

- Northumberland County Boundary
- ◆ Development Towns
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- River Centrelines
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- Reported Flood Risk Issues
- Areas Benefiting from Defences (Designated by EA)
- EA Historical Flood Map
- Flood Zone 3b (1) (Functional Floodplain - 1 in 20/25 year)\*\*
- Flood Zone 3b (2) (FZ3a proxy where no FZ3b outlines currently exist)\*\*
- Flood Zone 3a (1 in 100 year)
- Flood Zone 3 + CC (1 in 100 year plus an allowance for climate change (FZ2 proxy))
- Flood Zone 2 (1 in 1000 year)

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Northumberland County Council - 100019593 - 2009.

Revision Details	By	Date	Suffix

Drawing Status: **FINAL**

Job Title:  
**Northumberland County Council  
Level 1 Strategic  
Flood Risk Assessment**

Drawing Title:  
**Hydrology - Allendale  
Development Town**

Scale at A3: **AS SHOWN**

Drawn: CAB	Approved: LNO
Stage 1 Check: SA	Stage 2 Check: SJA
Original: SA	Date: 09-04-10

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Drawing Number:  
**S106308-B2-1**

**GROWTH POINT AREA/DEVELOPMENT TOWN**

**Allendale**

**FLOOD SOURCES**

The River East Allen flowing generally northwards through the area, and a smaller tributary named Philip Burn flowing westwards, both present fluvial flood risk to Allendale in the form of Flood Zone 2 (1 in 1000 year), Flood Zone 3a (1 in 100 year) and Flood Zone 3 plus an allowance for climate change (1 in 100 year +CC).

Other smaller tributary watercourses include Wooley Burn and Wager House Burn, which flow generally north eastwards towards their confluence with the River Allen at Bridge End at the western boundary of the town.

Shield Burn, a tributary of Philip Burn flows north westwards adjacent the eastern town boundary.

No reported incidents of flooding were identified.

It is important to note that the map does not show all sources of flooding, such as surface water flooding. Please refer to Chapter 2.5 and Appendix B of the SFRA for information on all flood sources.

**LIMITATIONS OF DATA**

Outlines for Flood Zones 2 and 3a have medium confidence as they were derived using broad-scale national hydraulic modelling techniques. As no data was available for Flood Zone 3 plus an allowance for climate change (1 in 100 year + CC), Flood Zone 2 has been used as a proxy and therefore these flood outlines are of low confidence.

\*\* Flood Zone 3b (1) outline has high confidence as this has been derived from 1 in 20/25 year detailed river modelling. As there are no broad-scale model outlines available for FF, for those areas where no detailed 1 in 20/25 year outlines available, Flood Zone 3a has been considered as a proxy to represent the FF (Flood Zone 3b (2)) until such a time that more detailed information is available, such as the Level 2 SFRA (where necessary), an EA Strategic Flood Risk Mapping (SFRM) study or a site-specific FRA. This is not to say that the entire area used as a proxy is FF, moreover that the boundary of the FF falls somewhere within that area as recommended by the EA.

**SUSTAINABLE DRAINAGE SYSTEMS**

Please refer to the Groundwater Vulnerability Map for details of the spatial variation in aquifer classification and associated vulnerability. The ground underlying Allendale is characterised as a Minor Aquifer ranging from high, intermediate and low vulnerability.

Please refer to the SuDS Maps in Appendix C for the general applicability of SuDS in the area. Detailed site investigation will confirm suitability of various SuDS techniques.

**FLOOD RISK ASSESSMENT GUIDANCE**

In accordance with Planning Policy Statement 25 (PPS25), a risk-based sequential approach should be applied at all stages of planning. Flood Zones are the starting point of the sequential approach.

A site-specific Flood Risk Assessment (FRA) is required to accompany planning applications for sites in Flood Zones 2 and 3. Major developments in Flood Zone 1 also require a site-specific FRA. It should be noted that development sites located in the vicinity of a Main River must comply with the EA 5m bylaw distance when planning the site layout. Therefore it is recommended that the EA is consulted at the earliest opportunity to discuss the development proposal and related flood risk issues such as floodplain compensation storage, finish floor levels and drainage.

In certain circumstances in order to meet wider sustainable benefits to the community some sites located behind existing flood defences may be given permission for development. In such situations the developer is generally required to provide resources and funds to undertake more complex modelling/assessments to determine the residual risk on the development arising from events that overtop or breach the defences. In addition the developer is generally responsible for funding any flood risk management works, including defences and mitigation works.

A major development is defined as residential development of 10 dwellings or more or a site area of 0.5 hectares or more, and non-residential development with floor space in excess of 1,000 square metres or site area of 1 hectare or more.

As a minimum, site-specific FRA's should identify and assess, in more detail than the SFRA, the risks of all forms of flooding to and from the development and demonstrate how flood risks will be managed, taking climate change into consideration. The FRA should determine the level of vulnerability of the proposed development (Table D.2, PPS25) and subsequently whether the development is appropriate in relation to Flood Zones (Table D.3, PPS25). FRA's should provide evidence to assist application of the Sequential Test and, where necessary, the Exception Test.

The EA should be consulted to obtain flood level information for a proposed development site. Where available, flood levels should be used to determine minimum requirements for finished floor levels and emergency access and egress routes. In general, flood levels should be available for sites located in a Flood Zone identified as having a high confidence. Where sites are located in a Flood Zone identified as having a medium or low confidence, the FRA may need to refine the flood outline at this location.



**GROWTH POINT AREA/DEVELOPMENT TOWN**

**Alnwick**

**FLOOD SOURCES**

The River Aln flowing generally south eastwards forming the northern boundary of Alnwick, and a tributary watercourse named Stocking Burn flowing north eastwards towards their confluence present fluvial flood risks to Alnwick in the form of Flood Zone 2 (1 in 1000 year), Flood Zone 3a (1 in 100 year), Flood Zone 3 plus an allowance for climate change (1 in 100 year +CC), and Flood Zone 3b (functional floodplain).

Two small watercourses named West Burn and Wash Burn also flow northwards through the eastern area of the town, and an additional watercourse named Willow Burn flows generally north eastwards adjacent the south eastern boundary of the town.

Four reported incidents of flooding were identified within the central and southern area of the town.

It is important to note that the map does not show all sources of flooding, such as surface water flooding. Please refer to Chapter 2.5 and Appendix B of the SFRA for information on all flood sources.

**LIMITATIONS OF DATA**

Flood Zones 2 and 3a outlines for the River Aln and Stocking Burn have medium confidence, as they were derived using broad-scale national hydraulic modelling techniques.

As no data was available for Flood Zone 3 plus an allowance for climate change (1 in 100 year + CC), Flood Zone 2 has been used as a proxy and therefore these flood outlines are of low confidence.

\*\* Flood Zone 3b (1) outline has high confidence as this has been derived from 1 in 20/25 year detailed river modelling. As there are no broad-scale model outlines available for FF, for those areas where no detailed 1 in 20/25 year outlines available, Flood Zone 3a has been considered as a proxy to represent the FF (Flood Zone 3b (2)) until such a time that more detailed information is available, such as the Level 2 SFRA (where necessary), an EA Strategic Flood Risk Mapping (SFRM) study or a site-specific FRA. This is not to say that the entire area used as a proxy is FF, moreover that the boundary of the FF falls somewhere within that area as recommended by the EA.

**SUSTAINABLE DRAINAGE SYSTEMS**

Please refer to the Groundwater Vulnerability Map for details of the spatial variation in aquifer classification and associated vulnerability. The ground underlying Alnwick is characterised as a Minor Aquifer ranging from high, intermediate and low vulnerability.

Please refer to the SuDS Maps in Appendix C for the general applicability of SuDS in the area. Detailed site investigation will confirm suitability of various SuDS techniques.

**FLOOD RISK ASSESSMENT GUIDANCE**

In accordance with Planning Policy Statement 25 (PPS25), a risk-based sequential approach should be applied at all stages of planning. Flood Zones are the starting point of the sequential approach.

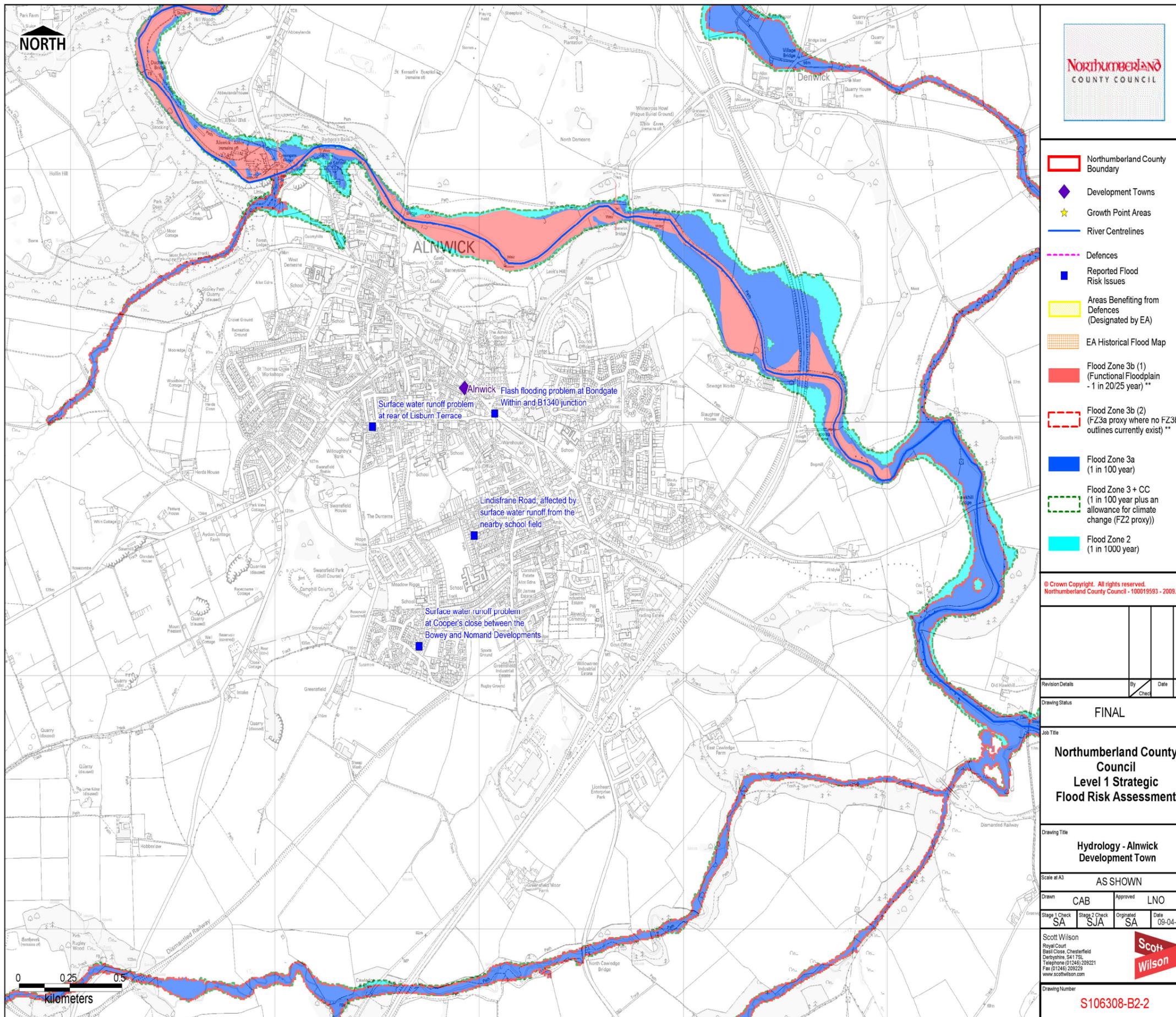
A site-specific Flood Risk Assessment (FRA) is required to accompany planning applications for sites in Flood Zones 2 and 3. Major developments in Flood Zone 1 also require a site-specific FRA. It should be noted that development sites located in the vicinity of a Main River must comply with the EA 5m bylaw distance when planning the site layout. Therefore it is recommended that the EA is consulted at the earliest opportunity to discuss the development proposal and related flood risk issues such as floodplain compensation storage, finish floor levels and drainage.

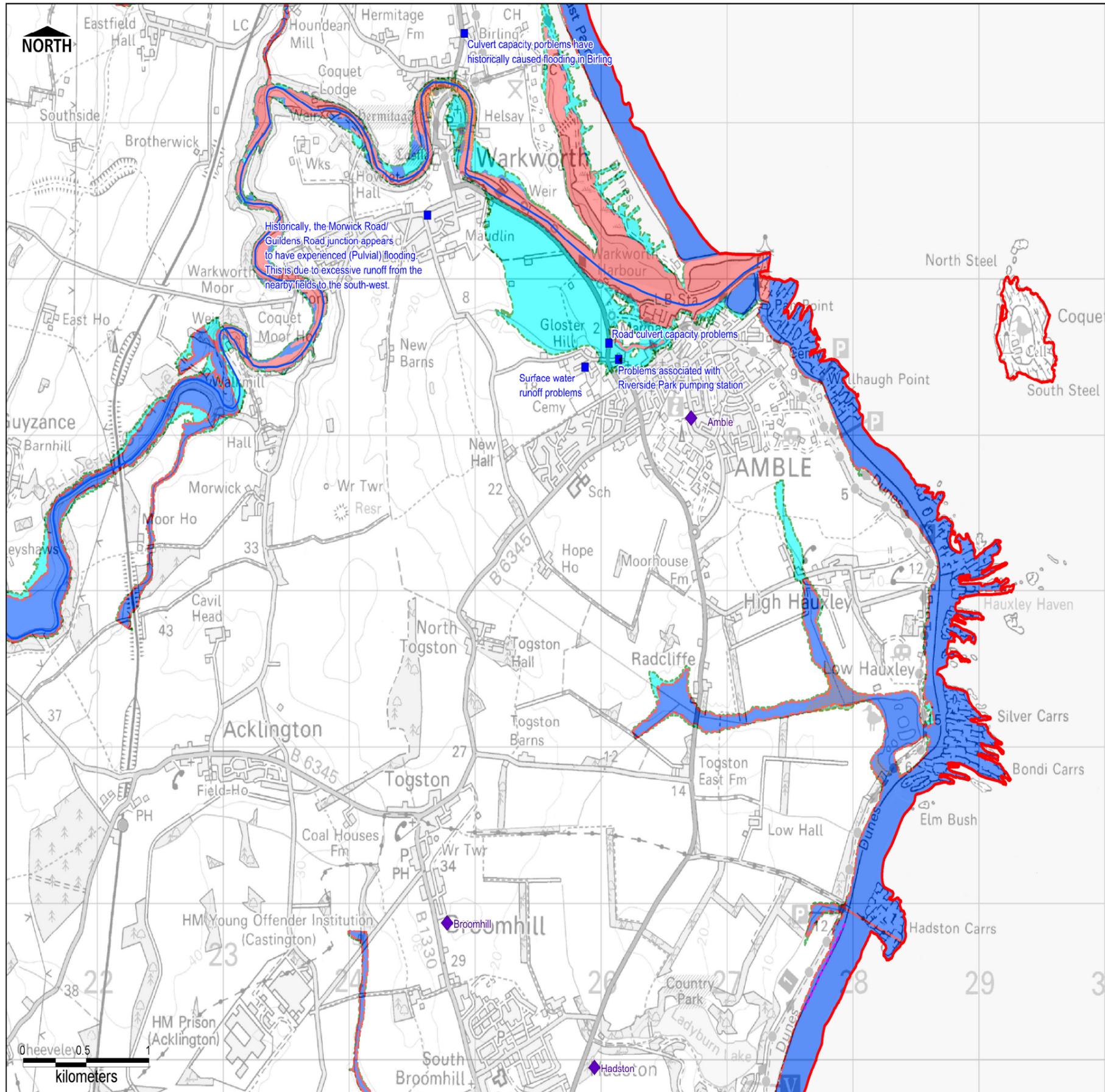
In certain circumstances in order to meet wider sustainable benefits to the community some sites located behind existing flood defences may be given permission for development. In such situations the developer is generally required to provide resources and funds to undertake more complex modelling/assessments to determine the residual risk on the development arising from events that overtop or breach the defences. In addition the developer is generally responsible for the funding of any flood risk management works, including defences and mitigation works.

A major development is defined as residential development of 10 dwellings or more or a site area of 0.5 hectares or more, and non-residential development with floor space in excess of 1,000 square metres or site area of 1 hectare or more.

As a minimum, site-specific FRA's should identify and assess, in more detail than the SFRA, the risks of all forms of flooding to and from the development and demonstrate how flood risks will be managed, taking climate change into consideration. The FRA should determine the level of vulnerability of the proposed development (Table D.2, PPS25) and subsequently whether the development is appropriate in relation to Flood Zones (Table D.3, PPS25). FRA's should provide evidence to assist application of the Sequential Test and, where necessary, the Exception Test.

The EA should be consulted to obtain flood level information for a proposed development site. Where available, flood levels should be used to determine minimum requirements for finished floor levels and emergency access and egress routes. In general, flood levels should be available for sites located in a Flood Zone identified as having a high confidence. Where sites are located in a Flood Zone identified as having a medium or low confidence, the FRA may need to refine the flood outline at this location.





**Northumberland County Council**

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Revision Details	By	Date	Suffix
Drawing Status	FINAL		
Job Title	Northumberland County Council Level 1 Strategic Flood Risk Assessment		
Drawing Title	Hydrology - Amble Development Town, Broomhill & Hadston		
Scale of A3	AS SHOWN		
Drawn	CAB	Approved	LNO
Stage 1 Check	SA	Stage 2 Check	SJA
Original	SA	Date	09-04-10
Scott Wilson Royal Court Best Close, Chesterfield Derbyshire, S41 7JG Telephone (01246) 209221 Fax (01246) 209220 www.scottwilson.com	Scott Wilson		
Drawing Number	S106308-B2-3		

**GROWTH POINT AREA/DEVELOPMENT TOWN**  
**Amble**

**FLOOD SOURCES**  
The River Coquet flowing generally eastwards through the northern region of the area and a tributary watercourse named Guilders Burn which also flows generally eastwards to their confluence present fluvial flood risks to Amble in the form of Flood Zone 2 (1 in 1000 year), Flood Zone 3a (1 in 100 year), Flood Zone 3 plus an allowance for climate change (1 in 100 year +CC), and Flood Zone 3b (functional floodplain). Tidal flood risk is presented by the North Sea in the form of Flood Zones 2 and 3a. A land drain conveying also flows southwards eventually into Hauxley Nature Reserve to the south poses a 1 in 1000 year risk of flooding (Flood Zone 2) to the south eastern area of Amble.

Several unnamed land drainage watercourses also flow southwards through the southern area of the town.

Three reported incidents of flooding were identified within the north eastern of the area of the town.

It is important to note that the map does not show all sources of flooding, such as surface water flooding. Please refer to Chapter 2.5 and Appendix B of the SFRA for information on all flood sources.

**LIMITATIONS OF DATA**  
Flood Zone 2 outlines for the River Coquet and Guilders Burn, and Flood Zone 2 and 3a outlines for the un-named watercourse to the south east and the North Sea all have medium confidence as they were derived using broad-scale national hydraulic modelling techniques.

Fluvial Flood Zones 3a and 3b outlines for the River Coquet and Guilders Burn have high confidence as they were derived using detailed hydraulic modelling techniques.

As no data was available for Flood Zone 3 plus an allowance for climate change (1 in 100 year + CC), Flood Zone 2 has been used as a proxy and therefore these flood outlines are of low confidence.

\*\* Flood Zone 3b (1) outline has high confidence as this has been derived from 1 in 20/25 year detailed river modelling. As there are no broad-scale model outlines available for FF, for those areas where no detailed 1 in 20/25 year outlines available, Flood Zone 3a has been considered as a proxy to represent the FF (Flood Zone 3b (2)) until such a time that more detailed information is available, such as the Level 2 SFRA (where necessary), an EA Strategic Flood Risk Mapping (SFRM) study or a site-specific FRA. This is not to say that the entire area used as a proxy is FF, moreover that the boundary of the FF falls somewhere within that area as recommended by the EA.

**SUSTAINABLE DRAINAGE SYSTEMS**  
Please refer to the Groundwater Vulnerability Map for details of the spatial variation in aquifer classification and associated vulnerability. The ground underlying Amble is characterised as a Minor Aquifer ranging from high, intermediate and low vulnerability.

Please refer to the SuDS Maps in Appendix C for the general applicability of SuDS in the area. Detailed site investigation will confirm suitability of various SuDS techniques.

**FLOOD RISK ASSESSMENT GUIDANCE**  
In accordance with Planning Policy Statement 25 (PPS25), a risk-based sequential approach should be applied at all stages of planning. Flood Zones are the starting point of the sequential approach.

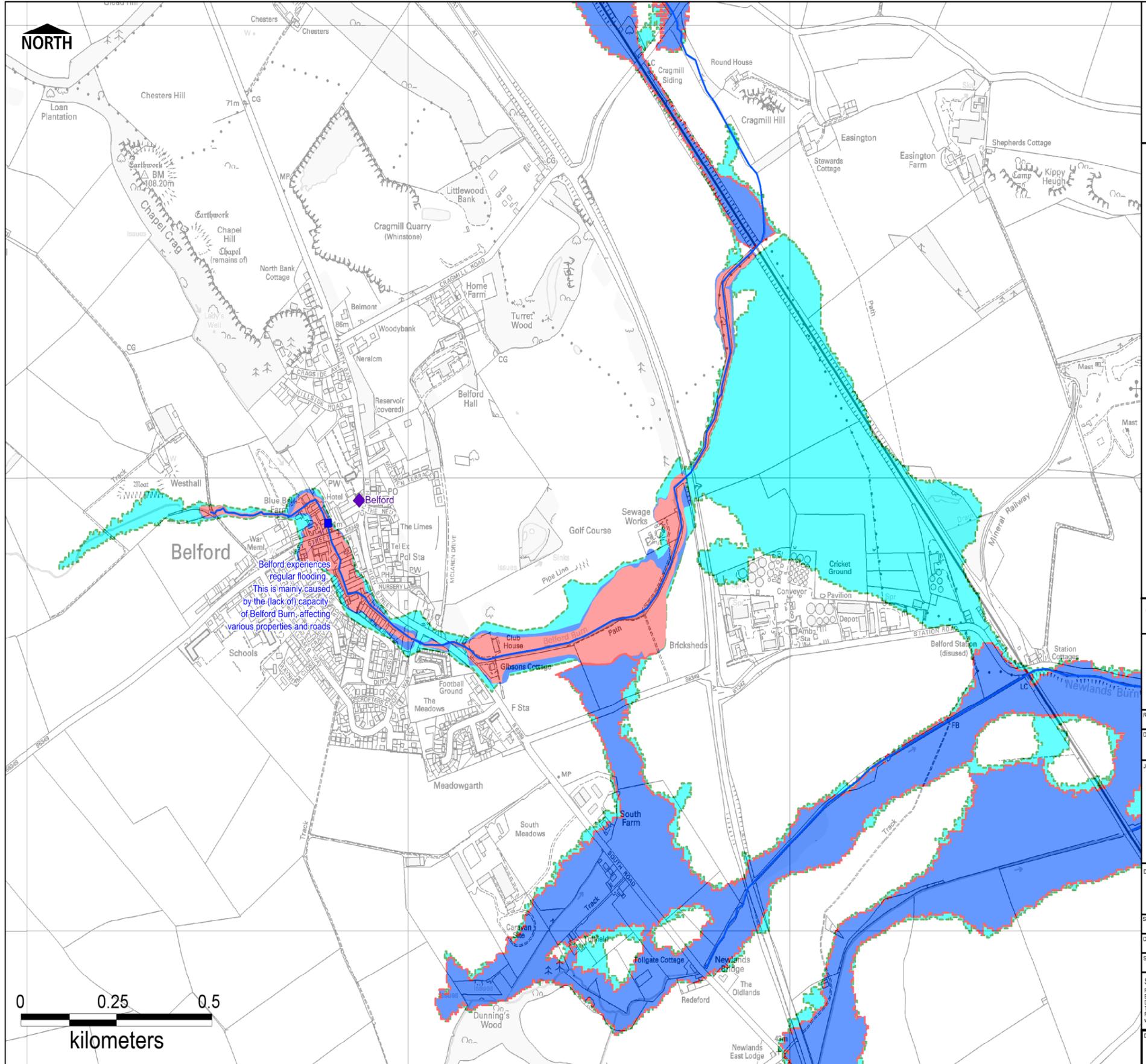
A site-specific Flood Risk Assessment (FRA) is required to accompany planning applications for sites in Flood Zones 2 and 3. Major developments in Flood Zone 1 also require a site-specific FRA. It should be noted that development sites located in the vicinity of a Main River must comply with the EA 5m bylaw distance when planning the site layout. Therefore it is recommended that the EA is consulted at the earliest opportunity to discuss the development proposal and related flood risk issues such as floodplain compensation storage, finish floor levels and drainage.

In certain circumstances in order to meet wider sustainable benefits to the community some sites located behind existing flood defences may be given permission for development. In such situations the developer is generally required to provide resources and funds to undertake more complex modelling/assessments to determine the residual risk on the development arising from events that overtop or breach the defences. In addition the developer is generally responsible for the funding of any flood risk management works, including defences and mitigation works.

A major development is defined as residential development of 10 dwellings or more or a site area of 0.5 hectares or more, and non-residential development with floor space in excess of 1,000 square metres or site area of 1 hectare or more.

As a minimum, site-specific FRA's should identify and assess, in more detail than the SFRA, the risks of all forms of flooding to and from the development and demonstrate how flood risks will be managed, taking climate change into consideration. The FRA should determine the level of vulnerability of the proposed development (Table D.2, PPS25) and subsequently whether the development is appropriate in relation to Flood Zones (Table D.3, PPS25). FRA's should provide evidence to assist application of the Sequential Test and, where necessary, the Exception Test.

The EA should be consulted to obtain flood level information for a proposed development site. Where available, flood levels should be used to determine minimum requirements for finished floor levels and emergency access and egress routes. In general, flood levels should be available for sites located in a Flood Zone identified as having a high confidence. Where sites are located in a Flood Zone identified as having a medium or low confidence, the FRA may need to refine the flood outline at this location.



Belford experiences regular flooding. This is mainly caused by the (lack of) capacity of Belford Burn, affecting various properties and roads.



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- Flood Zone 3b (2) (FZ3a proxy where no FZ3 outlines currently exist)\*\*
- Flood Zone 3a (1 in 100 year)
- Flood Zone 3 + CC (1 in 100 year plus an allowance for climate change (FZ2 proxy))
- Flood Zone 2 (1 in 1000 year)

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Revision Details	By	Date	Suffix
Drawing Status	FINAL		

Job Title  
**Northumberland County Council  
Level 1 Strategic  
Flood Risk Assessment**

Drawing Title  
**Hydrology - Belford  
Development Town**

Scale at A3	AS SHOWN		
Drawn	CAB	Approved	LNO
Stage 1 Check	SA	Stage 2 Check	Originated
			SA
			Date
			09-04-10

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Drawing Number  
**S106308-B2-4**

**GROWTH POINT AREA/DEVELOPMENT TOWN**

**Belford**

**FLOOD SOURCES**

Belford Burn flowing generally south eastwards through Belford village, and Newlands Burn and Mousen Burn which flow north eastwards to the far south east of the village present fluvial flood risks to Belford in the form of Flood Zone 2 (1 in 1000 year), Flood Zone 3a (1 in 100 year), Flood Zone 3 plus an allowance for climate change (1 in 100 year +CC), and Flood Zone 3b (functional floodplain).

One reported incident of flooding was identified in the centre of the village.

It is important to note that the map does not show all sources of flooding, such as surface water flooding. Please refer to Chapter 2.5 and Appendix B of the SFRA for information on all flood sources.

**LIMITATIONS OF DATA**

A Section of the Flood Zone 2 and 3a outlines for Belford Burn has high confidence, as these were derived using detailed hydraulic modelling techniques. Flood Zone 2 and 3a outlines for Newlands Burn and Mousen Burn have medium confidence, as they were derived using broad-scale national hydraulic modelling techniques.

As no data was available for Flood Zone 3 plus an allowance for climate change (1 in 100 year + CC), Flood Zone 2 has been used as a proxy and therefore these flood outlines are of low confidence.

\*\* Flood Zone 3b (1) outline has high confidence as this has been derived from 1 in 20/25 year detailed river modelling. As there are no broad-scale model outlines available for FF, for those areas where no detailed 1 in 20/25 year outlines available, Flood Zone 3a has been considered as a proxy to represent the FF (Flood Zone 3b (2)) until such a time that more detailed information is available, such as the Level 2 SFRA (where necessary), an EA Strategic Flood Risk Mapping (SFRM) study or a site-specific FRA. This is not to say that the entire area used as a proxy is FF, moreover that the boundary of the FF falls somewhere within that area as recommended by the EA.

**SUSTAINABLE DRAINAGE SYSTEMS**

Please refer to the Groundwater Vulnerability Map for details of the spatial variation in aquifer classification and associated vulnerability. The ground underlying Belford is characterised as a Minor Aquifer ranging from intermediate to low vulnerability.

Please refer to the SuDS Maps in Appendix C for the general applicability of SuDS in the area. Detailed site investigation will confirm suitability of various SuDS techniques.

**FLOOD RISK ASSESSMENT GUIDANCE**

In accordance with Planning Policy Statement 25 (PPS25), a risk-based sequential approach should be applied at all stages of planning. Flood Zones are the starting point of the sequential approach.

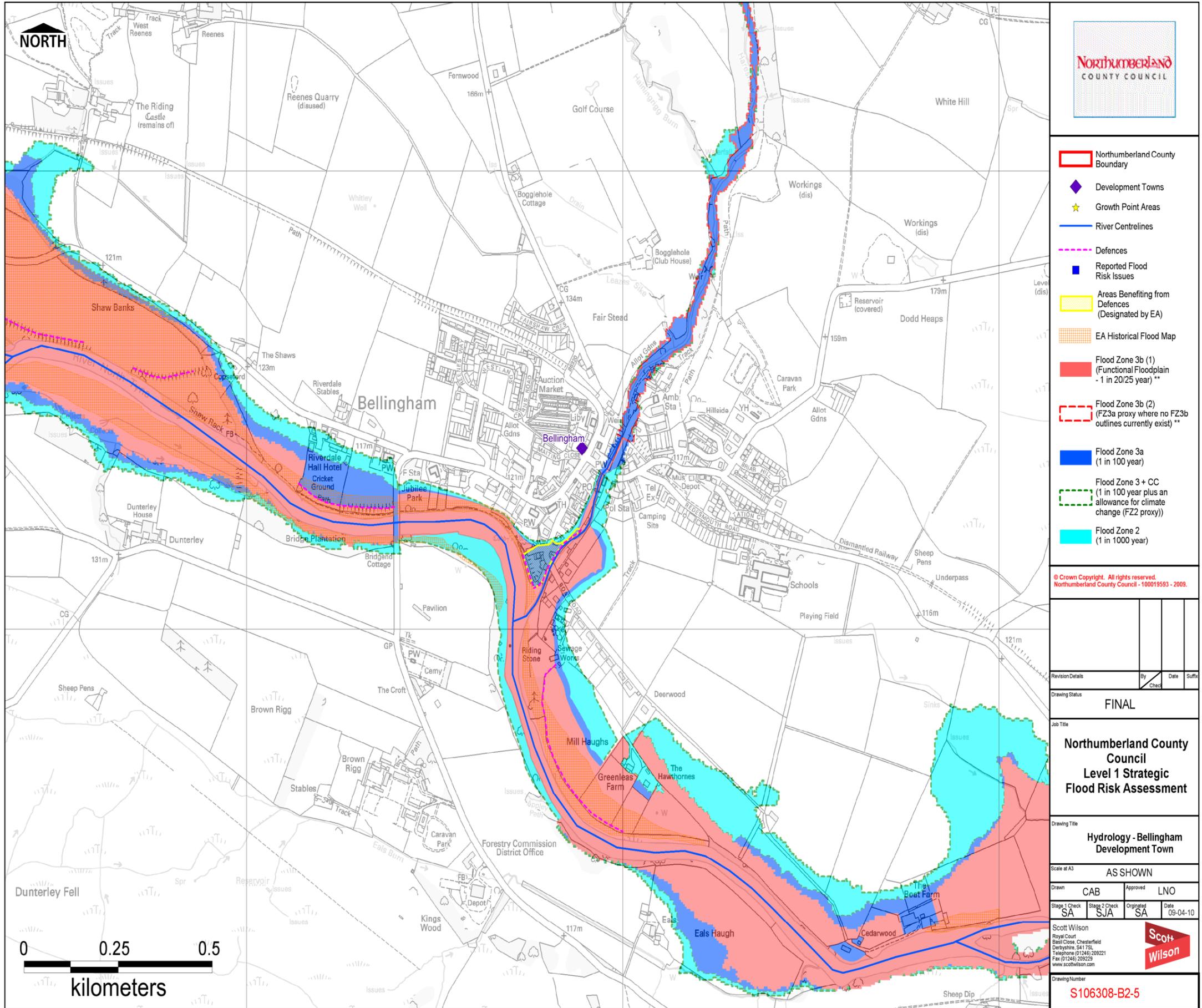
A site-specific Flood Risk Assessment (FRA) is required to accompany planning applications for sites in Flood Zones 2 and 3. Major developments in Flood Zone 1 also require a site-specific FRA. It should be noted that development sites located in the vicinity of a Main River must comply with the EA 5m bylaw distance when planning the site layout. Therefore it is recommended that the EA is consulted at the earliest opportunity to discuss the development proposal and related flood risk issues such as floodplain compensation storage, finish floor levels and drainage.

In certain circumstances in order to meet wider sustainable benefits to the community some sites located behind existing flood defences may be given permission for development. In such situations the developer is generally required to provide resources and funds to undertake more complex modelling/assessments to determine the residual risk on the development arising from events that overtop or breach the defences. In addition the developer is generally responsible for the funding of any flood risk management works, including defences and mitigation works.

A major development is defined as residential development of 10 dwellings or more or a site area of 0.5 hectares or more, and non-residential development with floor space in excess of 1,000 square metres or site area of 1 hectare or more.

As a minimum, site-specific FRA's should identify and assess, in more detail than the SFRA, the risks of all forms of flooding to and from the development and demonstrate how flood risks will be managed, taking climate change into consideration. The FRA should determine the level of vulnerability of the proposed development (Table D.2, PPS25) and subsequently whether the development is appropriate in relation to Flood Zones (Table D.3, PPS25). FRA's should provide evidence to assist application of the Sequential Test and, where necessary, the Exception Test.

The EA should be consulted to obtain flood level information for a proposed development site. Where available, flood levels should be used to determine minimum requirements for finished floor levels and emergency access and egress routes. In general, flood levels should be available for sites located in a Flood Zone identified as having a high confidence. Where sites are located in a Flood Zone identified as having a medium or low confidence, the FRA may need to refine the flood outline at this location.



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- Flood Zone 3b (1) (Functional Floodplain - 1 in 20/25 year) \*\*
- Flood Zone 3b (2) (FZ3a proxy where no FZ3b outlines currently exist) \*\*
- Flood Zone 3a (1 in 100 year)
- Flood Zone 3 + CC (1 in 100 year plus an allowance for climate change (FZ2 proxy))
- Flood Zone 2 (1 in 1000 year)

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Revision Details	By	Date	Suffix

Drawing Status: **FINAL**

Job Title:  
**Northumberland County Council  
Level 1 Strategic  
Flood Risk Assessment**

Drawing Title:  
**Hydrology - Bellingham  
Development Town**

Scale at AS: **AS SHOWN**

Drawn: CAB	Approved: LNO
Stage 1 Check: SA	Stage 2 Check: SJA
Originated: SA	Date: 09-04-10

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Drawing Number:  
**S106308-B2-5**

**GROWTH POINT AREA/DEVELOPMENT TOWN**  
**Bellingham**

**FLOOD SOURCES**  
The North River Tyne flowing generally south eastwards through the southern region of Bellingham and Hareshaw Burn flowing generally southwards through the centre of the village present fluvial flood risks to Bellingham in the form of Flood Zone 2 (1 in 1000 year), Flood Zone 3a (1 in 100 year), Flood Zone 3 plus an allowance for climate change (1 in 100 year +CC), and Flood Zone 3b (functional floodplain).

The Leazes Sike and Hainingrigg Burn watercourses also flow eastwards along the north boundary of the town towards their confluences with Hareshaw Burn.  
No reported incidents of flooding were identified.  
It is important to note that the map does not show all sources of flooding, such as surface water flooding. Please refer to Chapter 2.5 and Appendix B of the SFRA for information on all flood sources.

**LIMITATIONS OF DATA**  
Flood Zone 2, and 3a outlines have high confidence, as they were derived using detailed hydraulic modelling techniques.  
As no data was available for Flood Zone 3 plus an allowance for climate change (1 in 100 year + CC), Flood Zone 2 has been used as a proxy and therefore these flood outlines are of low confidence.

\*\* Flood Zone 3b (1) outline has high confidence as this has been derived from 1 in 20/25 year detailed river modelling. As there are no broad-scale model outlines available for FF, for those areas where no detailed 1 in 20/25 year outlines available, Flood Zone 3a has been considered as a proxy to represent the FF (Flood Zone 3b (2)) until such a time that more detailed information is available, such as the Level 2 SFRA (where necessary), an EA Strategic Flood Risk Mapping (SFRM) study or a site-specific FRA. This is not to say that the entire area used as a proxy is FF, moreover that the boundary of the FF falls somewhere within that area as recommended by the EA.

**SUSTAINABLE DRAINAGE SYSTEMS**  
Please refer to the Groundwater Vulnerability Map for details of the spatial variation in aquifer classification and associated vulnerability. The ground underlying Bellingham is characterised as a Minor Aquifer ranging from high, intermediate and low vulnerability.  
Please refer to the SuDS Maps in Appendix C for the general applicability of SuDS in the area. Detailed site investigation will confirm suitability of various SuDS techniques.

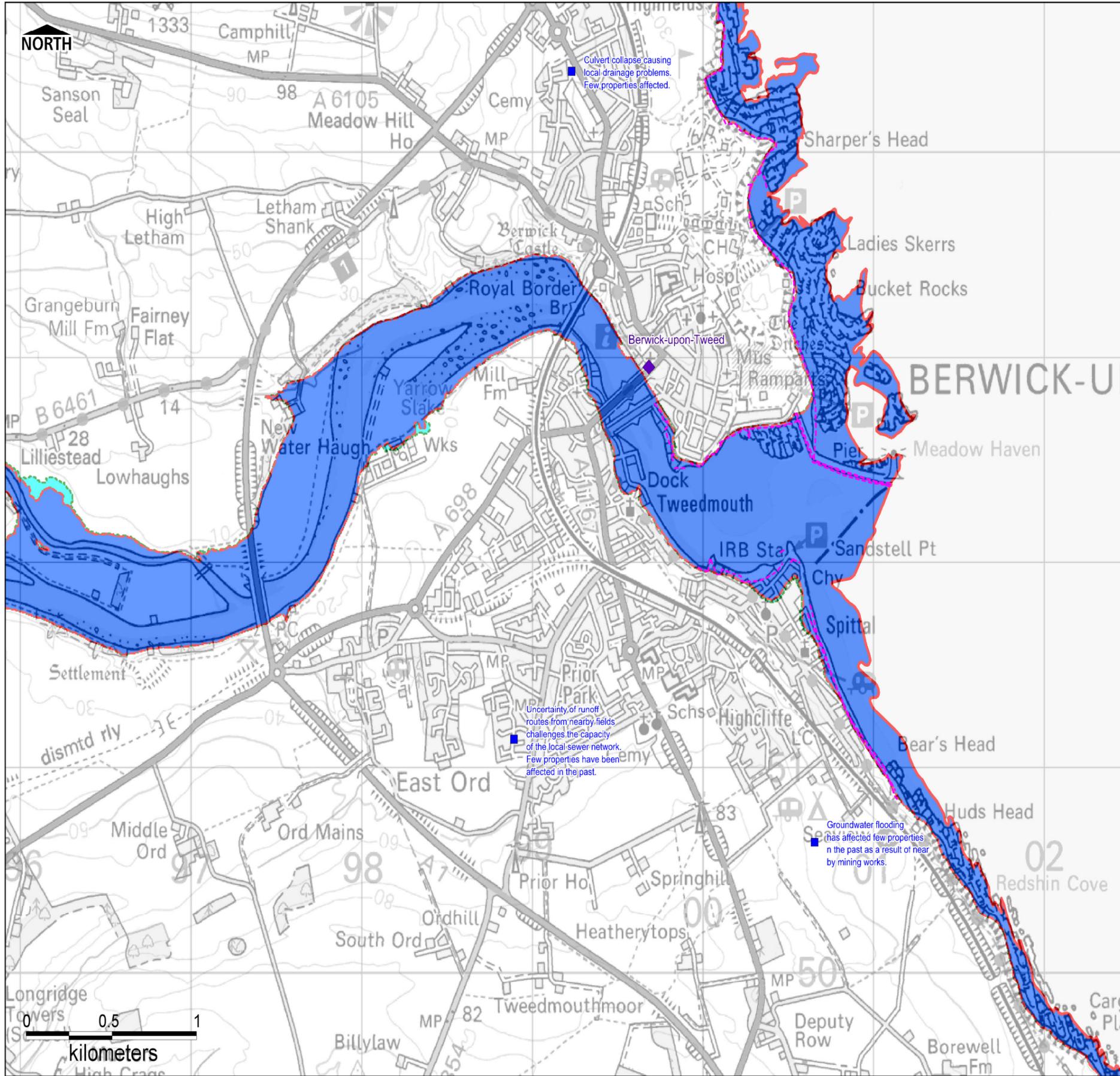
**FLOOD RISK ASSESSMENT GUIDANCE**  
In accordance with Planning Policy Statement 25 (PPS25), a risk-based sequential approach should be applied at all stages of planning. Flood Zones are the starting point of the sequential approach.  
A site-specific Flood Risk Assessment (FRA) is required to accompany planning applications for sites in Flood Zones 2 and 3. Major developments in Flood Zone 1 also require a site-specific FRA. It should be noted that development sites located in the vicinity of a Main River must comply with the EA 5m bylaw distance when planning the site layout. Therefore it is recommended that the EA is consulted at the earliest opportunity to discuss the development proposal and related flood risk issues such as floodplain compensation storage, finish floor levels and drainage.

In certain circumstances in order to meet wider sustainable benefits to the community some sites located behind existing flood defences may be given permission for development. In such situations the developer is generally required to provide resources and funds to undertake more complex modelling/assessments to determine the residual risk on the development arising from events that overtop or breach the defences. In addition the developer is generally responsible for the funding of any flood risk management works, including defences and mitigation works.

A major development is defined as residential development of 10 dwellings or more or a site area of 0.5 hectares or more, and non-residential development with floor space in excess of 1,000 square metres or site area of 1 hectare or more.

As a minimum, site-specific FRA's should identify and assess, in more detail than the SFRA, the risks of all forms of flooding to and from the development and demonstrate how flood risks will be managed, taking climate change into consideration. The FRA should determine the level of vulnerability of the proposed development (Table D.2, PPS25) and subsequently whether the development is appropriate in relation to Flood Zones (Table D.3, PPS25). FRA's should provide evidence to assist application of the Sequential Test and, where necessary, the Exception Test.

The EA should be consulted to obtain flood level information for a proposed development site. Where available, flood levels should be used to determine minimum requirements for finished floor levels and emergency access and egress routes. In general, flood levels should be available for sites located in a Flood Zone identified as having a high confidence. Where sites are located in a Flood Zone identified as having a medium or low confidence, the FRA may need to refine the flood outline at this location.



Culvert collapse causing local drainage problems. Few properties affected.

Uncertainty of runoff routes from nearby fields challenges the capacity of the local sewer network. Few properties have been affected in the past.

Groundwater flooding has affected few properties in the past as a result of near by mining works.



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- Flood Zone 3b (2) (FZ3a proxy where no FZ3b outlines currently exist)\*\*
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- Flood Zone 3 + CC (1 in 100 year plus an allowance for climate change (FZ2 proxy))
- Flood Zone 2 (1 in 1000 year)

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Revision Details	By	Date	Suffix

Drawing Status: **FINAL**

Job Title:  
**Northumberland County Council  
 Level 1 Strategic  
 Flood Risk Assessment**

Drawing Title:  
**Hydrology -  
 Berwick-upon-Tweed  
 Development Town**

Scale at AS: **AS SHOWN**

Drawn	CAB	Approved	LNO
Stage 1 Check	SA	Stage 2 Check	SJA
Original	SA	Date	09-04-10

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Drawing Number:  
**S106308-B2-6**

**GROWTH POINT AREA/DEVELOPMENT TOWN  
 Berwick-upon-Tweed**

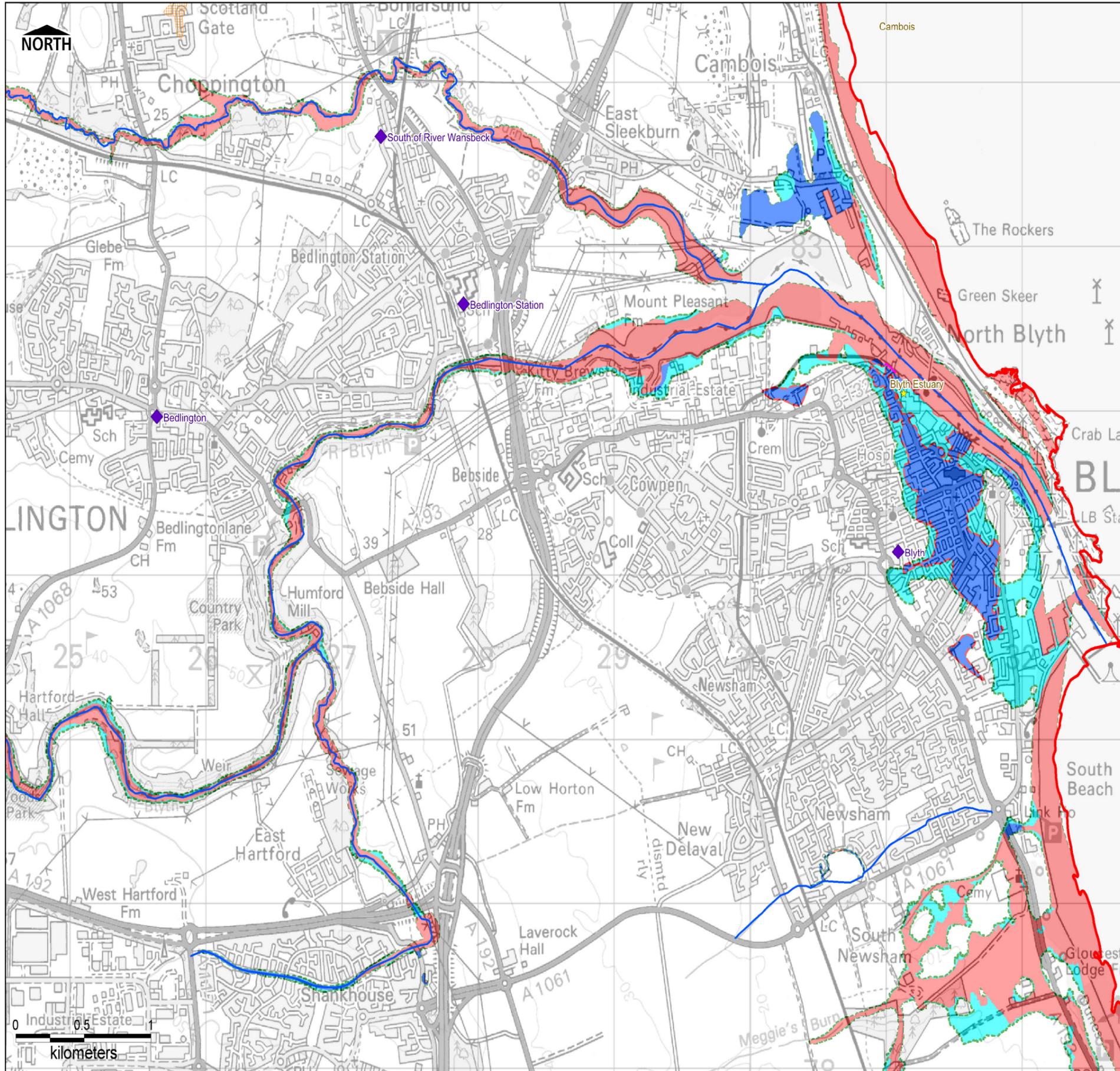
**FLOOD SOURCES**  
 The River Tweed flowing generally eastwards through the centre of Berwick-upon-Tweed, and the North Sea present fluvial flood and tidal flood risks respectively in the form of Flood Zone 2 (1 in 1000 year), Flood Zone 3a (1 in 100 year) and Flood Zone 3 plus an allowance for climate change (1 in 100 year +CC).  
 A small un-named watercourse also flows north westwards along the south western boundary of the East Ord area of the town.  
 Three reported incidents of flooding were identified, one in the Highfields area in the north, one in East Ord to the south and a third south of the Highcliffe area to the far south east of Berwick-upon-Tweed.  
 It is important to note that the map does not show all sources of flooding, such as surface water flooding. Please refer to Chapter 2.5 and Appendix B of the SFRA for information on all flood sources.

**LIMITATIONS OF DATA**  
 Flood Zone 2 and 3a outlines for the River Tweed have medium confidence as they were derived using broad-scale national hydraulic modelling techniques.  
 As no data was available for Flood Zone 3 plus an allowance for climate change (1 in 100 year + CC), Flood Zone 2 has been used as a proxy and therefore these flood outlines are of low confidence.  
 \*\* Flood Zone 3b (1) outline has high confidence as this has been derived from 1 in 20/25 year detailed river modelling. As there are no broad-scale model outlines available for FF, for those areas where no detailed 1 in 20/25 year outlines available, Flood Zone 3a has been considered as a proxy to represent the FF (Flood Zone 3b (2)) until such a time that more detailed information is available, such as the Level 2 SFRA (where necessary), an EA Strategic Flood Risk Mapping (SFRM) study or a site-specific FRA. This is not to say that the entire area used as a proxy is FF, moreover that the boundary of the FF falls somewhere within that area as recommended by the EA.

**SUSTAINABLE DRAINAGE SYSTEMS**  
 Please refer to the Groundwater Vulnerability Map for details of the spatial variation in aquifer classification and associated vulnerability. The ground underlying Berwick-upon-Tweed is characterised by a range of high, intermediate and low vulnerability area of a Minor Aquifer, and high and low vulnerability areas of a Major Aquifer.  
 Please refer to the SuDS Maps in Appendix C for the general applicability of SuDS in the area. Detailed site investigation will confirm suitability of various SuDS techniques.

**FLOOD RISK ASSESSMENT GUIDANCE**  
 In accordance with Planning Policy Statement 25 (PPS25), a risk-based sequential approach should be applied at all stages of planning. Flood Zones are the starting point of the sequential approach.  
 A site-specific Flood Risk Assessment (FRA) is required to accompany planning applications for sites in Flood Zones 2 and 3. Major developments in Flood Zone 1 also require a site-specific FRA. It should be noted that development sites located in the vicinity of a Main River must comply with the EA 5m bylaw distance when planning the site layout. Therefore it is recommended that the EA is consulted at the earliest opportunity to discuss the development proposal and related flood risk issues such as floodplain compensation storage, finish floor levels and drainage.  
 In certain circumstances in order to meet wider sustainable benefits to the community some sites located behind existing flood defences may be given permission for development. In such situations the developer is generally required to provide resources and funds to undertake more complex modelling/assessments to determine the residual risk on the development arising from events that overtop or breach the defences. In addition the developer is generally responsible for the funding of any flood risk management works, including defences and mitigation works.

A major development is defined as residential development of 10 dwellings or more or a site area of 0.5 hectares or more, and non-residential development with floor space in excess of 1,000 square metres or site area of 1 hectare or more.  
 As a minimum, site-specific FRA's should identify and assess, in more detail than the SFRA, the risks of all forms of flooding to and from the development and demonstrate how flood risks will be managed, taking climate change into consideration. The FRA should determine the level of vulnerability of the proposed development (Table D.2, PPS25) and subsequently whether the development is appropriate in relation to Flood Zones (Table D.3, PPS25). FRA's should provide evidence to assist application of the Sequential Test and, where necessary, the Exception Test.  
 The EA should be consulted to obtain flood level information for a proposed development site. Where available, flood levels should be used to determine minimum requirements for finished floor levels and emergency access and egress routes. In general, flood levels should be available for sites located in a Flood Zone identified as having a high confidence. Where sites are located in a Flood Zone identified as having a medium or low confidence, the FRA may need to refine the flood outline at this location.



- Northumberland County Boundary
- ◆ Development Towns
- ★ Growth Point Areas
- River Centrelines
- Defences
- Reported Flood Risk Issues
- Areas Benefiting from Defences (Designated by EA)
- EA Historical Flood Map
- Flood Zone 3b (1) (Functional Floodplain - 1 in 20/25 year) \*\*
- Flood Zone 3b (2) (FZ3a proxy where no FZ3b outlines currently exist) \*\*
- Flood Zone 3a (1 in 100 year)
- Flood Zone 3 + CC (1 in 100 year plus an allowance for climate change (FZ2 proxy))
- Flood Zone 2 (1 in 1000 year)

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Revision Details	By	Date	Suffr
Drawing Status			
FINAL			

Job Title

**Northumberland County Council  
Level 1 Strategic  
Flood Risk Assessment**

Drawing Title

**Hydrology - Blythe Estuary  
GPA, Blyth Development Town,  
Bedlington & Bedlington Station**

Scale at A3

AS SHOWN

Drawn	CAB	Approved	LNO
Stage 1 Check	SA	Stage 2 Check	SJA
Original	SA	Date	09-04-10

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Drawing Number

**S106308-B2-7**

**GROWTH POINT AREA/DEVELOPMENT TOWN**

**Blyth Estuary and Blyth**

**FLOOD SOURCES**

The River Blyth flowing generally eastwards through the northern and eastern regions of the area and the North Sea present both fluvial and tidal flood risks respectively to Blyth and Blyth Estuary areas in the form of Flood Zone 2 (1 in 1000 year), Flood Zone 3a (1 in 100 year), Flood Zone 3 plus an allowance for climate change (1 in 100 year +CC), and Flood Zone 3b (functional floodplain).

A small unnamed watercourse also flows eastwards adjacent the southern boundary of the town posing minor areas of similar risk. No reported incidents of flooding were identified.

It is important to note that the map does not show all sources of flooding, such as surface water flooding. Please refer to Chapter 2.5 and Appendix B of the SFRA for information on all flood sources.

**LIMITATIONS OF DATA**

Flood Zone 2, and 3a outlines have medium confidence, as they were derived using broad-scale national hydraulic modelling techniques.

As no data was available for Flood Zone 3 plus an allowance for climate change (1 in 100 year + CC), Flood Zone 2 has been used as a proxy and therefore these flood outlines are of low confidence.

\*\* Flood Zone 3b (1) outline has high confidence as this has been derived from 1 in 20/25 year detailed river modelling. As there are no broad-scale model outlines available for FF, for those areas where no detailed 1 in 20/25 year outlines available, Flood Zone 2 has been considered as a proxy to represent the FF (Flood Zone 3b (2)) until such a time that more detailed information is available, such as the Level 2 SFRA (where necessary), an EA Strategic Flood Risk Mapping (SFRM) study or a site-specific FRA. This is not to say that the entire area used as a proxy is FF, moreover that the boundary of the FF falls somewhere within that area as recommended by the EA.

**SUSTAINABLE DRAINAGE SYSTEMS**

Please refer to the Groundwater Vulnerability Map for details of the spatial variation in aquifer classification and associated vulnerability. The ground underlying Blyth is characterised as a Minor Aquifer ranging from high to low vulnerability.

Please refer to the SuDS Maps in Appendix C for the general applicability of SuDS in the area. Detailed site investigation will confirm suitability of various SuDS techniques.

**FLOOD RISK ASSESSMENT GUIDANCE**

In accordance with Planning Policy Statement 25 (PPS25), a risk-based sequential approach should be applied at all stages of planning. Flood Zones are the starting point of the sequential approach.

A site-specific Flood Risk Assessment (FRA) is required to accompany planning applications for sites in Flood Zones 2 and 3. Major developments in Flood Zone 1 also require a site-specific FRA. It should be noted that development sites located in the vicinity of a Main River must comply with the EA 5m bylaw distance when planning the site layout. Therefore it is recommended that the EA is consulted at the earliest opportunity to discuss the development proposal and related flood risk issues such as floodplain compensation storage, finish floor levels and drainage.

In certain circumstances in order to meet wider sustainable benefits to the community some sites located behind existing flood defences may be given permission for development. In such situations the developer is generally required to provide resources and funds to undertake more complex modelling/assessments to determine the residual risk on the development arising from events that overtop or breach the defences. In addition the developer is generally responsible for the funding of any flood risk management works, including defences and mitigation works.

A major development is defined as residential development of 10 dwellings or more or a site area of 0.5 hectares or more, and non-residential development with floor space in excess of 1,000 square metres or site area of 1 hectare or more.

As a minimum, site-specific FRA's should identify and assess, in more detail than the SFRA, the risks of all forms of flooding to and from the development and demonstrate how flood risks will be managed, taking climate change into consideration. The FRA should determine the level of vulnerability of the proposed development (Table D.2, PPS25) and subsequently whether the development is appropriate in relation to Flood Zones (Table D.3, PPS25). FRA's should provide evidence to assist application of the Sequential Test and, where necessary, the Exception Test.

The EA should be consulted to obtain flood level information for a proposed development site. Where available, flood levels should be used to determine minimum requirements for finished floor levels and emergency access and egress routes. In general, flood levels should be available for sites located in a Flood Zone identified as having a high confidence. Where sites are located in a Flood Zone identified as having a medium or low confidence, the FRA may need to refine the flood outline at this location.

**GROWTH POINT AREA/DEVELOPMENT TOWN**

**Corbridge**

**Flood Sources**

The River Tyne flowing generally south eastwards through the southern region of Corbridge, and two tributary watercourses, Cor Burn and Redhouse Burn flowing south westwards and eastwards respectively towards their confluence present fluvial flood risks to Corbridge in the form of Flood Zone 2 (1 in 1000 year), Flood Zone 3a (1 in 100 year), Flood Zone 3 plus an allowance for climate change (1 in 100 year +CC), and Flood Zone 3b (functional floodplain).

No reported incidents of flooding were identified.

It is important to note that the map does not show all sources of flooding, such as surface water flooding. Please refer to Chapter 2.5 and Appendix B of the SFRA for information on all flood sources.

**Limitations of Data**

Flood Zones 2, and 3a outlines for the River Tyne and Flood Zone 2 and 3a outlines for Redhouse Burn have high confidence, as they were derived using detailed hydraulic modelling techniques. Flood Zone 2 and 3a outlines for Cor Burn have medium confidence, as they were derived using broad-scale national hydraulic modelling techniques.

As no data was available for Flood Zone 3 plus an allowance for climate change (1 in 100 year + CC), Flood Zone 2 has been used as a proxy and therefore these flood outlines are of low confidence.

\*\* Flood Zone 3b (1) outline has high confidence as this has been derived from 1 in 20/25 year detailed river modelling. As there are no broad-scale model outlines available for FF, for those areas where no detailed 1 in 20/25 year outlines available, Flood Zone 3a has been considered as a proxy to represent the FF (Flood Zone 3b (2)) until such a time that more detailed information is available, such as the Level 2 SFRA (where necessary), an EA Strategic Flood Risk Mapping (SFRM) study or a site-specific FRA. This is not to say that the entire area used as a proxy is FF, moreover that the boundary of the FF falls somewhere within that area as recommended by the EA.

**SUSTAINABLE DRAINAGE SYSTEMS**

Please refer to the Groundwater Vulnerability Map for details of the spatial variation in aquifer classification and associated vulnerability. The ground underlying Corbridge is characterised as a Minor Aquifer ranging from high to intermediate vulnerability.

Please refer to the SuDS Maps in Appendix C for the general applicability of SuDS in the area. Detailed site investigation will confirm suitability of various SuDS techniques.

**Flood Risk Assessment Guidance**

In accordance with Planning Policy Statement 25 (PPS25), a risk-based sequential approach should be applied at all stages of planning. Flood Zones are the starting point of the sequential approach.

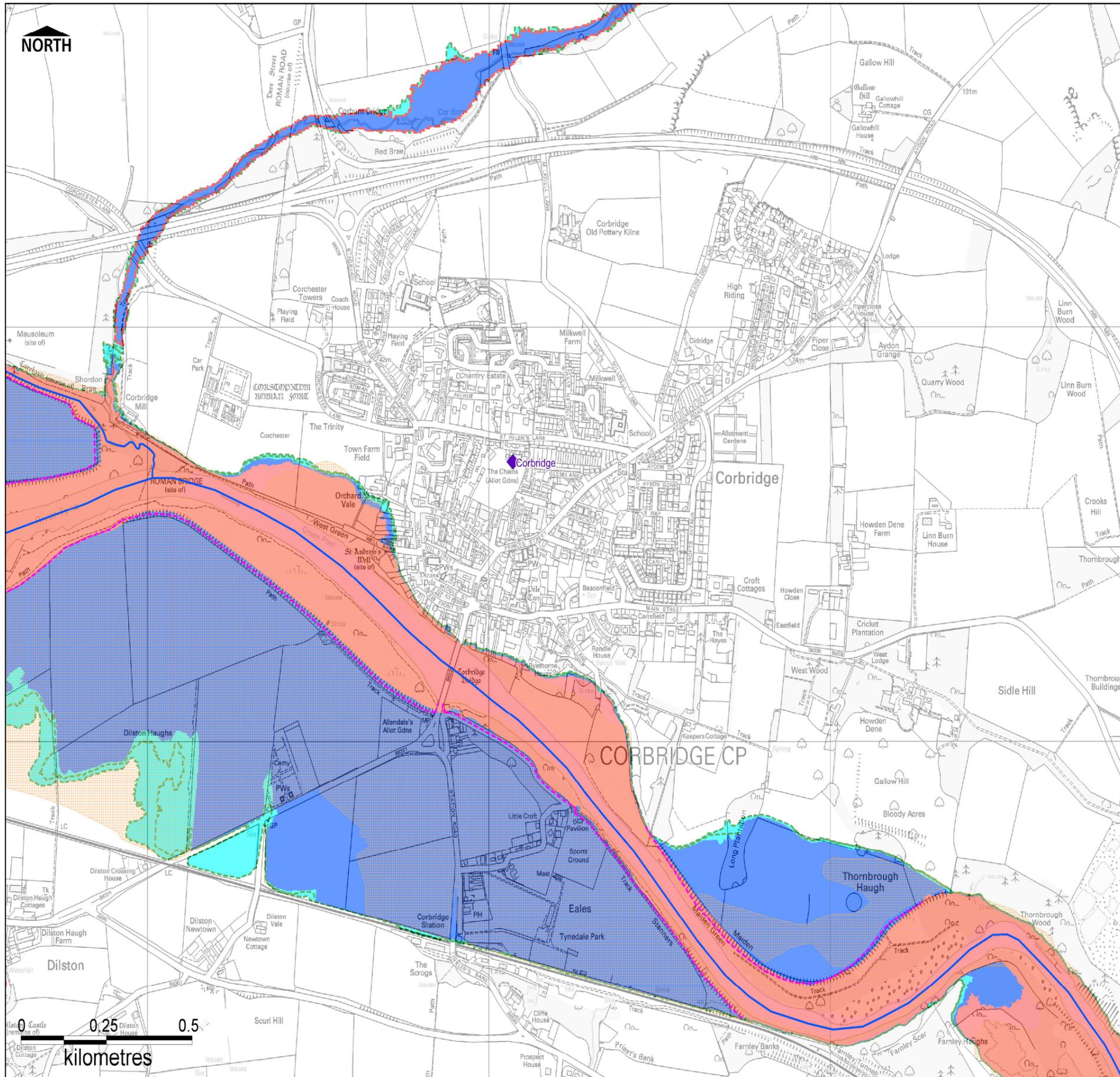
A site-specific Flood Risk Assessment (FRA) is required to accompany planning applications for sites in Flood Zones 2 and 3. Major developments in Flood Zone 1 also require a site-specific FRA. It should be noted that development sites located in the vicinity of a Main River must comply with the EA 5m bylaw distance when planning the site layout. Therefore it is recommended that the EA is consulted at the earliest opportunity to discuss the development proposal and related flood risk issues such as floodplain compensation storage, finish floor levels and drainage.

In certain circumstances in order to meet wider sustainable benefits to the community some sites located behind existing flood defences may be given permission for development. In such situations the developer is generally required to provide resources and funds to undertake more complex modelling/assessments to determine the residual risk on the development arising from events that overtop or breach the defences. In addition the developer is generally responsible for the funding of any flood risk management works, including defences and mitigation works.

A major development is defined as residential development of 10 dwellings or more or a site area of 0.5 hectares or more, and non-residential development with floor space in excess of 1,000 square metres or site area of 1 hectare or more.

As a minimum, site-specific FRA's should identify and assess, in more detail than the SFRA, the risks of all forms of flooding to and from the development and demonstrate how flood risks will be managed, taking climate change into consideration. The FRA should determine the level of vulnerability of the proposed development (Table D.2, PPS25) and subsequently whether the development is appropriate in relation to Flood Zones (Table D.3, PPS25). FRA's should provide evidence to assist application of the Sequential Test and, where necessary, the Exception Test.

The EA should be consulted to obtain flood level information for a proposed development site. Where available, flood levels should be used to determine minimum requirements for finished floor levels and emergency access and egress routes. In general, flood levels should be available for sites located in a Flood Zone identified as having a high confidence. Where sites are located in a Flood Zone identified as having a medium or low confidence, the FRA may need to refine the flood outline at this location.



- Northumberland County Boundary
- ◆ Development Towns
- ★ Growth Point Areas
- River Centrelines
- Defences
- Reported Flood Risk Issues
- Areas Benefiting from Defences (Designated by EA)
- EA Historical Flood Map
- Flood Zone 3b (1) (Functional Floodplain - 1 in 20/25 year)\*\*
- Flood Zone 3b (2) (FZ3a proxy where no FZ3b outlines currently exist)\*\*
- Flood Zone 3a (1 in 100 year)
- Flood Zone 3 + CC (1 in 100 year plus an allowance for climate change (FZ2 proxy))
- Flood Zone 2 (1 in 1000 year)

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Revision Details	By	Check	Date	Suff

Drawing Status: **FINAL**

Job Title:  
**Northumberland County Council  
Level 1 Strategic  
Flood Risk Assessment**

Drawing Title:  
**Hydrology - Corbridge  
Development Town**

Scale at A3: **AS SHOWN**

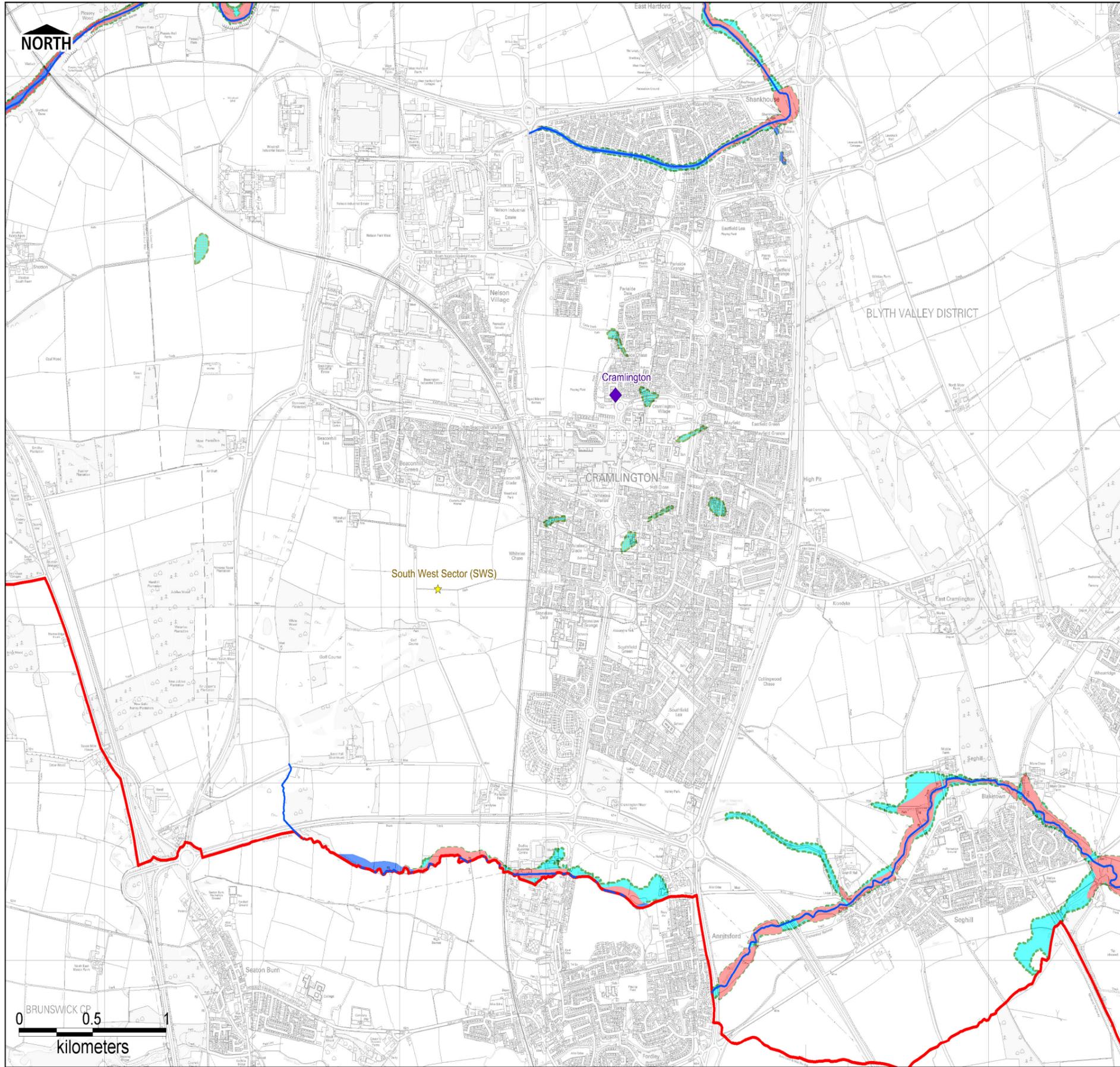
Drawn	CAB	Approved	LNO
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Stage 1 Check	SA	Stage 2 Check	SJA	Original	SA	Date	09-04-10
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Drawing Number:  
**S106308-B2-8**



- Northumberland County Boundary
- ◆ Development Towns
- ★ Growth Point Areas
- River Centrelines
- - - Defences
- Reported Flood Risk Issues
- Areas Benefiting from Defences (Designated by EA)
- EA Historical Flood Map
- Flood Zone 3b (1) (Functional Floodplain - 1 in 20/25 year) \*\*
- Flood Zone 3b (2) (FZ3a proxy where no FZ3b outlines currently exist) \*\*
- Flood Zone 3a (1 in 100 year)
- Flood Zone 3 + CC (1 in 100 year plus an allowance for climate change (FZ2 proxy))
- Flood Zone 2 (1 in 1000 year)

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Revision Details	By	Date	Suff

Drawing Status: **FINAL**

Job Title:  
**Northumberland County Council  
Level 1 Strategic  
Flood Risk Assessment**

Drawing Title:  
**Hydrology - Cramlington  
Development Town & South  
West Sector Growth Point Area**

Scale at A3: **AS SHOWN**

Drawn: CAB	Approved: LNO
Stage 1 Check: SA	Stage 2 Check: SJA
Original: SA	Date: 09-04-10

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Drawing Number:  
**S106308-B2-9**

## GROWTH POINT AREA/DEVELOPMENT TOWN Cramlington & South West Sector

### FLOOD SOURCES

The River Blyth flowing generally eastwards along the northern boundary of the area, its tributary watercourse Horton Burn flowing eastwards then northwards in the northern region, and Seaton Burn flowing generally eastwards through the southern region of the area present fluvial flood risks to Cramlington and the South West Sector in the form of Flood Zone 2 (1 in 1000 year), Flood Zone 3a (1 in 100 year), Flood Zone 3 plus an allowance for climate change (1 in 100 year +CC), and Flood Zone 3b (functional floodplain).

No reported incidents of flooding were identified.

It is important to note that the map does not show all sources of flooding, such as surface water flooding. Please refer to Chapter 2.5 and Appendix B of the SFRA for information on all flood sources.

### LIMITATIONS OF DATA

Flood Zone 2 outlines for Seaton Burn and Horton Burn have medium confidence, as they were derived using broad-scale national hydraulic modelling techniques. Flood Zone 3a outlines for Seaton Burn and Horton Burn have high confidence, as they were derived using detailed hydraulic modelling techniques.

As no data was available for Flood Zone 3 plus an allowance for climate change (1 in 100 year + CC), Flood Zone 2 has been used as a proxy and therefore these flood outlines are of low confidence.

\*\* Flood Zone 3b (1) outline has high confidence as this has been derived from 1 in 20/25 year detailed river modelling. As there are no broad-scale model outlines available for FF, for those areas where no detailed 1 in 20/25 year outlines available, Flood Zone 3a has been considered as a proxy to represent the FF (Flood Zone 3b (2)) until such a time that more detailed information is available, such as the Level 2 SFRA (where necessary), an EA Strategic Flood Risk Mapping (SFRM) study or a site-specific FRA. This is not to say that the entire area used as a proxy is FF, moreover that the boundary of the FF falls somewhere within that area as recommended by the EA.

### SUSTAINABLE DRAINAGE SYSTEMS

Please refer to the Groundwater Vulnerability Map for details of the spatial variation in aquifer classification and associated vulnerability. The ground underlying Cramlington and the South West Sector is characterised as a Minor Aquifer of low vulnerability.

Please refer to the SuDS Maps in Appendix C for the general applicability of SuDS in the area. Detailed site investigation will confirm suitability of various SuDS techniques.

### FLOOD RISK ASSESSMENT GUIDANCE

In accordance with Planning Policy Statement 25 (PPS25), a risk-based sequential approach should be applied at all stages of planning. Flood Zones are the starting point of the sequential approach.

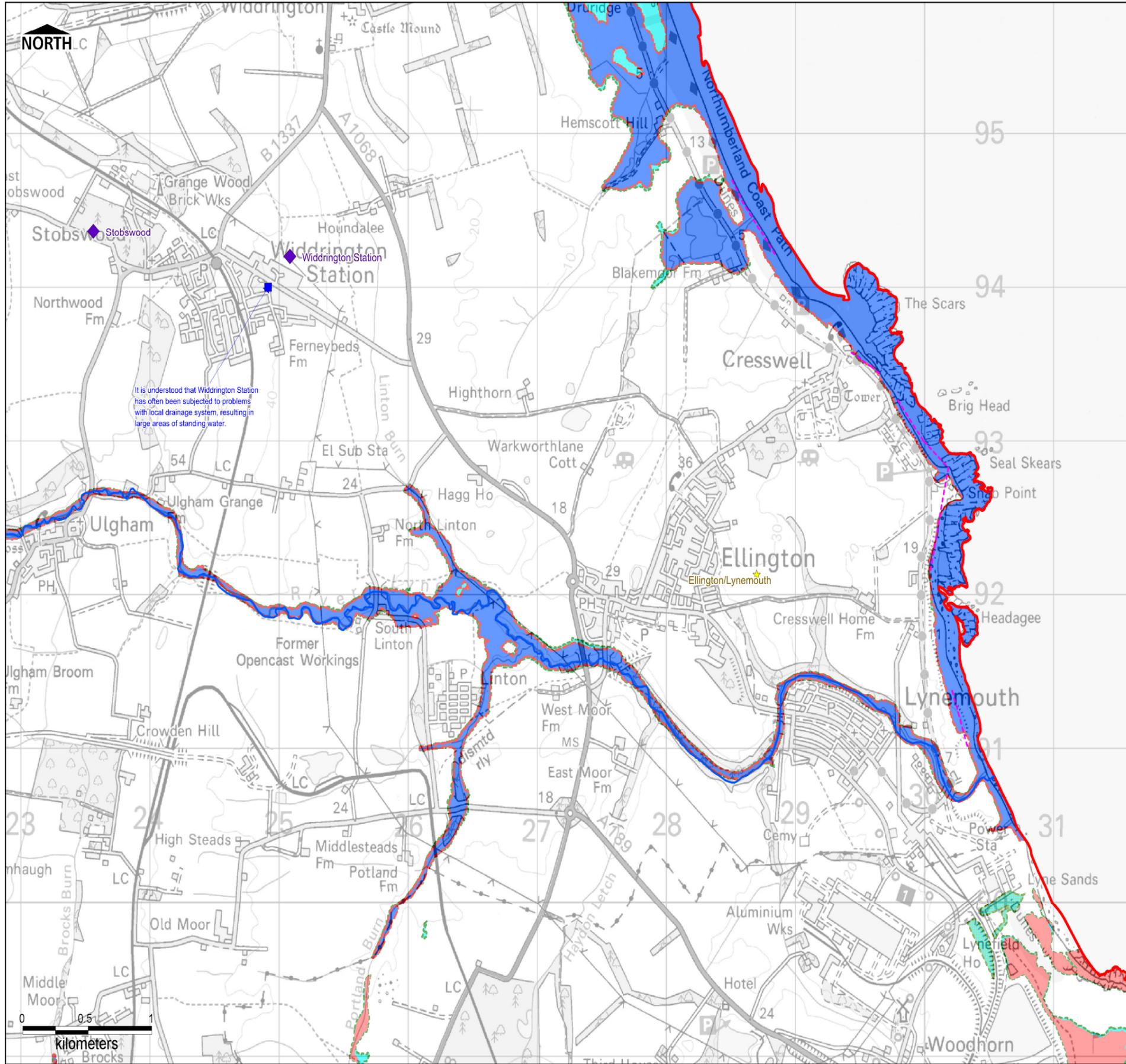
A site-specific Flood Risk Assessment (FRA) is required to accompany planning applications for sites in Flood Zones 2 and 3. Major developments in Flood Zone 1 also require a site-specific FRA. It should be noted that development sites located in the vicinity of a Main River must comply with the EA 5m bylaw distance when planning the site layout. Therefore it is recommended that the EA is consulted at the earliest opportunity to discuss the development proposal and related flood risk issues such as floodplain compensation storage, finish floor levels and drainage.

In certain circumstances in order to meet wider sustainable benefits to the community some sites located behind existing flood defences may be given permission for development. In such situations the developer is generally required to provide resources and funds to undertake more complex modelling/assessments to determine the residual risk on the development arising from events that overtop or breach the defences. In addition the developer is generally responsible for the funding of any flood risk management works, including defences and mitigation works.

A major development is defined as residential development of 10 dwellings or more or a site area of 0.5 hectares or more, and non-residential development with floor space in excess of 1,000 square metres or site area of 1 hectare or more.

As a minimum, site-specific FRA's should identify and assess, in more detail than the SFRA, the risks of all forms of flooding to and from the development and demonstrate how flood risks will be managed, taking climate change into consideration. The FRA should determine the level of vulnerability of the proposed development (Table D.2, PPS25) and subsequently whether the development is appropriate in relation to Flood Zones (Table D.3, PPS25). FRA's should provide evidence to assist application of the Sequential Test and, where necessary, the Exception Test.

The EA should be consulted to obtain flood level information for a proposed development site. Where available, flood levels should be used to determine minimum requirements for finished floor levels and emergency access and egress routes. In general, flood levels should be available for sites located in a Flood Zone identified as having a high confidence. Where sites are located in a Flood Zone identified as having a medium or low confidence, the FRA may need to refine the flood outline at this location.



It is understood that Widdington Station has often been subjected to problems with local drainage system, resulting in large areas of standing water.



- Northumberland County Boundary
- Development Towns
- Growth Point Areas
- River Centrelines
- Defences
- Reported Flood Risk Issues
- Areas Benefiting from Defences (Designated by EA)
- EA Historical Flood Map
- Flood Zone 3b (1) (Functional Floodplain - 1 in 20/25 year)\*\*
- Flood Zone 3b (2) (FZ3a proxy where no FZ3b outlines currently exist)\*\*
- Flood Zone 3a (1 in 100 year)
- Flood Zone 3 + CC (1 in 100 year plus an allowance for climate change (FZ2 proxy))
- Flood Zone 2 (1 in 1000 year)

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Revision Details	By	Date	Suffr

Drawing Status: **FINAL**

Job Title:  
**Northumberland County Council  
 Level 1 Strategic  
 Flood Risk Assessment**

Drawing Title:  
**Hydrology - Ellington &  
 Lynemouth GPA &  
 Widdington Station**

Scale at A3: **AS SHOWN**

Drawn	CAB	Approved	LNO
Stage 1 Check	SA	Stage 2 Check	SJA
Original	SA	Date	09-04-10

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Drawing Number:  
**S106308-B2-10**

**GROWTH POINT AREA/DEVELOPMENT TOWN**

**Ellington & Lynemouth**

**FLOOD SOURCES**

The River Lyne flowing generally south eastwards through the centre of Ellington and Lynemouth, and a tributary watercourse named Ponteland Burn in the western region flowing north eastwards towards their confluence present fluvial flood risks to Ellington and Lynemouth in the form of Flood Zone 2 (1 in 1000 year), Flood Zone 3a (1 in 100 year), and Flood Zone 3 plus an allowance for climate change (1 in 100 year +CC).

A number of small un-named watercourse and drains also flow through the region.  
 No reported incidents of flooding were identified.

It is important to note that the map does not show all sources of flooding, such as surface water flooding. Please refer to Chapter 2.5 and Appendix B of the SFRA for information on all flood sources.

**LIMITATIONS OF DATA**

Flood Zones 2 and 3a outlines have medium confidence, as they were derived using broad-scale national hydraulic modelling techniques.

As no data was available for Flood Zone 3 plus an allowance for climate change (1 in 100 year + CC), Flood Zone 2 has been used as a proxy and therefore these flood outlines are of low confidence.

\*\* Flood Zone 3b (1) outline has high confidence as this has been derived from 1 in 20/25 year detailed river modelling. As there are no broad-scale model outlines available for FF, for those areas where no detailed 1 in 20/25 year outlines available, Flood Zone 3a has been considered as a proxy to represent the FF (Flood Zone 3b (2)) until such a time that more detailed information is available, such as the Level 2 SFRA (where necessary), an EA Strategic Flood Risk Mapping (SFRM) study or a site-specific FRA. This is not to say that the entire area used as a proxy is FF, moreover that the boundary of the FF falls somewhere within that area as recommended by the EA.

**SUSTAINABLE DRAINAGE SYSTEMS**

Please refer to the Groundwater Vulnerability Map for details of the spatial variation in aquifer classification and associated vulnerability. The ground underlying Ellington and Lynemouth is characterised as a Minor Aquifer ranging from high to low vulnerability.

Please refer to the SuDS Maps in Appendix C for the general applicability of SuDS in the area. Detailed site investigation will confirm suitability of various SuDS techniques.

**FLOOD RISK ASSESSMENT GUIDANCE**

In accordance with Planning Policy Statement 25 (PPS25), a risk-based sequential approach should be applied at all stages of planning. Flood Zones are the starting point of the sequential approach.

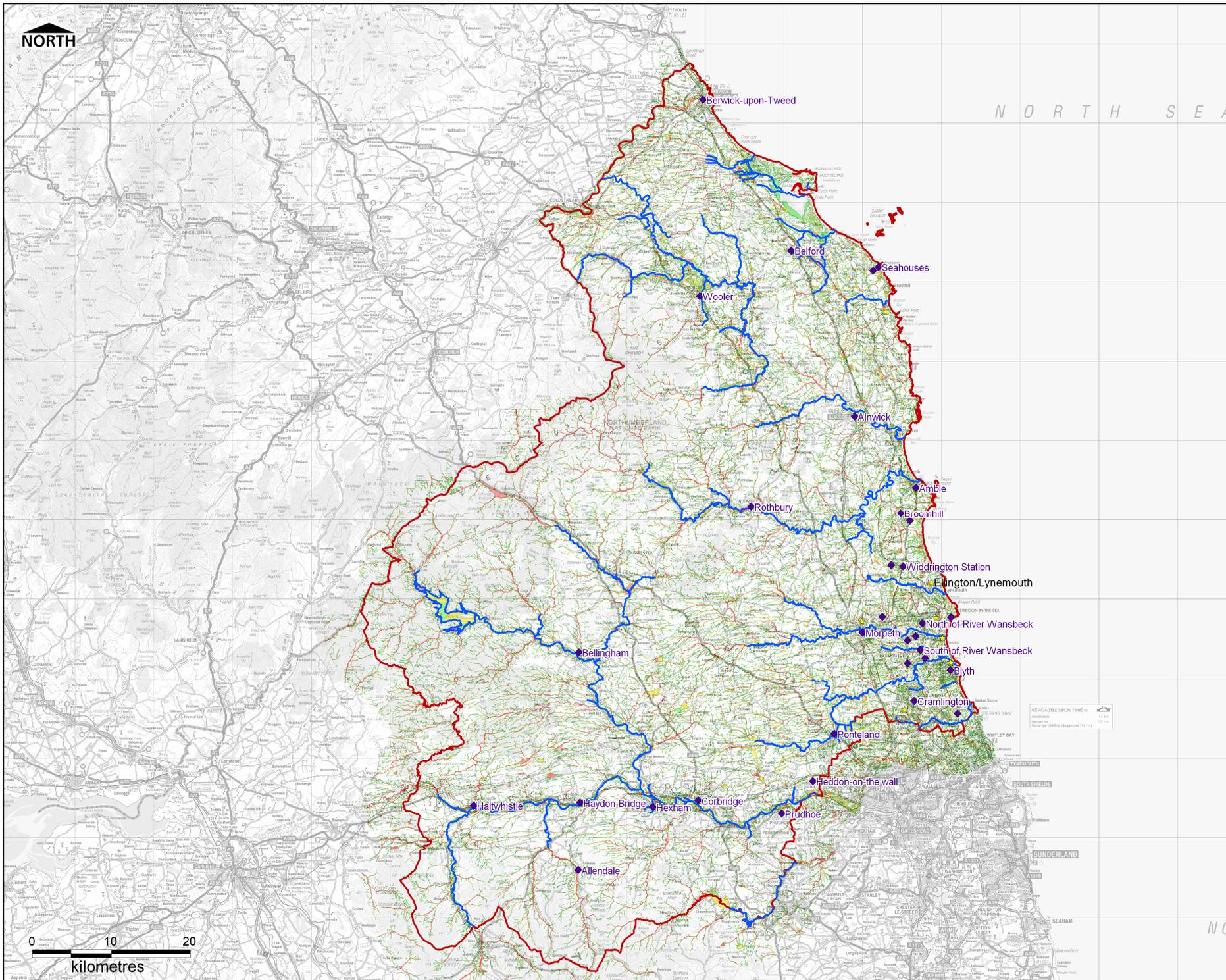
A site-specific Flood Risk Assessment (FRA) is required to accompany planning applications for sites in Flood Zones 2 and 3. Major developments in Flood Zone 1 also require a site-specific FRA. It should be noted that development sites located in the vicinity of a Main River must comply with the EA 5m bylaw distance when planning the site layout. Therefore it is recommended that the EA is consulted at the earliest opportunity to discuss the development proposal and related flood risk issues such as floodplain compensation storage, finish floor levels and drainage.

In certain circumstances in order to meet wider sustainable benefits to the community some sites located behind existing flood defences may be given permission for development. In such situations the developer is generally required to provide resources and funds to undertake more complex modelling/assessments to determine the residual risk on the development arising from events that overtop or breach the defences. In addition the developer is generally responsible for the funding of any flood risk management works, including defences and mitigation works.

A major development is defined as residential development of 10 dwellings or more or a site area of 0.5 hectares or more, and non-residential development with floor space in excess of 1,000 square metres or site area of 1 hectare or more.

As a minimum, site-specific FRA's should identify and assess, in more detail than the SFRA, the risks of all forms of flooding to and from the development and demonstrate how flood risks will be managed, taking climate change into consideration. The FRA should determine the level of vulnerability of the proposed development (Table D.2, PPS25) and subsequently whether the development is appropriate in relation to Flood Zones (Table D.3, PPS25). FRA's should provide evidence to assist application of the Sequential Test and, where necessary, the Exception Test.

The EA should be consulted to obtain flood level information for a proposed development site. Where available, flood levels should be used to determine minimum requirements for finished floor levels and emergency access and egress routes. In general, flood levels should be available for sites located in a Flood Zone identified as having a high confidence. Where sites are located in a Flood Zone identified as having a medium or low confidence, the FRA may need to refine the flood outline at this location.



- ◆ Development Towns
- River Centrelines
- ▭ Northumberland Boundary

- Susceptibility of Areas to Surface Water Flooding**
- ▭ More
  - ▭ Intermediate
  - ▭ Less

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Revision Details	By	Date	Surf
	Check		

Drawing Status: **FINAL**

Job Title:  
**Northumberland County Council  
Level 1 Strategic  
Flood Risk Assessment**

Drawing Title: **Areas Susceptible to  
Surface Water Flooding  
- District Overview**

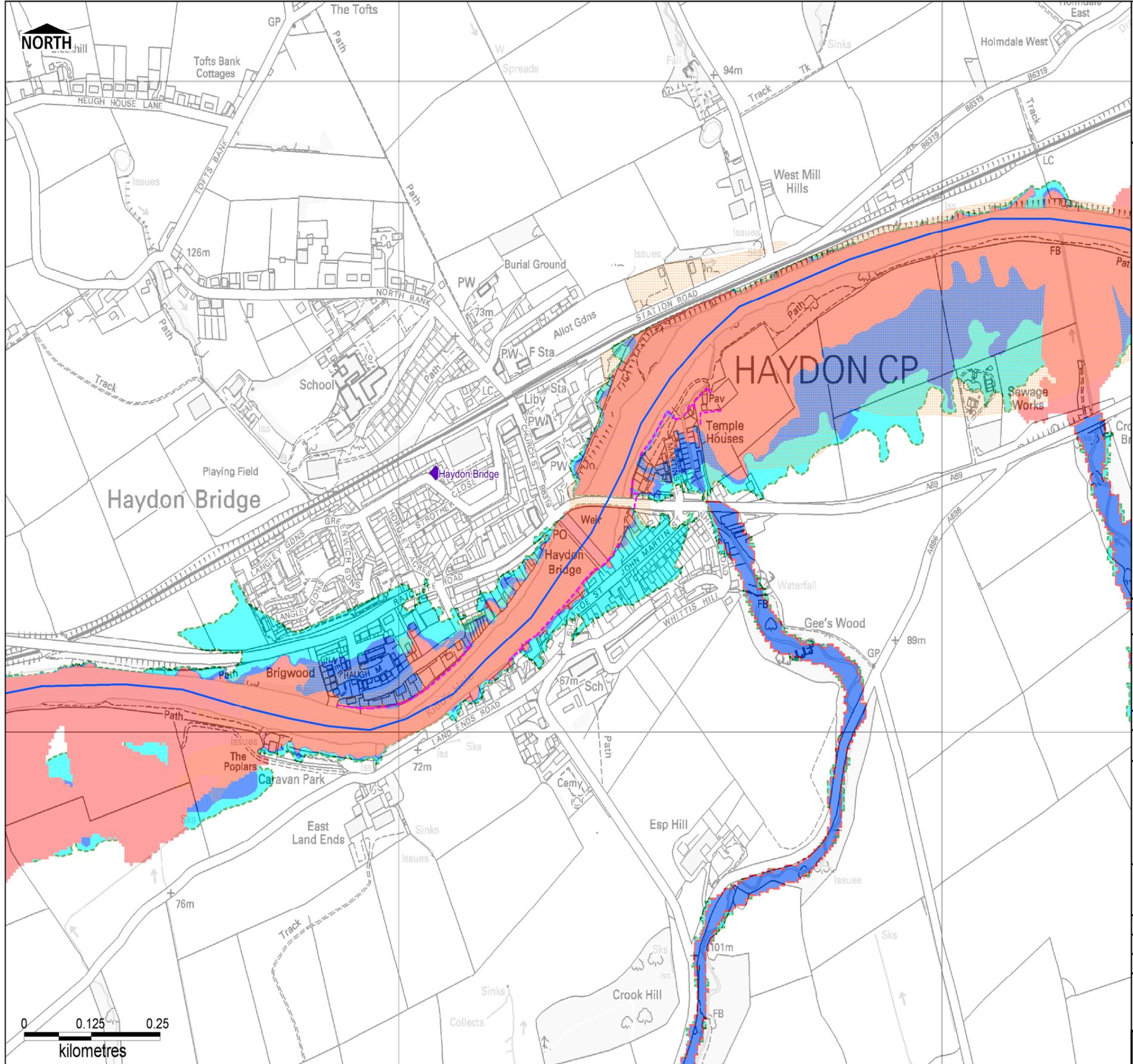
Scale at A3: **AS SHOWN**

Drawn	SA	Approved	LO
Stage 1 Check		Stage 2 Check	Original
			Date
			30-10-09

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Drawing Number:  
**S106308-B1-11**



- Northumberland County Boundary
- ◆ Development Towns
- ★ Growth Point Areas
- River Centrelines
- Defences
- Reported Flood Risk Issues
- Areas Benefiting from Defences (Designated by EA)
- EA Historical Flood Map
- Flood Zone 3b (1) (Functional Floodplain - 1 in 20/25 year) \*\*
- Flood Zone 3b (2) (FZ3a proxy where no FZ3b outlines currently exist) \*\*
- Flood Zone 3a (1 in 100 year)
- Flood Zone 3 + CC (1 in 100 year plus an allowance for climate change (FZ2 proxy))
- Flood Zone 2 (1 in 1000 year)

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Revision Details	By	Date	Suft#
FINAL			

Job Title  
**Northumberland County Council  
Level 1 Strategic  
Flood Risk Assessment**

Drawing Title  
**Hydrology - Haydon Bridge  
Development Town**

Scale at A3  
AS SHOWN

Drawn CAB	Approved LNO	Stage 1 Check SA	Stage 2 Check SJA
		Originated SA	Date 09-04-10

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Drawing Number  
**S106308-B2-12**

**GROWTH POINT AREA/DEVELOPMENT TOWN  
Haydon Bridge**

**FLOOD SOURCES**

The River South Tyne and a tributary watercourse named Darden Burn present fluvial flood risks to Haydon Bridge in the form of Flood Zone 2 (1 in 1000 year), Flood Zone 3a (1 in 100 year), Flood Zone 3 plus an allowance for climate change (1 in 100 year +CC), and Flood Zone 3b (functional floodplain).

No reported incidents of flooding were identified.

It is important to note that the map does not show all sources of flooding, such as surface water flooding. Please refer to Chapter 2.5 and Appendix B of the SFRA for information on all flood sources.

**LIMITATIONS OF DATA**

Flood Zone 2, and 3a outlines for the River South Tyne have high confidence, as they were derived using detailed hydraulic modelling techniques. Flood Zone 2 and 3a for Darden Burn have medium confidence as they were derived using broad-scale national hydraulic modelling techniques.

As no data was available for Flood Zone 3 plus an allowance for climate change (1 in 100 year + CC), Flood Zone 2 has been used as a proxy and therefore these flood outlines are of low confidence.

\*\* Flood Zone 3b (1) outline has high confidence as this has been derived from 1 in 20/25 year detailed river modelling. As there are no broad-scale model outlines available for FF, for those areas where no detailed 1 in 20/25 year outlines available, Flood Zone 3a has been considered as a proxy to represent the FF (Flood Zone 3b (2)) until such a time that more detailed information is available, such as the Level 2 SFRA (where necessary), an EA Strategic Flood Risk Mapping (SFRM) study or a site-specific FRA. This is not to say that the entire area used as a proxy is FF, moreover that the boundary of the FF falls somewhere within that area as recommended by the EA.

**SUSTAINABLE DRAINAGE SYSTEMS**

Please refer to the Groundwater Vulnerability Map for details of the spatial variation in aquifer classification and associated vulnerability. The ground underlying Haydon Bridge is characterised as a Minor Aquifer ranging from high to intermediate vulnerability.

Please refer to the SuDS Maps in Appendix C for the general applicability of SuDS in the area. Detailed site investigation will confirm suitability of various SuDS techniques.

**FLOOD RISK ASSESSMENT GUIDANCE**

In accordance with Planning Policy Statement 25 (PPS25), a risk-based sequential approach should be applied at all stages of planning. Flood Zones are the starting point of the sequential approach.

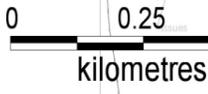
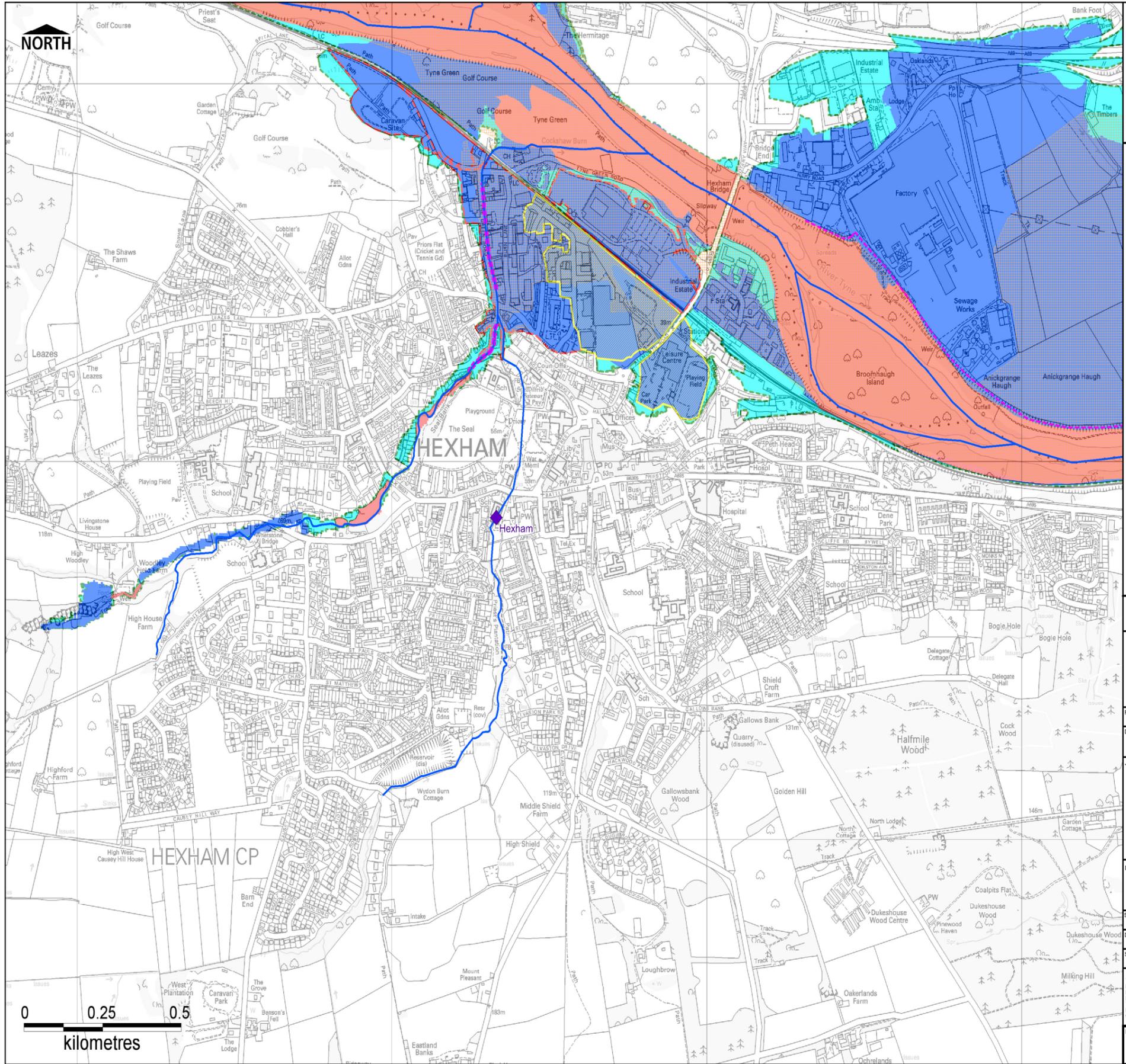
A site-specific Flood Risk Assessment (FRA) is required to accompany planning applications for sites in Flood Zones 2 and 3. Major developments in Flood Zone 1 also require a site-specific FRA. It should be noted that development sites located in the vicinity of a Main River must comply with the EA 5m bylaw distance when planning the site layout. Therefore it is recommended that the EA is consulted at the earliest opportunity to discuss the development proposal and related flood risk issues such as floodplain compensation storage, finish floor levels and drainage.

In certain circumstances in order to meet wider sustainable benefits to the community some sites located behind existing flood defences may be given permission for development. In such situations the developer is generally required to provide resources and funds to undertake more complex modelling/assessments to determine the residual risk on the development arising from events that overtop or breach the defences. In addition the developer is generally responsible for the funding of any flood risk management works, including defences and mitigation works.

A major development is defined as residential development of 10 dwellings or more or a site area of 0.5 hectares or more, and non-residential development with floor space in excess of 1,000 square metres or site area of 1 hectare or more.

As a minimum, site-specific FRA's should identify and assess, in more detail than the SFRA, the risks of all forms of flooding to and from the development and demonstrate how flood risks will be managed, taking climate change into consideration. The FRA should determine the level of vulnerability of the proposed development (Table D.2, PPS25) and subsequently whether the development is appropriate in relation to Flood Zones (Table D.3, PPS25). FRA's should provide evidence to assist application of the Sequential Test and, where necessary, the Exception Test.

The EA should be consulted to obtain flood level information for a proposed development site. Where available, flood levels should be used to determine minimum requirements for finished floor levels and emergency access and egress routes. In general, flood levels should be available for sites located in a Flood Zone identified as having a high confidence. Where sites are located in a Flood Zone identified as having a medium or low confidence, the FRA may need to refine the flood outline at this location.



- Northumberland County Boundary
- Development Towns
- Growth Point Areas
- River Centrelines
- Defences
- Reported Flood Risk Issues
- Areas Benefiting from Defences (Designated by EA)
- EA Historical Flood Map
- Flood Zone 3b (1) (Functional Floodplain - 1 in 20/25 year) \*\*
- Flood Zone 3b (2) (FZ3a proxy where no FZ3b outlines currently exist) \*\*
- Flood Zone 3a (1 in 100 year)
- Flood Zone 3 + CC (1 in 100 year plus an allowance for climate change (FZ2 proxy))
- Flood Zone 2 (1 in 1000 year)

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Northumberland County Council - 100019593 - 2009.

Revision Details	By	Date	Suff

Drawing Status: **FINAL**

Job Title:  
**Northumberland County Council  
Level 1 Strategic  
Flood Risk Assessment**

Drawing Title:  
**Hydrology - Hexham  
Development Town**

Scale at A3: **AS SHOWN**

Drawn	CAB	Approved	LNO
Stage 1 Check	SA	Stage 2 Check	SJA
Original	SA	Date	09-04-10

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Drawing Number:  
**S106308-B2-13**

**GROWTH POINT AREA/DEVELOPMENT TOWN**

**Hexham**

**FLOOD SOURCES**

The River Tyne flowing generally south eastwards through the northern region of Hexham, and a tributary watercourse named Cockshaw Burn flowing north eastwards towards their confluence present fluvial flood risks to Hexham in the form of Flood Zone 2 (1 in 1000 year), Flood Zone 3a (1 in 100 year), Flood Zone 3 plus an allowance for climate change (1 in 100 year +CC), and Flood Zone 3b (functional floodplain). A small watercourse named Halgut Burn also flows northwards through the centre of the town.

No reported incidents of flooding were identified.

It is important to note that the map does not show all sources of flooding, such as surface water flooding. Please refer to Chapter 2.5 and Appendix B of the SFRA for information on all flood sources.

**LIMITATIONS OF DATA**

Flood Zone 2, and 3a outlines for the River Tyne have high confidence, as they were derived using detailed hydraulic modelling techniques. Flood Zone 2 and 3a for Cockshaw Burn have medium confidence as they were derived using broad-scale national hydraulic modelling techniques.

As no data was available for Flood Zone 3 plus an allowance for climate change (1 in 100 year + CC), Flood Zone 2 has been used as a proxy and therefore these flood outlines are of low confidence.

\*\* Flood Zone 3b (1) outline has high confidence as this has been derived from 1 in 20/25 year detailed river modelling. As there are no broad-scale model outlines available for FF, for those areas where no detailed 1 in 20/25 year outlines available, Flood Zone 3a has been considered as a proxy to represent the FF (Flood Zone 3b (2)) until such a time that more detailed information is available, such as the Level 2 SFRA (where necessary), an EA Strategic Flood Risk Mapping (SFRM) study or a site-specific FRA. This is not to say that the entire area used as a proxy is FF, moreover that the boundary of the FF falls somewhere within that area as recommended by the EA.

**SUSTAINABLE DRAINAGE SYSTEMS**

Please refer to the Groundwater Vulnerability Map for details of the spatial variation in aquifer classification and associated vulnerability. The ground underlying Hexham is characterised as a Minor Aquifer ranging from high, intermediate and low vulnerability.

Please refer to the SuDS Maps in Appendix C for the general applicability of SuDS in the area. Detailed site investigation will confirm suitability of various SuDS techniques.

**FLOOD RISK ASSESSMENT GUIDANCE**

In accordance with Planning Policy Statement 25 (PPS25), a risk-based sequential approach should be applied at all stages of planning. Flood Zones are the starting point of the sequential approach.

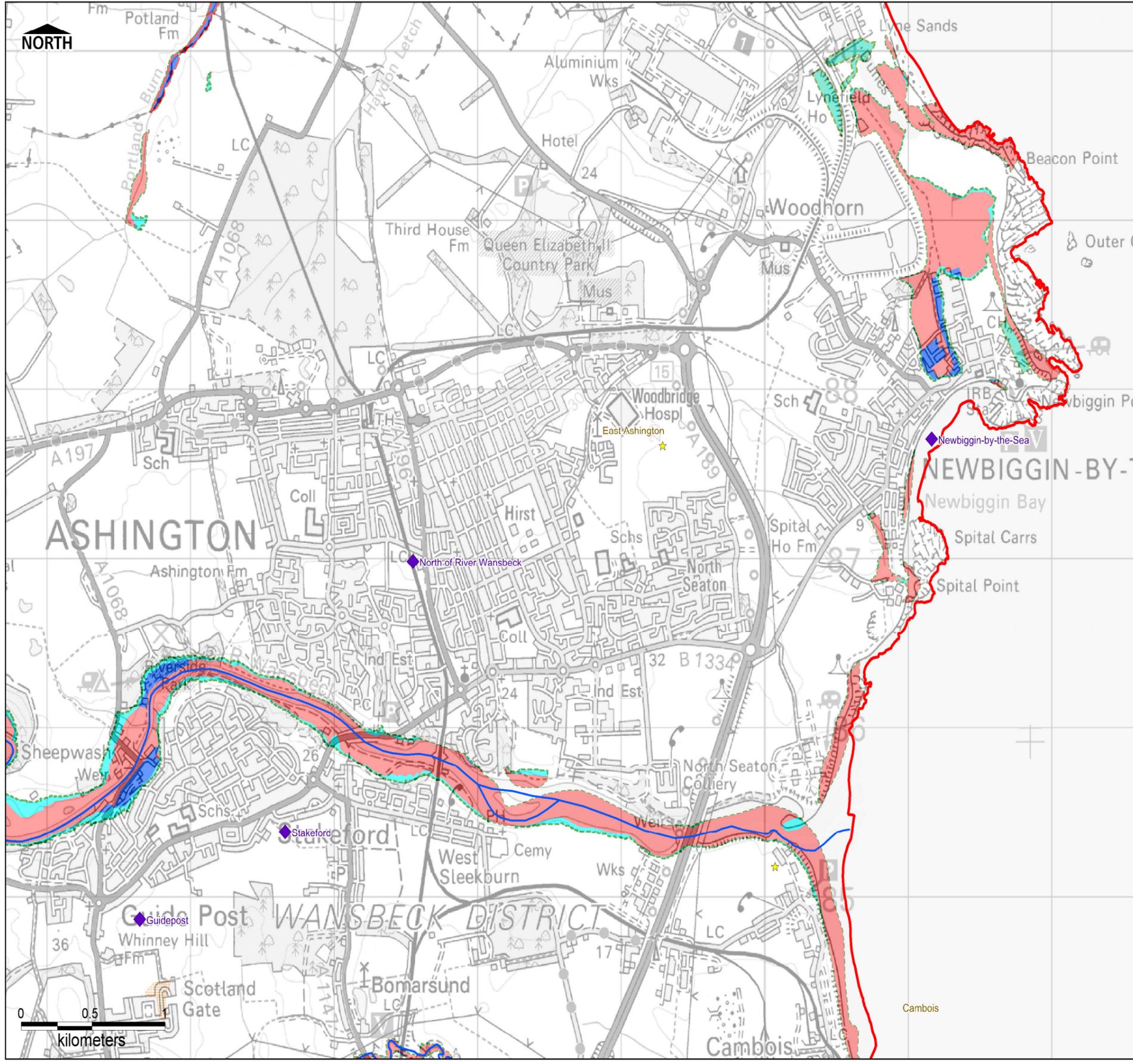
A site-specific Flood Risk Assessment (FRA) is required to accompany planning applications for sites in Flood Zones 2 and 3. Major developments in Flood Zone 1 also require a site-specific FRA. It should be noted that development sites located in the vicinity of a Main River must comply with the EA 5m bylaw distance when planning the site layout. Therefore it is recommended that the EA is consulted at the earliest opportunity to discuss the development proposal and related flood risk issues such as floodplain compensation storage, finish floor levels and drainage.

In certain circumstances in order to meet wider sustainable benefits to the community some sites located behind existing flood defences may be given permission for development. In such situations the developer is generally required to provide resources and funds to undertake more complex modelling/assessments to determine the residual risk on the development arising from events that overtop or breach the defences. In addition the developer is generally responsible for the funding of any flood risk management works, including defences and mitigation works.

A major development is defined as residential development of 10 dwellings or more or a site area of 0.5 hectares or more, and non-residential development with floor space in excess of 1,000 square metres or site area of 1 hectare or more.

As a minimum, site-specific FRA's should identify and assess, in more detail than the SFRA, the risks of all forms of flooding to and from the development and demonstrate how flood risks will be managed, taking climate change into consideration. The FRA should determine the level of vulnerability of the proposed development (Table D.2, PPS25) and subsequently whether the development is appropriate in relation to Flood Zones (Table D.3, PPS25). FRA's should provide evidence to assist application of the Sequential Test and, where necessary, the Exception Test.

The EA should be consulted to obtain flood level information for a proposed development site. Where available, flood levels should be used to determine minimum requirements for finished floor levels and emergency access and egress routes. In general, flood levels should be available for sites located in a Flood Zone identified as having a high confidence. Where sites are located in a Flood Zone identified as having a medium or low confidence, the FRA may need to refine the flood outline at this location.



- Northumberland County Boundary
- ◆ Development Towns
- ★ Growth Point Areas
- River Centrelines
- Defences
- Reported Flood Risk Issues
- Areas Benefiting from Defences (Designated by EA)
- EA Historical Flood Map
- Flood Zone 3b (1) (Functional Floodplain - 1 in 20/25 year)\*\*
- Flood Zone 3b (2) (FZ3a proxy where no FZ3b outlines currently exist)\*\*
- Flood Zone 3a (1 in 100 year)
- Flood Zone 3 + CC (1 in 100 year plus an allowance for climate change (FZ2 proxy))
- Flood Zone 2 (1 in 1000 year)

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Revision Details	By	Date	Suff

Drawing Status: **FINAL**

Job Title:  
**Northumberland County Council  
Level 1 Strategic  
Flood Risk Assessment**

Drawing Title: **Hydrology - North of River Wansbeck Development Town, East Ashington GPA, Guidepost, Stakeford, Newbiggin-by-the-Sea**

Scale at A3: **AS SHOWN**

Drawn: CAB	Approved: LNO
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Stage 1 Check: SA	Stage 2 Check: SJA	Original: SA	Date: 09-04-10
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Drawing Number: **S106308-B2-14**

## GROWTH POINT AREA/DEVELOPMENT TOWN North of River Wansbeck & East Ashington

**FLOOD SOURCES**  
The River Wansbeck flows to the south of the area and Spittal Burn which flows to the east of the area present fluvial flood risks to the extremities of Ashington in the form of Flood Zone 2 (1 in 1000 year), Flood Zone 3a (1 in 100 year), Flood Zone 3 plus an allowance for climate change (1 in 100 year +CC), and Flood Zone 3b (functional floodplain).

No reported incidents of flooding were identified.  
It is important to note that the map does not show all sources of flooding, such as surface water flooding. Please refer to Chapter 2.5 and Appendix B of the SFRA for information on all flood sources.

**LIMITATIONS OF DATA**  
Flood Zone 2 and 3a outlines for the River Wansbeck have medium confidence, as they were derived using broad-scale modelling techniques.  
As no data was available for Flood Zone 3 plus an allowance for climate change (1 in 100 year + CC), Flood Zone 2 has been used as a proxy, and therefore these flood outlines are of low confidence.  
\*\* Flood Zone 3b (1) outline has high confidence as this has been derived from 1 in 20/25 year detailed river modelling. As there are no broad-scale model outlines available for FF, for those areas where no detailed 1 in 20/25 year outlines available, Flood Zone 3a has been considered as a proxy to represent the FF (Flood Zone 3b (2)) until such a time that more detailed information is available, such as the Level 2 SFRA (where necessary), an EA Strategic Flood Risk Mapping (SFRM) study or a site-specific FRA. This is not to say that the entire area used as a proxy is FF, moreover that the boundary of the FF falls somewhere within that area as recommended by the EA.

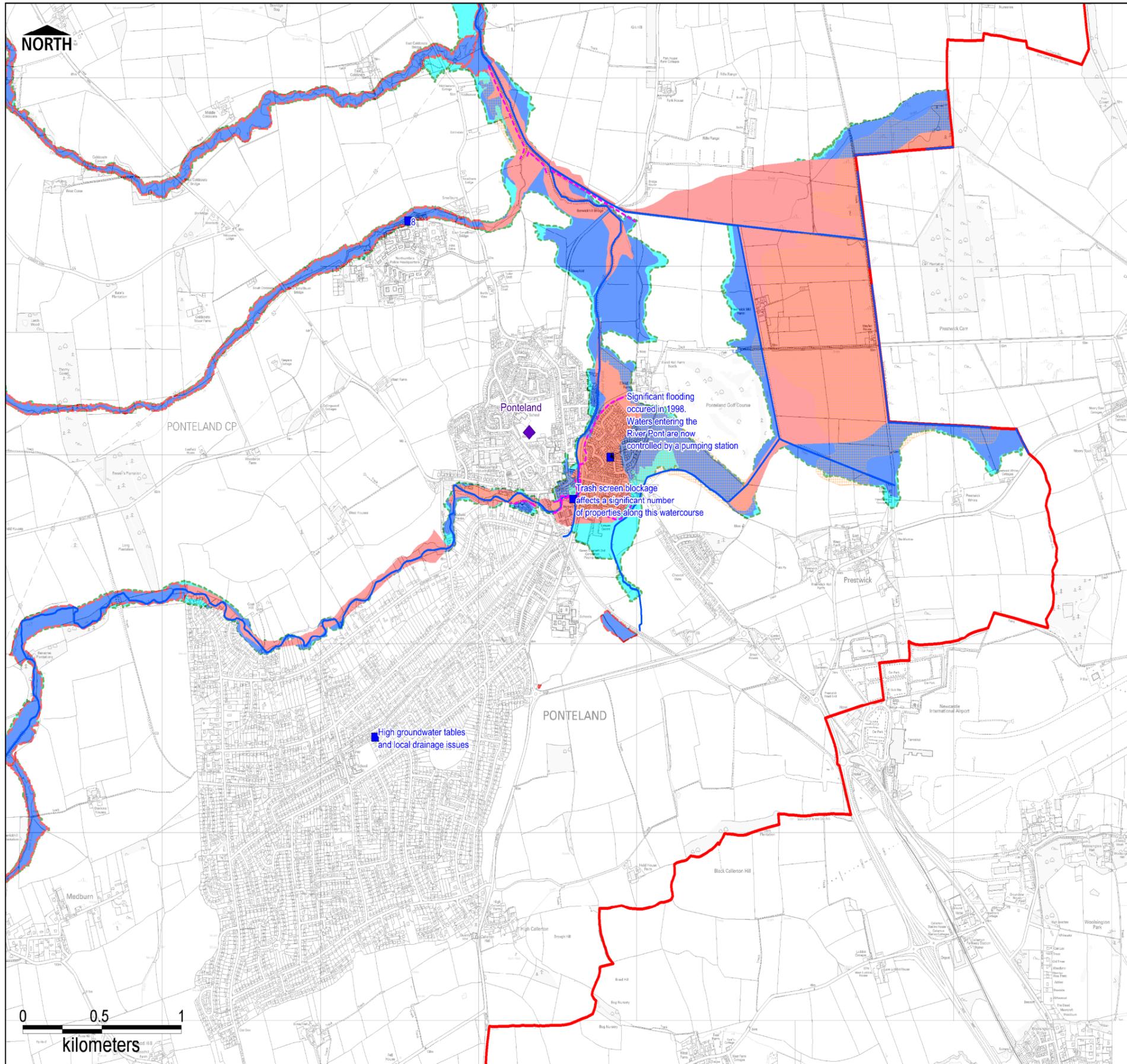
**SUSTAINABLE DRAINAGE SYSTEMS**  
Please refer to the Groundwater Vulnerability Map for details of the spatial variation in aquifer classification and associated vulnerability. The ground underlying Ashington is characterised as a Minor Aquifer ranging from high, intermediate and low vulnerability.  
Please refer to the SuDS Maps in Appendix C for the general applicability of SuDS in the area. Detailed site investigation will confirm suitability of various SuDS techniques.

**FLOOD RISK ASSESSMENT GUIDANCE**  
In accordance with Planning Policy Statement 25 (PPS25), a risk-based sequential approach should be applied at all stages of planning. Flood Zones are the starting point of the sequential approach.  
A site-specific Flood Risk Assessment (FRA) is required to accompany planning applications for sites in Flood Zones 2 and 3. Major developments in Flood Zone 1 also require a site-specific FRA. It should be noted that development sites located in the vicinity of a Main River must comply with the EA 5m bylaw distance when planning the site layout. Therefore it is recommended that the EA is consulted at the earliest opportunity to discuss the development proposal and related flood risk issues such as floodplain compensation storage, finish floor levels and drainage.

In certain circumstances in order to meet wider sustainable benefits to the community some sites located behind existing flood defences may be given permission for development. In such situations the developer is generally required to provide resources and funds to undertake more complex modelling/assessments to determine the residual risk on the development arising from events that overtop or breach the defences. In addition the developer is generally responsible for the funding of any flood risk management works, including defences and mitigation works.  
A major development is defined as residential development of 10 dwellings or more or a site area of 0.5 hectares or more and non-residential development with floor space in excess of 1,000 square metres or site area of 1 hectare or more.

As a minimum, site-specific FRA's should identify and assess, in more detail than the SFRA, the risks of all forms of flooding to and from the development and demonstrate how flood risks will be managed, taking climate change into consideration. The FRA should determine the level of vulnerability of the proposed development (Table D.2, PPS25) and subsequently whether the development is appropriate in relation to Flood Zones (Table D.3, PPS25). FRA's should provide evidence to assist application of the Sequential Test and, where necessary, the Exception Test.

The EA should be consulted to obtain flood level information for a proposed development site. Where available, flood levels should be used to determine minimum requirements for finished floor levels and emergency access and egress routes. In general, flood levels should be available for sites located in a Flood Zone identified as having a high confidence. Where sites are located in a Flood Zone identified as having a medium or low confidence, the FRA may need to refine the flood outline at this location.



- Northumberland County Boundary
- ◆ Development Towns
- ★ Growth Point Areas
- River Centrelines
- Defences
- Reported Flood Risk Issues
- Areas Benefiting from Defences (Designated by EA)
- EA Historical Flood Map
- Flood Zone 3b (1) (Functional Floodplain - 1 in 20/25 year) \*\*
- Flood Zone 3b (2) (FZ3a proxy where no FZ3b outlines currently exist) \*\*
- Flood Zone 3a (1 in 100 year)
- Flood Zone 3 + CC (1 in 100 year plus an allowance for climate change (FZ2 proxy))
- Flood Zone 2 (1 in 1000 year)

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Revision Details	By	Date	Suffr

Drawing Status: **FINAL**

Job Title:  
**Northumberland County Council  
Level 1 Strategic  
Flood Risk Assessment**

Drawing Title:  
**Hydrology - Ponteland  
Development Town**

Scale at A3: **AS SHOWN**

Drawn: CAB	Approved: LNO
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Stage 1 Check: SA	Stage 2 Check: SJA	Original: SA	Date: 09-04-10
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Drawing Number:  
**S106308-B2-15**

**GROWTH POINT AREA/DEVELOPMENT TOWN**

**Ponteland**

**FLOOD SOURCES**

The River Pont flowing generally north eastwards through the northern region of the area and an un-named watercourse flowing generally northwards in the north eastern region of the area present fluvial flood risks to Ponteland in the form of Flood Zone 2 (1 in 1000 year), Flood Zone 3a (1 in 100 year), Flood Zone 3 plus an allowance for climate change (1 in 100 year +CC), and Flood Zone 3b (functional floodplain).

Several small unnamed watercourses and land drains also flow north eastwards through the town.

Three reported incidents of flooding were identified, two within the north east of the area and a third in the central southern area.

It is important to note that the map does not show all sources of flooding, such as surface water flooding. Please refer to Chapter 2.5 and Appendix B of the SFRA for information on all flood sources.

**LIMITATIONS OF DATA**

Flood Zone 2 and 3a outlines have high confidence, as they were derived using detailed hydraulic modelling techniques.

As no data was available for Flood Zone 3 plus an allowance for climate change (1 in 100 year + CC), Flood Zone 2 has been used as a proxy and therefore these flood outlines are of low confidence.

\*\* Flood Zone 3b (1) outline has high confidence as this has been derived from 1 in 20/25 year detailed river modelling. As there are no broad-scale model outlines available for FF, for those areas where no detailed 1 in 20/25 year outlines available, Flood Zone 3a has been considered as a proxy to represent the FF (Flood Zone 3b (2)) until such a time that more detailed information is available, such as the Level 2 SFRA (where necessary), an EA Strategic Flood Risk Mapping (SFRM) study or a site-specific FRA. This is not to say that the entire area used as a proxy is FF, moreover that the boundary of the FF falls somewhere within that area as recommended by the EA.

**SUSTAINABLE DRAINAGE SYSTEMS**

Please refer to the Groundwater Vulnerability Map for details of the spatial variation in aquifer classification and associated vulnerability. The ground underlying Ponteland is characterised as a Minor Aquifer ranging from high, intermediate and low vulnerability.

Please refer to the SuDS Maps in Appendix C for the general applicability of SuDS in the area. Detailed site investigation will confirm suitability of various SuDS techniques.

**FLOOD RISK ASSESSMENT GUIDANCE**

In accordance with Planning Policy Statement 25 (PPS25), a risk-based sequential approach should be applied at all stages of planning. Flood Zones are the starting point of the sequential approach.

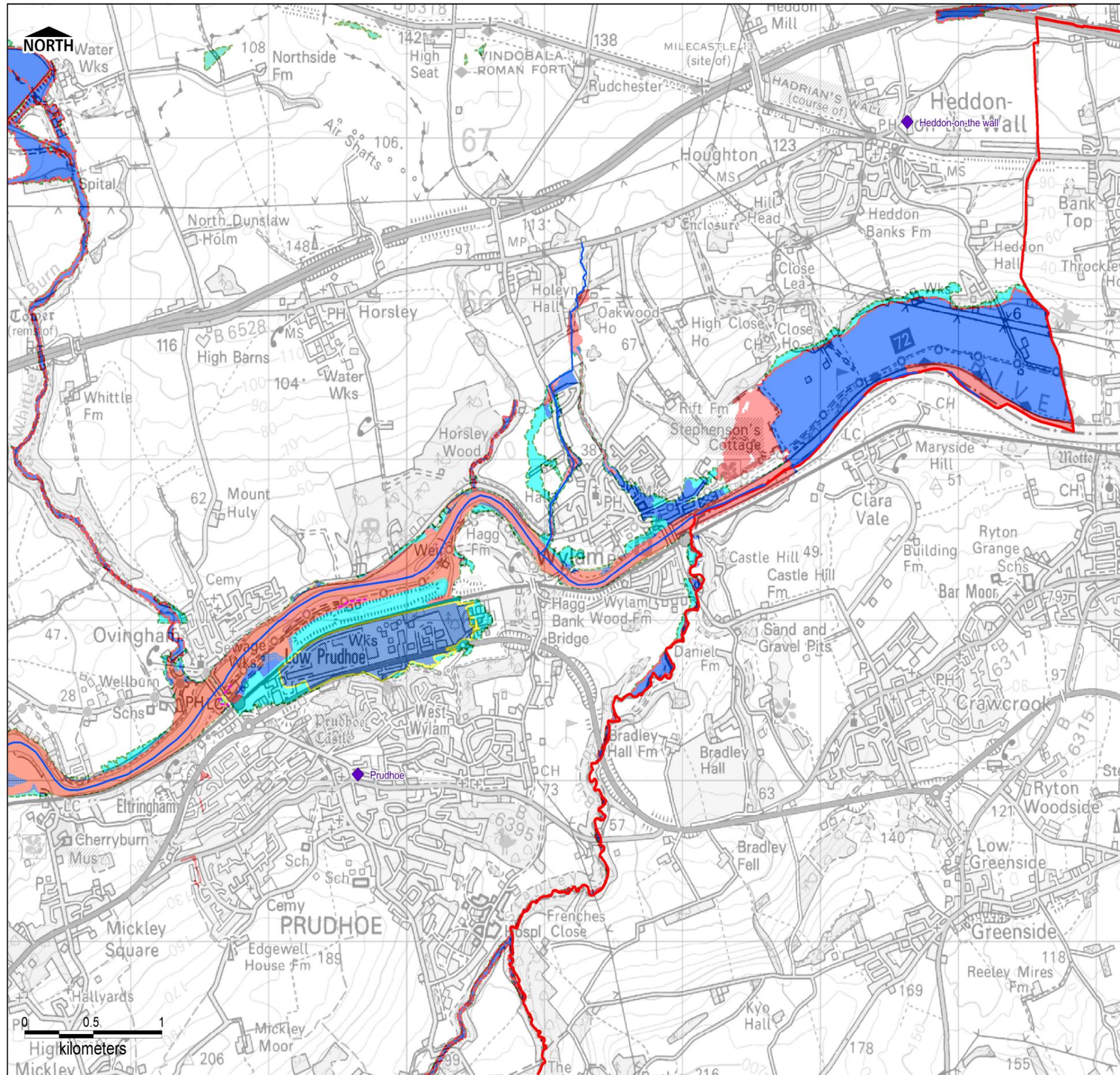
A site-specific Flood Risk Assessment (FRA) is required to accompany planning applications for sites in Flood Zones 2 and 3. Major developments in Flood Zone 1 also require a site-specific FRA. It should be noted that development sites located in the vicinity of a Main River must comply with the EA 5m bylaw distance when planning the site layout. Therefore it is recommended that the EA is consulted at the earliest opportunity to discuss the development proposal and related flood risk issues such as floodplain compensation storage, finish floor levels and drainage.

In certain circumstances in order to meet wider sustainable benefits to the community some sites located behind existing flood defences may be given permission for development. In such situations the developer is generally required to provide resources and funds to undertake more complex modelling/assessments to determine the residual risk on the development arising from events that overtop or breach the defences. In addition the developer is generally responsible for the funding of any flood risk management works, including defences and mitigation works.

A major development is defined as residential development of 10 dwellings or more or a site area of 0.5 hectares or more, and non-residential development with floor space in excess of 1,000 square metres or site area of 1 hectare or more.

As a minimum, site-specific FRA's should identify and assess, in more detail than the SFRA, the risks of all forms of flooding to and from the development and demonstrate how flood risks will be managed, taking climate change into consideration. The FRA should determine the level of vulnerability of the proposed development (Table D.2, PPS25) and subsequently whether the development is appropriate in relation to Flood Zones (Table D.3, PPS25). FRA's should provide evidence to assist application of the Sequential Test and, where necessary, the Exception Test.

The EA should be consulted to obtain flood level information for a proposed development site. Where available, flood levels should be used to determine minimum requirements for finished floor levels and emergency access and egress routes. In general, flood levels should be available for sites located in a Flood Zone identified as having a high confidence. Where sites are located in a Flood Zone identified as having a medium or low confidence, the FRA may need to refine the flood outline at this location.



- Northumberland County Boundary
- ◆ Development Towns
- ★ Growth Point Areas
- River Centrelines
- - - Defences
- Reported Flood Risk Issues
- Areas Benefiting from Defences (Designated by EA)
- EA Historical Flood Map
- Flood Zone 3b (1) (Functional Floodplain - 1 in 20/25 year)\*\*
- Flood Zone 3b (2) (FZ3a proxy where no FZ3b outlines currently exist)\*\*
- Flood Zone 3a (1 in 100 year)
- Flood Zone 3 + CC (1 in 100 year plus an allowance for climate change (FZ2 proxy))
- Flood Zone 2 (1 in 1000 year)

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Northumberland County Council - 100019593 - 2009.

Revision Details By Check Date Suffix

Drawing Status: FINAL

Job Title

**Northumberland County Council  
Level 1 Strategic  
Flood Risk Assessment**

Drawing Title: **Hydrology - Prudhoe  
Development Town**

Scale at A3: AS SHOWN

Drawn: CAB	Approved: LNO
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Stage 1 Check: SA	Stage 2 Check: SA	Originated: SA	Date: 09-04-10
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Drawing Number: **S106308-B2-16**

**GROWTH POINT AREA/DEVELOPMENT TOWN**

**Prudhoe**

**FLOOD SOURCES**

The River Tyne flowing generally north east through the northern region of Prudhoe, and a tributary watercourse named Whittle Burn flowing to the west of Ovinghams towards their confluence present fluvial flood risks to Prudhoe in the form of Flood Zone 2 (1 in 1000 year), Flood Zone 3a (1 in 100 year), Flood Zone 3 plus an allowance for climate change (1 in 100 year +CC), and Flood Zone 3b (functional floodplain).

No reported incidents of flooding were identified.

It is important to note that the map does not show all sources of flooding, such as surface water flooding. Please refer to Chapter 2.5 and Appendix B of the SFRA for information on all flood sources.

**LIMITATIONS OF DATA**

Flood Zone 2, and 3a outlines for the River Tyne have high confidence, as they were derived using detailed hydraulic modelling techniques. Flood Zone 2 and 3a outlines for Whittle Burn have medium confidence, as they were derived using broad-scale national hydraulic modelling techniques.

As no data was available for Flood Zone 3 plus an allowance for climate change (1 in 100 year + CC), Flood Zone 2 has been used as a proxy and therefore these flood outlines are of low confidence.

\*\* Flood Zone 3b (1) outline has high confidence as this has been derived from 1 in 20/25 year detailed river modelling. As there are no broad-scale model outlines available for FF, for those areas where no detailed 1 in 20/25 year outlines available, Flood Zone 3a has been considered as a proxy to represent the FF (Flood Zone 3b (2)) until such a time that more detailed information is available, such as the Level 2 SFRA (where necessary), an EA Strategic Flood Risk Mapping (SFRM) study or a site-specific FRA. This is not to say that the entire area used as a proxy is FF, moreover that the boundary of the FF falls somewhere within that area as recommended by the EA.

**SUSTAINABLE DRAINAGE SYSTEMS**

Please refer to the Groundwater Vulnerability Map for details of the spatial variation in aquifer classification and associated vulnerability. The ground underlying Prudhoe is characterised as a Minor Aquifer ranging from high, intermediate and low vulnerability.

Please refer to the SuDS Maps in Appendix C for the general applicability of SuDS in the area. Detailed site investigation will confirm suitability of various SuDS techniques.

**FLOOD RISK ASSESSMENT GUIDANCE**

In accordance with Planning Policy Statement 25 (PPS25), a risk-based sequential approach should be applied at all stages of planning. Flood Zones are the starting point of the sequential approach.

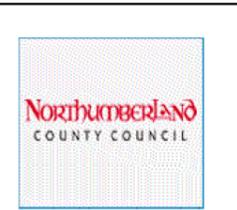
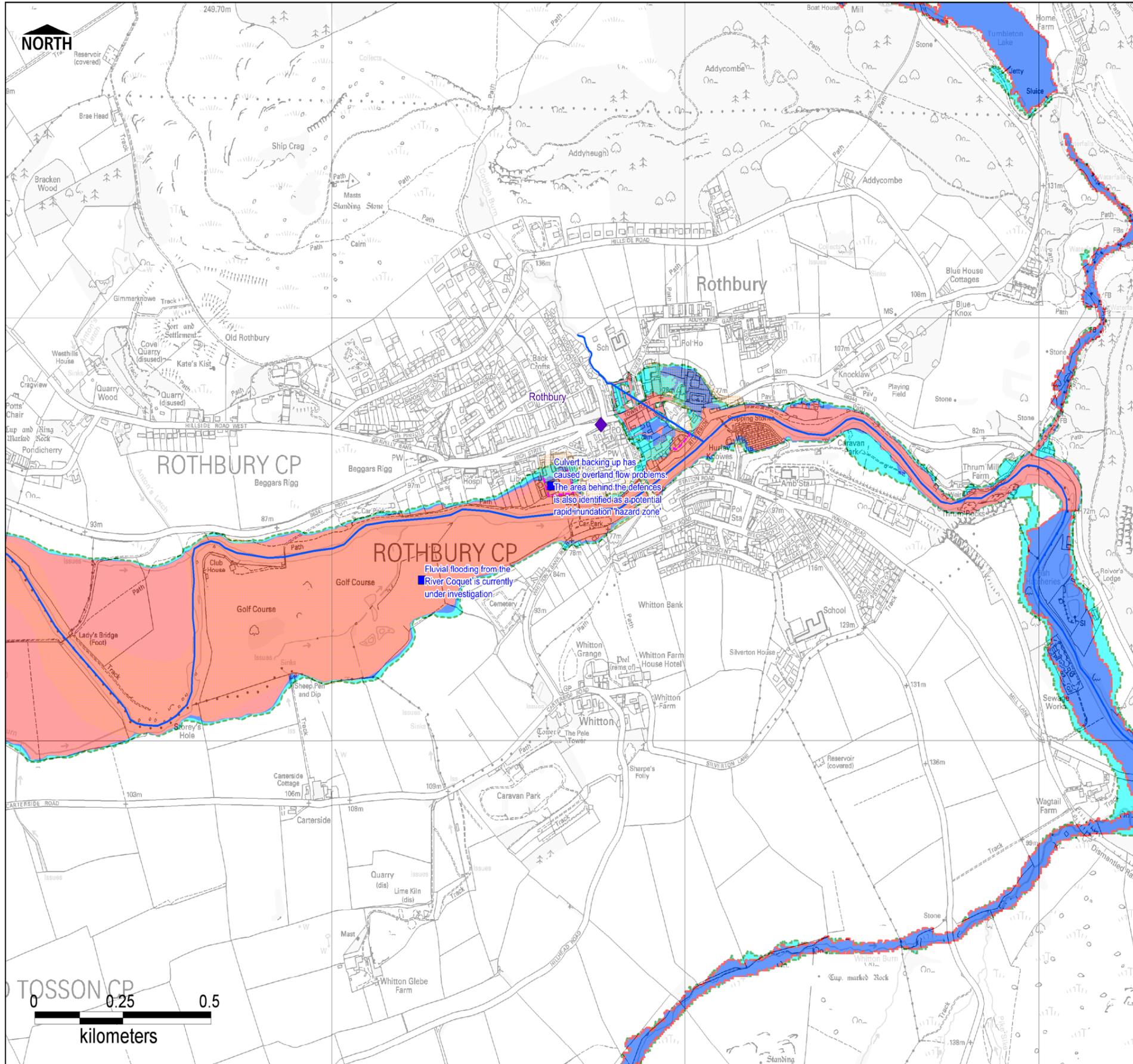
A site-specific Flood Risk Assessment (FRA) is required to accompany planning applications for sites in Flood Zones 2 and 3. Major developments in Flood Zone 1 also require a site-specific FRA. It should be noted that development sites located in the vicinity of a Main River must comply with the EA 5m bylaw distance when planning the site layout. Therefore it is recommended that the EA is consulted at the earliest opportunity to discuss the development proposal and related flood risk issues such as floodplain compensation storage, finish floor levels and drainage.

In certain circumstances in order to meet wider sustainable benefits to the community some sites located behind existing flood defences may be given permission for development. In such situations the developer is generally required to provide resources and funds to undertake more complex modelling/assessments to determine the residual risk on the development arising from events that overtop or breach the defences. In addition the developer is generally responsible for the funding of any flood risk management works, including defences and mitigation works.

A major development is defined as residential development of 10 dwellings or more or a site area of 0.5 hectares or more, and non-residential development with floor space in excess of 1,000 square metres or site area of 1 hectare or more.

As a minimum, site-specific FRA's should identify and assess, in more detail than the SFRA, the risks of all forms of flooding to and from the development and demonstrate how flood risks will be managed, taking climate change into consideration. The FRA should determine the level of vulnerability of the proposed development (Table D.2, PPS25) and subsequently whether the development is appropriate in relation to Flood Zones (Table D.3, PPS25). FRA's should provide evidence to assist application of the Sequential Test and, where necessary, the Exception Test.

The EA should be consulted to obtain flood level information for a proposed development site. Where available, flood levels should be used to determine minimum requirements for finished floor levels and emergency access and egress routes. In general, flood levels should be available for sites located in a Flood Zone identified as having a high confidence. Where sites are located in a Flood Zone identified as having a medium or low confidence, the FRA may need to refine the flood outline at this location.



- Northumberland County Boundary
- ◆ Development Towns
- ★ Growth Point Areas
- River Centrelines
- - - Defences
- Reported Flood Risk Issues
- Areas Benefiting from Defences (Designated by EA)
- EA Historical Flood Map
- Flood Zone 3b (1) (Functional Floodplain - 1 in 20/25 year)\*\*
- Flood Zone 3b (2) (FZ3a proxy where no FZ3b outlines currently exist)\*\*
- Flood Zone 3a (1 in 100 year)
- Flood Zone 3+ CC (1 in 100 year plus an allowance for climate change (FZ2 proxy))
- Flood Zone 2 (1 in 1000 year)

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Revision Details	By	Date	Check	Suffix

Drawing Status: **FINAL**

Job Title:  
**Northumberland County Council  
Level 1 Strategic  
Flood Risk Assessment**

Drawing Title:  
**Hydrology - Rothbury  
Development Town**

Scale at A3: **AS SHOWN**

Drawn: CAB	Approved: LNO
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Stage 1 Check: SA	Stage 2 Check: SJA	Originated: SA	Date: 09-04-10
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Drawing Number:  
**S106308-B2-17**

**GROWTH POINT AREA/DEVELOPMENT TOWN**

**Rothbury**

**FLOOD SOURCES**

The River Coquet bisects Rothbury flowing eastwards through the town and presents fluvial flood risks to Rothbury in the form of Flood Zone 2 (1 in 1000 year), Flood Zone 3a (1 in 100 year), Flood Zone 3 plus an allowance for climate change (1 in 100 year +CC), and Flood Zone 3b (functional floodplain).

Rapidly responding Coplish Burn presents another fluvial flood risk to the east of the town.

Numerous incidents of flooding were identified in the area.

It is important to note that the map does not show all sources of flooding, such as surface water flooding. Please refer to Chapter 2.5 and Appendix B of the SFRA for information on all flood sources.

**LIMITATIONS OF DATA**

Flood Zone 2 and 3a outlines for the River Coquet have high confidence, as they were derived using detailed hydraulic modelling techniques.

Flood Zone 3b has both regions of high confidence derived using detailed hydraulic modelling techniques, and medium confidence derived using broad-scale national hydraulic modelling techniques.

As no data was available for Flood Zone 3 plus an allowance for climate change (1 in 100 year + CC), Flood Zone 2 has been used as a proxy and therefore these flood outlines are of low confidence.

\*\* Flood Zone 3b (1) outline has high confidence as this has been derived from 1 in 20/25 year detailed river modelling. As there are no broad-scale model outlines available for FF, for those areas where no detailed 1 in 20/25 year outlines available, Flood Zone 3a has been considered as a proxy to represent the FF (Flood Zone 3b (2)) until such a time that more detailed information is available, such as the Level 2 SFRA (where necessary), an EA Strategic Flood Risk Mapping (SFRM) study or a site-specific FRA. This is not to say that the entire area used as a proxy is FF, moreover that the boundary of the FF falls somewhere within that area as recommended by the EA.

**SUSTAINABLE DRAINAGE SYSTEMS**

Please refer to the Groundwater Vulnerability Map for details of the spatial variation in aquifer classification and associated vulnerability. The ground underlying Rothbury is characterised as a combination of a Major and a Minor Aquifer both ranging from high, intermediate and low vulnerability.

Please refer to the SuDS Maps in Appendix C for the general applicability of SuDS in the area. Detailed site investigation will confirm suitability of various SuDS techniques.

**FLOOD RISK ASSESSMENT GUIDANCE**

In accordance with Planning Policy Statement 25 (PPS25), a risk-based sequential approach should be applied at all stages of planning. Flood Zones are the starting point of the sequential approach.

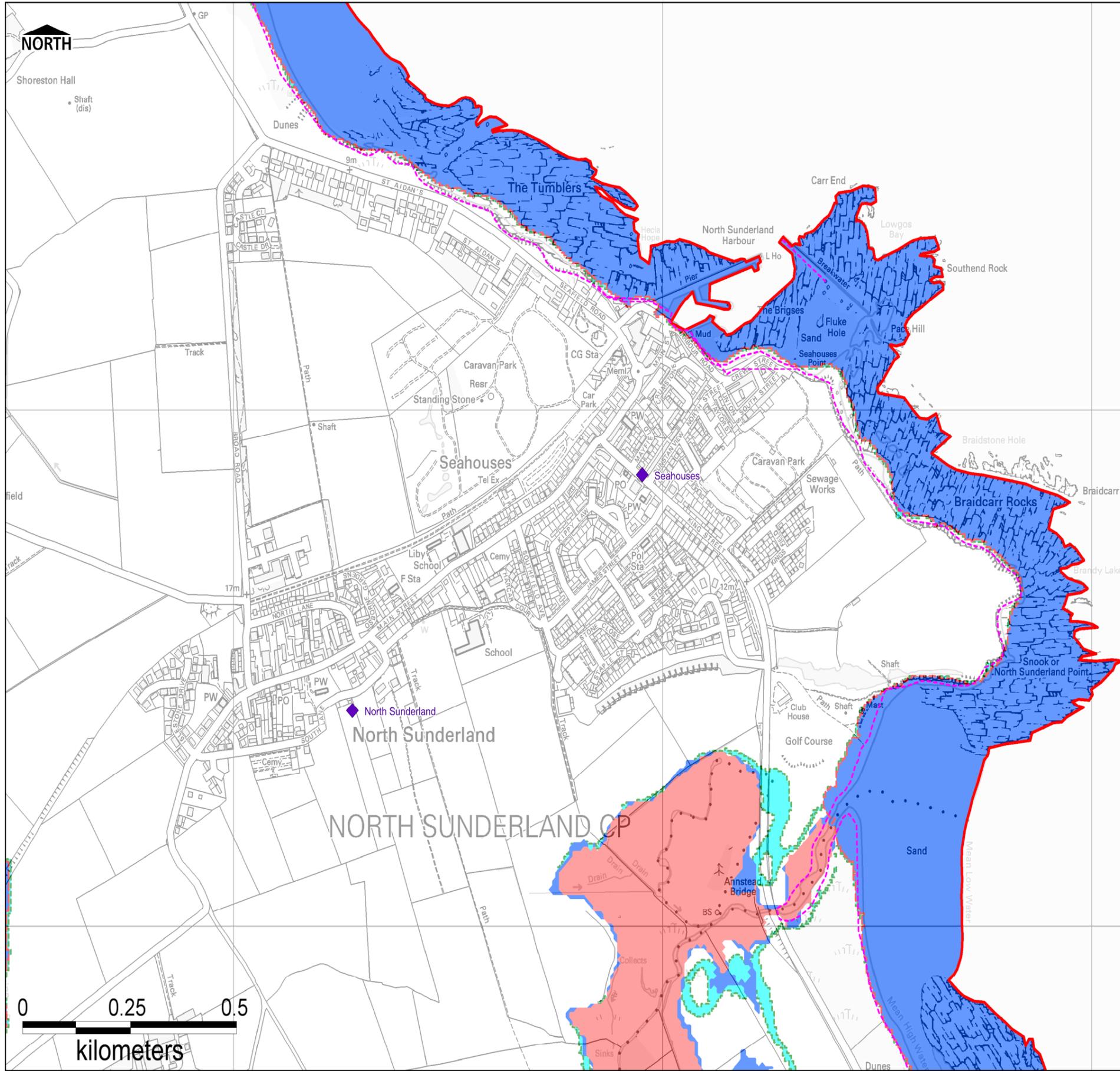
A site-specific Flood Risk Assessment (FRA) is required to accompany planning applications for sites in Flood Zones 2 and 3. Major developments in Flood Zone 1 also require a site-specific FRA. It should be noted that development sites located in the vicinity of a Main River must comply with the EA 5m bylaw distance when planning the site layout. Therefore it is recommended that the EA is consulted at the earliest opportunity to discuss the development proposal and related flood risk issues such as floodplain compensation storage, finish floor levels and drainage.

In certain circumstances in order to meet wider sustainable benefits to the community some sites located behind existing flood defences may be given permission for development. In such situations the developer is generally required to provide resources and funds to undertake more complex modelling/assessments to determine the residual risk on the development arising from events that overtop or breach the defences. In addition the developer is generally responsible for the funding of any flood risk management works, including defences and mitigation works.

A major development is defined as residential development of 10 dwellings or more or a site area of 0.5 hectares or more, and non-residential development with floor space in excess of 1,000 square metres or site area of 1 hectare or more.

As a minimum, site-specific FRA's should identify and assess, in more detail than the SFRA, the risks of all forms of flooding to and from the development and demonstrate how flood risks will be managed, taking climate change into consideration. The FRA should determine the level of vulnerability of the proposed development (Table D.2, PPS25) and subsequently whether the development is appropriate in relation to Flood Zones (Table D.3, PPS25). FRA's should provide evidence to assist application of the Sequential Test and, where necessary, the Exception Test.

The EA should be consulted to obtain flood level information for a proposed development site. Where available, flood levels should be used to determine minimum requirements for finished floor levels and emergency access and egress routes. In general, flood levels should be available for sites located in a Flood Zone identified as having a high confidence. Where sites are located in a Flood Zone identified as having a medium or low confidence, the FRA may need to refine the flood outline at this location.



- Northumberland County Boundary
- ◆ Development Towns
- ★ Growth Point Areas
- River Centrelines
- Defences
- Reported Flood Risk Issues
- Areas Benefiting from Defences (Designated by EA)
- EA Historical Flood Map
- Flood Zone 3b (1) (Functional Floodplain - 1 in 20/25 year)\*\*
- Flood Zone 3b (2) (FZ3a proxy where no FZ3b outlines currently exist)\*\*
- Flood Zone 3a (1 in 100 year)
- Flood Zone 3 + CC (1 in 100 year plus an allowance for climate change (FZ2 proxy))
- Flood Zone 2 (1 in 1000 year)

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Revision Details	By	Date	Suffr
Drawing Status			
FINAL			
Job Title			
Northumberland County Council Level 1 Strategic Flood Risk Assessment			
Drawing Title			
Hydrology - Seahouses Development Town			
Scale at A3			
AS SHOWN			
Drawn	CAB	Approved	LNO
Stage 1 Check	SA	Stage 2 Check	SJA
Originals	SA	Date	09-04-10

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Drawing Number  
**S106308-B2-18**

**GROWTH POINT AREA/DEVELOPMENT TOWN**

**Seahouses**

**FLOOD SOURCES**

The main flood risk to the area comes from tidal flooding. Annstead Burn presents fluvial and tidal (estuary) flood risks to the south of the area in the form of Flood Zone 2 (1 in 1000 year), Flood Zone 3a (1 in 100 year), Flood Zone 3 plus an allowance for climate change (1 in 100 year +CC), and Flood Zone 3b (functional floodplain).  
An incident of tidal flooding was identified.

It is important to note that the map does not show all sources of flooding, such as surface water flooding. Please refer to Chapter 2.5 and Appendix B of the SFRA for information on all flood sources.

**LIMITATIONS OF DATA**

Flood Zone 3a outline for Annstead Burn have high confidence, as they were derived using detailed hydraulic modelling techniques. Flood Zone 2 outline for Annstead Burn has medium confidence, as they were derived using broadscale hydraulic modelling techniques.

Flood Zone 3b has high confidence as it was derived using detailed hydraulic modelling techniques.

As no data was available for Flood Zone 3 plus an allowance for climate change (1 in 100 year + CC), Flood Zone 2 has been used as a proxy and therefore these flood outlines are of low confidence.

\*\* Flood Zone 3b (1) outline has high confidence as this has been derived from 1 in 20/25 year detailed river modelling. As there are no broad-scale model outlines available for FF, for those areas where no detailed 1 in 20/25 year outlines available, Flood Zone 3a has been considered as a proxy to represent the FF (Flood Zone 3b (2)) until such a time that more detailed information is available, such as the Level 2 SFRA (where necessary), an EA Strategic Flood Risk Mapping (SFRM) study or a site-specific FRA. This is not to say that the entire area used as a proxy is FF, moreover that the boundary of the FF falls somewhere within that area as recommended by the EA.

**SUSTAINABLE DRAINAGE SYSTEMS**

Please refer to the Groundwater Vulnerability Map for details of the spatial variation in aquifer classification and associated vulnerability. The ground underlying the Seahouses area is characterised as a Minor Aquifer ranging from high to intermediate vulnerability.

Please refer to the SuDS Maps in Appendix C for the general applicability of SuDS in the area. Detailed site investigation will confirm suitability of various SuDS techniques.

**FLOOD RISK ASSESSMENT GUIDANCE**

In accordance with Planning Policy Statement 25 (PPS25), a risk-based sequential approach should be applied at all stages of planning. Flood Zones are the starting point of the sequential approach.

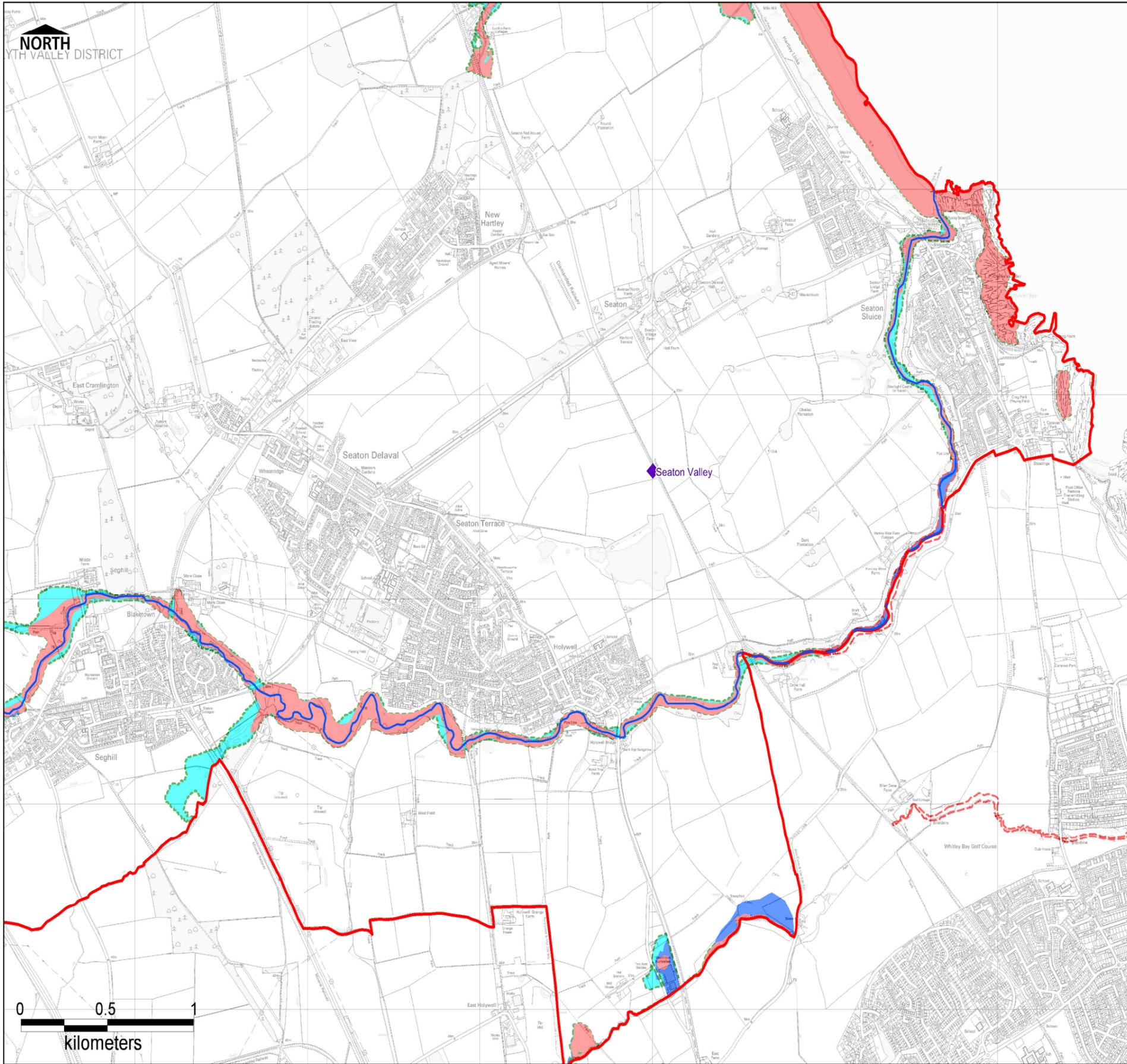
A site-specific Flood Risk Assessment (FRA) is required to accompany planning applications for sites in Flood Zones 2 and 3. Major developments in Flood Zone 1 also require a site-specific FRA. It should be noted that development sites located in the vicinity of a Main River must comply with the EA 5m bylaw distance when planning the site layout. Therefore it is recommended to consult the EA at the earliest opportunity to discuss the development proposal and related flood risk issues such as floodplain compensation storage, finish floor levels and drainage.

In certain circumstances to meet wider sustainable benefits to the community some sites located behind existing flood defences may be given permission to develop. In such situations developer is generally required to provide resources and funds to undertake more complex modelling/assessments to determine the residual risk on the development for events that overtop or breach the defences. In addition developer is generally responsible to fund any flood risk management works, including defences and mitigation works.

A major development is defined as residential development of 10 dwellings or more or a site area of 0.5 hectares or more, and non-residential development with floor space in excess of 1,000 square metres or site area of 1 hectare or more.

As a minimum, site-specific FRA's should identify and assess, in more detail than the SFRA, the risks of all forms of flooding to and from the development and demonstrate how flood risks will be managed, taking climate change into consideration. The FRA should determine the level of vulnerability of the proposed development (Table D.2, PPS25) and subsequently whether the development is appropriate in relation to Flood Zones (Table D.3, PPS25). FRA's should provide evidence to assist application of the Sequential Test and, where necessary, the Exception Test.

The EA should be consulted to obtain flood level information for a proposed development site. Where available, flood levels should be used to determine minimum requirements for finished floor levels and emergency access and egress routes. In general, flood levels should be available for sites located in a Flood Zone identified as having a high confidence. Where sites are located in a Flood Zone identified as having a medium or low confidence, the FRA may need to refine the flood outline at this location.



- Northumberland County Boundary
- ◆ Development Towns
- ★ Growth Point Areas
- River Centrelines
- Defences
- Reported Flood Risk Issues
- Areas Benefiting from Defences (Designated by EA)
- EA Historical Flood Map
- Flood Zone 3b (1) (Functional Floodplain - 1 in 20/25 year) \*\*
- Flood Zone 3b (2) (FZ3a proxy where no FZ3b outlines currently exist) \*\*
- Flood Zone 3a (1 in 100 year)
- Flood Zone 3 + CC (1 in 100 year plus an allowance for climate change (FZ2 proxy))
- Flood Zone 2 (1 in 1000 year)

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Revision Details	By	Date	Suffr

Drawing Status: **FINAL**

Job Title:  
**Northumberland County Council  
Level 1 Strategic  
Flood Risk Assessment**

Drawing Title:  
**Hydrology - Seaton Valley  
Development Town**

Scale at A3: **AS SHOWN**

Drawn: <b>CAB</b>	Approved: <b>LNO</b>
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Stage 1 Check: <b>SA</b>	Stage 2 Check: <b>SJA</b>	Originalist: <b>SA</b>	Date: <b>09-04-10</b>
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Drawing Number:  
**S106308-B2-19**

**GROWTH POINT AREA/DEVELOPMENT TOWN**

**Seaton Valley**

**FLOOD SOURCES**

Seaton Burn presents the main fluvial flood risks to the area in the form of Flood Zone 2 (1 in 1000 year), Flood Zone 3a (1 in 100 year), Flood Zone 3 plus an allowance for climate change (1 in 100 year +CC), and Flood Zone 3b (functional floodplain).  
Tidal flooding is also a potential risk along the coast.  
No reported incidents of flooding were identified.  
It is important to note that the map does not show all sources of flooding, such as surface water flooding. Please refer to Chapter 2.5 and Appendix B of the SFRA for information on all flood sources.

**LIMITATIONS OF DATA**

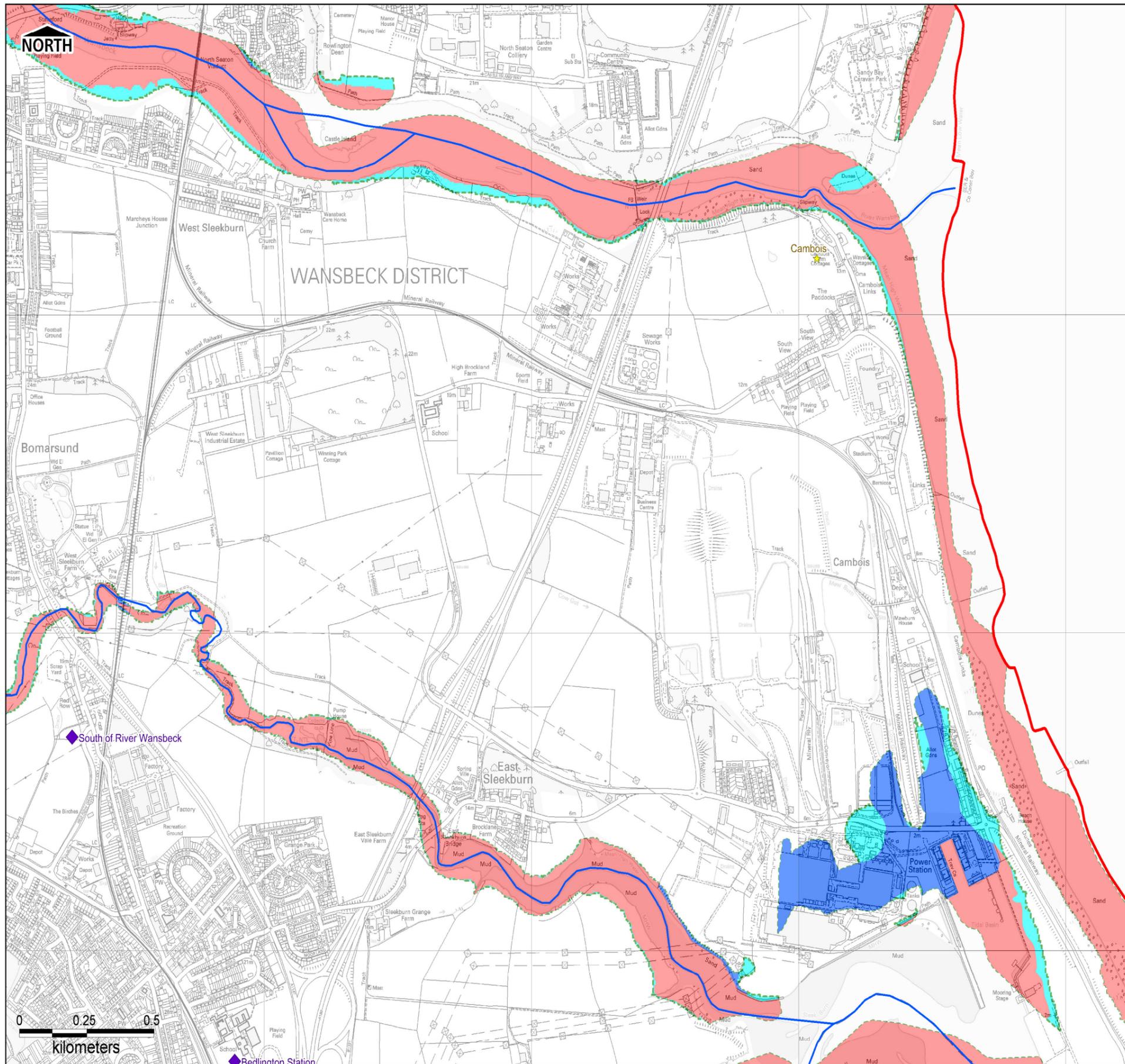
Flood Zone 3a and 3b outlines have high confidence, as they were derived using detailed hydraulic modelling techniques. Flood Zone 2 has medium confidence, as it was derived using broad-scale national hydraulic modelling techniques.  
As no data was available for Flood Zone 3 plus an allowance for climate change (1 in 100 year + CC), Flood Zone 2 has been used as a proxy and therefore these flood outlines are of low confidence.  
\*\* Flood Zone 3b (1) outline has high confidence as this has been derived from 1 in 20/25 year detailed river modelling. As there are no broad-scale model outlines available for FF, for those areas where no detailed 1 in 20/25 year outlines available, Flood Zone 3a has been considered as a proxy to represent the FF (Flood Zone 3b (2)) until such a time that more detailed information is available, such as the Level 2 SFRA (where necessary), an EA Strategic Flood Risk Mapping (SFRM) study or a site-specific FRA. This is not to say that the entire area used as a proxy is FF, moreover that the boundary of the FF falls somewhere within that area as recommended by the EA.

**SUSTAINABLE DRAINAGE SYSTEMS**

Please refer to the Groundwater Vulnerability Map for details of the spatial variation in aquifer classification and associated vulnerability. The ground underlying the Seaton Valley area is characterised as a Minor Aquifer of low vulnerability.  
Please refer to the SuDS Maps in Appendix C for the general applicability of SuDS in the area. Detailed site investigation will confirm suitability of various SuDS techniques.

**FLOOD RISK ASSESSMENT GUIDANCE**

In accordance with Planning Policy Statement 25 (PPS25), a risk-based sequential approach should be applied at all stages of planning. Flood Zones are the starting point of the sequential approach.  
A site-specific Flood Risk Assessment (FRA) is required to accompany planning applications for sites in Flood Zones 2 and 3. Major developments in Flood Zone 1 also require a site-specific FRA. It should be noted that development sites located in the vicinity of a Main River must comply with the EA 5m bylaw distance when planning the site layout. Therefore it is recommended that the EA is consulted at the earliest opportunity to discuss the development proposal and related flood risk issues such as floodplain compensation storage, finish floor levels and drainage.  
In certain circumstances in order to meet wider sustainable benefits to the community some sites located behind existing flood defences may be given permission for development. In such situations the developer is generally required to provide resources and funds to undertake more complex modelling/assessments to determine the residual risk on the development arising from events that overtop or breach the defences. In addition the developer is generally responsible for the funding of any flood risk management works, including defences and mitigation works.  
A major development is defined as residential development of 10 dwellings or more or a site area of 0.5 hectares or more, and non-residential development with floor space in excess of 1,000 square metres or site area of 1 hectare or more.  
As a minimum, site-specific FRA's should identify and assess, in more detail than the SFRA, the risks of all forms of flooding to and from the development and demonstrate how flood risks will be managed, taking climate change into consideration. The FRA should determine the level of vulnerability of the proposed development (Table D.2, PPS25) and subsequently whether the development is appropriate in relation to Flood Zones (Table D.3, PPS25). FRA's should provide evidence to assist application of the Sequential Test and, where necessary, the Exception Test.  
The EA should be consulted to obtain flood level information for a proposed development site.  
Where available, flood levels should be used to determine minimum requirements for finished floor levels and emergency access and egress routes. In general, flood levels should be available for sites located in a Flood Zone identified as having a high confidence. Where sites are located in a Flood Zone identified as having a medium or low confidence, the FRA may need to refine the flood outline at this location.



- Northumberland County Boundary
- ◆ Development Towns
- ★ Growth Point Areas
- River Centrelines
- Defences
- Reported Flood Risk Issues
- Areas Benefiting from Defences (Designated by EA)
- EA Historical Flood Map
- Flood Zone 3b (1) (Functional Floodplain - 1 in 20/25 year) \*\*
- Flood Zone 3b (2) (FZ3a proxy where no FZ3b outlines currently exist) \*\*
- Flood Zone 3a (1 in 100 year)
- Flood Zone 3 + CC (1 in 100 year plus an allowance for climate change (FZ2 proxy))
- Flood Zone 2 (1 in 1000 year)

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Revision Details	By	Date	Suft
	Check		

Drawing Status: **FINAL**

Job Title:  
**Northumberland County Council  
Level 1 Strategic  
Flood Risk Assessment**

Drawing Title:  
**Hydrology - South of  
River Wansbeck Development  
Town & Cambois GPA**

Scale at A3: **AS SHOWN**

Drawn	CAB	Approved	LNO
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Stage 1 Check	SA	Stage 2 Check	SJA
Originated	SA	Date	09-04-10

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Wilson**

Drawing Number:  
**S106308-B2-20**

## GROWTH POINT AREA/DEVELOPMENT TOWN South of River Wansbeck & Cambois

**FLOOD SOURCES**  
Fluvial flood risk is associated with the River Wansbeck to the north, River Blyth to the south, Sleek Burn through centre and smaller watercourses of Cow Gut and Maw Burn. There is also a tidal flood risk.  
No reported incidents of flooding were identified.  
It is important to note that the map does not show all sources of flooding, such as surface water flooding. Please refer to Chapter 2.5 and Appendix B of the SFRA for information on all flood sources.

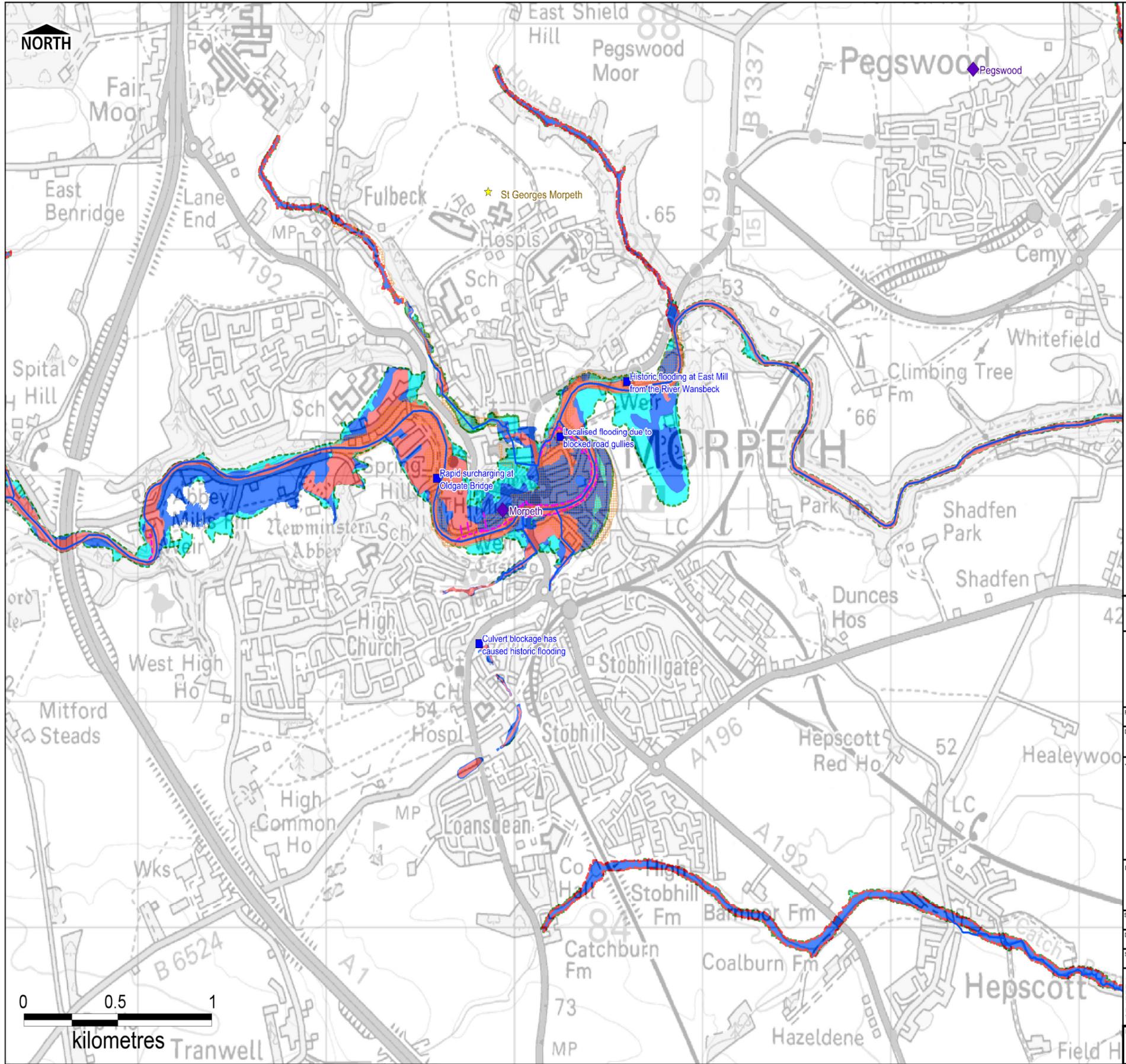
**LIMITATIONS OF DATA**  
Flood Zone 2, and 3a outlines have medium confidence as they were derived using broad-scale national hydraulic modelling techniques.  
As no data was available for Flood Zone 3 plus an allowance for climate change (1 in 100 year + CC), Flood Zone 2 has been used as a proxy, and similarly flood zone 3a had been used as a proxy for 3b and therefore these flood outlines are of low confidence.  
\*\* Flood Zone 3b (1) outline has high confidence as this has been derived from 1 in 20/25 year detailed river modelling. As there are no broad-scale model outlines available for FF, for those areas where no detailed 1 in 20/25 year outlines available, Flood Zone 3a has been considered as a proxy to represent the FF (Flood Zone 3b (2)) until such a time that more detailed information is available, such as the Level 2 SFRA (where necessary), an EA Strategic Flood Risk Mapping (SFRM) study or a site-specific FRA. This is not to say that the entire area used as a proxy is FF, moreover that the boundary of the FF falls somewhere within that area as recommended by the EA.

**SUSTAINABLE DRAINAGE SYSTEMS**  
Please refer to the Groundwater Vulnerability Map for details of the spatial variation in aquifer classification and associated vulnerability. The ground underlying the area is characterised as a Minor Aquifer ranging from high to low vulnerability.  
Please refer to the SuDS Maps in Appendix C for the general applicability of SuDS in the area. Detailed site investigation will confirm suitability of various SuDS techniques.

**FLOOD RISK ASSESSMENT GUIDANCE**  
In accordance with Planning Policy Statement 25 (PPS25), a risk-based sequential approach should be applied at all stages of planning. Flood Zones are the starting point of the sequential approach.  
A site-specific Flood Risk Assessment (FRA) is required to accompany planning applications for sites in Flood Zones 2 and 3. Major developments in Flood Zone 1 also require a site-specific FRA. It should be noted that development sites located in the vicinity of a Main River must comply with the EA 5m bylaw distance when planning the site layout. Therefore it is recommended that the EA is consulted at the earliest opportunity to discuss the development proposal and related flood risk issues such as floodplain compensation storage, finish floor levels and drainage.

In certain circumstances in order to meet wider sustainable benefits to the community some sites located behind existing flood defences may be given permission for development. In such situations the developer is generally required to provide resources and funds to undertake more complex modelling/assessments to determine the residual risk on the development arising from events that overtop or breach the defences. In addition the developer is generally responsible for the funding of any flood risk management works, including defences and mitigation works.  
A major development is defined as residential development of 10 dwellings or more or a site area of 0.5 hectares or more, and non-residential development with floor space in excess of 1,000 square metres or site area of 1 hectare or more.

As a minimum, site-specific FRA's should identify and assess, in more detail than the SFRA, the risks of all forms of flooding to and from the development and demonstrate how flood risks will be managed, taking climate change into consideration. The FRA should determine the level of vulnerability of the proposed development (Table D.2, PPS25) and subsequently whether the development is appropriate in relation to Flood Zones (Table D.3, PPS25). FRA's should provide evidence to assist application of the Sequential Test and, where necessary, the Exception Test.  
The EA should be consulted to obtain flood level information for a proposed development site.  
Where available, flood levels should be used to determine minimum requirements for finished floor levels and emergency access and egress routes. In general, flood levels should be available for sites located in a Flood Zone identified as having a high confidence. Where sites are located in a Flood Zone identified as having a medium or low confidence, the FRA may need to refine the flood outline at this location.



- Northumberland County Boundary
- ◆ Development Towns
- ★ Growth Point Areas
- River Centralines
- Defences
- Reported Flood Risk Issues
- Areas Benefiting from Defences (Designated by EA)
- EA Historical Flood Map
- Flood Zone 3b (1) (Functional Floodplain - 1 in 20/25 year) \*\*
- Flood Zone 3b (2) (FZ3a proxy where no FZ3b outlines currently exist) \*\*
- Flood Zone 3a (1 in 100 year)
- Flood Zone 3 + CC (1 in 100 year plus an allowance for climate change (F22 proxy))
- Flood Zone 2 (1 in 1000 year)

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Revision Details	By	Date	Suffix

Drawing Status: **FINAL**

Job Title:  
**Northumberland County Council  
Level 1 Strategic  
Flood Risk Assessment**

Drawing Title: **Hydrology - St Georges, Morpeth GPA, Morpeth Development Town & Pegswood**

Scale at A3: **AS SHOWN**

Drawn: CAB	Approved: LNO
Stage 1 Check: SA	Stage 2 Check: SJA
Original: SA	Date: 09-04-10

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Drawing Number:  
**S106308-B2-21**

## GROWTH POINT AREA/DEVELOPMENT TOWN St Georges & Morpeth

### FLOOD SOURCES

The River Wansbeck, Church Burn and Postern Burn, How Burn and Cotting Burn present fluvial flood risks to the area in the form of Flood Zone 2 (1 in 1000 year), Flood Zone 3a (1 in 100 year), Flood Zone 3 plus an allowance for climate change (1 in 100 year +CC), and Flood Zone 3b (functional floodplain).

Numerous reported incidents of flooding were identified in the town. It is important to note that the map does not show all sources of flooding, such as surface water flooding. Please refer to Chapter 2.5 and Appendix B of the SFRA for information on all flood sources.

### LIMITATIONS OF DATA

Flood Zone 2, 3a and 3b outlines for the River Wansbeck and Lower Cotting Burn have high confidence, as they were derived using detailed hydraulic modelling techniques. Flood Zone 2 and 3a elsewhere have medium confidence, as they were modelled using broadscale techniques. Flood Zone 3b outside of the aforementioned areas has low confidence as flood zone 3a was used as a proxy.

As no data was available for Flood Zone 3 plus an allowance for climate change (1 in 100 year + CC), Flood Zone 2 has been used as a proxy and therefore these flood outlines are of low confidence.

\*\* Flood Zone 3b (1) outline has high confidence as this has been derived from 1 in 20/25 year detailed river modelling. As there are no broad-scale model outlines available for FF, for those areas where no detailed 1 in 20/25 year outlines available, Flood Zone 3a has been considered as a proxy to represent the FF (Flood Zone 3b (2)) until such a time that more detailed information is available, such as the Level 2 SFRA (where necessary), an EA Strategic Flood Risk Mapping (SFRM) study or a site-specific FRA. This is not to say that the entire area used as a proxy is FF, moreover that the boundary of the FF falls somewhere within that area as recommended by the EA.

### SUSTAINABLE DRAINAGE SYSTEMS

Please refer to the Groundwater Vulnerability Map for details of the spatial variation in aquifer classification and associated vulnerability. The ground underlying Morpeth is characterised as a Minor Aquifer ranging from high, intermediate and low vulnerability.

Please refer to the SuDS Maps in Appendix C for the general applicability of SuDS in the area. Detailed site investigation will confirm suitability of various SuDS techniques.

### FLOOD RISK ASSESSMENT GUIDANCE

In accordance with Planning Policy Statement 25 (PPS25), a risk-based sequential approach should be applied at all stages of planning. Flood Zones are the starting point of the sequential approach.

A site-specific Flood Risk Assessment (FRA) is required to accompany planning applications for sites in Flood Zones 2 and 3. Major developments in Flood Zone 1 also require a site-specific FRA. It should be noted that development sites located in the vicinity of a Main River must comply with the EA 5m bylaw distance when planning the site layout. Therefore it is recommended that the EA is consulted at the earliest opportunity to discuss the development proposal and related flood risk issues such as floodplain compensation storage, finish floor levels and drainage.

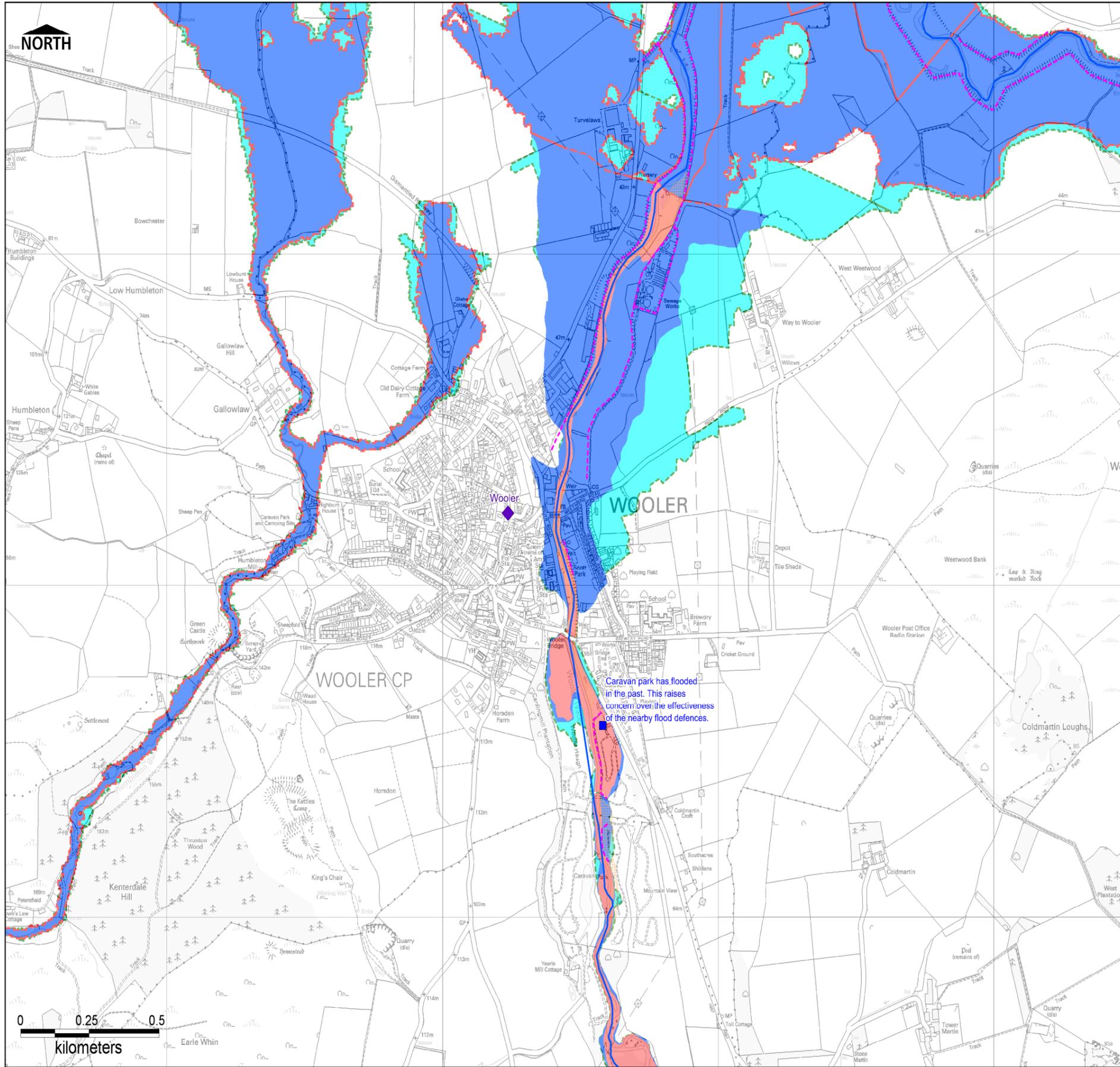
In certain circumstances in order to meet wider sustainable benefits to the community some sites located behind existing flood defences may be given permission for development. In such situations the developer is generally required to provide resources and funds to undertake more complex modelling/assessments to determine the residual risk on the development arising from events that overtop or breach the defences. In addition the developer is generally responsible for the funding of any flood risk management works, including defences and mitigation works.

A major development is defined as residential development of 10 dwellings or more or a site area of 0.5 hectares or more, and non-residential development with floor space in excess of 1,000 square metres or site area of 1 hectare or more.

As a minimum, site-specific FRA's should identify and assess, in more detail than the SFRA, the risks of all forms of flooding to and from the development and demonstrate how flood risks will be managed, taking climate change into consideration. The FRA should determine the level of vulnerability of the proposed development (Table D.2, PPS25) and subsequently whether the development is appropriate in relation to Flood Zones (Table D.3, PPS25). FRA's should provide evidence to assist application of the Sequential Test and, where necessary, the Exception Test.

The EA should be consulted to obtain flood level information for a proposed development site.

Where available, flood levels should be used to determine minimum requirements for finished floor levels and emergency access and egress routes. In general, flood levels should be available for sites located in a Flood Zone identified as having a high confidence. Where sites are located in a Flood Zone identified as having a medium or low confidence, the FRA may need to refine the flood outline at this location.



- Northumberland County Boundary
- ◆ Development Towns
- ★ Growth Point Areas
- River Centrelines
- Defences
- Reported Flood Risk Issues
- Areas Benefiting from Defences (Designated by EA)
- EA Historical Flood Map
- Flood Zone 3b (1) (Functional Floodplain - 1 in 20/25 year) \*\*
- Flood Zone 3b (2) (FZ3a proxy where no FZ3b outlines currently exist) \*\*
- Flood Zone 3a (1 in 100 year)
- Flood Zone 3 + CC (1 in 100 year plus an allowance for climate change (FZ2 proxy))
- Flood Zone 2 (1 in 1000 year)

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Revision Details	By	Date	Suffix
Drawing Status			
FINAL			
Job Title			
<b>Northumberland County Council Level 1 Strategic Flood Risk Assessment</b>			
Drawing Title			
<b>Hydrology - Wooler Development Town</b>			
Scale at A3			
AS SHOWN			
Drawn	CAB	Approved	LNO
Stage 1 Check	SA	Stage 2 Check	SJA
Original	SA	Date	09-04-10

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Drawing Number  
**S106308-B2-22**

**GROWTH POINT AREA/DEVELOPMENT TOWN**

**Wooler**

**FLOOD SOURCES**

Wooler Water and Humbleton Burn present fluvial flood risks to Wooler in the form of Flood Zone 2 (1 in 1000 year), Flood Zone 3a (1 in 100 year), Flood Zone 3 plus an allowance for climate change (1 in 100 year +CC), and Flood Zone 3b (functional floodplain). There are numerous records of flooding in Wooler. It is important to note that the map does not show all sources of flooding, such as surface water flooding. Please refer to Chapter 2.5 and Appendix B of the SFRA for information on all flood sources.

**LIMITATIONS OF DATA**

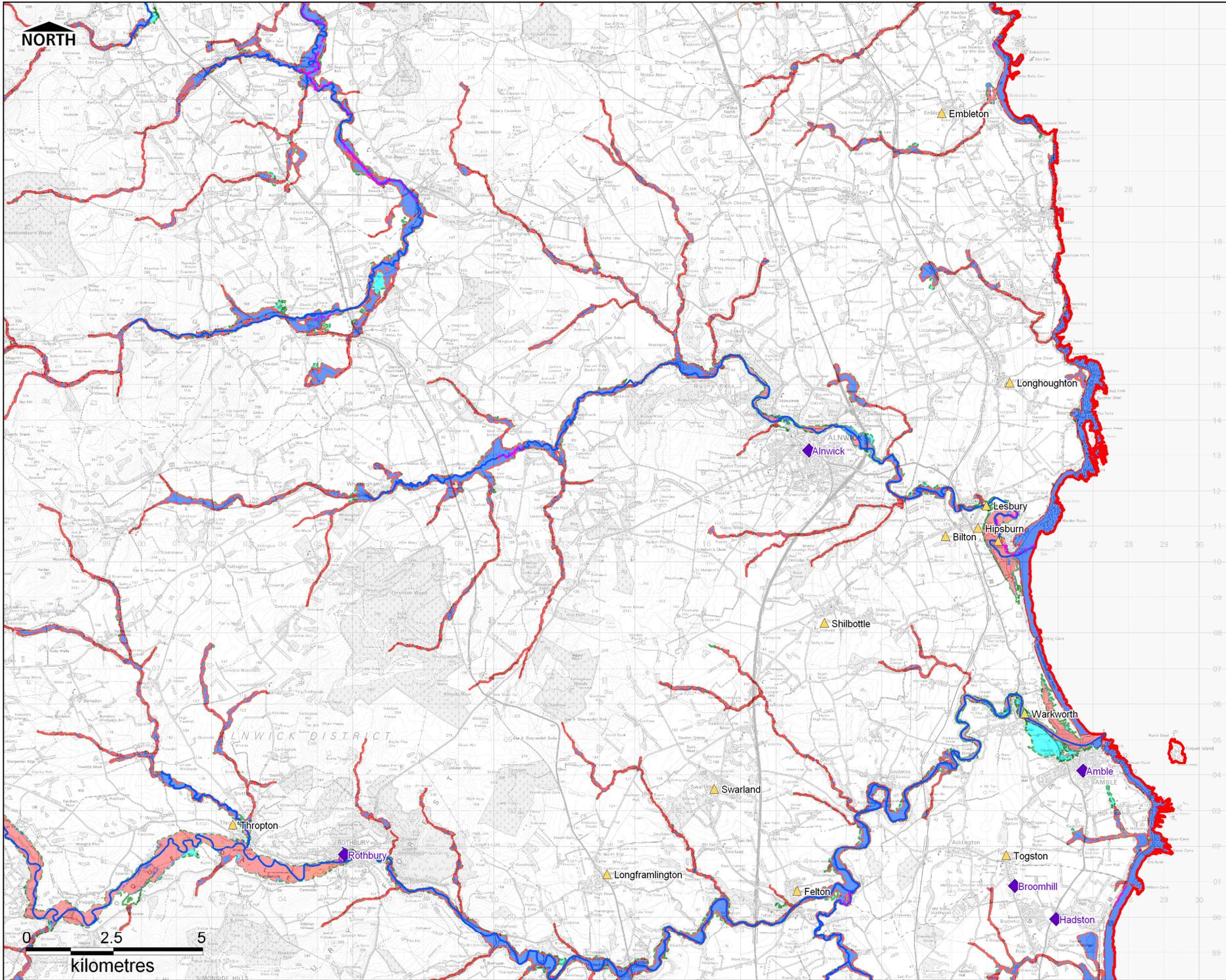
Flood Zone 2 and 3a outlines for Wooler Water have high confidence, as they were derived using detailed hydraulic modelling techniques. Flood Zone 2 and 3a for Humbleton Burn have medium confidence as they were derived using broadscale modelling techniques. Flood Zone 3b has both regions of high confidence derived using detailed hydraulic modelling techniques, and low confidence derived using flood zone 3a as a proxy where no modelled data exists. As no data was available for Flood Zone 3 plus an allowance for climate change (1 in 100 year + CC), Flood Zone 2 has been used as a proxy and therefore these flood outlines are of low confidence. \*\* The Flood Zone 3b (1) outline has high confidence as this has been derived from 1 in 20/25 year detailed river modelling. As there are no broad-scale model outlines available for FF, for those areas where no detailed 1 in 20/25 year outlines available, Flood Zone 3a has been considered as a proxy to represent the FF (Flood Zone 3b (2)) until such a time that more detailed information is available, such as the Level 2 SFRA (where necessary), an EA Strategic Flood Risk Mapping (SFRM) study or a site-specific FRA. This is not to say that the entire area used as a proxy is FF, moreover that the boundary of the FF falls somewhere within that area as recommended by the EA.

**SUSTAINABLE DRAINAGE SYSTEMS**

Please refer to the Groundwater Vulnerability Map for details of the spatial variation in aquifer classification and associated vulnerability. The ground underlying Wooler is characterised as a combination of Minor and Major Aquifers, both ranging from high to intermediate vulnerability. Please refer to the SuDS Maps in Appendix C for the general applicability of SuDS in the area. Detailed site investigation will confirm suitability of various SuDS techniques.

**FLOOD RISK ASSESSMENT GUIDANCE**

In accordance with Planning Policy Statement 25 (PPS25), a risk-based sequential approach should be applied at all stages of planning. Flood Zones are the starting point of the sequential approach. A site-specific Flood Risk Assessment (FRA) is required to accompany planning applications for sites in Flood Zones 2 and 3. Major developments in Flood Zone 1 also require a site-specific FRA. It should be noted that development sites located in the vicinity of a Main River must comply with the EA 5m bylaw distance when planning the site layout. Therefore it is recommended that the EA is consulted at the earliest opportunity to discuss the development proposal and related flood risk issues such as floodplain compensation storage, finish floor levels and drainage. In certain circumstances in order to meet wider sustainable benefits to the community some sites located behind existing flood defences may be given permission for development. In such situations the developer is generally required to provide resources and funds to undertake more complex modelling/assessments to determine the residual risk on the development arising from events that overtop or breach the defences. In addition the developer is generally responsible for the funding of any flood risk management works, including defences and mitigation works. A major development is defined as residential development of 10 dwellings or more or a site area of 0.5 hectares or more, and non-residential development with floor space in excess of 1,000 square metres or site area of 1 hectare or more. As a minimum, site-specific FRA's should identify and assess, in more detail than the SFRA, the risks of all forms of flooding to and from the development and demonstrate how flood risks will be managed, taking climate change into consideration. The FRA should determine the level of vulnerability of the proposed development (Table D.2, PPS25) and subsequently whether the development is appropriate in relation to Flood Zones (Table D.3, PPS25). FRA's should provide evidence to assist application of the Sequential Test and, where necessary, the Exception Test. The EA should be consulted to obtain flood level information for a proposed development site. Where available, flood levels should be used to determine minimum requirements for finished floor levels and emergency access and egress routes. In general, flood levels should be available for sites located in a Flood Zone identified as having a high confidence. Where sites are located in a Flood Zone identified as having a medium or low confidence, the FRA may need to refine the flood outline at this location.



- ▲ Former Alnwick Sustainable Village Centres
- Northumberland County Boundary
- ◆ Development Towns
- River Centrelines
- Defences
- Areas Benefiting from Defences (Designated by EA)
- EA Historical Flood Map
- Flood Zone 3b (1) (Functional Floodplain - 1 in 20/25 year)
- Flood Zone 3b (2) (FZ3a proxy where no FZ3b outlines currently exist)
- Flood Zone 3a (1 in 100 year)
- Flood Zone 3 + CC (1 in 100 year plus an allowance for climate change (FZ2 proxy))
- Flood Zone 2 (1 in 1000 year)

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Revision Details	By	Date	Surf

Drawing Status: **FINAL**

Job Title:  
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Drawing Title:  
**Hydrology - Former Alnwick Sustainable Village Centres**

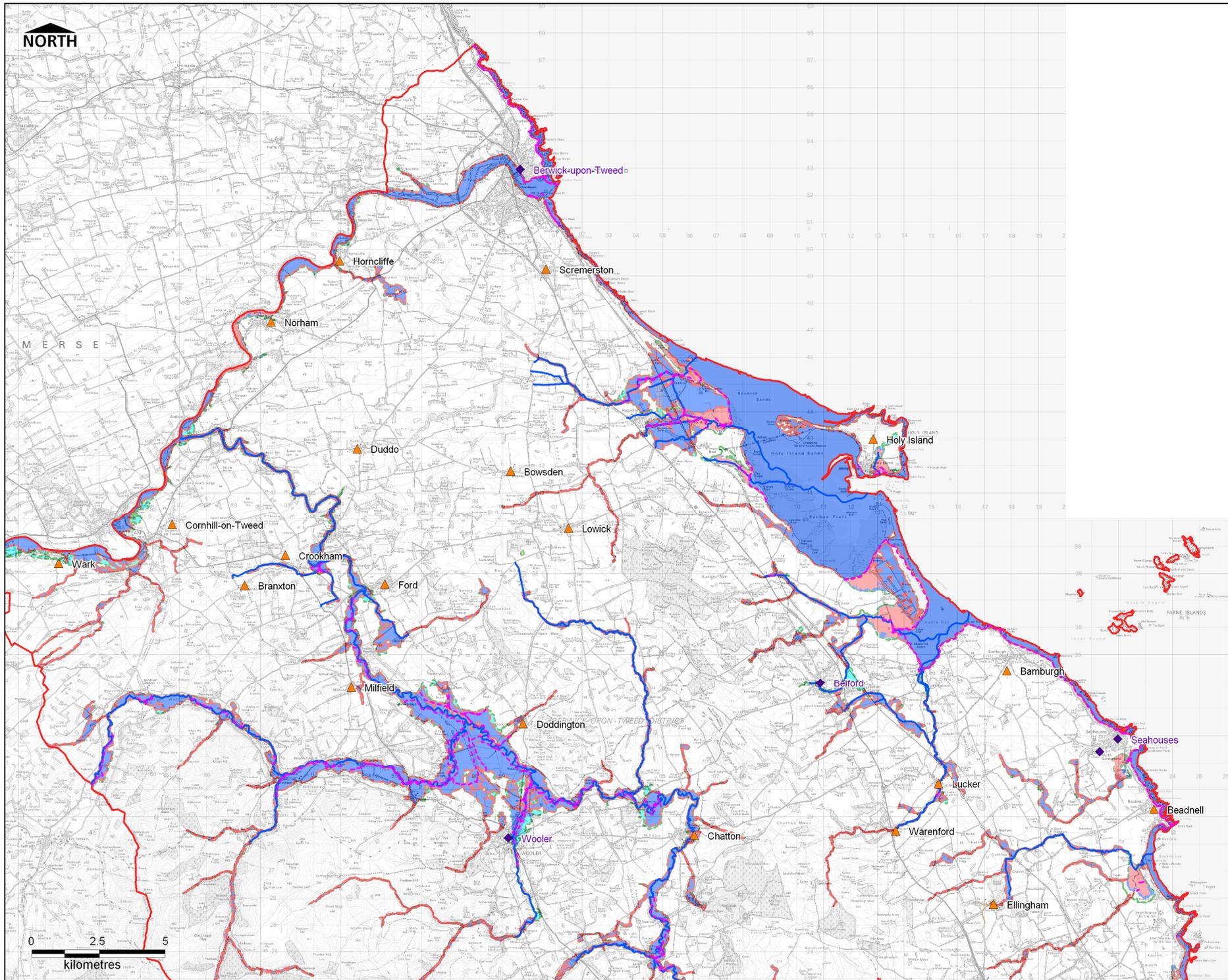
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Original: SA	Date: 09-04-10

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- Former Berwick Service Villages
- Northumberland County Boundary
- Development Towns
- River Centrelines
- Defences
- Areas Benefiting from Defences (Designated by EA)
- EA Historical Flood Map
- Flood Zone 3b (1) (Functional Floodplain -1 in 20/25 year)
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- Flood Zone 2 (1 in 1000 year)

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Job Title  
**Northumberland County Council  
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Flood Risk Assessment**

Drawing Title  
**Hydrology - Former Berwick  
Service Villages**

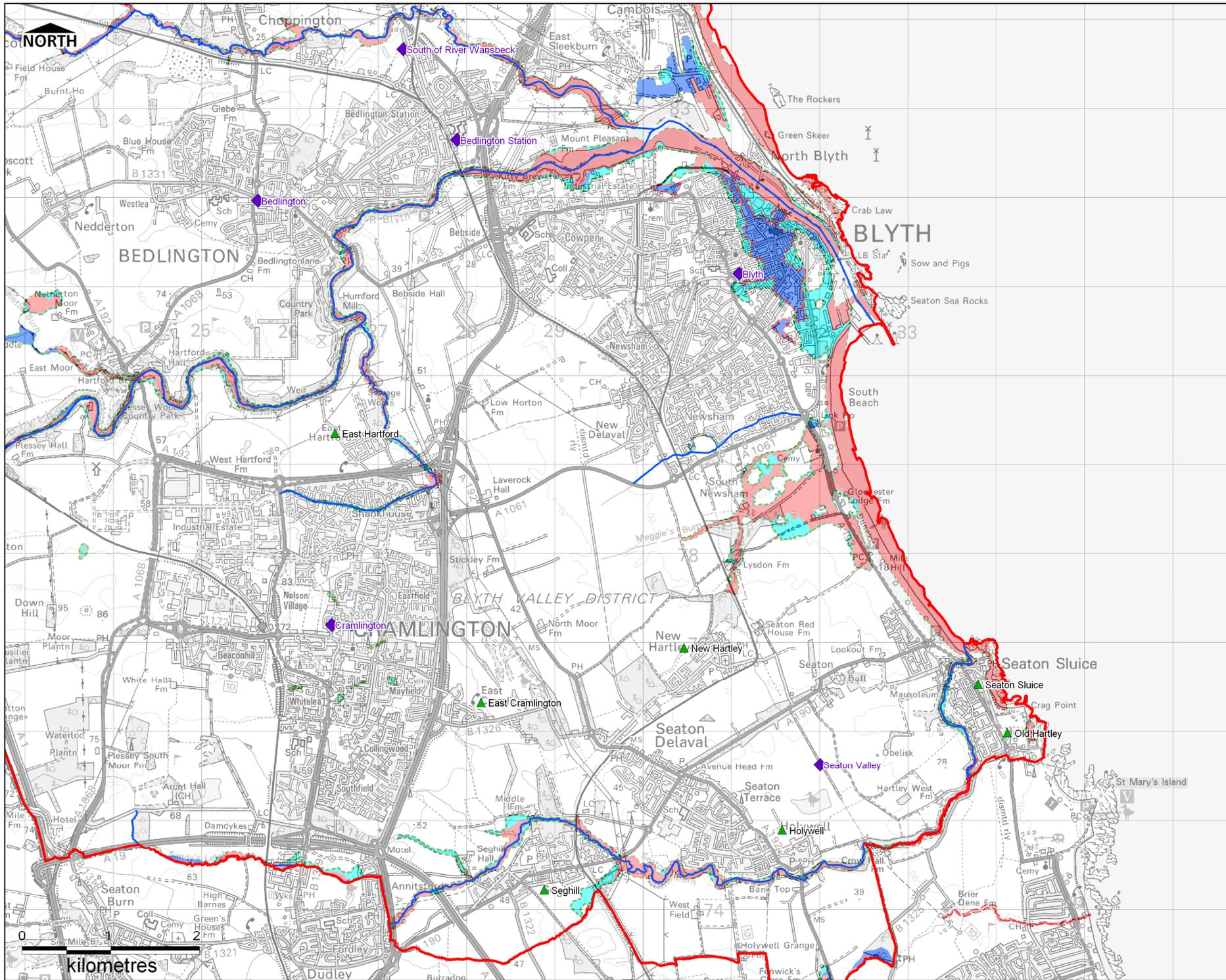
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			09-04-10

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Drawing Number  
**S106308 - B2 - 24**



- ▲ Former Blyth Valley
- Northumberland County Boundary
- ◆ Development Towns
- River Centrelines
- Defences
- Areas Benefiting from Defences (Designated by EA)
- EA Historical Flood Map
- Flood Zone 3b (1) (Functional Floodplain -1 in 20/25 year)
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- Flood Zone 3 + CC (1 in 100 year plus an allowance for climate change (FZ2 proxy))
- Flood Zone 2 (1 in 1000 year)

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Job Title:  
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Level 1 Strategic  
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Drawing Title:  
**Hydrology - Former Blyth Valley**

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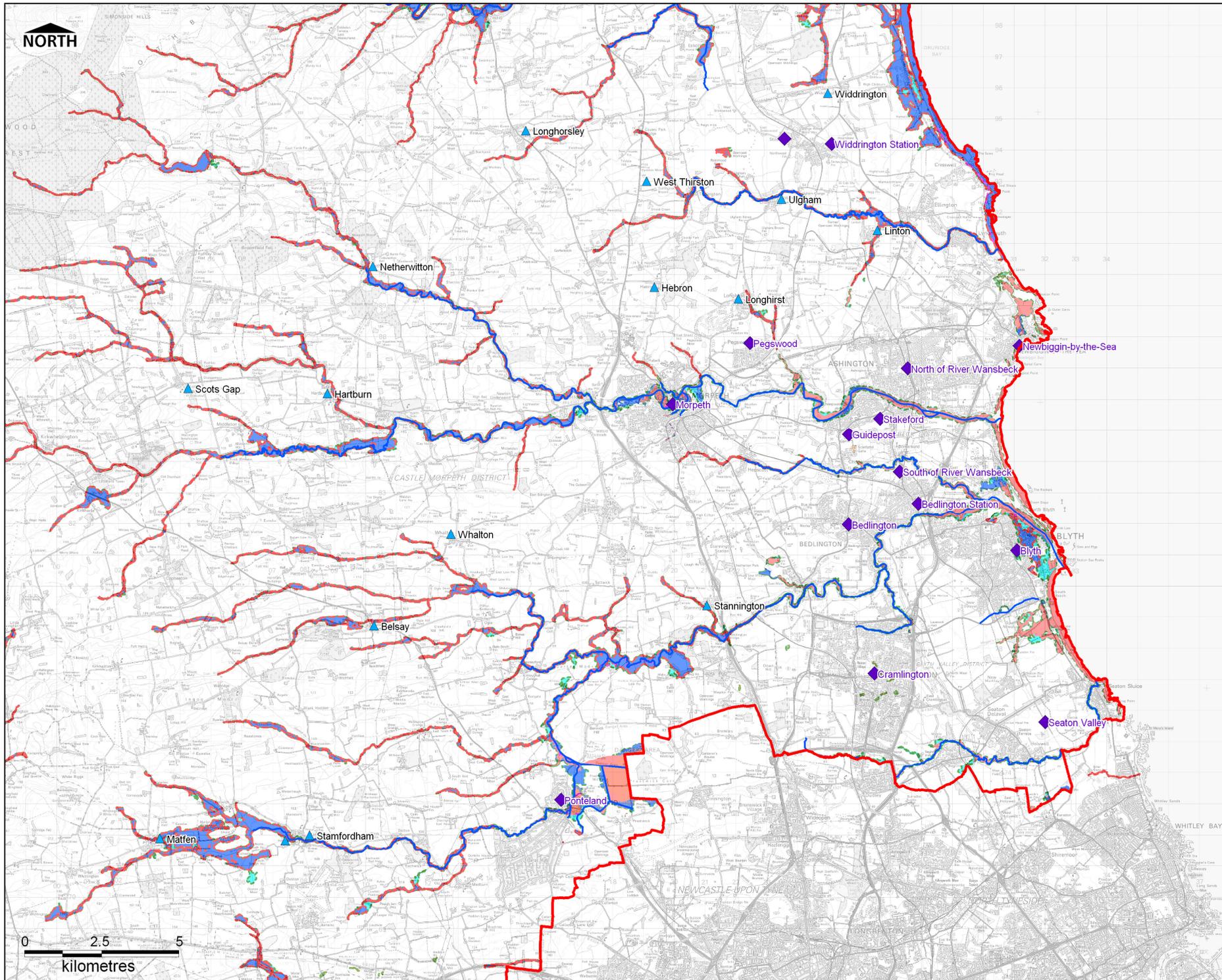
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▲ Former Castle Morpeth Sustainable Settlements

▭ Northumberland County Boundary

◆ Development Towns

— River Centrelines

- - - Defences

▨ Areas Benefiting from Defences (Designated by EA)

▨ EA Historical Flood Map

▭ Flood Zone 3b (1) (Functional Floodplain - 1 in 20/25 year)

- - - Flood Zone 3b (2) (FZ3a proxy where no FZ3b outlines currently exist)

▭ Flood Zone 3a (1 in 100 year)

- - - Flood Zone 3 + CC (1 in 100 year plus an allowance for climate change (FZ2 proxy))

▭ Flood Zone 2 (1 in 1000 year)

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Job Title:  
**Northumberland County Council  
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Flood Risk Assessment**

Drawing Title:  
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Morpeth Sustainable Settlements**

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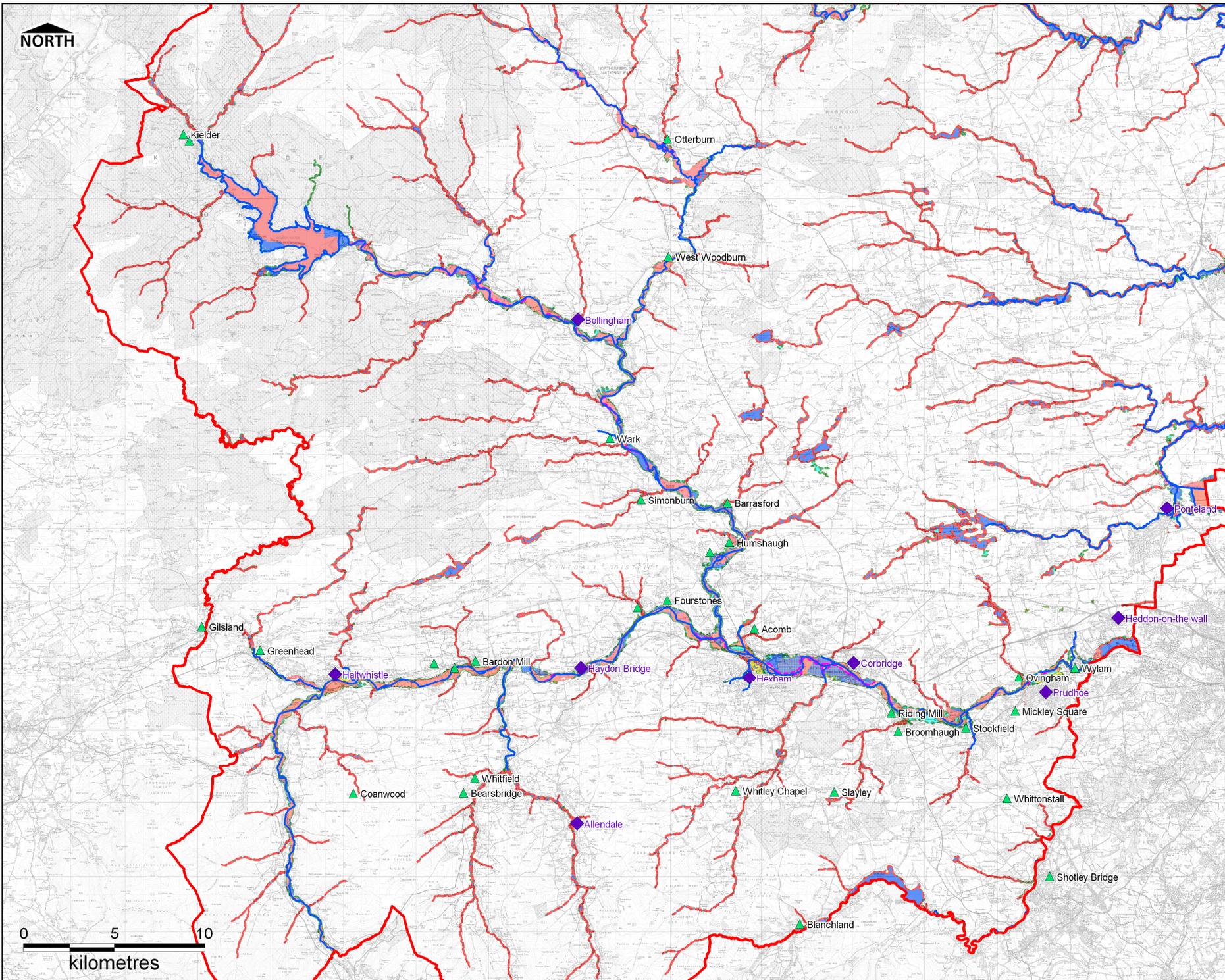
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0 2.5 5  
kilometres

NORTH



- Former Tynedale Villages
- Northumberland County Boundary
- Development Towns
- River Centrelines
- Defences
- Areas Benefiting from Defences (Designated by EA)
- EA Historical Flood Map
- Flood Zone 3b (1) (Functional Floodplain - 1 in 20/25 year)
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- Flood Zone 3 + CC (1 in 100 year plus an allowance for climate change (FZ2 proxy))
- Flood Zone 2 (1 in 1000 year)

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Revision Details	By	Date	Surf
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Job Title:  
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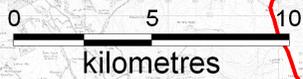
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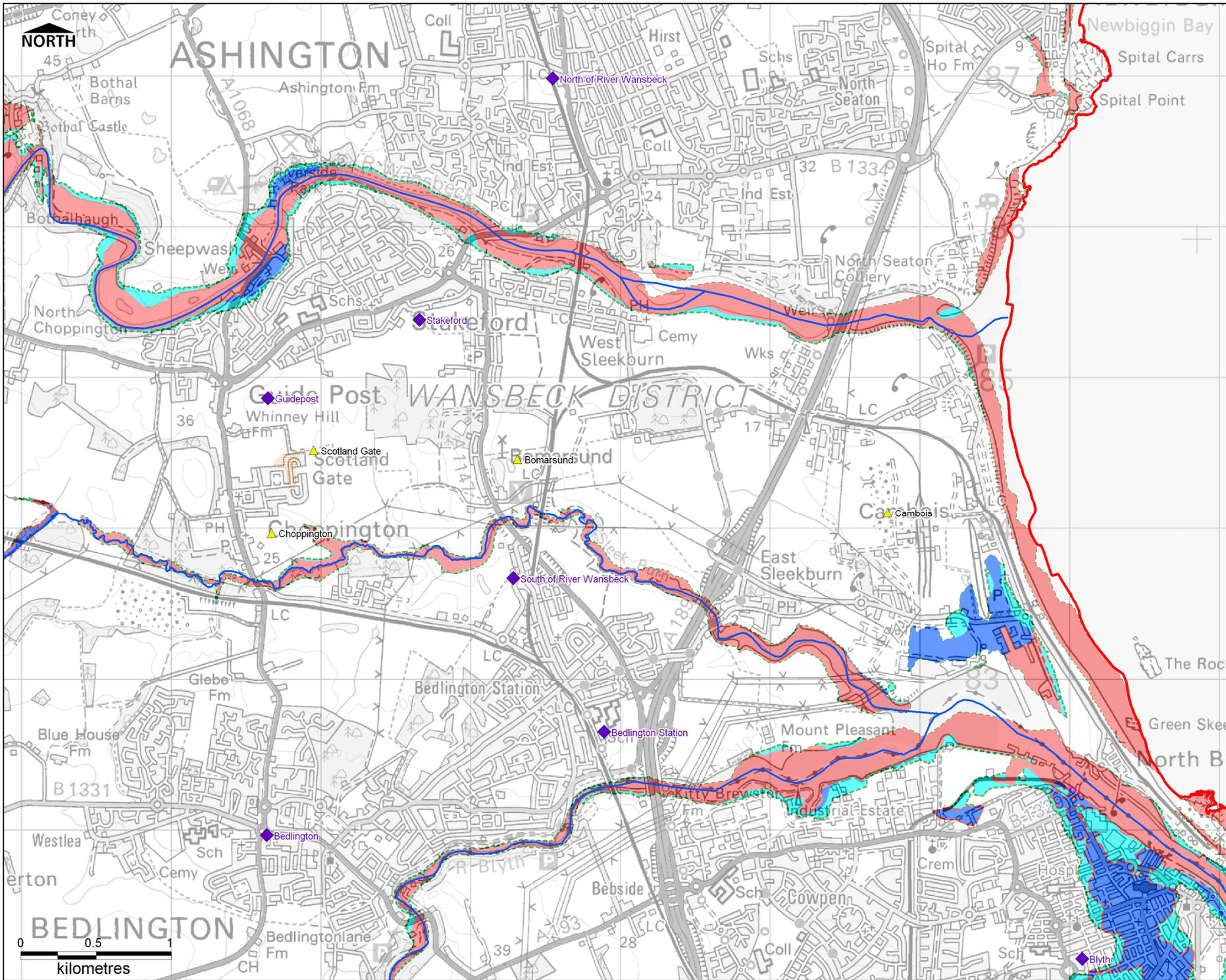
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- ▲ Former Wansbeck Villages
- Northumberland County Boundary
- ◆ Development Towns
- River Centrelines
- - - Defences
- Areas Benefiting from Defences (Designated by EA)
- EA Historical Flood Map
- Flood Zone 3b (1) (Functional Floodplain - 1 in 20/25 year)
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- Flood Zone 3a (1 in 100 year)
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- Flood Zone 2 (1 in 1000 year)

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Drawing Title:  
**Former Wansbeck Villages**

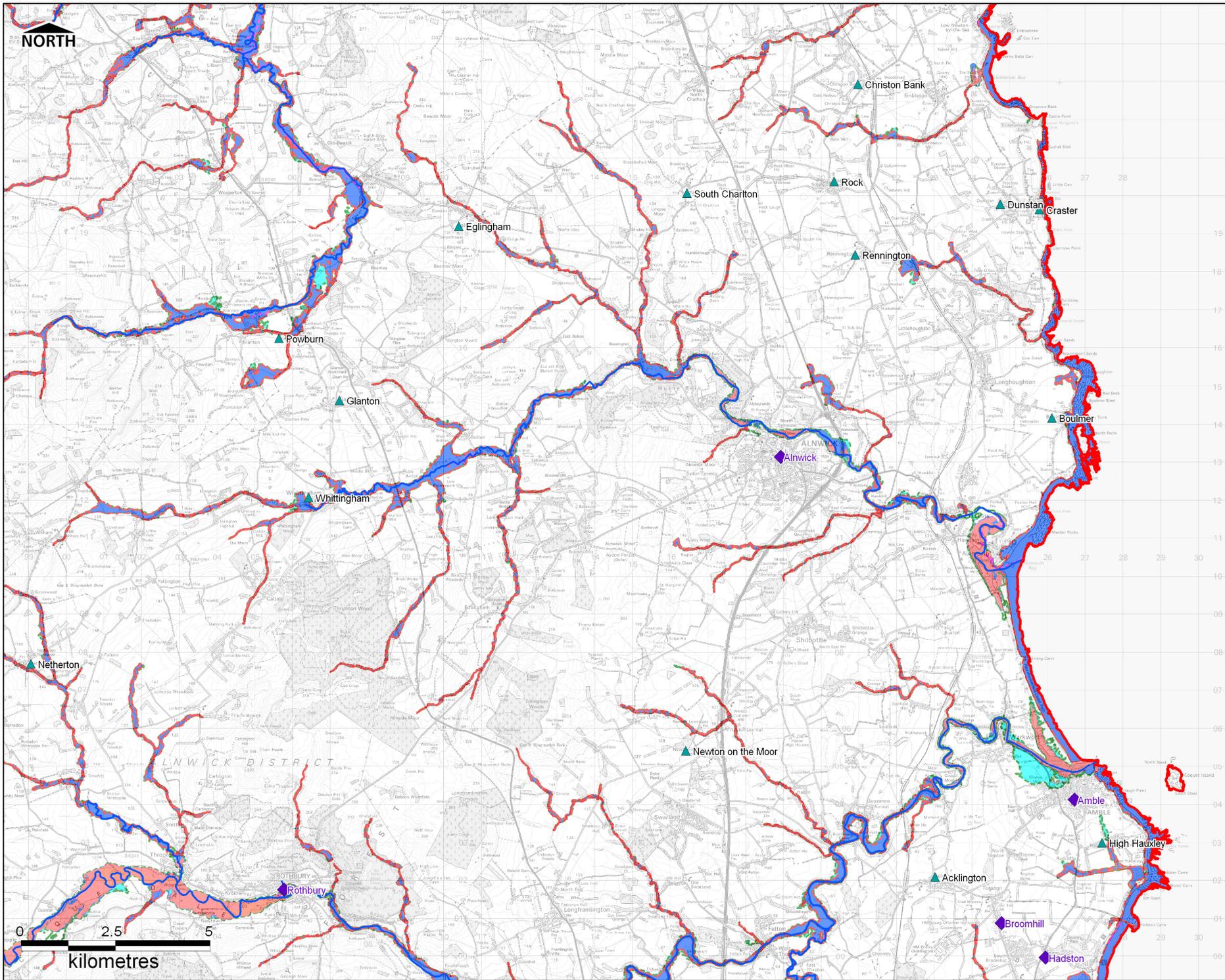
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- ▲ Former Alnwick District Local Needs Centres
- Northumberland County Boundary
- ◆ Development Towns
- River Centrelines
- Defences
- Areas Benefiting from Defences (Designated by EA)
- EA Historical Flood Map
- Flood Zone 3b (1) (Functional Floodplain - 1 in 20/25 year)
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- Flood Zone 3a (1 in 100 year)
- Flood Zone 3 + CC (1 in 100 year plus an allowance for climate change (F22 proxy))
- Flood Zone 2 (1 in 1000 year)

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Job Title:  
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Drawing Title:  
**Former Alnwick District  
Local Needs Centres**

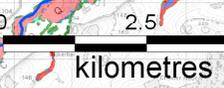
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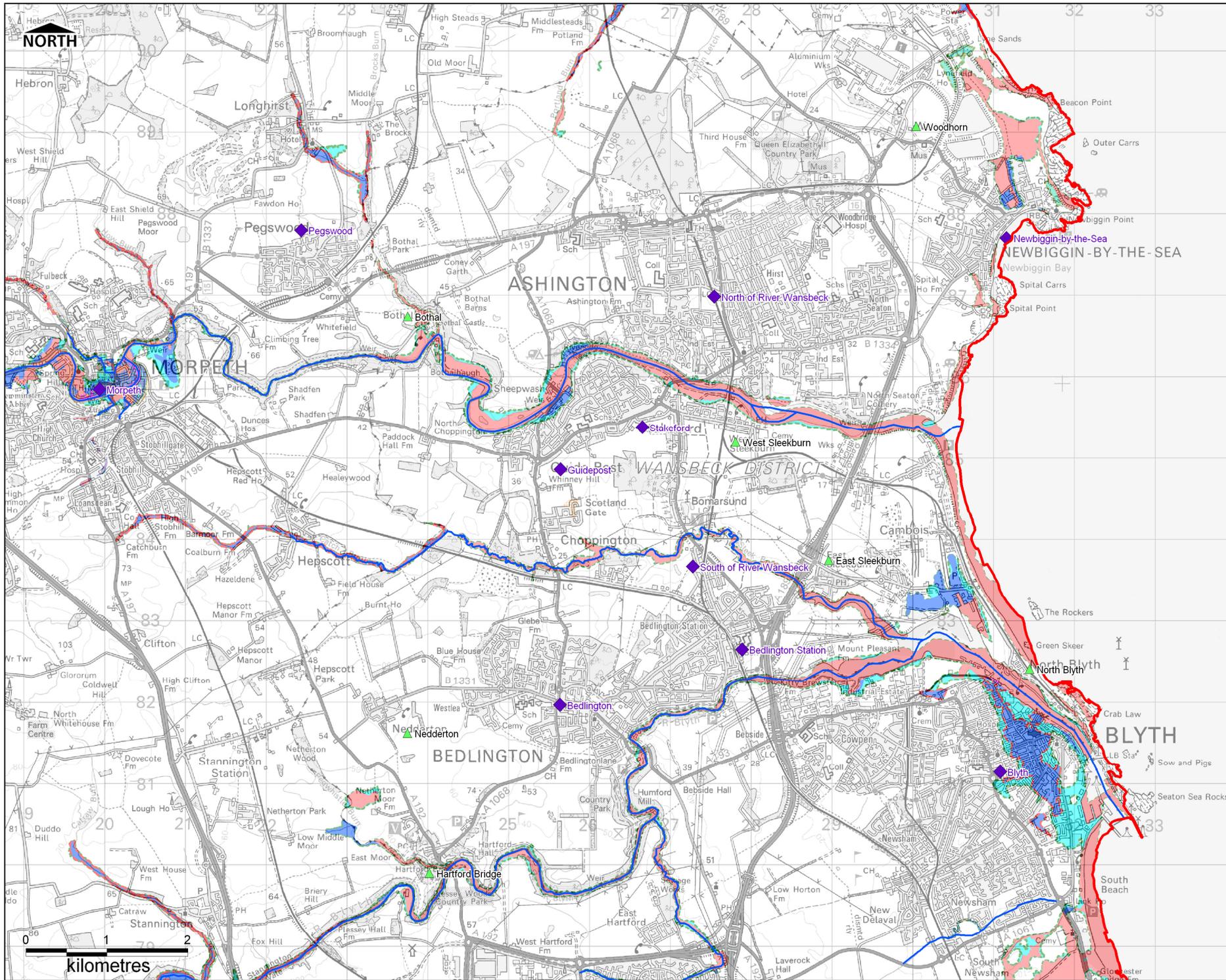
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- ▲ Wansbeck Smaller Centres
- Northumberland County Boundary
- ◆ Development Towns
- River Centrelines
- Defences
- Areas Benefiting from Defences (Designated by EA)
- EA Historical Flood Map
- Flood Zone 3b (1) (Functional Floodplain -1 in 20/25 year)
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- Flood Zone 2 (1 in 1000 year)

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**Wansbeck Smaller Centres**

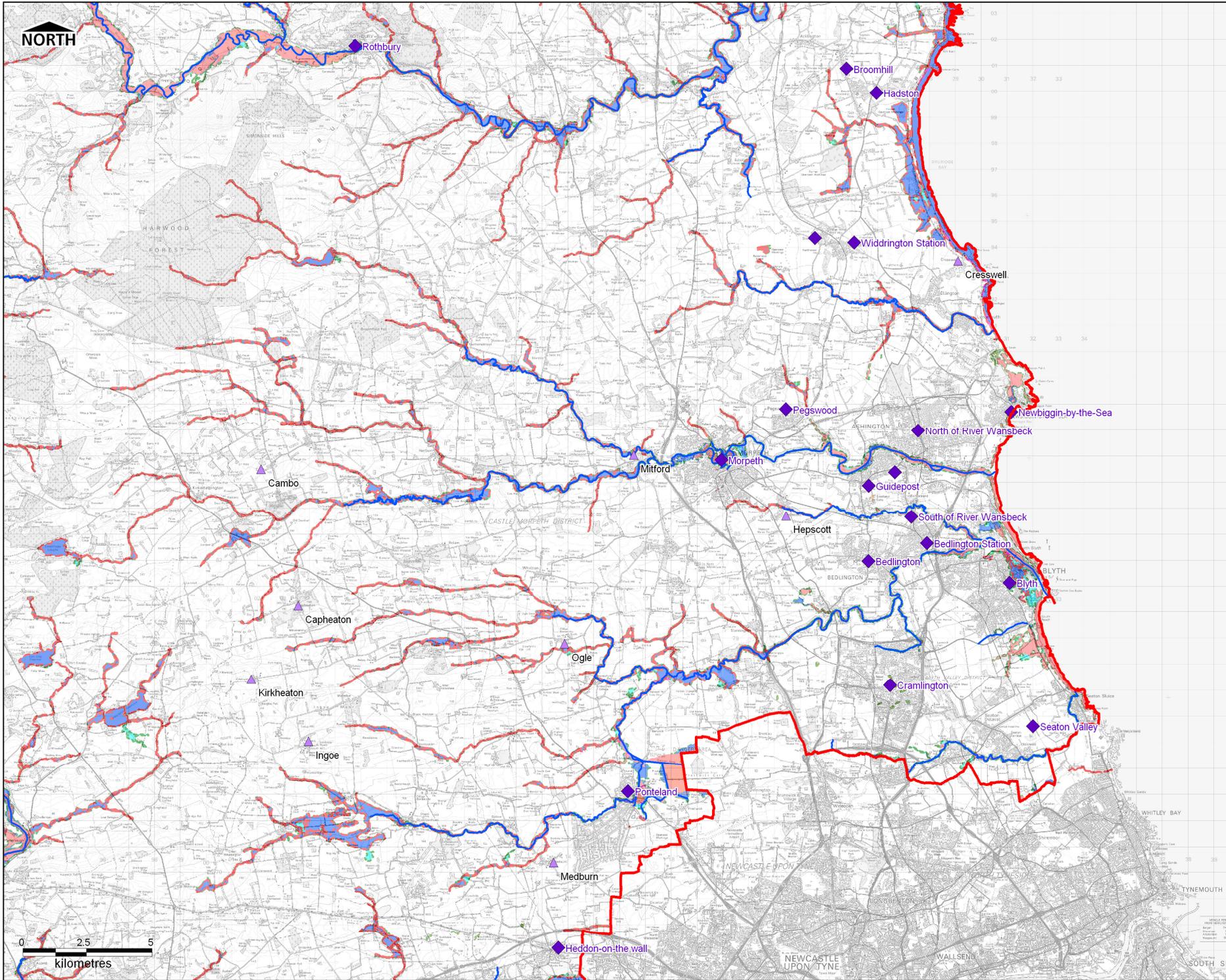
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- Castle Morpeth Smaller Centres
- Northumberland County Boundary
- Development Towns
- River Centralines
- Defences
- Areas Benefiting from Defences (Designated by EA)
- EA Historical Flood Map
- Flood Zone 3b (1) (FZ3a proxy where no FZ3b outlines currently exist)
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Drawing Title:  
**Castle Morpeth Smaller Centres**

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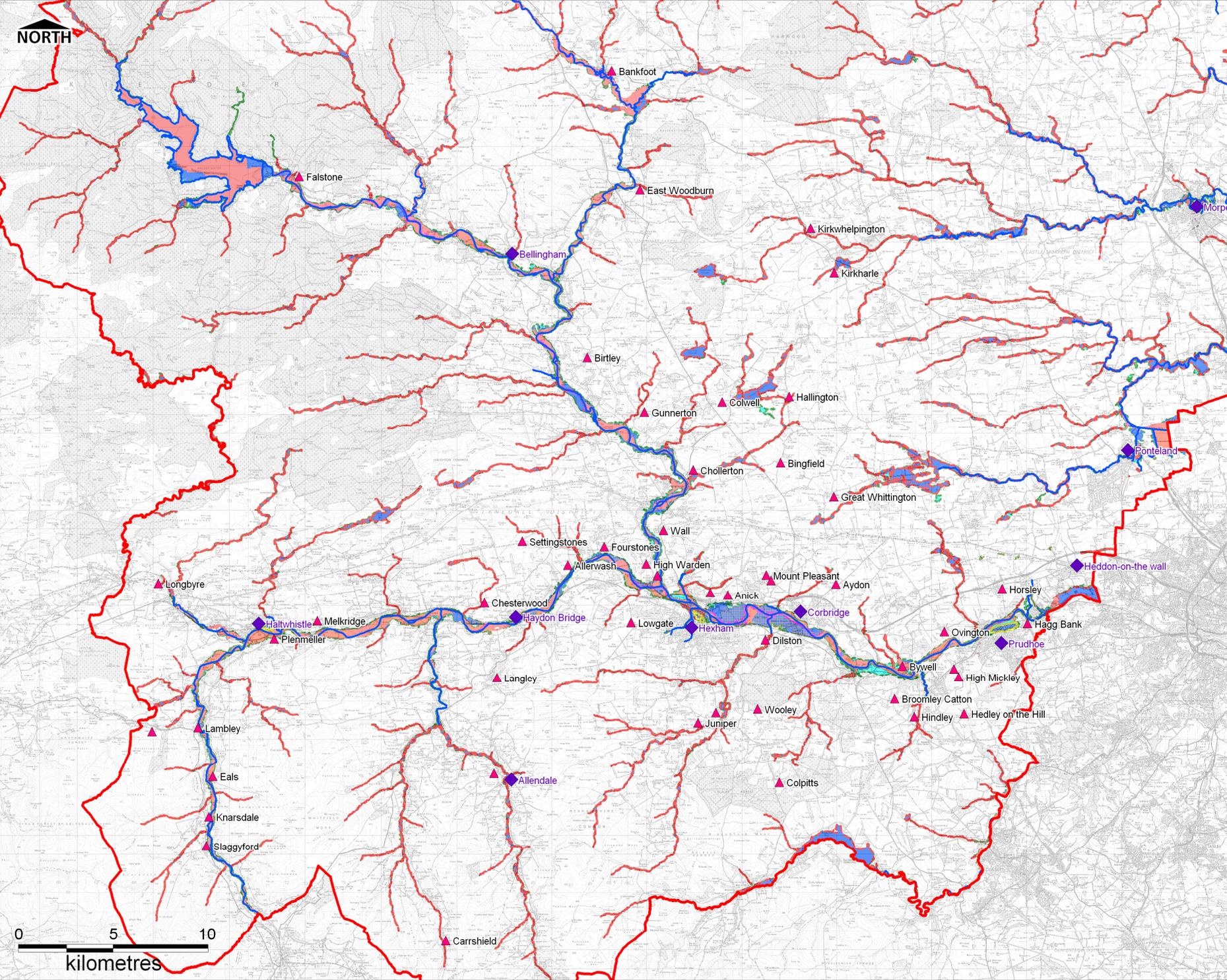
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	SJA		SA
			Date
			09-04-10

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- ▲ Tynedale Smaller Villages
- Northumberland County Boundary
- ◆ Development Towns
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Job Title:  
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Drawing Title:  
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