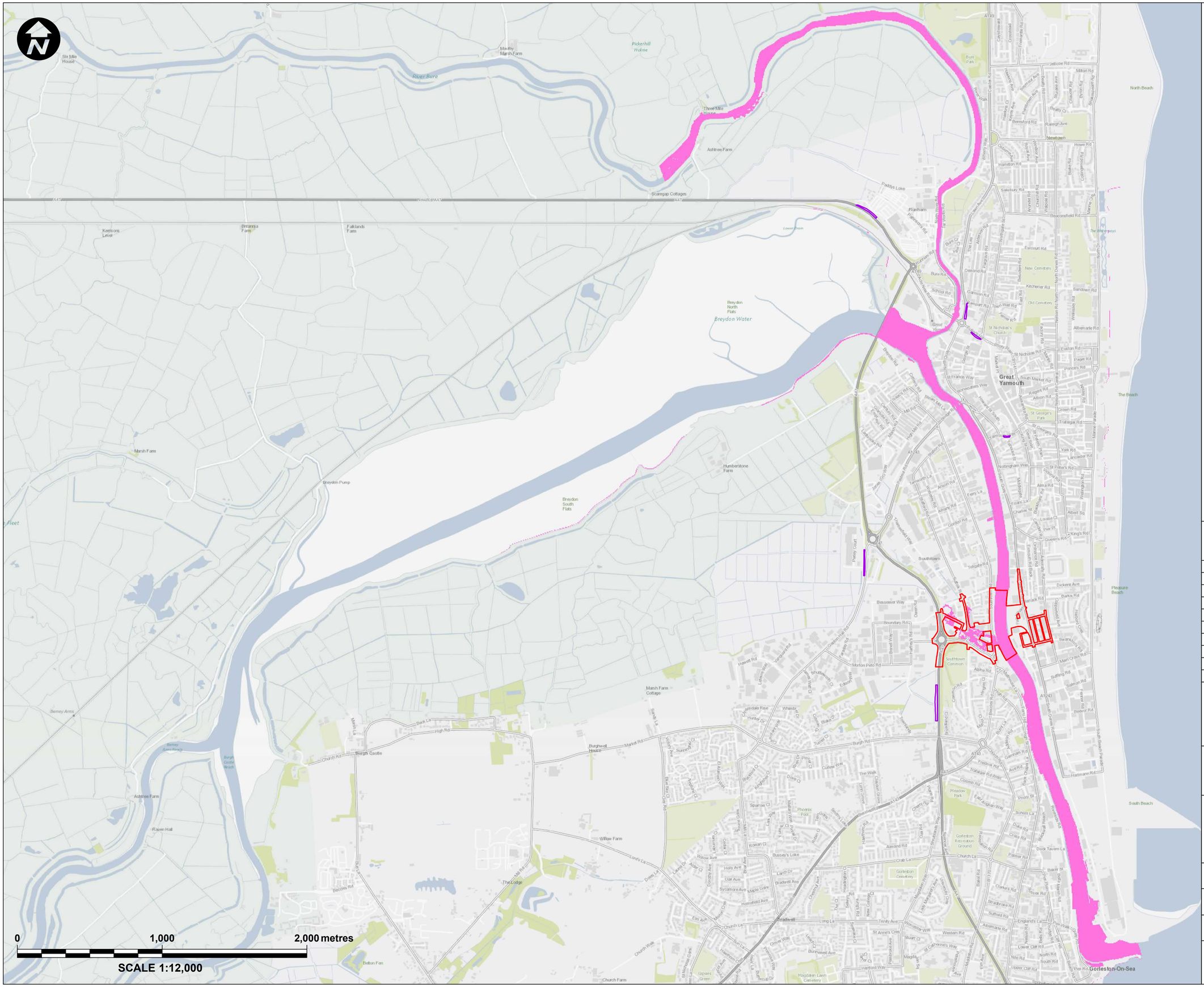

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FIGURE 3 (APPENDIX A) – BASELINE PRESENT DAY SCENARIO - 5% AEP MODELLED FLOOD EXTENTS (LOCATION 3)

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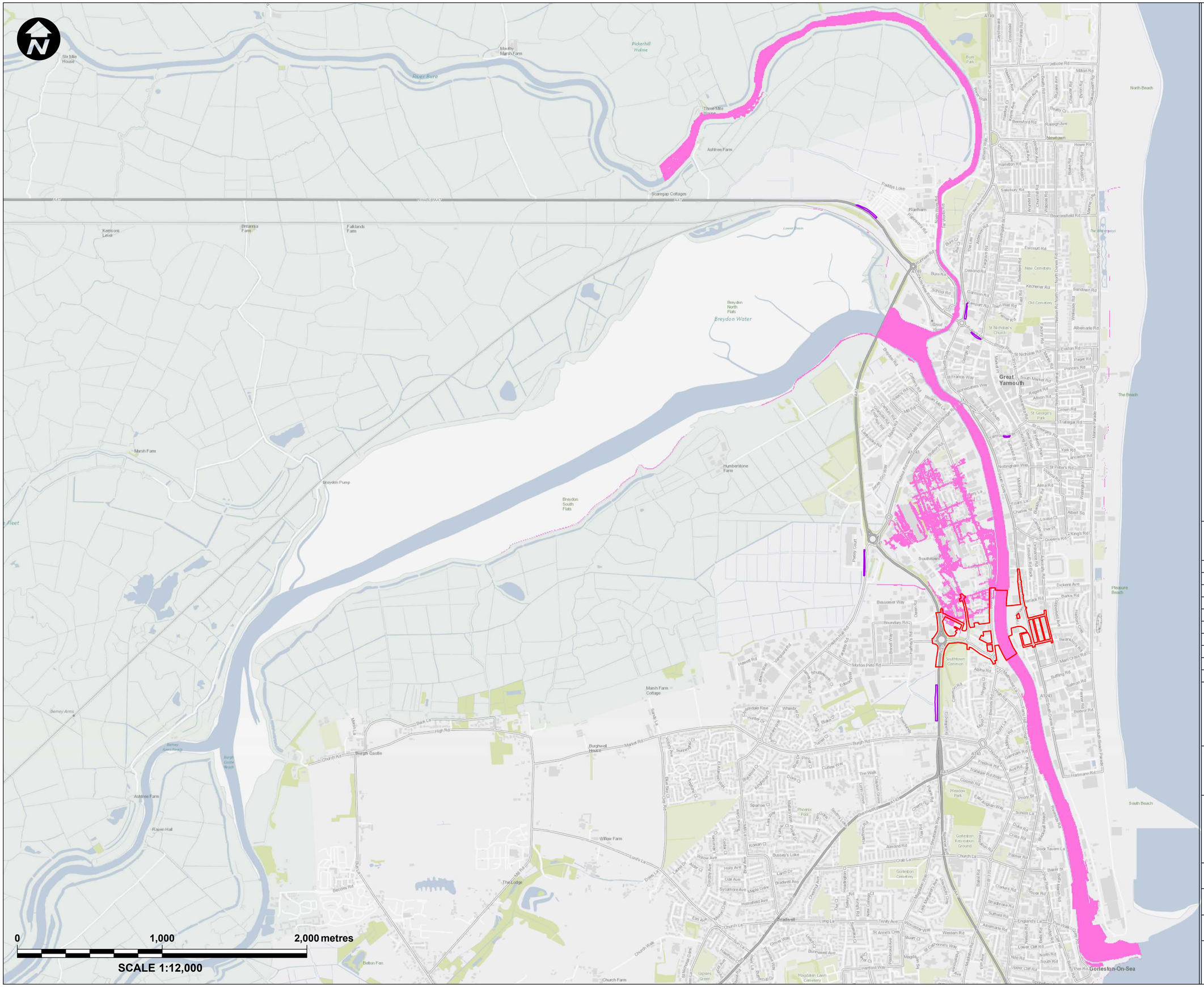

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FIGURE 4 (APPENDIX A) – BASELINE PRESENT DAY SCENARIO - 5% AEP MODELLED FLOOD EXTENTS (LOCATION 4)

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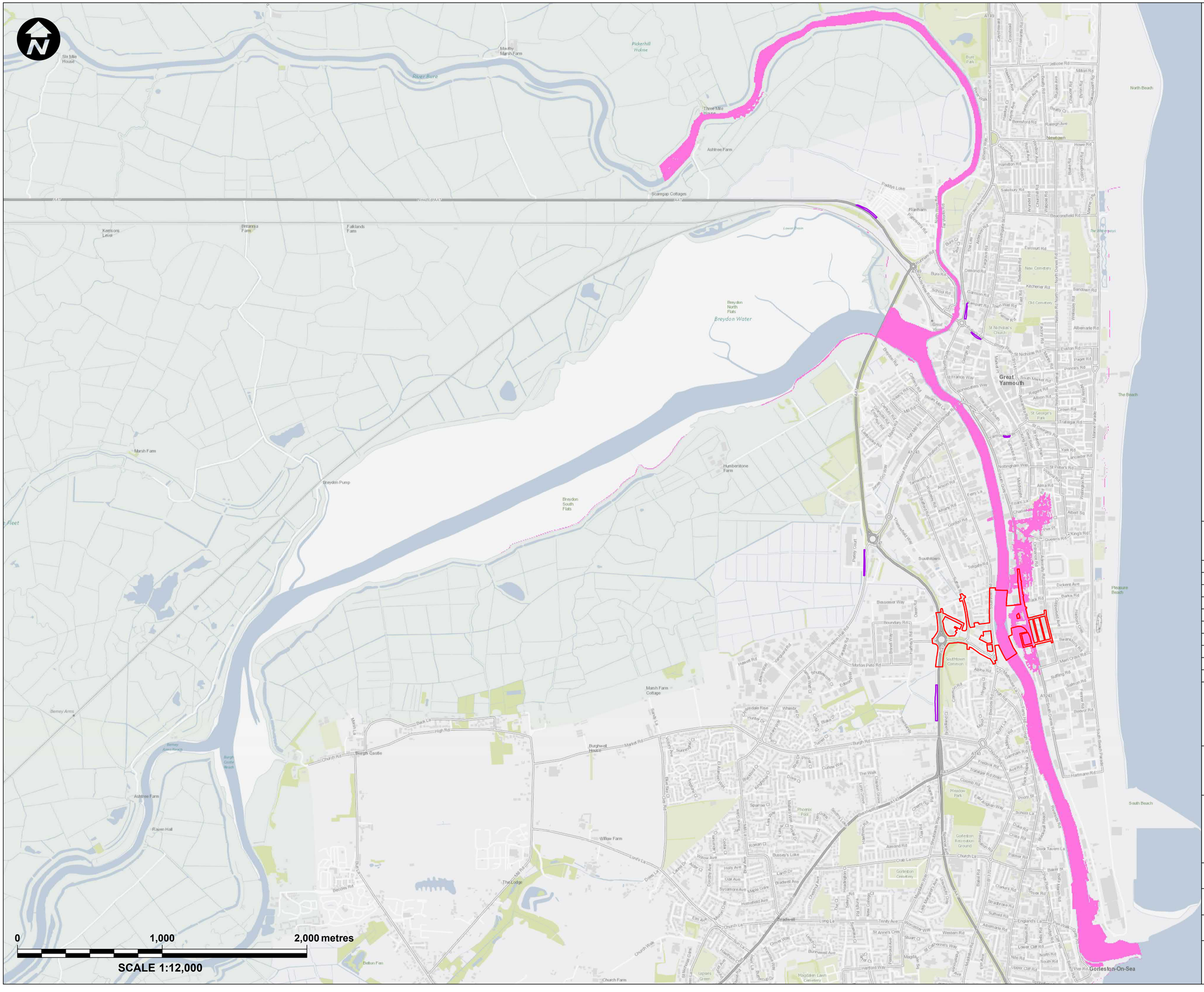

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FIGURE 5 (APPENDIX A) – WITH SCHEME PRESENT DAY SCENARIO - 5% AEP MODELLED FLOOD EXTENTS (LOCATION 1)

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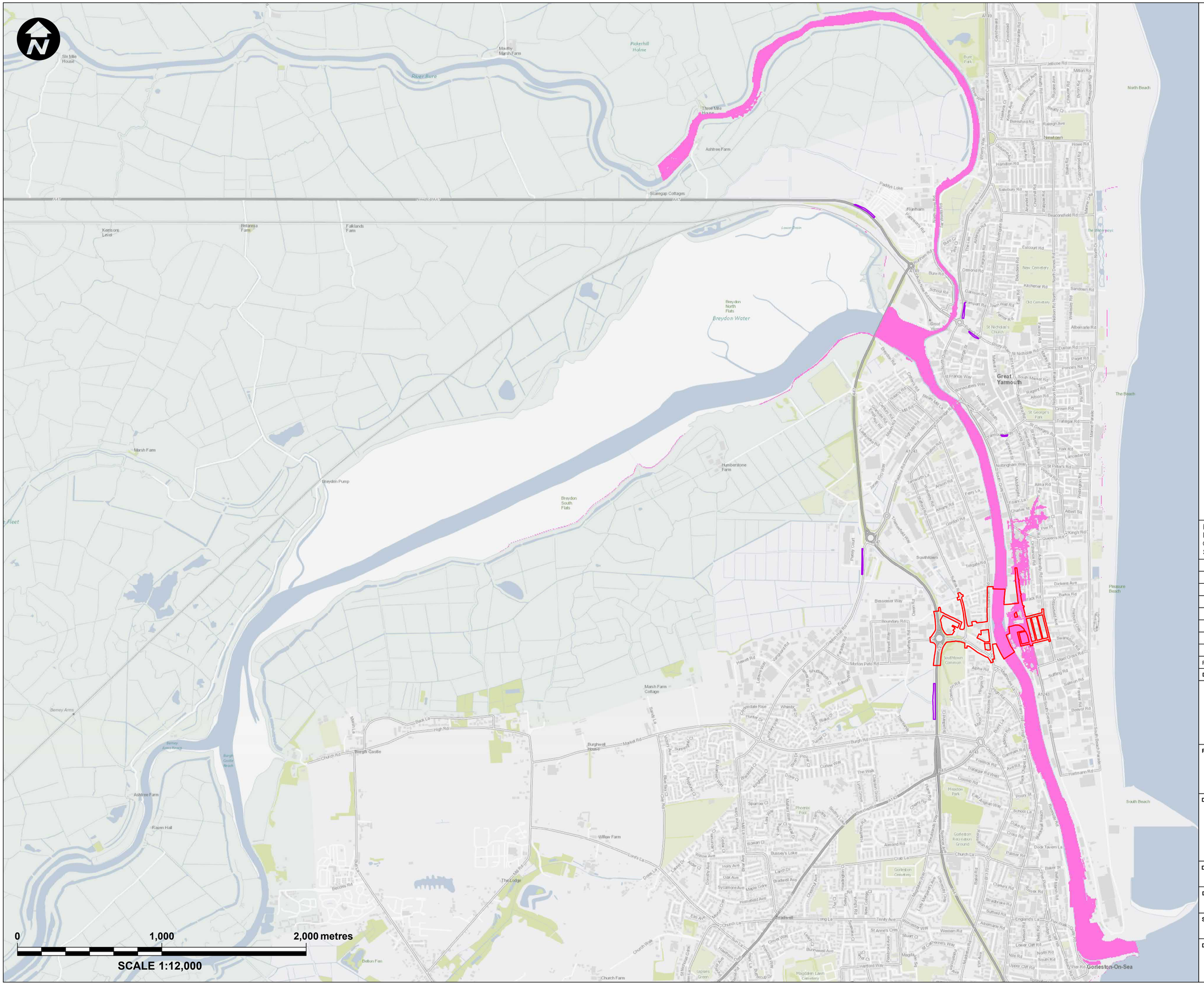

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FIGURE 6 (APPENDIX A) – WITH SCHEME PRESENT DAY SCENARIO - 5% AEP MODELLED FLOOD EXTENTS (LOCATION 2)

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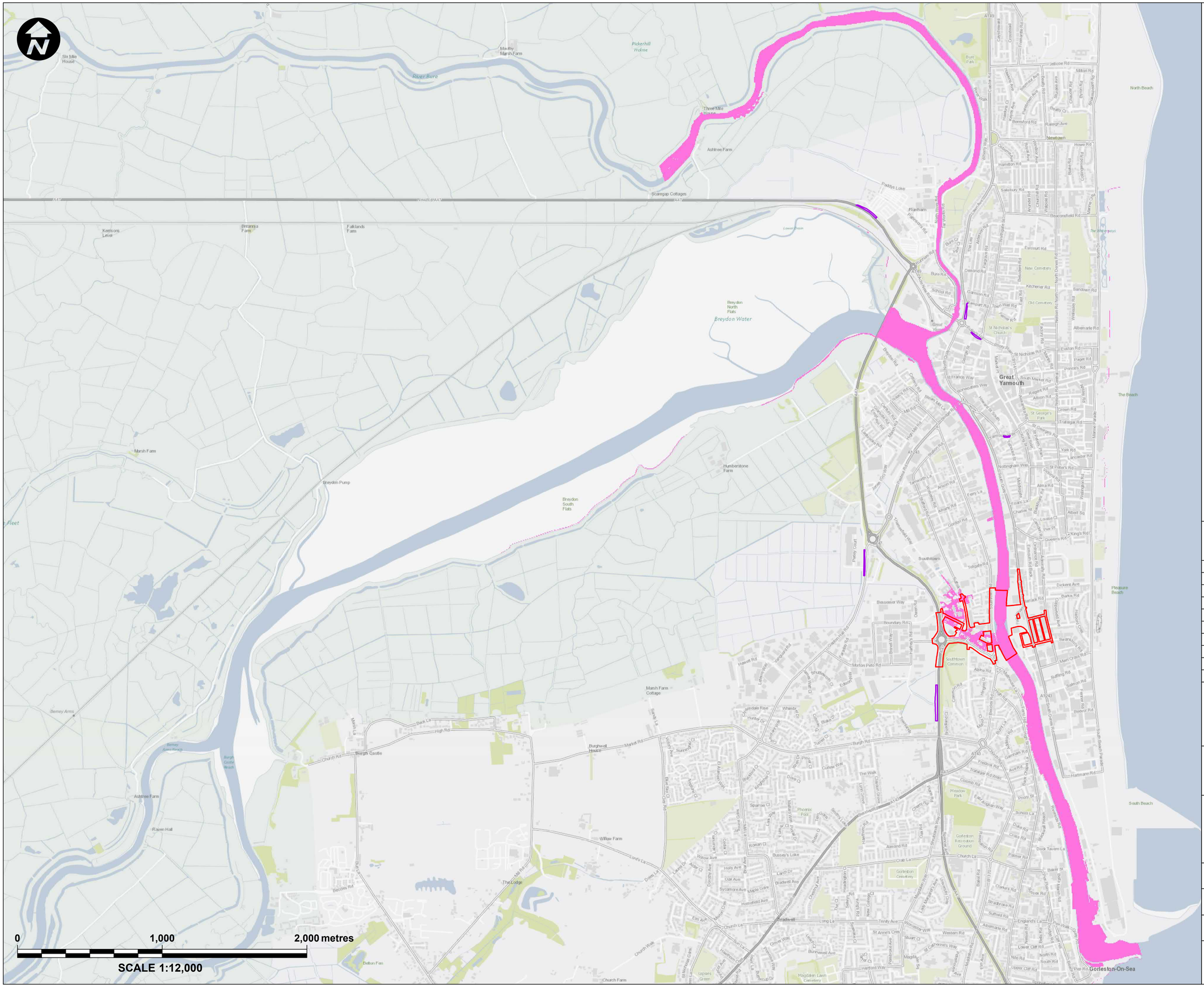

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FIGURE 7 (APPENDIX A) – WITH SCHEME PRESENT DAY SCENARIO - 5% AEP MODELLED FLOOD EXTENTS (LOCATION 3)

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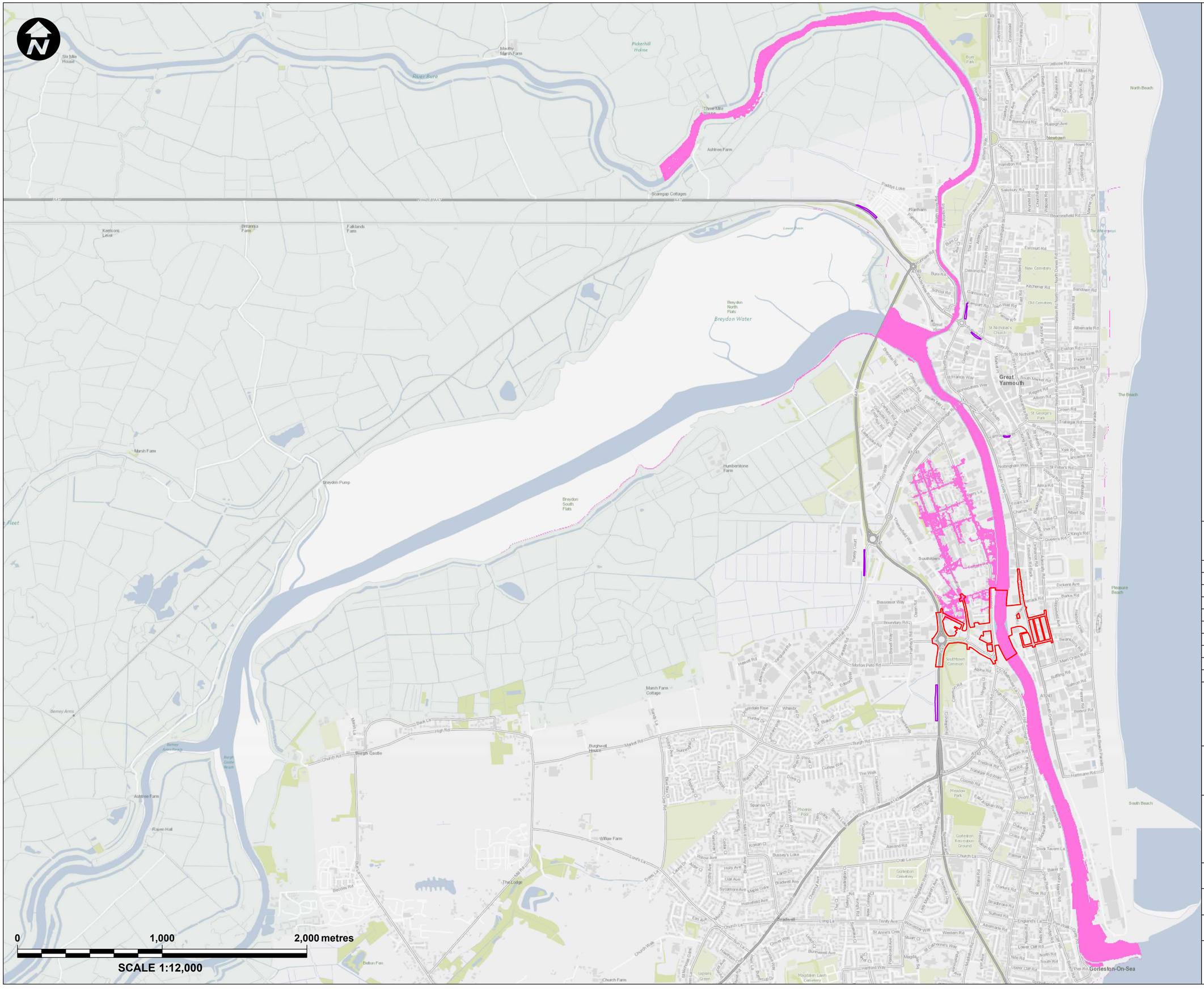

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FIGURE 8 (APPENDIX A) – WITH SCHEME PRESENT DAY SCENARIO - 5% AEP MODELLED FLOOD EXTENTS (LOCATION 4)

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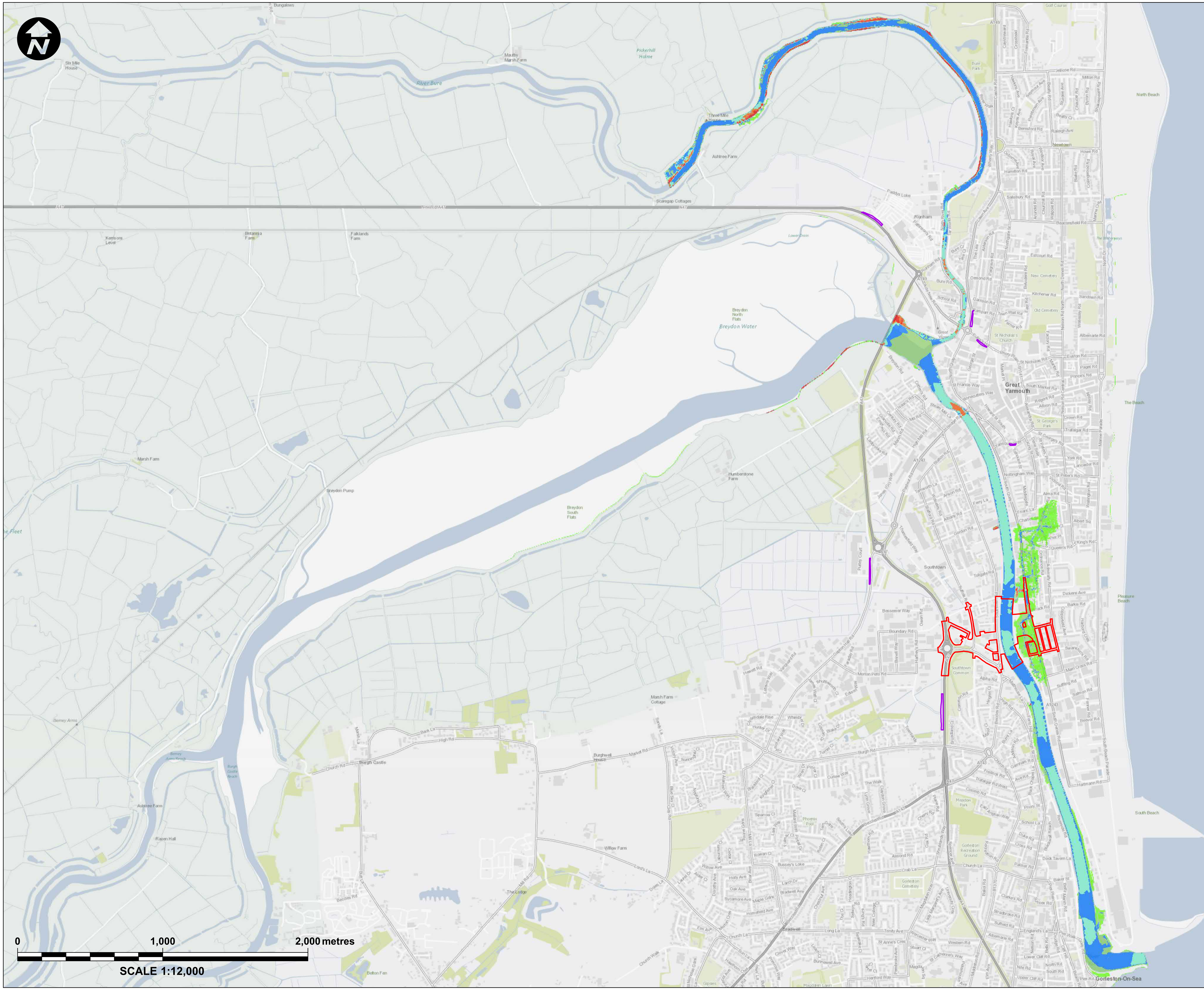

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FIGURE 9 (APPENDIX A) – BASELINE PRESENT DAY SCENARIO - 5% AEP MODELLED MAXIMUM VELOCITY (LOCATION 1)

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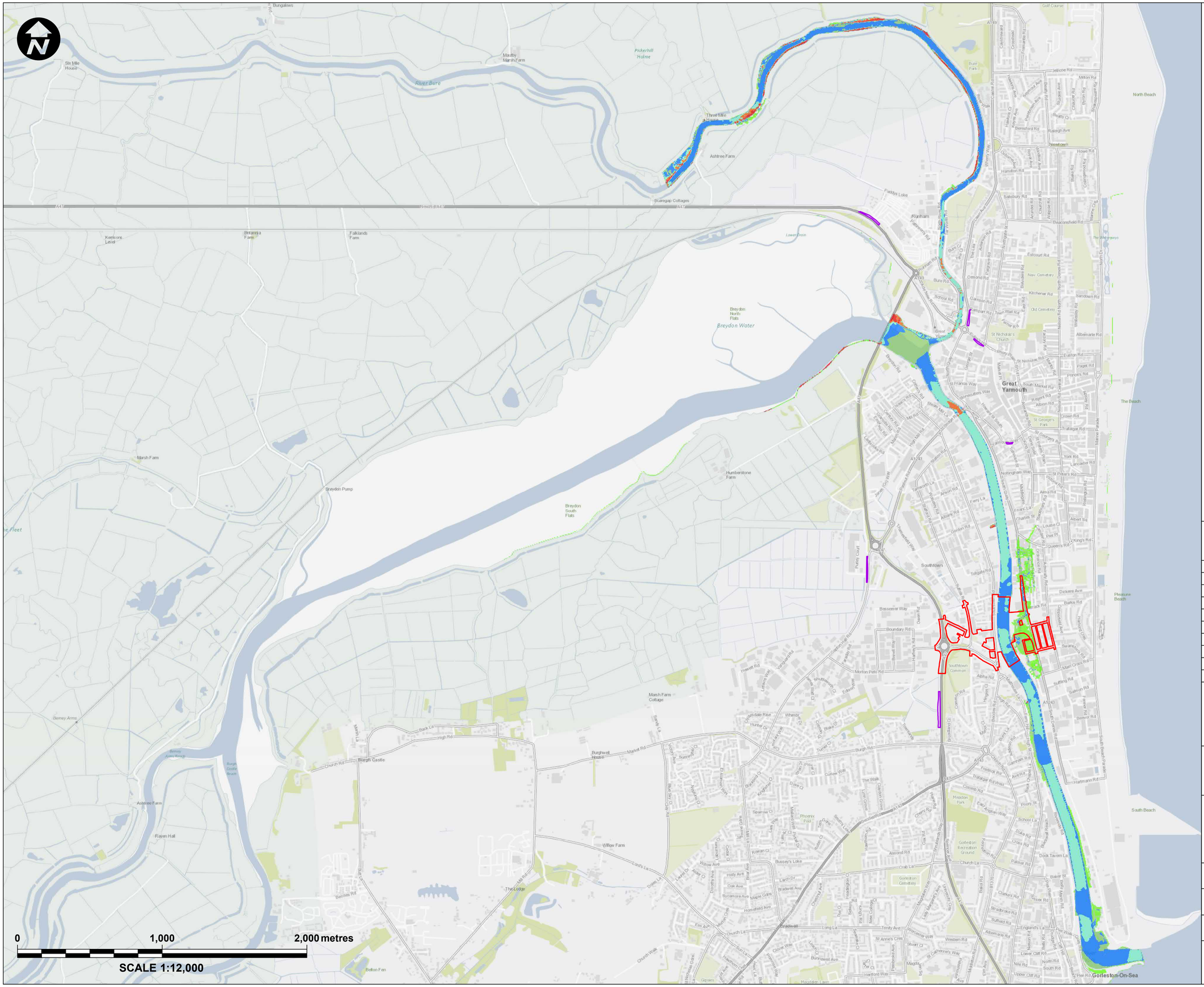

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FIGURE 10 (APPENDIX A) – BASELINE PRESENT DAY SCENARIO - 5% AEP MODELLED MAXIMUM VELOCITY (LOCATION 2)

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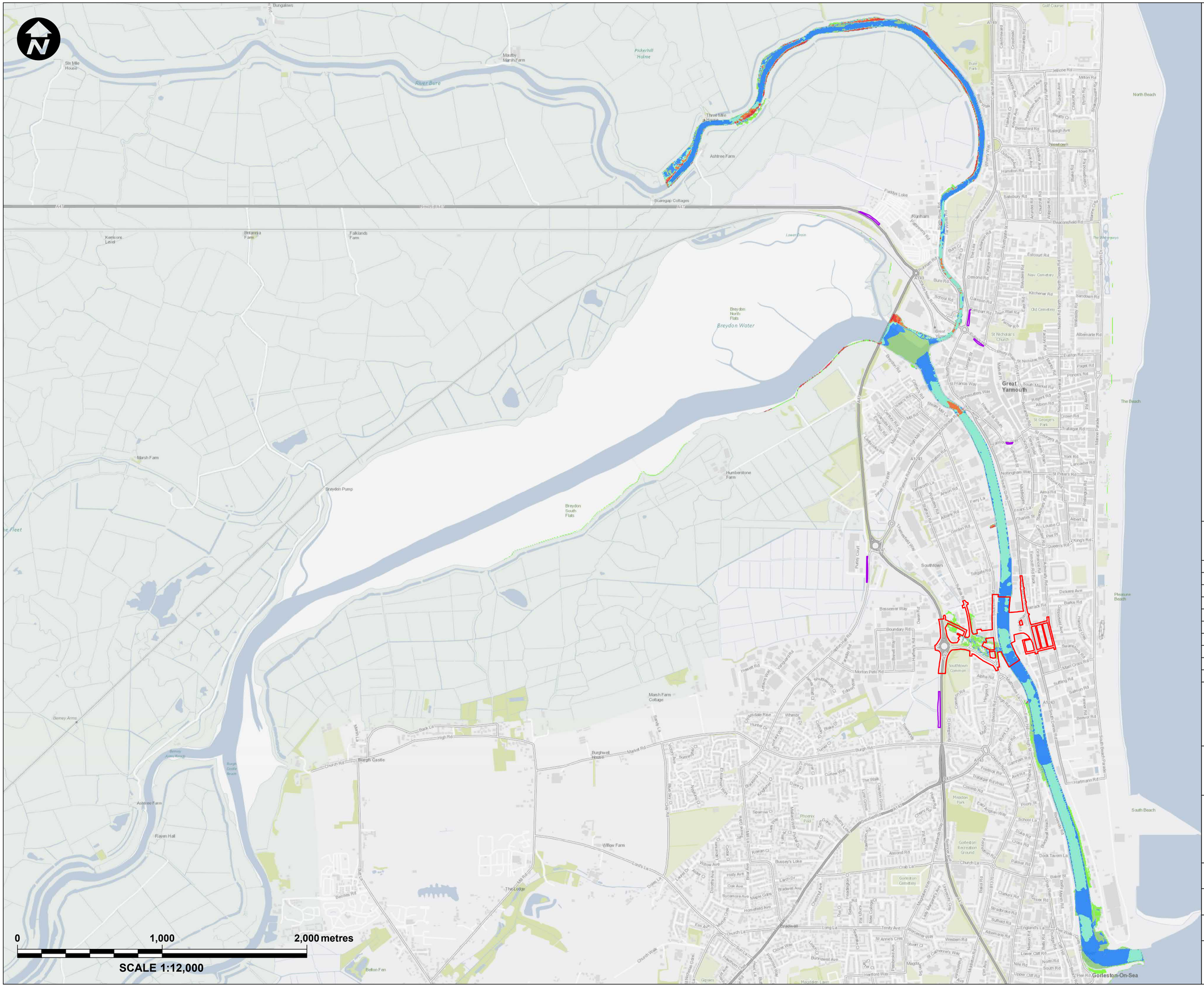

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- 0.3 - 0.5
- 0.5 - 0.8
- 0.8 - 1.2
- >1.2

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FIGURE 11 (APPENDIX A) – BASELINE PRESENT DAY SCENARIO - 5% AEP MODELLED MAXIMUM VELOCITY (LOCATION 3)

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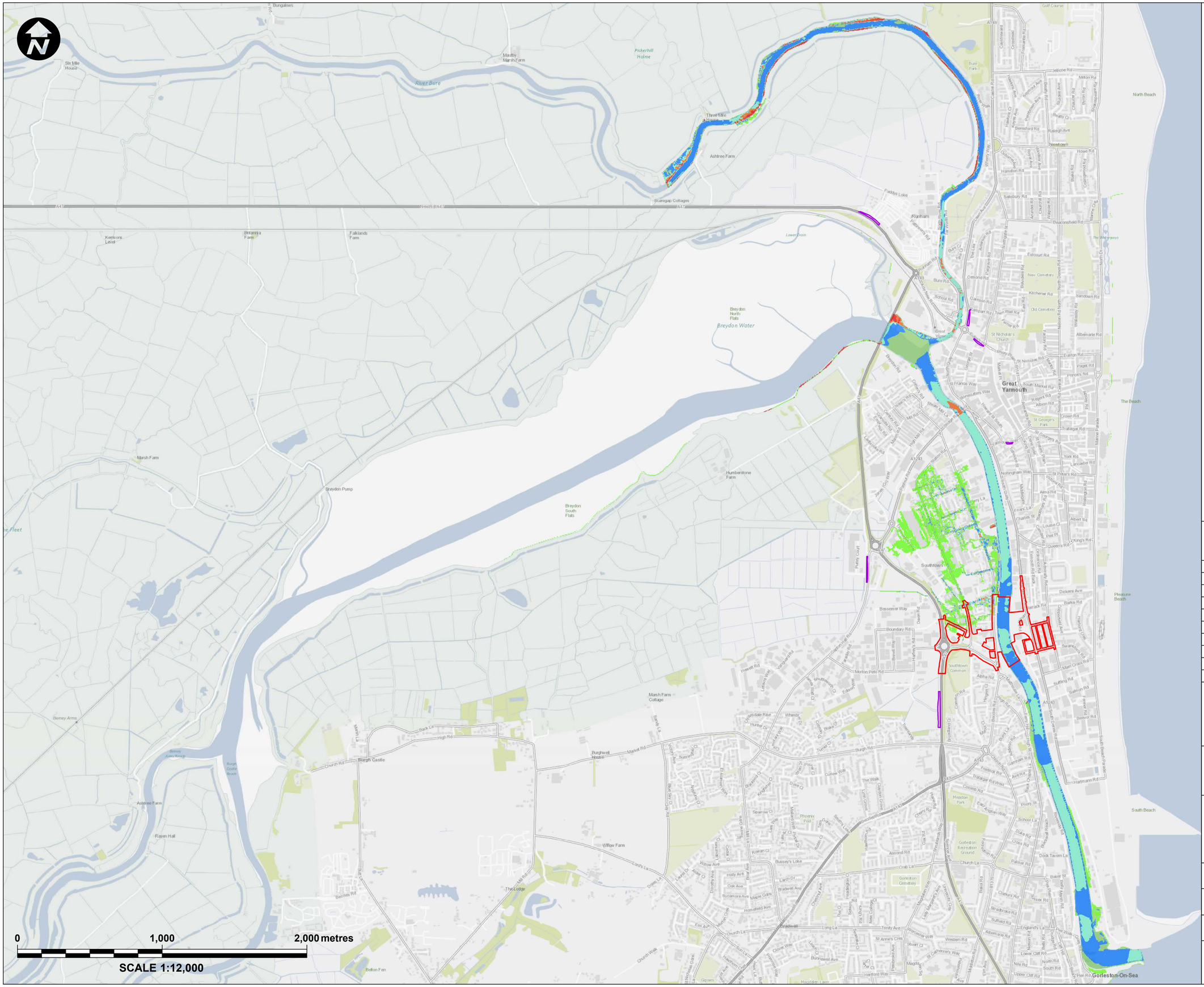
DRAWING NUMBER

NCC/GY3RC/EX/078 - Figure 11



REVISION	DRAWN	CHECKED	APPROVED	DATE
DESCRIPTION				

Norfolk County Council
Tom McCabe
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Norfolk County Council
County Hall, Martineau Lane
Norwich NR1 2SG

PROJECT TITLE

GREAT YARMOUTH THIRD RIVER CROSSING

DRAWING TITLE

FIGURE 12 (APPENDIX A) – BASELINE PRESENT DAY SCENARIO - 5% AEP MODELLED MAXIMUM VELOCITY (LOCATION 4)

DRAWING STATUS

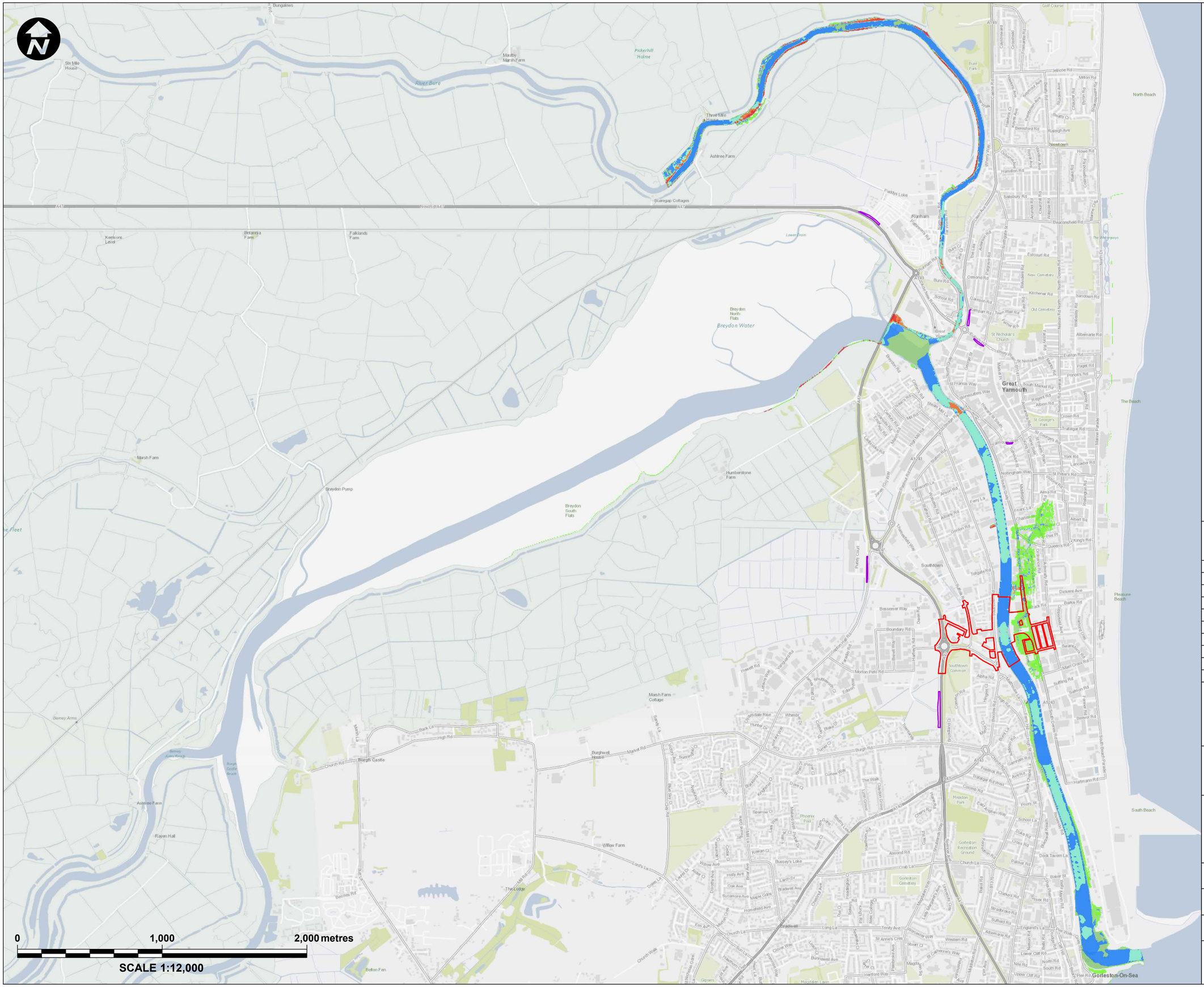
FOR DCO EXAMINATION

DRAWN	CHECKED	APPROVED	AUTHORISED
AK	JW	TJ	MK

SCALE @ A1 SIZE	DATE	REVISION
1:12,000	21/02/2020	P00

DRAWING NUMBER

NCC/GY3RC/EX/078 - Figure 12



REVISION	DRAWN	CHECKED	APPROVED	DATE
DESCRIPTION				

Norfolk County Council
Tom McCabe
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Norfolk County Council
County Hall, Martineau Lane
Norwich NR1 2SG

PROJECT TITLE

GREAT YARMOUTH THIRD RIVER CROSSING

DRAWING TITLE

FIGURE 13 (APPENDIX A) – WITH SCHEME PRESENT DAY SCENARIO - 5% AEP MODELLED MAXIMUM VELOCITY (LOCATION 1)

DRAWING STATUS

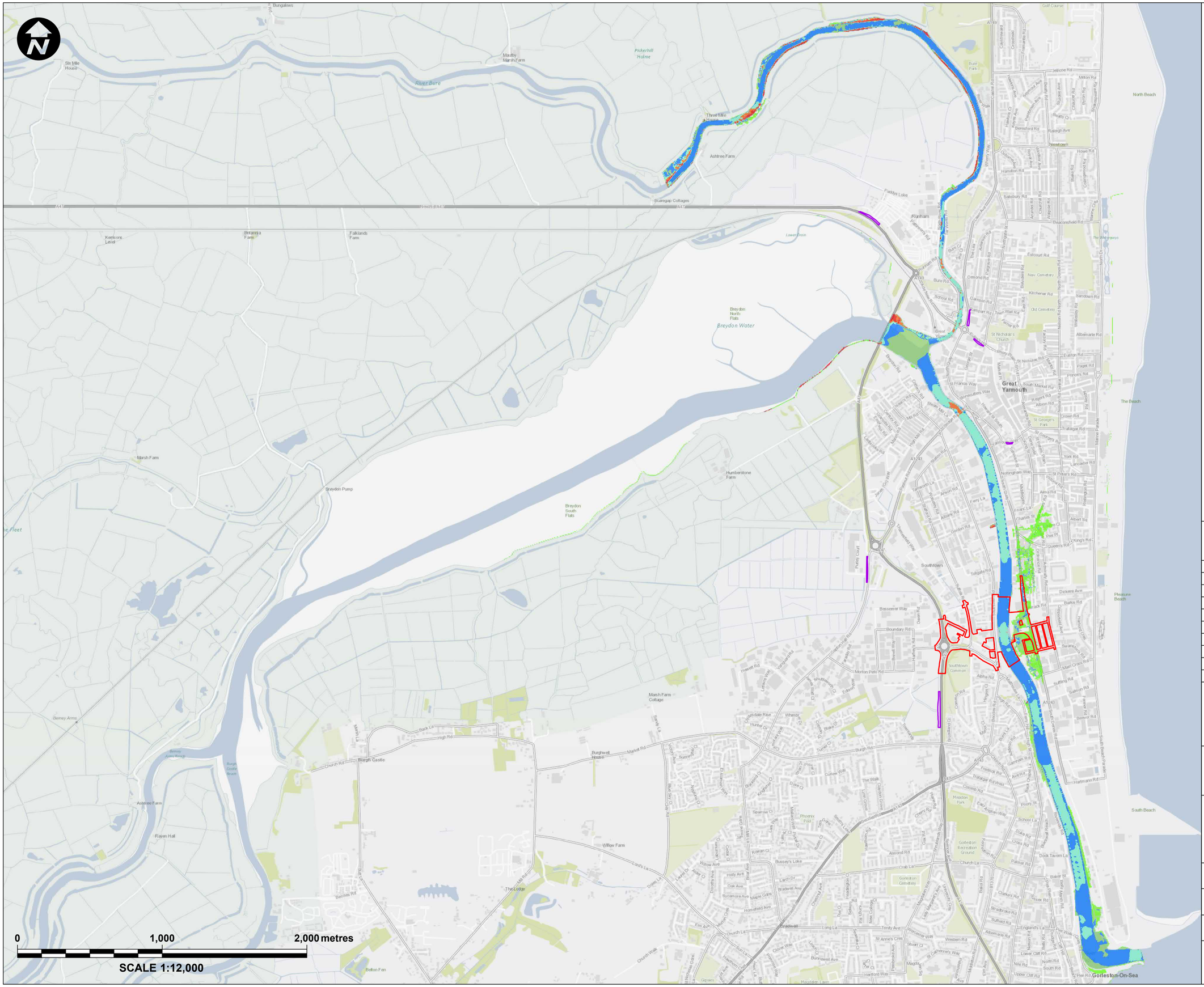
FOR DCO EXAMINATION

DRAWN	CHECKED	APPROVED	AUTHORISED
AK	JW	TJ	MK

SCALE @ A1 SIZE	DATE	REVISION
1:12,000	21/02/2020	P00

DRAWING NUMBER

NCC/GY3RC/EX/078 - Figure 13



REVISION	DRAWN	CHECKED	APPROVED	DATE
DESCRIPTION				

Norfolk County Council
Tom McCabe
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Norfolk County Council
County Hall, Martineau Lane
Norwich NR1 2SG

PROJECT TITLE

GREAT YARMOUTH THIRD RIVER CROSSING

DRAWING TITLE

FIGURE 14 (APPENDIX A) – WITH SCHEME PRESENT DAY SCENARIO - 5% AEP MODELLED MAXIMUM VELOCITY (LOCATION 2)

DRAWING STATUS

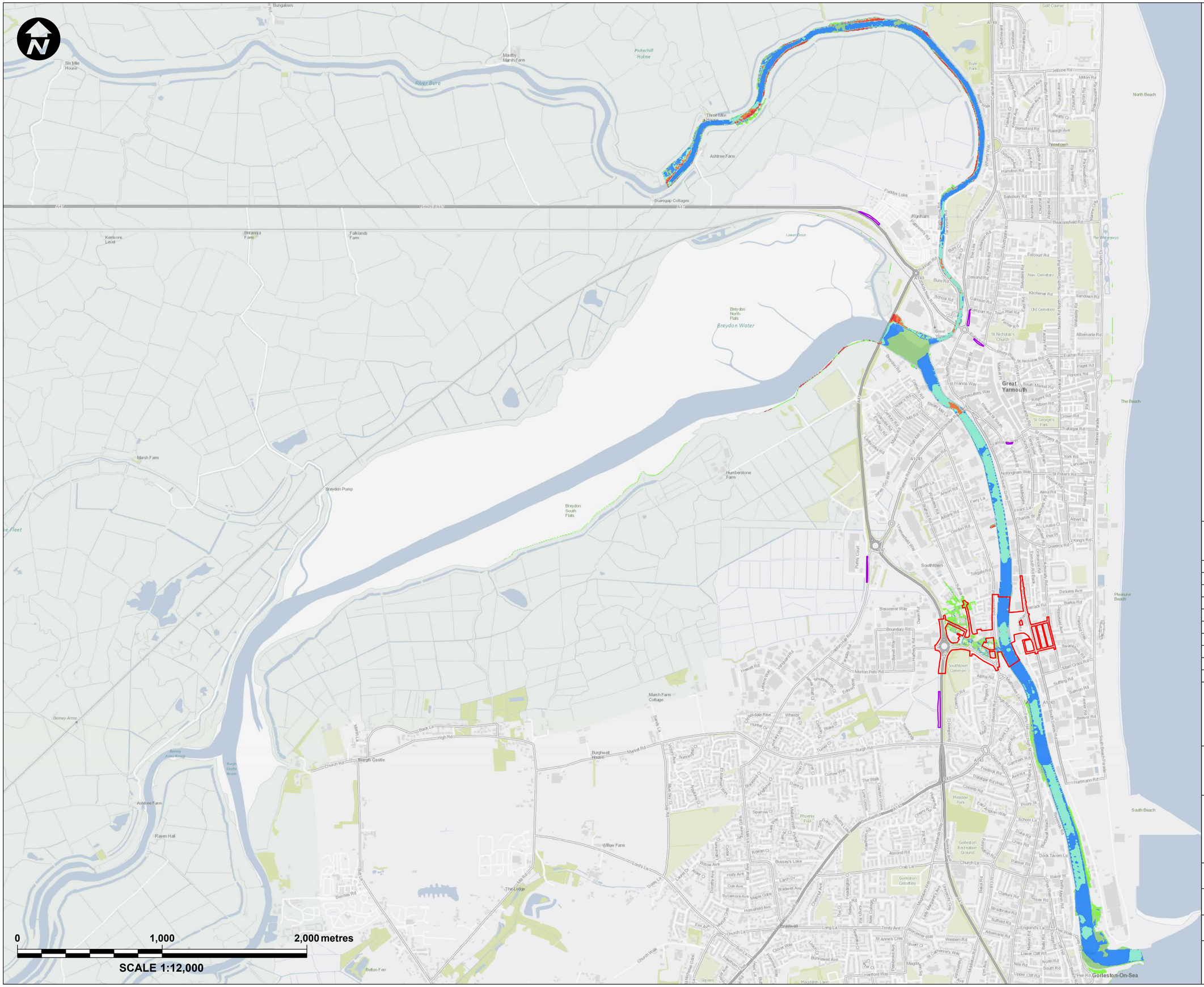
FOR DCO EXAMINATION

DRAWN	CHECKED	APPROVED	AUTHORISED
AK	JW	TJ	MK

SCALE @ A1 SIZE	DATE	REVISION
1:12,000	21/02/2020	P00

DRAWING NUMBER

NCC/GY3RC/EX/078 - Figure 14



Key:

- Principal Application Site
- Satellite Application Sites

Velocity (m/s)

- 0 - 0.1
- 0.1 - 0.3
- 0.3 - 0.5
- 0.5 - 0.8
- 0.8 - 1.2
- >1.2

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DESCRIPTION				

Norfolk County Council
Tom McCabe
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Norfolk County Council
County Hall, Martineau Lane
Norwich NR1 2SG

PROJECT TITLE

GREAT YARMOUTH THIRD RIVER CROSSING

DRAWING TITLE

FIGURE 15 (APPENDIX A) – WITH SCHEME PRESENT DAY SCENARIO - 5% AEP MODELLED MAXIMUM VELOCITY (LOCATION 3)

DRAWING STATUS

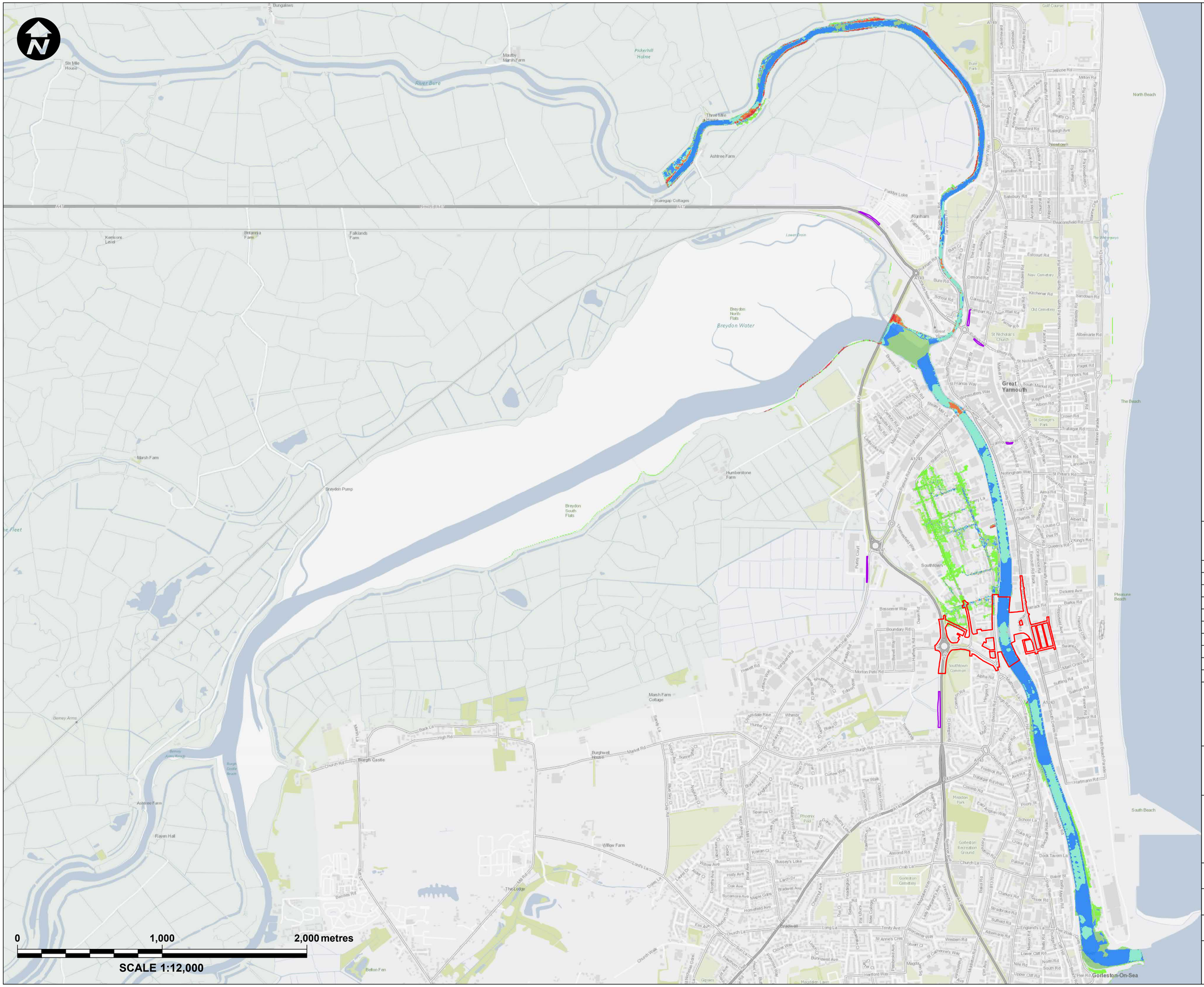
FOR DCO EXAMINATION

DRAWN	CHECKED	APPROVED	AUTHORISED
AK	JW	TJ	MK

SCALE @ A1 SIZE	DATE	REVISION
1:12,000	21/02/2020	P00

DRAWING NUMBER

NCC/GY3RC/EX/078 - Figure 15



REVISION	DRAWN	CHECKED	APPROVED	DATE
DESCRIPTION				

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Norfolk County Council
County Hall, Martineau Lane
Norwich NR1 2SG

PROJECT TITLE

GREAT YARMOUTH THIRD RIVER CROSSING

DRAWING TITLE

FIGURE 16 (APPENDIX A) – WITH SCHEME PRESENT DAY SCENARIO - 5% AEP MODELLED MAXIMUM VELOCITY (LOCATION 4)

DRAWING STATUS

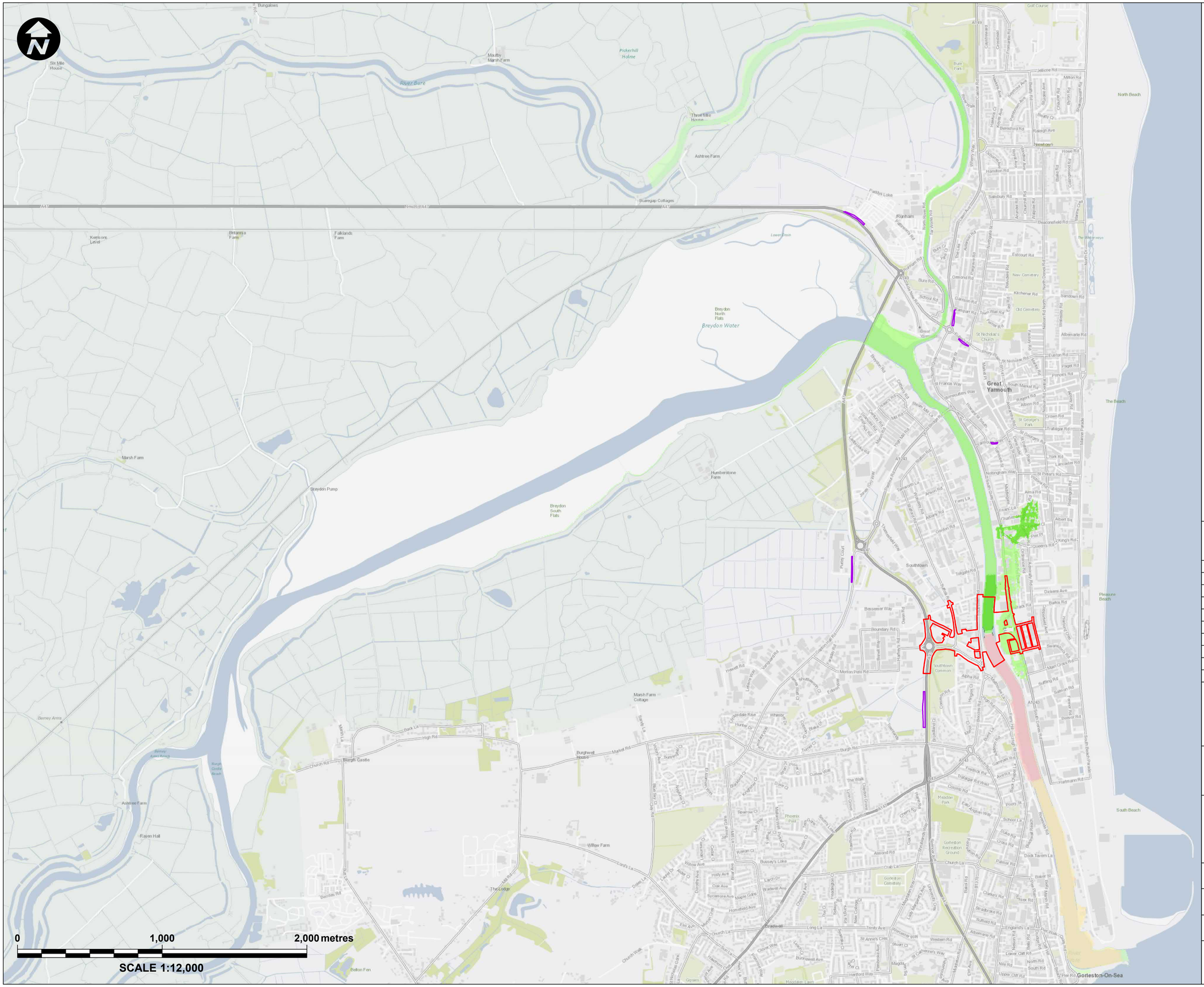
FOR DCO EXAMINATION

DRAWN	CHECKED	APPROVED	AUTHORISED
AK	JW	TJ	MK

SCALE @ A1 SIZE	DATE	REVISION
1:12,000	21/02/2020	P00

DRAWING NUMBER

NCC/GY3RC/EX/078 - Figure 16



REVISION	DRAWN	CHECKED	APPROVED	DATE

DESCRIPTION

Norfolk County Council
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Norfolk County Council
County Hall, Martineau Lane
Norwich NR1 2SG

PROJECT TITLE

GREAT YARMOUTH THIRD RIVER CROSSING

DRAWING TITLE

FIGURE 17 (APPENDIX A) – BASELINE COMPARED TO SCHEME PRESENT DAY SCENARIO - 5% AEP MODELLED DEPTH DIFFERENCE (LOCATION 1)

DRAWING STATUS

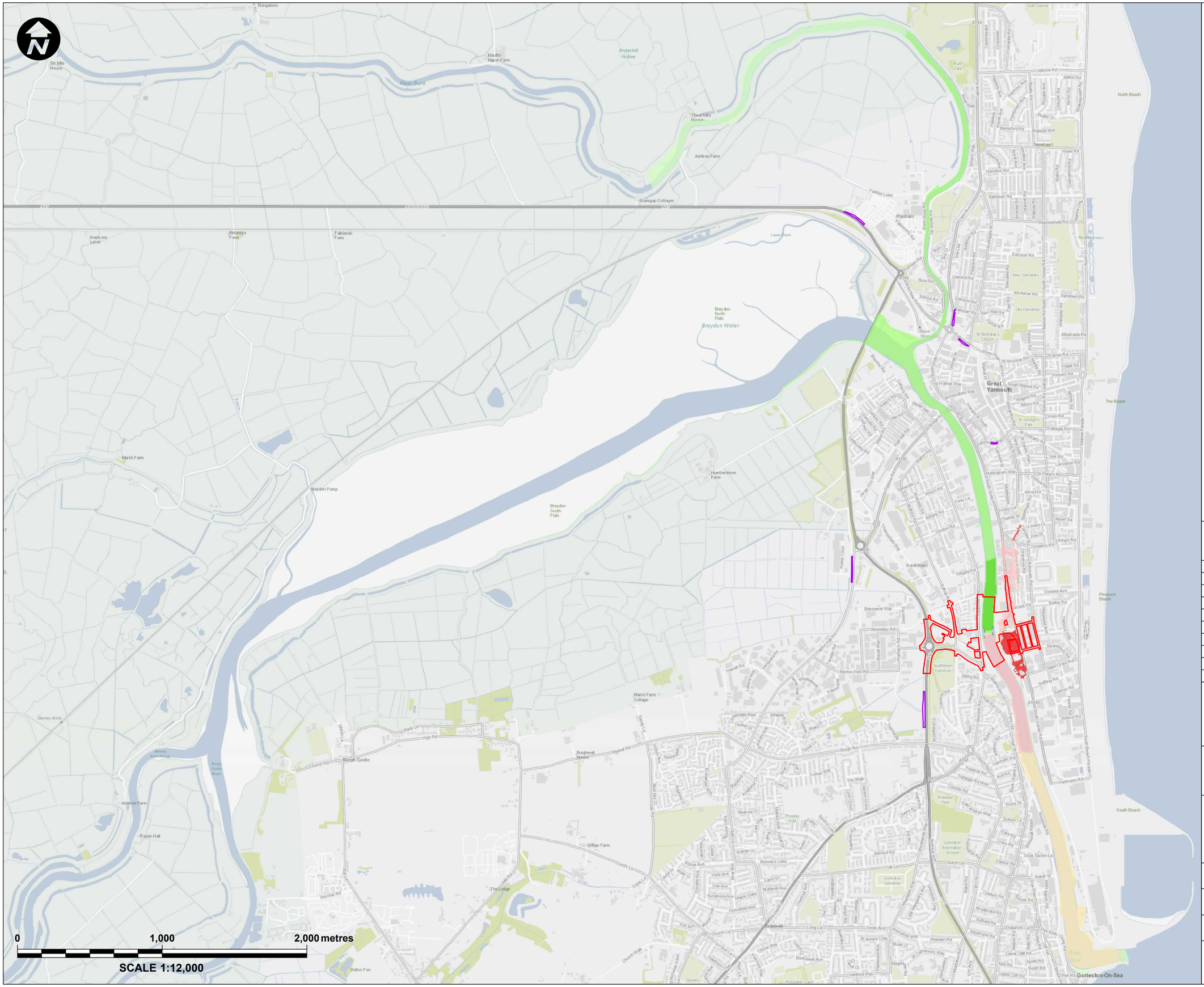
FOR DCO EXAMINATION

DRAWN	CHECKED	APPROVED	AUTHORISED
AK	JW	TJ	MK

SCALE @ A1 SIZE	DATE	REVISION
1:12,000	21/02/2020	P00

DRAWING NUMBER

NCC/GY3RC/EX/078 - Figure 17



Key:

- Principal Application Site
- Satellite Application Sites

Change in flood depth (m)

- Greater than -0.3
- -0.1 to -0.3
- -0.02 to -0.1
- 0 to -0.02
- 0
- 0 - 0.02
- 0.02 - 0.1
- 0.1 - 0.3
- Greater than 0.3

REVISION	DRAWN	CHECKED	APPROVED	DATE

DESCRIPTION

Norfolk County Council
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Community and Environmental Services
Norfolk County Council
County Hall, Martineau Lane
Norwich NR1 2SG

PROJECT TITLE

GREAT YARMOUTH THIRD RIVER CROSSING

DRAWING TITLE

FIGURE 18 (APPENDIX A) – BASELINE COMPARED TO SCHEME PRESENT DAY SCENARIO - 5% AEP MODELLED DEPTH DIFFERENCE (LOCATION 2)

DRAWING STATUS

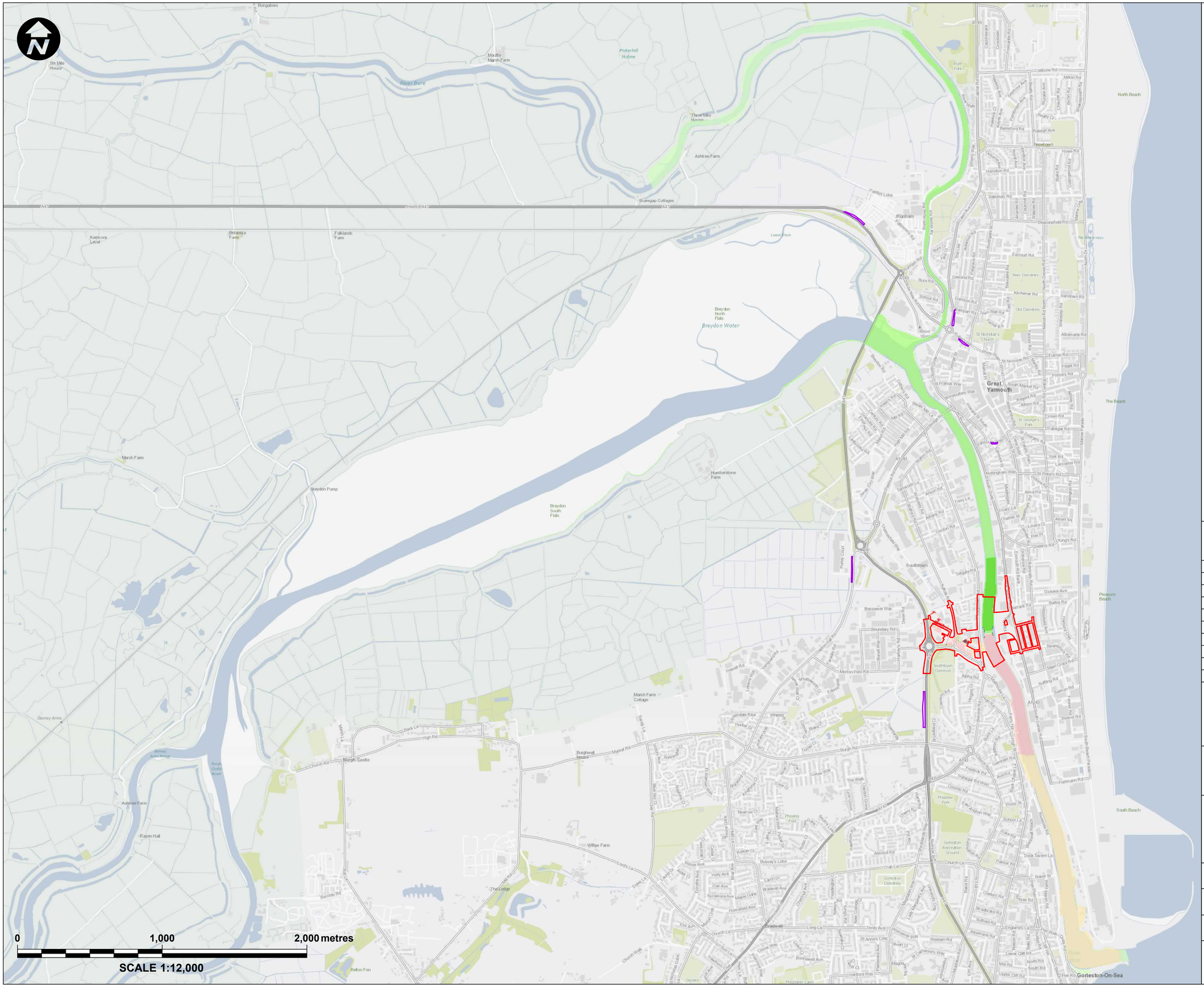
FOR DCO EXAMINATION

DRAWN	CHECKED	APPROVED	AUTHORISED
AK	JW	TJ	MK

SCALE @ A1 SIZE	DATE	REVISION
1:12,000	21/02/2020	P00

DRAWING NUMBER

NCC/GY3RC/EX/078 - Figure 18



Key:

- Principal Application Site
- Satellite Application Sites

Change in flood depth (m)

- Greater than -0.3
- -0.1 to -0.3
- -0.02 to -0.1
- 0 to -0.02
- 0
- 0 - 0.02
- 0.02 - 0.1
- 0.1 - 0.3
- Greater than 0.3

REVISION	DRAWN	CHECKED	APPROVED	DATE

DESCRIPTION

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Norfolk County Council
County Hall, Martineau Lane
Norwich NR1 2SG

PROJECT TITLE

GREAT YARMOUTH THIRD RIVER CROSSING

DRAWING TITLE

FIGURE 19 (APPENDIX A) – BASELINE COMPARED TO SCHEME PRESENT DAY SCENARIO - 5% AEP MODELLED DEPTH DIFFERENCE (LOCATION 3)

DRAWING STATUS

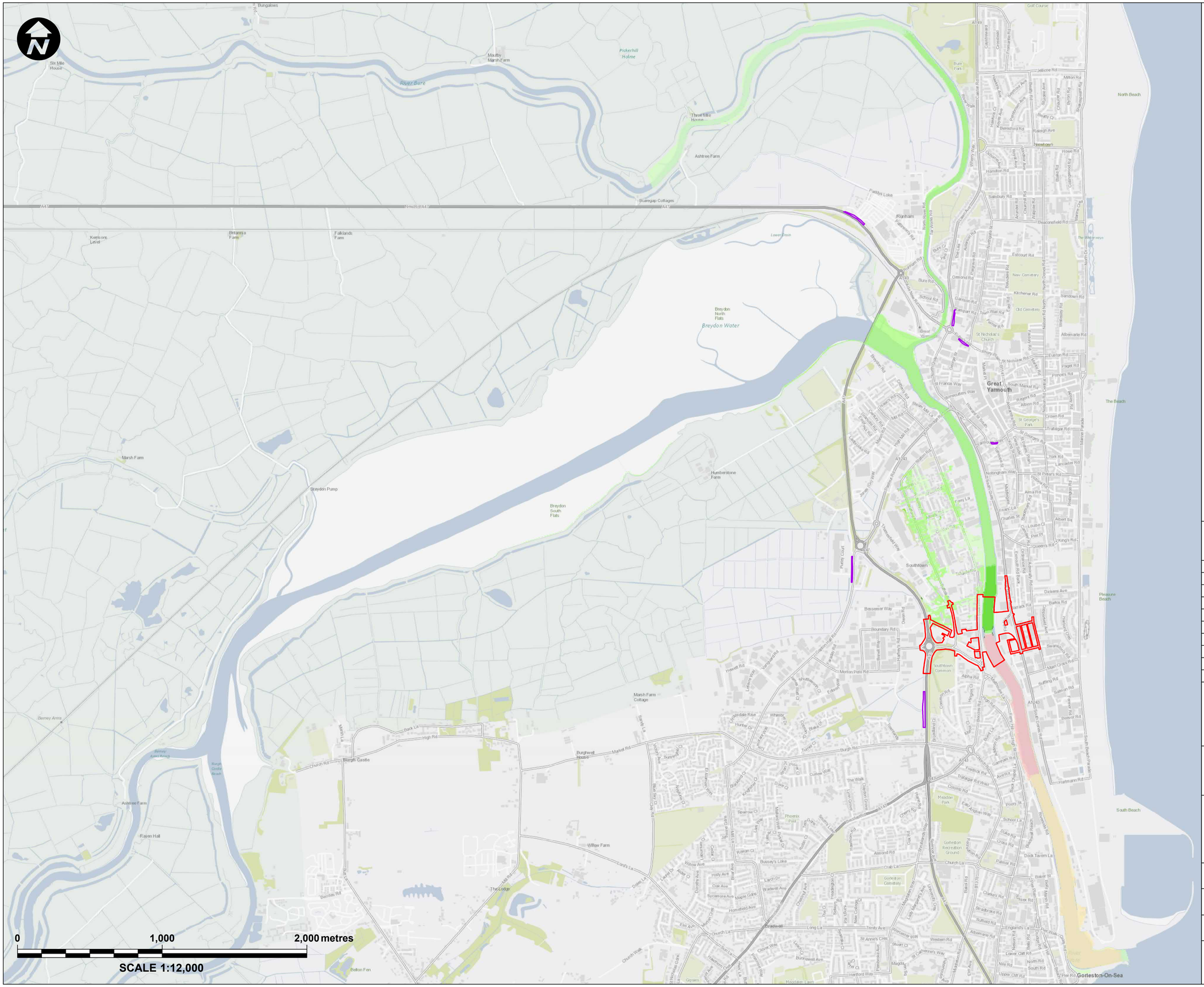
FOR DCO EXAMINATION

DRAWN	CHECKED	APPROVED	AUTHORISED
AK	JW	TJ	MK

SCALE @ A1 SIZE	DATE	REVISION
1:12,000	21/02/2020	P00

DRAWING NUMBER

NCC/GY3RC/EX/078 - Figure 19



Key:

- Principal Application Site
- Satellite Application Sites

Change in flood depth (m)

- Greater than -0.3
- -0.1 to -0.3
- -0.02 to -0.1
- 0 to -0.02
- 0
- 0 - 0.02
- 0.02 - 0.1
- 0.1 - 0.3
- Greater than 0.3

REVISION	DRAWN	CHECKED	APPROVED	DATE

DESCRIPTION

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Norfolk County Council
County Hall, Martineau Lane
Norwich NR1 2SG

PROJECT TITLE

GREAT YARMOUTH THIRD RIVER CROSSING

DRAWING TITLE

FIGURE 20 (APPENDIX A) – BASELINE COMPARED TO SCHEME PRESENT DAY SCENARIO - 5% AEP MODELLED DEPTH DIFFERENCE (LOCATION 4)

DRAWING STATUS

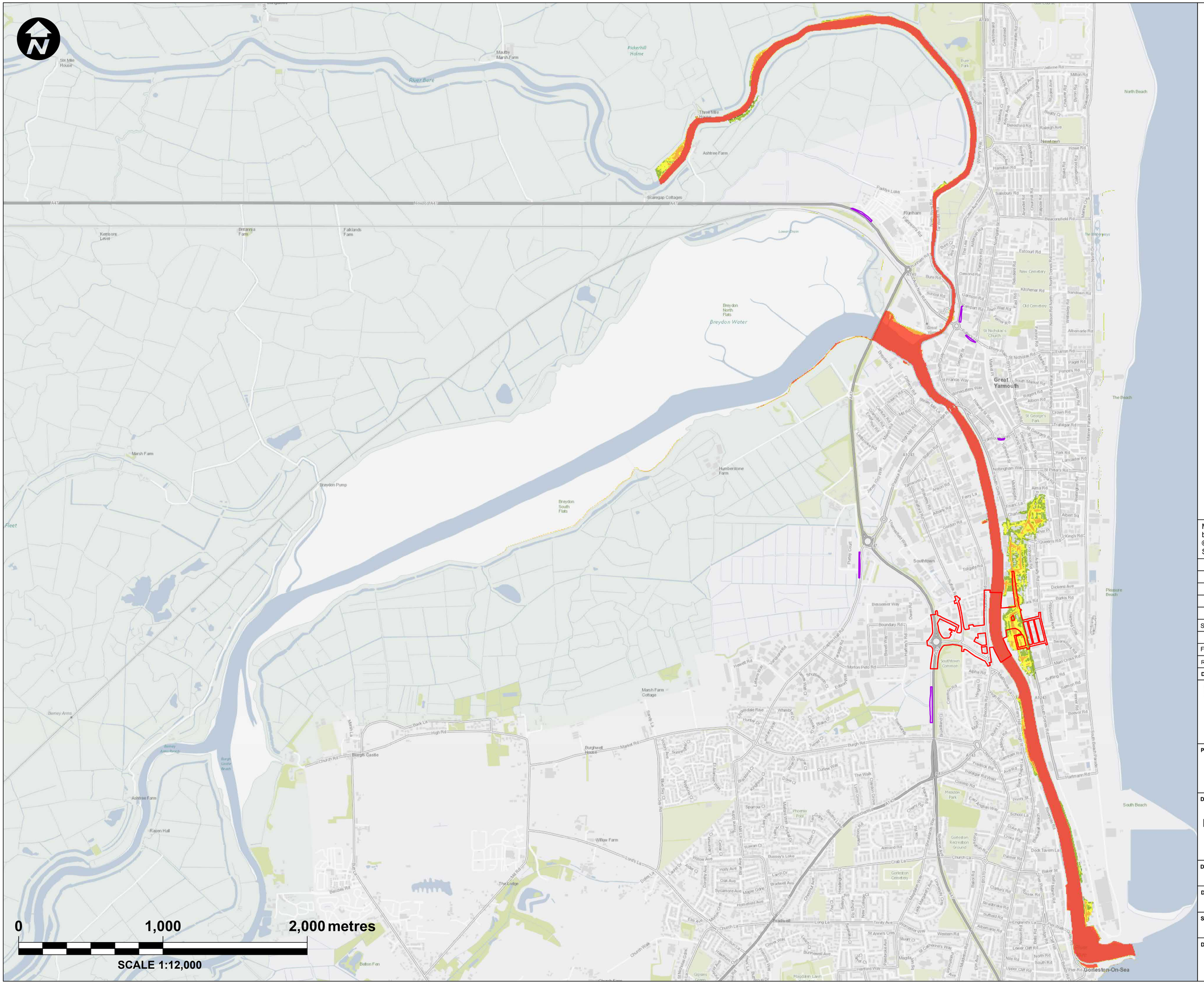
FOR DCO EXAMINATION

DRAWN	CHECKED	APPROVED	AUTHORISED
AK	JW	TJ	MK

SCALE @ A1 SIZE	DATE	REVISION
1:12,000	21/02/2020	P00

DRAWING NUMBER

NCC/GY3RC/EX/078 - Figure 20



Key:

- Principal Application Site
- Satellite Application Sites

Hazard to People Classification

- No Hazard
- Very low hazard
- Danger for some
- Danger for most
- Danger for all

REVISION	DRAWN	CHECKED	APPROVED	DATE
P01.2	BS	JH	JW	08/02/2019
SECOND DRAFT				
P01.1	DE	JH	JD	19/11/2018
FIRST DRAFT				

DESCRIPTION

Norfolk County Council
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Executive Director of
Community and Environmental Services
Norfolk County Council
County Hall, Martineau Lane
Norwich NR1 2SG

PROJECT TITLE

GREAT YARMOUTH THIRD RIVER CROSSING

DRAWING TITLE

FIGURE 21 (APPENDIX A) – BASELINE PRESENT DAY SCENARIO - 5% AEP MODELLED MAXIMUM HAZARD (LOCATION 1)

DRAWING STATUS

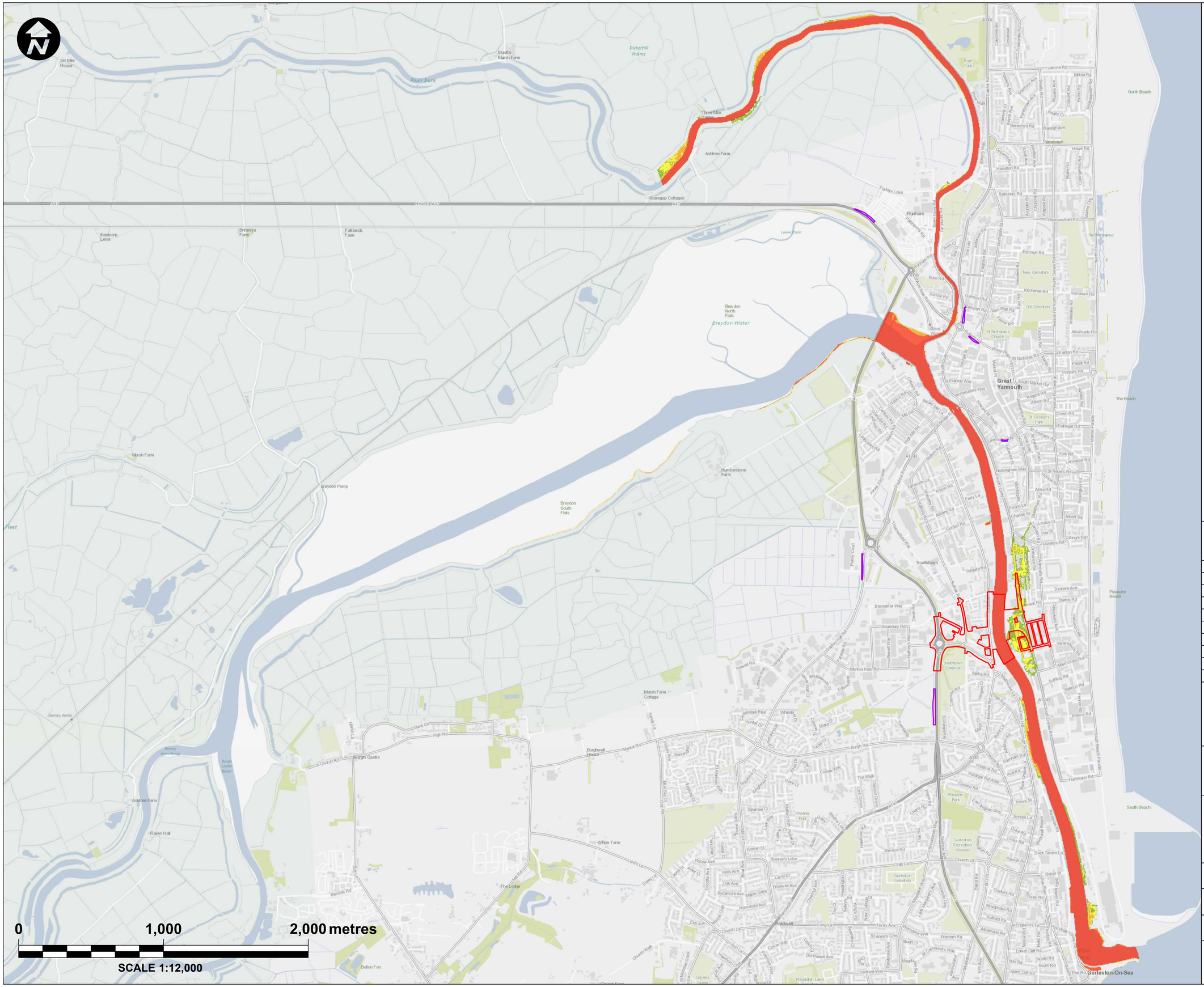
FOR DCO EXAMINATION

DRAWN	CHECKED	APPROVED	AUTHORISED
AK	JW	TJ	MK

SCALE @ A1 SIZE	DATE	REVISION
1:12,000	21/02/2020	P00

DRAWING NUMBER

NCC/GY3RC/EX/078 - Figure 21



P01.2	BS	JH	JW	08/02/2019
SECOND DRAFT				
P01.1	DE	JH	JD	19/11/2018
FIRST DRAFT				
REVISION	DRAWN	CHECKED	APPROVED	DATE

DESCRIPTION

Norfolk County Council
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Community and Environmental Services
Norfolk County Council
County Hall, Martineau Lane
Norwich NR1 2SG

PROJECT TITLE

GREAT YARMOUTH THIRD RIVER CROSSING

DRAWING TITLE

FIGURE 22 (APPENDIX A) – BASELINE PRESENT DAY SCENARIO - 5% AEP MODELLED MAXIMUM HAZARD (LOCATION 2)

DRAWING STATUS

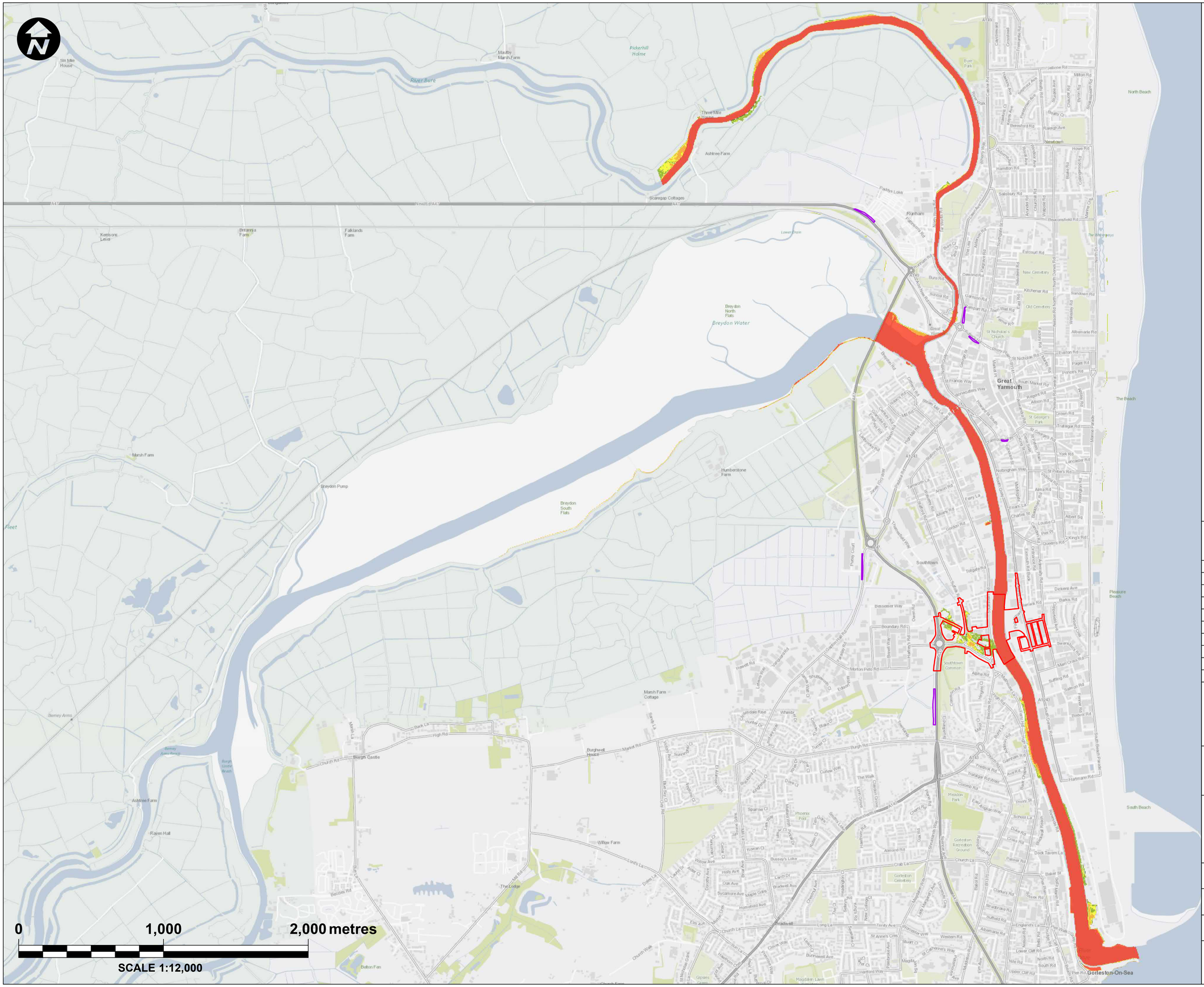
FOR DCO EXAMINATION

DRAWN	CHECKED	APPROVED	AUTHORISED
AK	JW	TJ	MK

SCALE @ A1 SIZE	DATE	REVISION
1:12,000	21/02/2020	P00

DRAWING NUMBER

NCC/GY3RC/EX/078 - Figure 22



Key:

- Principal Application Site
- Satellite Application Sites

Hazard to People Classification

- No Hazard
- Very low hazard
- Danger for some
- Danger for most
- Danger for all

P01.2	BS	JH	JW	08/02/2019
SECOND DRAFT				
P01.1	DE	JH	JD	19/11/2018
FIRST DRAFT				
REVISION	DRAWN	CHECKED	APPROVED	DATE

DESCRIPTION

Norfolk County Council
Tom McCabe
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County Hall, Martineau Lane
Norwich NR1 2SG

PROJECT TITLE

GREAT YARMOUTH THIRD RIVER CROSSING

DRAWING TITLE

FIGURE 23 (APPENDIX A) – BASELINE PRESENT DAY SCENARIO - 5% AEP MODELLED MAXIMUM HAZARD (LOCATION 3)

DRAWING STATUS

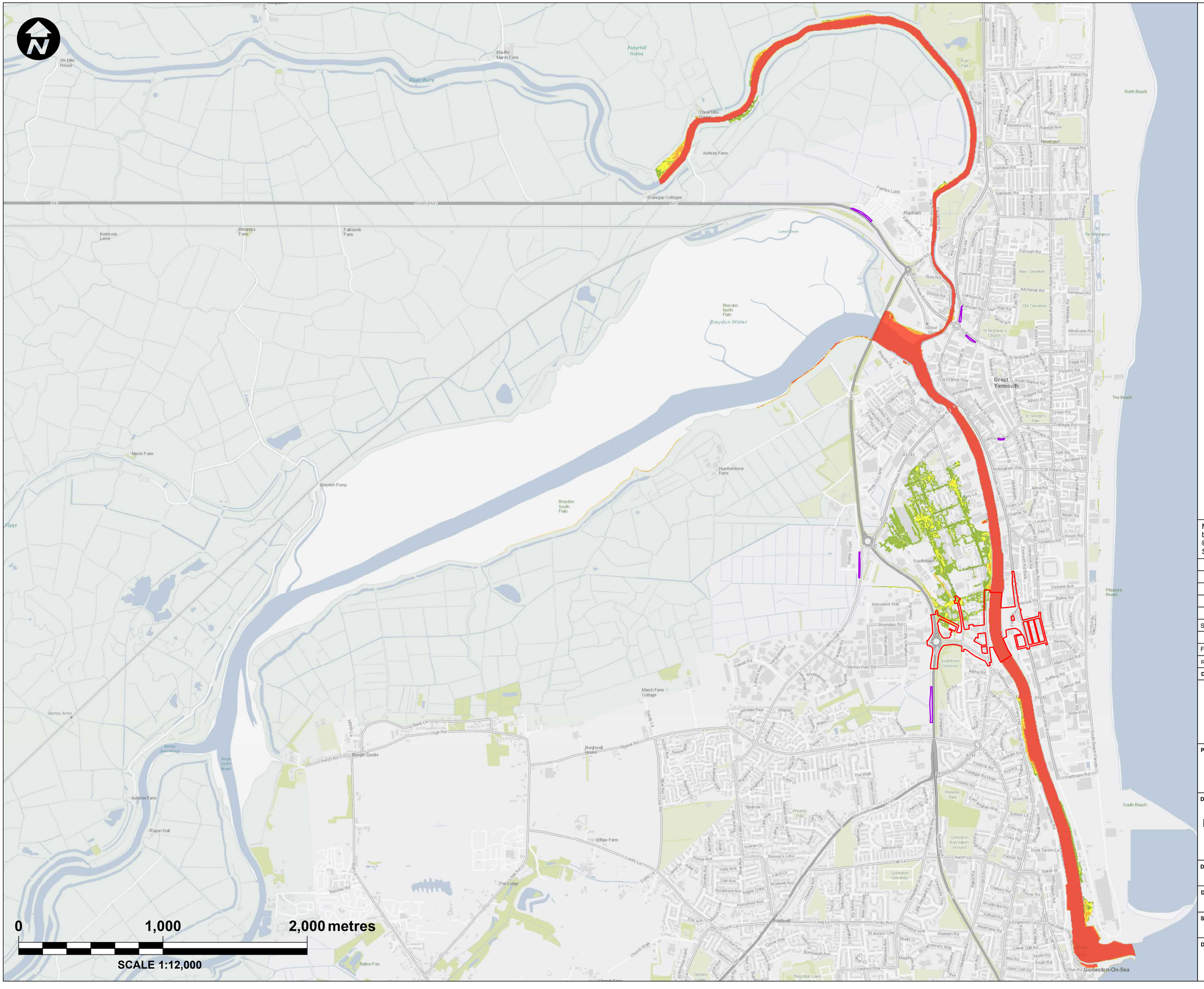
FOR DCO EXAMINATION

DRAWN	CHECKED	APPROVED	AUTHORISED
AK	JW	TJ	MK

SCALE @ A1 SIZE	DATE	REVISION
1:12,000	21/02/2020	P00

DRAWING NUMBER

NCC/GY3RC/EX/078 - Figure 23



Key:

- Principal Application Site
- Satellite Application Sites

Hazard to People Classification

- No Hazard
- Very low hazard
- Danger for some
- Danger for most
- Danger for all

REVISION	DRAWN	CHECKED	APPROVED	DATE
P01.2	BS	JH	JW	08/02/2019
SECOND DRAFT				
P01.1	DE	JH	JD	19/11/2018
FIRST DRAFT				

DESCRIPTION

Norfolk County Council
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County Hall, Martineau Lane
Norwich NR1 2SG

PROJECT TITLE

GREAT YARMOUTH THIRD RIVER CROSSING

DRAWING TITLE

FIGURE 24 (APPENDIX A) – BASELINE PRESENT DAY SCENARIO - 5% AEP MODELLED MAXIMUM HAZARD (LOCATION 4)

DRAWING STATUS

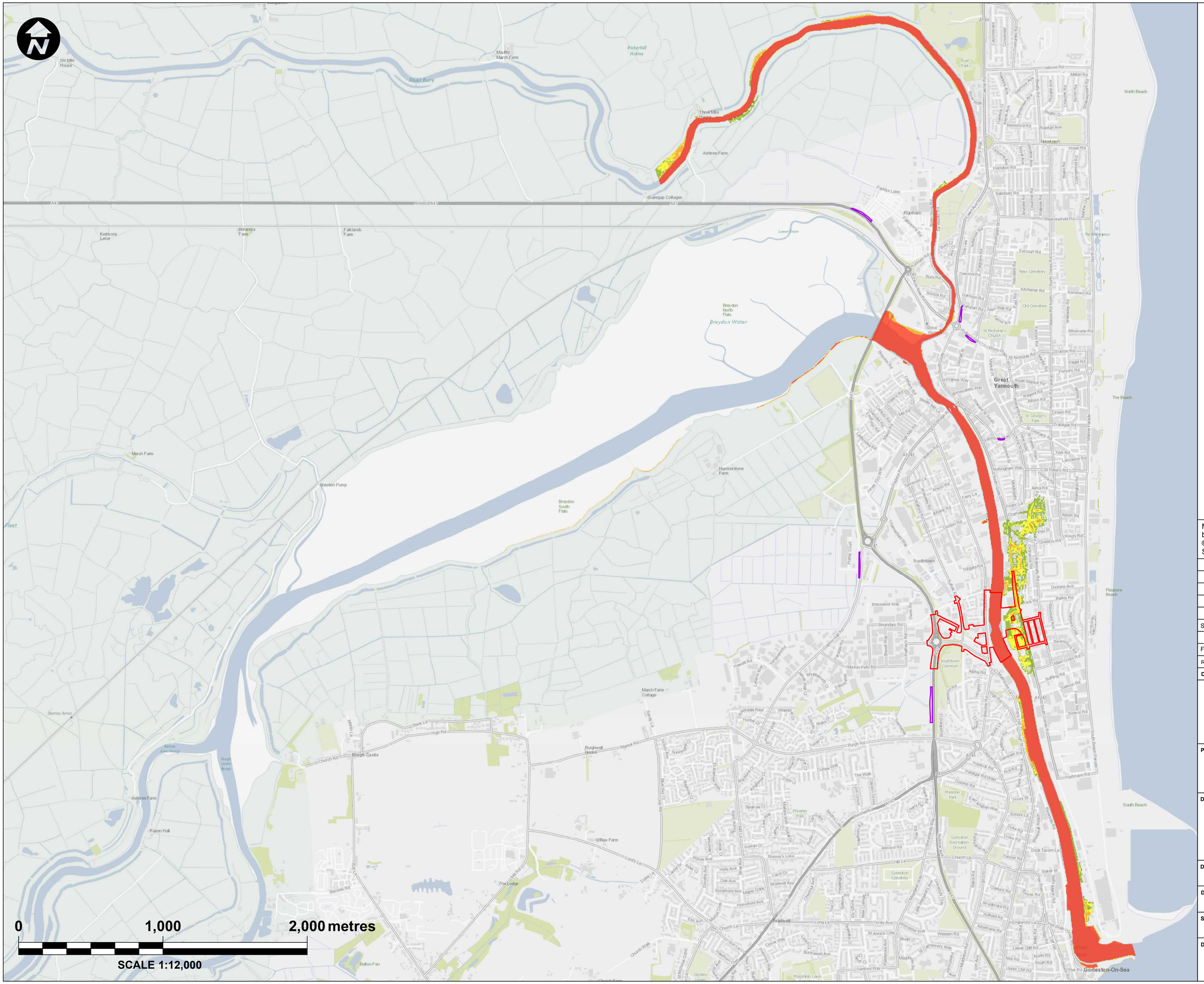
FOR DCO EXAMINATION

DRAWN	CHECKED	APPROVED	AUTHORISED
AK	JW	TJ	MK

SCALE @ A1 SIZE	DATE	REVISION
1:12,000	21/02/2020	P00

DRAWING NUMBER

NCC/GY3RC/EX/078 - Figure 24



Key:

- Principal Application Site
- Satellite Application Sites

Hazard to People Classification

- No Hazard
- Very low hazard
- Danger for some
- Danger for most
- Danger for all

P01.2	BS	JH	JW	08/02/2019
SECOND DRAFT				
P01.1	DE	JH	JD	19/11/2018
FIRST DRAFT				
REVISION	DRAWN	CHECKED	APPROVED	DATE

DESCRIPTION

Norfolk County Council
Tom McCabe
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Norfolk County Council
County Hall, Martineau Lane
Norwich NR1 2SG

PROJECT TITLE

GREAT YARMOUTH THIRD RIVER CROSSING

DRAWING TITLE

FIGURE 25 (APPENDIX A) – WITH SCHEME PRESENT DAY SCENARIO - 5% AEP MODELLED MAXIMUM HAZARD (LOCATION 1)

DRAWING STATUS

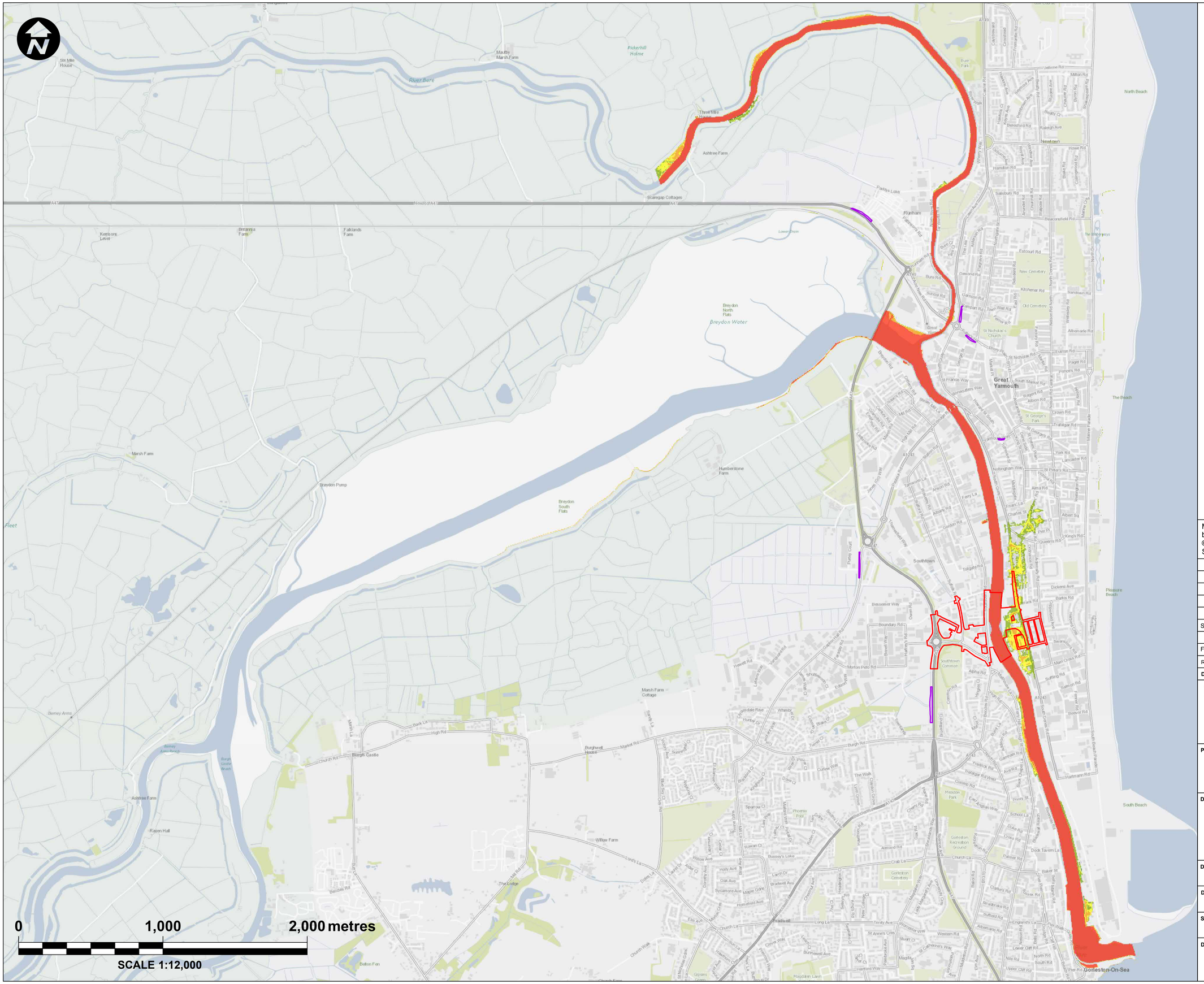
FOR DCO EXAMINATION

DRAWN	CHECKED	APPROVED	AUTHORISED
AK	JW	TJ	MK

SCALE @ A1 SIZE	DATE	REVISION
1:12,000	21/02/2020	P00

DRAWING NUMBER

NCC/GY3RC/EX/078 - Figure 25



Key:

- Principal Application Site
- Satellite Application Sites

Hazard to People Classification

- No Hazard
- Very low hazard
- Danger for some
- Danger for most
- Danger for all

REVISION	DRAWN	CHECKED	APPROVED	DATE
P01.2	BS	JH	JW	08/02/2019
SECOND DRAFT				
P01.1	DE	JH	JD	19/11/2018
FIRST DRAFT				

DESCRIPTION

Norfolk County Council
Tom McCabe
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Community and Environmental Services
Norfolk County Council
County Hall, Martineau Lane
Norwich NR1 2SG

PROJECT TITLE

GREAT YARMOUTH THIRD RIVER CROSSING

DRAWING TITLE

FIGURE 26 (APPENDIX A) – WITH SCHEME PRESENT DAY SCENARIO - 5% AEP MODELLED MAXIMUM HAZARD (LOCATION 2)

DRAWING STATUS

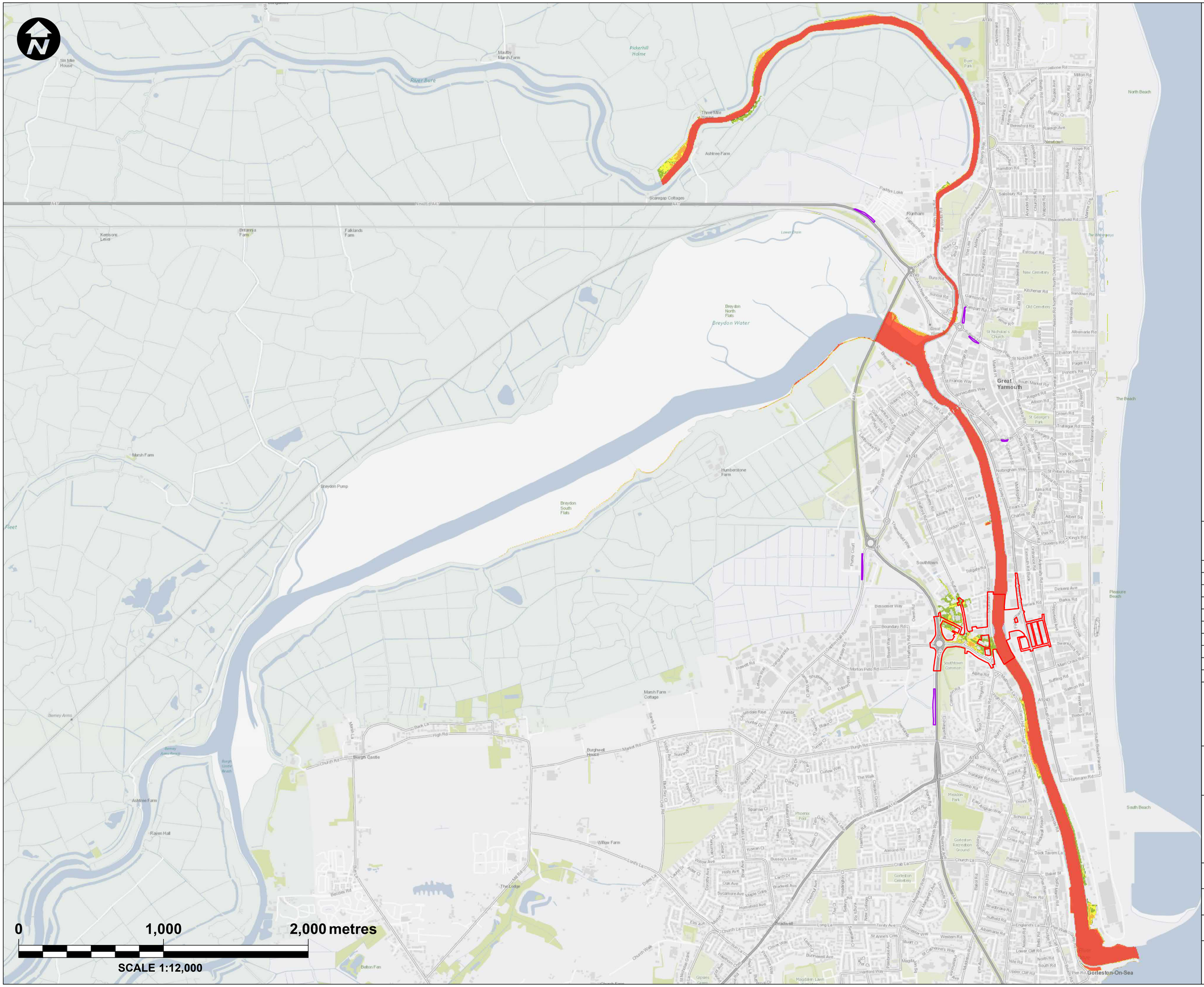
FOR DCO EXAMINATION

DRAWN	CHECKED	APPROVED	AUTHORISED
AK	JW	TJ	MK

SCALE @ A1 SIZE	DATE	REVISION
1:12,000	21/02/2020	P00

DRAWING NUMBER

NCC/GY3RC/EX/078 - Figure 26



Key:

- Principal Application Site
- Satellite Application Sites

Hazard to People Classification

- No Hazard
- Very low hazard
- Danger for some
- Danger for most
- Danger for all

P01.2	BS	JH	JW	08/02/2019
SECOND DRAFT				
P01.1	DE	JH	JD	19/11/2018
FIRST DRAFT				
REVISION	DRAWN	CHECKED	APPROVED	DATE

DESCRIPTION

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Norfolk County Council
County Hall, Martineau Lane
Norwich NR1 2SG

PROJECT TITLE

GREAT YARMOUTH THIRD RIVER CROSSING

DRAWING TITLE

FIGURE 27 (APPENDIX A) – WITH SCHEME PRESENT DAY SCENARIO - 5% AEP MODELLED MAXIMUM HAZARD (LOCATION 3)

DRAWING STATUS

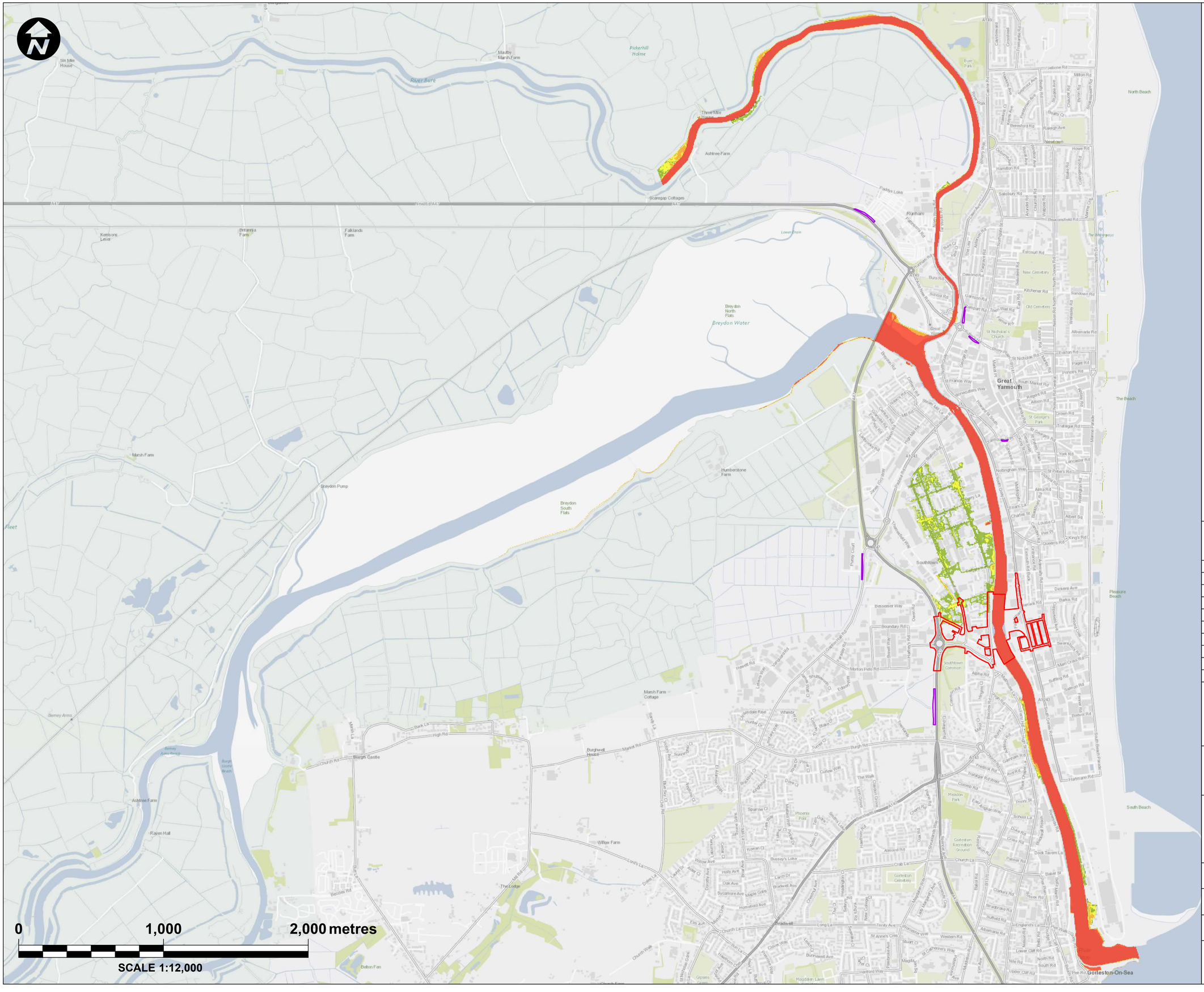
FOR DCO EXAMINATION

DRAWN	CHECKED	APPROVED	AUTHORISED
AK	JW	TJ	MK

SCALE @ A1 SIZE	DATE	REVISION
1:12,000	21/02/2020	P00

DRAWING NUMBER

NCC/GY3RC/EX/078 - Figure 27



Key:

- Principal Application Site
- Satellite Application Sites

Hazard to People Classification

- No Hazard
- Very low hazard
- Danger for some
- Danger for most
- Danger for all

REVISION	DRAWN	CHECKED	APPROVED	DATE
P01.2	BS	JH	JW	08/02/2019
SECOND DRAFT				
P01.1	DE	JH	JD	19/11/2018
FIRST DRAFT				

DESCRIPTION

Norfolk County Council
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Norfolk County Council
County Hall, Martineau Lane
Norwich NR1 2SG

PROJECT TITLE

GREAT YARMOUTH THIRD RIVER CROSSING

DRAWING TITLE

FIGURE 28 (APPENDIX A) – WITH SCHEME PRESENT DAY SCENARIO - 5% AEP MODELLED MAXIMUM HAZARD (LOCATION 4)

DRAWING STATUS

FOR DCO EXAMINATION

DRAWN	CHECKED	APPROVED	AUTHORISED
AK	JW	TJ	MK

SCALE @ A1 SIZE	DATE	REVISION
1:12,000	21/02/2020	P00

DRAWING NUMBER

NCC/GY3RC/EX/078 - Figure 28