Newcastle City Council Level 2 Strategic Flood Risk Assessment

Volume I: SFRA Report

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Contract

This report describes work commissioned by Newcastle City Council awarded by official order VPUV 0720910 dated 27th July May 2010. Newcastle City Council's representative for the contract was Rachael Ashworth. Howard Keeble and Rosalind Whitham of JBA Consulting carried out this work.

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Purpose

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Executive Summary

Introduction

Newcastle City Council is required to undertake a Strategic Flood Risk Assessment (SFRA) as an essential part of the evidence-gathering stage of the Local Development Framework (LDF) and in the preparation of the Local Development Documents (LDDs). The SFRA provides baseline information for use in the preparation of the Sustainability Appraisal (SA).

The requirement for the preparation of SFRAs is outlined in Planning Policy Statement 25 Development and Flood Risk (PPS25) and its Practice Guide. This requires Local Planning Authorities (LPAs) to take a lead role in local flood risk and development planning. This is required in order to demonstrate that sufficient consideration has been given to flood risk at all stages of the planning process. This is required to avoid inappropriate development in higher flood risk areas.

Local authority planners need to demonstrate that a risk-based sequential approach to development planning and flood risk has been adopted throughout the evaluation process and applied during preparation of development plans. This is achieved through the application of the Sequential and Exception Test as outlined in PPS25.

The SFRA comprises relevant data, guidance and recommendations for flood risk issues at a local level. It is a planning tool that enables the LPA to carry out Sequential and Exceptions Testing and to select and develop sustainable site allocations at lower risk of flooding.

The SFRA provides an integrated approach to strategic and local Flood Risk Management (FRM). The SFRA also provides links to other policy documents such as Catchment Flood Management Plans (CFMPs), Regional Flood Risk Appraisals (RFRAs) and Surface Water Management Plans (SWMPs).

The Newcastle Level 2 Strategic Flood Risk Assessment (SFRA) is presented as two reports:

- Volume 1: Is the Level 2 SFRA, including detailed assessment of actual and residual flood risk within high risk communities.
- Volume 2: Is the accompanying SFRA User Guide.

Flood Risk in Newcastle

Newcastle is at risk from many different sources of flooding including, main rivers, ordinary watercourses, surface water runoff, sewer flooding and the residual risks associated with artificial water bodies such as lakes and ponds.

Background

JBA Consulting was commissioned by Newcastle City Council to undertake a Level 2 Strategic Flood Risk Assessment (SFRA). The Level 2 SFRA has been prepared in accordance with current best practice, Planning Policy Statement 25 Development and Flood Risk (PPS25)[1] and the PPS25 Practice Guide[2].

The Level 1 element of an SFRA (completed in 2010 by JBA Consulting) is based on existing information that is required to make an assessment of flood risk from all sources, both now and in the future. It provides the evidence for LPA officers to apply the Sequential Test and identifies the need to passed the Exception Test where required. Both of these tests are a fundamental part of PPS25.

The SFRA has been developed further and provides evidence for key communities where the Exception Test may need to be applied. It considers the detailed nature of flood hazard taking account of the presence of flood risk management measures such as flood defences.

[1] Communities and Local Government (2006) Planning Policy Statement 25: Development and Flood Risk
[2] Communities and Local Government (2008) Planning Policy Statement 25: Development and Flood Risk – Practice Guide

The additional detail can also inform a sequential approach to development allocation within flood risk areas and mitigation options where appropriate.

Sequential Test Spreadsheet

This SFRA includes the Sequential Test spreadsheet for all sites identified by the Council as being potentially suitable for future development in accordance with their perceived development needs. The Council has, as part of the SFRA process, already rejected sites that are unsuitable based on significant flooding issues. In addition to the report, particular focus needs to be given to the Sequential Test spreadsheet, included as Appendix A.

Structure of the Newcastle SFRA

The Newcastle SFRA is supplied as two Volumes, described in the table below. Readers should refer to Newcastle City Council for guidance on how to use the information provided in the SFRA.

SFRA Volume	Title of volume	Contents
I	Level 2 SFRA	This Volume provides evidence on a community wide basis. It provides more detailed information on flood risk from the River Ouseburn, the River Tyne and surface water. The additional detail can also inform a sequential approach to development allocation within flood risk areas and mitigation options where appropriate.
II	SFRA User Guide	For additional information on the SFRA process and requirements for Sequential and Exceptions Testing please refer to the SFRA User Guide.

Understanding flood risk from a planning perspective

This Level 2 SFRA provides an overview of flood risk from a planning perspective to aid the Council when undertaking the Exception Test. The SFRA presents a summary of flood risk from all sources to groups of strategic development sites within the city. An outline flood risk mitigation strategy for Newcastle has been prepared, which provides advice on how development could proceed in flood risk areas and be compliant with the requirements of PPS25. The SFRA has assessed the likelihood of strategic development sites passing the Exception Test.

Recommendation for further work

The SFRA has made the following recommendations for further work:

1. A Drainage Strategy should be undertaken as part of or alongside the scoping SWMP for key development areas to identify locations suitable for SUDS and how flood risk can be managed and reduced downstream.

SFRA Mapping

A suite of strategic flood risk maps have been produced for the SFRA. In keeping with PPS25 and the associated Practice Guide, these maps should be used to locate development away from areas at high risk of flooding.

Future development planning also needs to make reference to this suite of strategic flood risk maps, as well as any updated information provided by the LPA and Environment Agency.

Use of SFRA Data

Whilst all data used in the preparation of this SFRA has been supplied to the Council (including, for example, reports, mapping, GIS and modelled data) there is a need to maintain controls over the data and how it is applied and modified. It is anticipated that the SFRA and associated maps will be published on the Council's website as .pdfs. As the central source of SFRA data, these maps will be available to download. Please note that some maps may be available upon request.

The Council will be able to use the modelled output (depths, hazards and outlines) for internal use. The use of this information must consider the context within which it was produced. The use of this data will fall under the license agreement between the Council and the Environment Agency as it has been produced using Environment Agency data. It should be remembered that the modelling undertaken for the SFRA is of a strategic nature and more detailed FRAs should seek to refine the understanding of flood risk from all sources to any particular site.

SFRA data should not be passed on to third parties outside of the Council. Any third party wishing to use existing Environment Agency flood risk datasets should contact External Relations in the Environment Agency North East Region. A charge is likely to apply for the use of this data.

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Abbreviations

1D	One-Dimensional
2D	Two-Dimensional
ABD	Area Benefiting from Defence
AEP	Annual Exceedance Probability
ASTSWF	Areas Susceptible to Surface Water Flooding
CFMP	Catchment Flood Management Plan
CLG	Communities and Local Government
COW	Critical Ordinary Watercourse
CRR	Community Risk Register
CSO	Combined Sewer Overflow
DPDs	Development Plan Documents
DTM	Digital Terrain Model
EA	Environment Agency
ELA	Employment Land Availability
EU	European Union
FCERM	Flood and Coastal Erosion Risk Management
FEH	Flood Estimation Handbook
FRA	Flood Risk Assessment
FRM	Flood Risk Management
GIS	Geographical Information Systems
HEC-RAS	Hydrologic Engineering Centres River Analysis System
JFlow	A 2D flood model which solves depth averaged fluid flow equations to model the movement of water over the ground
LDDs	Local Development Documents
LDF	Local Development Framework
LIDAR	Light Detection and Ranging
LPAs	Local Planning Authorities
MAOD	Metres Above Ordnance Datum
NFCDD	National Flood and Coastal Defence Database
NW	Northumbrian Water
PPS	Planning Policy Statement
RFRA	Regional Flood Risk Assessment
RBMP	River Basin Management Plans
RPB	Regional Planning Body
RPG	Regional Planning Guidance
SA	Sustainability Appraisal
SCI	Statement of Community Involvement
SEA	Strategic Environmental Assessment
SFRA	Strategic Flood Risk Assessment
SHLAA	Strategic Housing Land Availability Assessment
SLR	Strategic Land Review
SMP	Shoreline Management Plan
SoP	Standard of Protection
SUDS	Sustainable (Urban) Drainage Systems
SWMP	Surface Water Management Plan
UDP	Unitary Development Plan
WCS	Water Cycle Study
WFD	Water Framework Directive

For a full glossary of terms, please refer to the accompanying SFRA User Guide.

1. Introduction

1.1 Background

JBA Consulting was commissioned in July 2010 by Newcastle City Council to undertake a Level 2 Strategic Flood Risk Assessment (SFRA).

The SFRA has been prepared in accordance with current best practice, Planning Policy Statement 25 Development and Flood Risk (PPS25)[3] and the PPS25 Practice Guide[4].

The SFRA is presented in two separate report volumes:

- Volume I: The Level 2 SFRA
- Volume II: The SFRA User Guide

This report supports the application of the Sequential Test and an assessment of the likelihood of a site passing the Exception Test by providing an understanding of the variability of risk in flood risk areas.

1.2 General scope and objectives of SFRAs

Flooding is a natural process and does not respect political demarcations or administrative boundaries; it is influenced principally by the natural elements of rainfall, tides, geology, topography, rivers and streams and man-made interventions such as flood defences, roads, buildings, sewers and other infrastructure. As was seen in the summer of 2007, flooding can cause massive disruption to communities, damage to property and possessions and even loss of life.

For this reason it is best to avoid developing in flood risk areas in the first instance. Where this is not possible then the vulnerability to flooding of the proposed land use should be considered and measures taken to minimise flood risk to people, property and the environment should be implemented. This is the thrust of the risk-based sequential approach to managing flood risk and it is the backbone of PPS25.

Current Government policy requires local authorities to demonstrate that due regard has been given to flood risk in the planning process. It also requires that flood risk is managed in an effective and sustainable manner and where new development is necessary in flood risk areas (exceptionally), the aim is to make it safe and not increase flood risk elsewhere. Where possible, flood risk should be reduced overall.

An SFRA is a planning tool that enables a council to select and develop more vulnerable site allocations away from areas susceptible to flooding. This report focuses on the existing site allocations within the city but also sets out the procedure to be followed when assessing additional sites for development in the future.

It is recognised that considerable pressures for regeneration, inward investment and economic growth exist across the city. This SFRA will guide the Council in their strategies, policies and decision making in respect of their Local Development Framework (LDF) and Local Development Documents (LDDs).

In addition to informing the assessment of existing site allocations, this Level 2 SFRA will inform decision-making on non-allocated planning applications, flood management measures to reduce flood risk to existing development, and emergency planning.

[3] Communities and Local Government (2010) Planning Policy Statement 25: Development and Flood Risk
[4] Communities and Local Government (2009) Planning Policy Statement 25: Development and Flood Risk – Practice Guide

The key objectives of an SFRA are to:

- Investigate and identify the extent and severity of flood risk to the area at present and in the future, under the terms of PPS25,
- Contribute to the Council's Sustainability Appraisal (SA) and LDF,
- Enable the Council to apply the Sequential Test and assess the likelihood of development passing the Exception Test,
- Provide strategic flood risk guidance and advice to planners and developers,
- Help LPAs to identify specific locations where further and more detailed flood risk data and assessment work is required. This includes the scope for Surface Water Management Plans (SWMPs) and/or Water Cycle Studies (WCSs),
- Identify the level of detail required for site-specific Flood Risk Assessments (FRAs),
- Inform the emergency planning process,
- Improve stakeholder joint working and the sharing of data, information and the understanding of flood risk, and
- Provide a reference document.

There is a trend developing since the publication of the PPS25 Practice Guide in 2008 for SFRAs to be more than a land use planning tool and provide a broader and more inclusive vehicle for integrated, strategic and local flood risk management assessment and delivery. Since publication of the Pitt Review, it is apparent that SFRAs will provide the central store for data, information and consideration for all flood risk issues from all sources at a local level and provide the linkage between Catchment Flood Management Plans (CFMPs), Shoreline Management Plans (SMPs), Regional Flood Risk Appraisals (RFRAs), SWMPs and appropriate sustainable land uses over a number of planning cycles.

SFRAs need to be fit for the future to help communities to meet the considerable flood risk management and climate change related challenges ahead.

1.3 Level 2 SFRA scope and objectives

The Level 2 SFRA provides a detailed understanding of flood risk across the three key development areas within Newcastle from all sources to help support the application of the Sequential Test and provide an assessment of the likelihood of a site passing the Exception Test. This document provides an understanding of actual risk (taking into account the presence of flood defences) and identifies residual risk where appropriate. Residual risks are the risks that remain after all risk avoidance, substitution, control and mitigation measures have been taken into account. The residual risks in Newcastle are, therefore, related to the occurrence of events of low probability, such as extreme flood events greater than the design capacity of the constrained river system or failure of flood defences or other assets (e.g. culverts).

It is the assessment of risk associated with low probability but high impact events that is central to the Level 2 SFRA work and the impacts they have on development in Newcastle. By facilitating the application of the Exception Test, the Level 2 SFRA technical work also provides evidence to support the allocation of land for specific uses within individual developments in flood risk areas, including providing a range of possible mitigation measures that could enable development to proceed.

Whilst the application of the Exception Test may make it possible to strategically plan the type and form of some developments, it must not be used as a tool to place inappropriate development in flood risk areas.

1.4 Study Area

Newcastle upon Tyne is a city and metropolitan borough of Tyne and Wear, in North East England. The city is located on the River Tyne. According to the UK Government's 2001 census,[49] the city of Newcastle has a population of 189,863, and the unitary authority of Newcastle has a population of around 259,500.

The tidal River Tyne and the River Ouseburn are the two primary sources of flood risk in the city. In addition several smaller watercourses drain into the River Ouseburn, including:

- Crag Hall Dene
- Forest Hall Letch
- Golf Course tributary
- Gosforth Letch
- Harey Dene
- Kingston Park tributary
- Sunniside Drain
- West Moor tributary
- Whorlton Hall branch

Figure 1-1: Newcastle City Council SFRA Study Area

1.5 Local Flood Risk Advice

This Level 2 SFRA provides an overview of flood risk from a planning perspective to aid the Council when undertaking the Exception Test. The SFRA presents a summary of flood risk from all sources to groups of strategic sites within communities, which have been provided by the Environment Agency and summarised below.

1.5.1 A&P Yard (Land Reference 1437)

The Environment Agency have previously been consulted on this site by the LPA during planning consultation. The proposals involve infilling of the docks to create a development platform. An FRA was submitted as the site is partially within tidal flood zones and greater than 1 ha. Due to the tidal nature of the site surface water, ground raising and infilling of the dry docks was not a flood risk concern. Mitigation measures included raising ground levels above the 1 in 200 year event level to bring the development platform above flood levels and safe access was confirmed. Further planning applications have been received for the construction of an industrial unit on the site which was not a concern due to the previous flood risk mitigation.

1.5.2 Dobsons Yard (Land Reference 4438)

The site is at tidal flood risk and therefore the Environment Agency would not be against ground raising to be undertaken to mitigate the flood risk. As flood risk is tidal surface water discharge into the River Tyne would not be restricted.

1.5.3 Heaneys (Land Reference 1110)

Flood risk is restricted to the banks of the Ouseburn therefore flood risk is currently minimal.

1.5.4 Newburn Riverside (Land Reference 2802)

The site at risk of flooding on the banks of the River Tyne and is restricted to a very small section of the site. The Environment Agency would therefore have no issue with this site coming forward for development. As this site is greater than 1ha surface water drainage would need to be assessed, however as the watercourse is tidal at this location the EA would not impose a restriction for disposal into the watercourse at this point.

1.5.5 Ouseburn Central (Land Reference 1038)

Flood risk at this site is restricted only to the banks of the Ouseburn so the EA would have no issue with development coming forward for this site.

1.5.6 Quay Timber Site (Land Reference 4289)

The site is at lowest probability of flooding therefore the EA have no objections in this site coming forward for development.

1.5.7 Shelley Road (Land Reference 2794)

The site is only at minimal risk of tidal flooding where the site comes into contact with the river bank. There is fluvial flood risk present north of the dismantled railway, north of the site. This area of flood zones stops abruptly prior to the watercourse flowing under the railway. The EA consider that this may need to be investigated further to ensure there is an accurate

understanding of the flood risk present. The tidal limit of the River Tyne lies just upstream of the site. As the river is still tidal at this location the EA would not make recommendation to impose a discharge restriction if surface water is to be discharged into the river at this point.

1.5.8 Southside, Newcastle Airport (Land Reference 1713)

The eastern border of the site is at risk from fluvial flooding. As there is fluvial flood risk on the site if surface water is to be discharged into neighbouring watercourses it must be restricted to at least no more than that from the existing greenfield site including an allowance for climate change and freeboard.

1.5.9 Stephen Eastern (Land Reference 3066)

The majority of the site lies within tidal flood zones. The EA have been consulted on a planning application for a proposed residential development on this site. The EA have recommended conditions in accordance with the submitted flood risk assessment. This included finished floor levels, flood proofing measures and safe access routes.

1.5.10 Walker Riverside South (Land Reference 4721)

The tidal flood risk to the site is restricted to the banks of the River Tyne. Therefore, the EA would have recommendations in relation to this site coming forward for development. The River Tyne is tidal at this location so the EA would not have any recommendations to restricting surface water should it be discharged into the neighbouring watercourse.

1.6 SFRA Structure

The Level 2 SFRA is structured as follows:

1. **Introduction**.
2. **Flooding from rivers**. Provides an assessment of the risk at key development sites along the River Tyne and the River Ouseburn.
3. **Flooding from the sea**. Provides an assessment of the risk at key development sites that could potentially be affected by estuarine flooding from the River Tyne.
4. **Flooding from reservoirs**. Due to implications for national security, the flood risk associated with reservoir failure has not been considered in the Level 2 SFRA.
5. **Flooding from surface water and sewers**. Contains a detailed assessment of flood risk from surface water, which provides an indication of areas that may be affected by sewer flooding if the network were to surcharge. This chapter also introduces Critical Drainage Areas and provides recommendations for Surface Water Management Plans.
6. **Flooding from groundwater**. Contains a strategic assessment of the risk of groundwater flooding in the Newcastle area. Soil maps have been analysed along with detailed flood incident records.
7. **Cumulative impacts**. Provides an understanding of the impact that development could have on flood risk both within Newcastle and downstream.
8. **Hydraulic interactions**. Understanding the potential interactions between different sources of flood risk in Newcastle is critical. These have been mapped and tabulated in the Level 2 SFRA.
9. **Summary of flood risk**. The risk of flooding from all sources has been summarised for key communities.
10. **Outline Mitigation Strategy**. This provides advice on how development could proceed in flood risk areas and be compliant with the requirements of PPS25.

1.7 Sequential Test spreadsheet and associated mapping

This SFRA includes the Sequential Test spreadsheet for all sites identified by the Council as being potentially suitable for future development in accordance with their perceived development needs. The Council has, as part of the SFRA process, already rejected sites that are unsuitable based on significant flooding issues.

In addition to the report particular focus needs to be given to the Sequential Test spreadsheet, included as Appendix A and the associated mapping in Appendix B.

1.8 Understanding Flood Risk

Flooding is a natural process and can happen at any time in a wide variety of locations. It constitutes a temporary covering of land not normally covered by water and presents a risk when people, human and environmental assets are present in the area which floods. Assets at risk from flooding can include housing, transport and public service infrastructure, commercial and industrial enterprises, agricultural land and the environmental and cultural heritage. Flooding can occur from many different and combined sources and in many different ways. Major sources of flooding include:

- Fluvial (rivers) - inundation of floodplains from rivers and watercourses; inundation of areas outside the floodplain due to influence of bridges, embankments and other features that artificially raise water levels; overtopping or breaching of defences; blockages of culverts; blockages of flood channels/corridors
- Tidal - sea; estuary; overtopping of defences; breaching of defences; other flows (e.g. fluvial surface water) that could pond due to tide locking; wave action
- Surface water - surface water flooding covers two main source including sheet run-off from adjacent land (pluvial) and surcharging of sewers (combined, foul or surface water sewers)
- Groundwater - water table rising after prolonged rainfall to emerge above ground level remote from a watercourse; most likely to occur in low-lying areas underlain by permeable rock (aquifers); groundwater recovery after pumping for mining or industry has ceased
- Infrastructure failure - reservoirs; industrial processes; burst water mains; blocked sewers or failed pumping stations.

2. Fluvial flood risk

A detailed assessment of fluvial flood risk has been undertaken throughout the city to ascertain areas of high flood risk where there is a focus for future development. This has been undertaken using detailed river models provided by the Environment Agency and the two-dimensional modelling package JFlow. Results have been verified using approved Environment Agency modelling procedures.

2.1 Introduction

The Newcastle Level 2 SFRA presents the risk of flooding from watercourses across the city. It focuses on those areas at greatest risk, where strategic development sites have been proposed by the Council. The river modelling that has been developed for the SFRA is of a strategic nature. Detailed studies should seek to refine the understanding of flood risk from all sources where a site-specific Flood Risk Assessment is being prepared.

2.1.1 Flood Risk Assessment requirements

All planning applications need to be accompanied by a flood risk assessment. This should be written in accordance with Annex E of PPS25, which outlines the minimum requirements for a flood risk assessment as well as all other PPS25 guidance. The sequential approach should be implemented for all sites to ensure development is directed towards the areas of lowest flood risk.

Within the site boundaries development should be directed towards the areas of lowest flood risk. If development comes forward within Flood Zones 2 and 3 floor levels must be no lower than the 1 in 100 year event flood level for development in areas of fluvial risk and no lower than the 1 in 200 year event flood level for tidal flood risk. This must also include an allowance for climate change in accordance with Annex B of PPS25 and 600mm freeboard.

An FRA should seek to make an understanding of the actual and residual flood risks associated with the site. Flood resistant and flood resilient construction measures should also be included within the development and suitable safe access and egress should be ensured for all. They should also consider the following:

- Where development is located (i.e. within the constraints of an existing streetscape);
- The flood mitigating impacts of exiting or proposed flood mitigation measures;
- Assessment of residual risk;
- Or the vulnerability of development;
- The difference in depth and extent of flooding (i.e. what is the variation between 1% and 0.1% flood depths, is a further 600mm appropriate?)

2.1.2 Flood Zone 1 FRA requirements

Where sites are greater than 1 ha, are in areas affected by fluvial flood risk or where surface water discharge may cause increased risk a surface water drainage assessment will also need to be included.

Surface water drainage design should be in accordance with the drainage hierarchy within the Building Regulations Part H. Generally surface water discharge rates to neighbouring watercourses should be restricted to no more than the existing runoff from the site including an allowance for climate change in accordance with Annex B of PPS25. Where the site is currently greenfield discharge rates will be restricted to greenfield run off rates. Given the emerging recommendations of the WCS we recommend further consideration be given to local recommendations for the restriction of run-off rates.

2.1.3 SFRA focus

The SFRA focuses primarily on flood risk associated with the River Tyne and the River Ouseburn. The River Tyne and the Ouseburn, including their tributaries, are the principal watercourses in Newcastle.

Water levels along the River Tyne are primarily dependent on tide levels and the tidal cycle. The River Tyne is tidally influenced throughout the Newcastle area. It is considered unlikely that any land use changes along the River Tyne could have a significant impact on tidal flood levels.

Areas of land along the Ouseburn and its tributaries have been known to flood or, in accordance with the Flood Zone Maps, are at significant risk of flooding. Land use changes within these areas may alter conveyance and storage characteristics. This may potentially increase localised flood risk and demonstrates the need for the Council and the EA to work together on development and flood risk management issues.

During the preparation of this SFRA, the EA's River Ouseburn model has been updated and flood risk analysed using the latest LIDAR data, survey and hydrology. Approval of this updated modelling and draft flood zone mapping was not given by the Environment Agency (EA) for use in this SFRA due to the timescales of the project. A final update to the EA's Flood Map will be available on completion of the River Ouseburn project.

Potential developments within the city can be split into two classifications; Employment Land Allocation (ELA) and Strategic Housing Land Availability Assessment (SHLAA). These are correct as of March 2010 and are listed in Appendix A of this report.

2.2 Flood Zone 3 Sites

The Council has Sequentially Tested all sites of interest. At each stage of the review difficult or inappropriate sites have been eliminated from the development planning process. Included in Appendix D is a summary of the estimated depths of flooding and corresponding flood mapping for each site that includes some area within Flood Zone 3. These sites tend to be located along the northern bank of the River Tyne, the confluence with the River Ouseburn and adjacent to Newcastle International Airport.

2.3 Terminology - Flood Zone Definitions Summary

- Flood Zone 1: Low Probability

Definition: This zone comprises land assessed as having a less than 1 in 1000 annual probability of river and sea flooding in any year (<0.1% AEP).

- Flood Zone 2: Medium Probability

Definition: This zone comprises land assessed as having between a 1 in 100 and 1 in 1000 annual probability of river flooding (1% – 0.1% AEP) or between a 1 in 200 and 1 in 1000 annual probability of sea flooding (0.5% – 0.1%) in any year.

- Flood Zone 3a: High Probability

Definition: This zone comprises land assessed as having a 1 in 100 or greater annual probability of river flooding (>1% AEP) or a 1 in 200 or greater annual probability of flooding from the sea (>0.5%) in any year.

- Flood Zone 3 with climate change: High Probability

Definition: This zone comprises land assessed as having a 1 in 100 or greater annual probability of river flooding (>1% AEP) or a 1 in 200 or greater annual probability of flooding from the sea (>0.5%) in any year, with a climate change sensitivity allowance.

- Flood Zone 3b: The Functional Floodplain

Definition: This zone comprises land where water has to flow or be stored in times of flood. SFRAs should identify this Flood Zone (land which would flood with an annual probability of 1 in 20 (5% AEP) or greater in any year or is designed to flood in an extreme (0.1% AEP) flood).

2.4 Flood Zone Map

The EA Flood Zone Maps indicate areas of land that are susceptible to either fluvial or tidal flooding. These maps have been prepared in a consistent manner across the country. They show the likely extent of flooding for both the 1% (0.5% if tidal) and 0.1% annual exceedance probability (AEP) flood events.

The Flood Zone Maps were prepared using nationally recognised techniques i.e. flood flows calculated using Flood Estimation Handbook (FEH) routed over a digital terrain model using two-dimensional hydraulic modelling. The extent of flooding has been further adjusted to take into account historical flooding events and more detailed flood mapping studies.

The Flood Zone Maps offer a precautionary approach to defining the extent of flooding. This is because they do not take the flood-limiting effects of defences into account, as these structures may fail or be overtopped. The extent of flooding shown on the Flood Zone Maps therefore represents a "no defences" scenario for each design event.

It should also be noted that the Flood Zone Maps do not include consideration of climate change or other sources of flooding, such as ground water and surface water.

2.5 Delineation of Low Risk Zone 1

PPS25 divides the country into Flood Zones 1, 2 and 3. These Flood Zones correspond to areas of low, medium and high flood risk respectively.

PPS25 considers areas within Flood Zone 1 to be at low risk of flooding. The annual probability of flooding within this area is less than 0.1%. This zone can easily be identified on the Flood Zone Maps as areas of land located outside either Flood Zone 2 or 3. In general, Flood Zone 1 is considered suitable for all development.

2.6 Delineation of Medium Risk Zone 2

Areas within Flood Zone 2 are considered to be at medium risk of flooding. The annual probability of fluvial flooding within this area is between 0.1% and 1% (0.5% and 0.1% if within tidally influenced areas of flooding). In general, Flood Zone 2 is considered suitable for most development except highly vulnerable land uses, such as police, fire and ambulance stations, where Exception Testing is required.

2.7 Delineation of High Risk Zone 3

PPS25 considers areas within Flood Zone 3 to be at high risk of flooding. Flood Zone 3 is divided into sub-zones 3a and 3b. Both sub-zones are areas at high risk of flooding with area 3b defining the functional floodplain. In general, development within lower flood risk zones should be considered before development in Flood Zone 3.

- Flood Zone 3a is defined as land susceptible to flooding during the 1% annual probability of flooding (or 0.5% if tidal).
- Flood Zone 3b is the functional floodplain and is defined as land where water has to flow or be stored in times of flood.

2.8 Delineation of the Functional Floodplain

The EA maps provide an indication of the likely extent of flooding in the absence of flood defences. The flood-limiting impact of defences can be determined with reference to the "Areas Benefiting from Defences" mapping. In Newcastle there is only one raised (man-made) defence asset (ID 1211200280501L02) upstream of bridge park, which assists in managing flood water to a 25 year standard.

The SFRA includes mapping of potential FZ3b areas (and associated hazard mapping data) **in the absence of defences**. Flood mapping of a potential 5% AEP event, in the absence of defences is included as drawing number D001a, found in Appendix B. All other mapping includes for the presence of flood defences in accordance with the design maintenance outlined in the EA NFCDD database.

It should be noted that issues such as structural integrity of these defences, variations in crest levels and levels of maintenance have not been considered as part of the SFRA.

Outlines for the functional floodplain (Zone 3b) have been derived from available modelling data for Newcastle. For the Ouseburn and its tributaries the outlines are based on the Ouseburn Flood Study model results (2002). This study included assessment of a range of flood scenarios ranging from the 2 year to 1000 year flood events and the 1% outline generated during this study is the current EA Flood Zone 3b for this SFRA has incorporated the 4% modelled outline as a representation of the Flood Zone 3b areas for the Ouseburn system.

Inspection of the defence asset data provided by the EA indicates that the majority of watercourses within the Newcastle area are contained within bank during events in excess of the 5% AEP criteria.

Climate change impacts for the River Tyne have been assessed using model results for the 5% (20 year) design scenario. Only a few highly localised areas along the river bank are classified as functional floodplain.

Comparison of Flood Zones 2 and 3 for the River Tyne through Newcastle indicates that there is little variation between the extents of flooding. Bank levels are, in general, high enough to contain flood water from the River Tyne during the 0.1% event, far in excess of the functional floodplain scenario.

2.9 Definition of Functional Floodplain - Instruction from the Environment Agency

The Environment Agency have advised that there is no Functional Floodplain within the tidally dominated areas of the Rivers Tyne in the Newcastle Local Authority area. The Agency have proposed a Flood Zone 3a status within tidally dominated areas. A Flood Zone 3a (FZ3a) status will enable prospective developers to assess future development opportunities and undertake more detailed site-specific FRAs to confirm FZ3a/3b status at the planning application stage.

In the fluvial River Ouseburn, upstream of the tidal limit the areas within the Q20 outline of the 2002 Environment Agency hydraulic modelling outline are designated Flood Zone 3b. No development, other than water-compatible and essential infrastructure uses (subject to demonstration of the Sequential and Exceptions Tests), will be allowed within FZ3b areas. Furthermore, any appropriate development proposed within these areas will also be subject to the submission of a satisfactory Flood Risk Assessment (FRA) at the planning application stage.

2.10 Flood Defences

The Environment Agency's National Flood and Coastal Defence Database (NFCDD) was used to establish the existing flood defences along the main rivers in the city (see Table 2-2).

It established only one raised (man-made) defence asset (NFCDD ID 1211200280501L02) exists within the city, located upstream of Bridge Park. The latest inspection for this flood bank was on 27 July 2010 where it was given a condition rating of 3 (see Table 2-1 below). The Environment Agency have assessed the flood bank as being in 'fair' condition (there are defects that could reduce the performance of the asset) during the last inspection. The Environment Agency have confirmed that the defence is thought to be fit for purpose. As we understand the private defence was created as part of landscaping works which were tailored to provide some flood protection.

Defended areas are protected to some degree against flooding by the presence of formalised flood defences. However, land behind these defences is still considered to be at risk of flooding and is shown as such on the Flood Zone Maps. The Environment Agency's National Flooding and Coastal Defence Database (NFCDD) provides information on existing defences in Newcastle, in terms of their structure and condition rating.

In general, flood defences along the River Tyne are in good or fair condition with a life expectancy of 100 years or more. When assessing or allocating new development, the condition of existing flood defences is an important consideration for the Council. PPS25 considers that defended areas are still at risk of flooding. Therefore, sites located within a defended area need to be assessed along with the suitability, condition and extent of any defences present.

2.10.1 Defence Condition

The condition of existing defences is provided, by the EA, in the form of a condition rating from 1 to 5. The condition rating reflects the observed structural integrity of a defence. It is determined on the basis of visual inspections that focus on obvious signs of structural defect

such as slippage, cracking and poor maintenance. A summary of the NFCDD condition rating allocations is shown in Table 2-1.

Table 2-1: NFCDD Condition Ratings for Flood Defences

Condition Rating	Condition	Condition Description
1	Very Good	Fully serviceable.
2	Good	Minor defects.
3	Fair	Some cause for concern. Requires careful monitoring.
4	Poor	Structurally unsound now or in the future.
5	Very Poor	Completely failed and derelict.

The NFCCD data received for this study did not contain condition ratings for flood defences in Newcastle. Therefore, an existing condition assessment of flood defence infrastructure has not been undertaken for this SFRA.

The condition of existing flood defences and whether they will continue to be maintained and/or improved in the future is an issue that needs to be considered as part of the risk based sequential approach. In addition, detailed Flood Risk Assessments (FRAs) will need to explore the condition of defences thoroughly, especially where these defences are informal and contain a wide variation of condition grades. It is important that all of these assets are maintained in a good condition.

2.10.2 Likely Future Flood Management Policy

It is important for all flood defence assets to be considered as an overall entity for the city rather than individual actions for each asset across the catchment.

The CFMP is a strategic document that sets the direction of FRM for operating authorities over the next 50 to 100 years. Development in flood risk areas should always seek to reduce risk wherever possible; following the principles in PPS25. The residual risk of flooding in an extreme flood event or from the failure of defences should always be carefully considered.

2.10.3 Defence Overtopping and Failure

The design standard of the single raised defence within Newcastle is 25 years. These formal defences will provide limited protection. Under the climate change scenario (i.e. 1% AEP flood event + 20% peak flow) more extensive flooding would be expected to occur.

We have reviewed the location of all identified sites in relation to their proximity to these raised flood defences. However, none of the sites were afforded continuous protection by flood defences and the primary mechanism of flooding will, therefore, be bank level exceedance rather than overtopping of any defence.

To maintain consistency with other SFRA's and national guidance in PPS25, Sequential Testing has been based on undefended model scenarios. This approach, adopted by the Council, is precautionary. On this basis, the Council have been able to make the informed planning decisions presented in this SFRA.

2.10.4 NFCCD Defence Assets

The NFCDD was reviewed to identify key Environment Agency and privately owned assets across the city, as outlined in Table 2-2.

Table 2-2: NFCDD Defence Assets in the Newcastle City

Asset Type	Number of Assets
Raised defence (man-made)	1
Culverted channel	26
Maintained channel	63
Natural Channel	49
Non-flood defence structure	69

2.11 Areas Benefiting from Defences

ABDs are those areas which benefit from formal flood defences in the event of flooding. The Environment Agency Flood Map shows no Areas Benefiting from Defences within Newcastle.

2.12 Historical Flooding

Historical flood records can help build a picture of which catchments are susceptible to flooding. By looking into the past an insight into the sources, seasonality, frequency and intensity of flooding throughout the city can be gleaned, and areas which may be susceptible to flooding in the future might be highlighted.

Historical records are often anecdotal and incomplete and it can be difficult to determine accurately the frequency and consequences of events, but they are useful for providing background information. More recent gauged records and registers of flooded properties are valuable for estimating flood frequency and severity at different locations.

Natural variations in climate, changes in land use and the changes in flood risk management activity can cause flood risk to change over time. Over the last few hundred years, developments have been increasingly built on the floodplain and there is some evidence that farming practices that promote rapid run-off of rainwater into rivers have become widespread. Due to these changes, flood risk might be higher today than it was in the past, although any flood risk management work that is undertaken helps to reduce this.

2.12.1 River Tyne CFMP Account of Historical Flooding

The River Tyne Catchment Flood Management Plan (CFMP) gives an overview of the flood risk in the Tyne catchment and sets out the Environment Agency preferred plan for sustainable flood risk management over the next 50 to 100 years.

"The Tyne catchment has a long history of flooding. The greatest recorded flood occurring in 1771, the flood caused considerable loss of life and destroyed all bridges in the Tyne valley apart from that at Corbridge. In more recent years, flooding has occurred throughout the catchment in the 1950's and more recently in 1995, 2005, when over 100 properties were flooded throughout the catchment and 2008 from the river systems. Flooding in urban Tyneside areas have occurred in 2005 from drainage systems".

The key messages in the Lower Tyne catchment are as follows:

- The risk of flooding is potentially high in this area, due to the urban nature of the land and its high regional economic importance. The combination of risk from river and tidal flooding is important to understanding and managing risk.
- There is little natural floodplain, due to the urban environment and the modified channel; no formal flood defence assets are present.

- Flood risk could increase in the future and therefore there is a need to carry out more detailed studies to identify suitable flood risk management actions.

http://publications.environment-agency.gov.uk/pdf/GENE1109BRCJ-e-e.pdf

2.12.2 Wansbeck and Blyth CFMP Account of Historical Flooding

The Wansbeck and Blyth Catchment Flood Management Plan (CFMP) provides an overview of the flood risk in the Wansbeck and Blyth catchment and sets out the Environment Agency preferred plan for sustainable flood risk management over the next 50 to 100 years.

"Flooding within the CFMP area has been recorded as early as 1609. There is a well recorded history of significant flooding through the catchment, on the River Wansbeck significant historical flooding events have occurred in 1761, 1839, 1878, 1886 and 1898. In more recent years the largest flooding events occurred in 1963 and 2008 when around 1000 properties were flooded in and around Morpeth. In the Blyth Catchment flooding has been recorded from 1876 with flooding occurring in Ponteland as recently as 2000".

Key issues in the Ponteland catchment are as follows:

This area covers the middle of the Pont catchment, including the settlement of Darras Hall, Ponteland, and Prestwick Carr wetland. The main watercourse is the River Pont, which flows through Ponteland before joining the River Blyth to the north. Sources of flooding are river and surface waters. Risk comes from the River Pont, Prestwick Carr Cut and other drains.

http://publications.environment-agency.gov.uk/pdf/GENE1109BRCO-e-e.pdf

2.13 Methodology and Assumptions

The modelling that has been developed for the SFRA is of a strategic nature that has been developed to inform the application of the Sequential and Exception Test by Newcastle Council.

The modelling approach that has been undertaken is considered appropriate for this SFRA and modelling provides a suitably robust approach that informs the Council's strategic planning of future development.

2.14 Fluvial Flood Risk Data

The location, extent and hazard associated within fluvial flooding through Newcastle is assessed using two core datasets:

- Environment Agency Flood Map zones
- SFRA Flood Hazard Mapping outputs

There main difference in these datasets is the modelling approach used to create the zones or hazard outputs which has an impact on the results and how they should be assessed. Table 2-3 below illustrates these key differences.

Table 2-3: Fluvial and Tidal Flood Risk Datasets

Data Set	Output	Modelling Approach
Environment Agency Flood Map	Flood Zone 3a Flood Zone 2	An assortment of 1D hydraulic river models. These only cover main rivers through Newcastle.
SFRA Flood Hazard Mapping	Flood Depths Flood Hazards Flood Velocities	2D JFlow floodplain representation.

An assessment of the depth and hazards associated with flooding from rivers, including consideration of residual risk behind flood defences has been undertaken where there is a known risk of flooding and where there is pressure for future development.

To help determine the extent and severity of flood risk a number of linked 1D (river) and 2D (floodplain) models have been assessed in order to determine the risk to existing and future development. River modelling, developed for this SFRA, is strategic in nature. Further detailed studies should seek to refine the understanding of flood risks at a site-specific level.

To provide the analysis required by PPS25 the scenarios defined in Table 2-4 below were modelled and the impacts of flooding assessed in further detail. Overtopping is defined in this table as floodwater that exceeds either, or both, river banks or defences. In accordance with PPS25 flood risk associated with the 1% AEP flood event, including the impact of climate change, has been considered in the SFRA.

Table 2-4: River modelling scenarios

River / Area	Fluvial Event probability	Scenario
JFlow County Model	Zone 3 with climate change	Overtopping
River Ouseburn	Zone 3b, Zone 3a, Zone 3 with climate change and Zone 2	Overtopping
Stewards Brook	Zone 3b, Zone 3a, Zone 3 with climate change and Zone 2	Overtopping
River Tyne	Zone 3b, Zone 3a, Zone 3 with climate change and Zone 2	Overtopping
Crag Hall Dene	Zone 3b, Zone 3a, Zone 3 with climate change and Zone 2	Overtopping
Forest Hall Letch	Zone 3b, Zone 3a, Zone 3 with climate change and Zone 2	Overtopping
Golf Course tributary	Zone 3b, Zone 3a, Zone 3 with climate change and Zone 2	Overtopping
Gosforth Letch	Zone 3b, Zone 3a, Zone 3 with climate change and Zone 2	Overtopping
Harey Dene	Zone 3b, Zone 3a, Zone 3 with climate change and Zone 2	Overtopping
Kingston Park tributary	Zone 3b, Zone 3a, Zone 3 with climate change and Zone 2	Overtopping
Sunniside Drain	Zone 3b, Zone 3a, Zone 3 with climate change and Zone 2	Overtopping
West Moor tributary	Zone 3b, Zone 3a, Zone 3 with climate change and Zone 2	Overtopping
Whorlton Hall branch	Zone 3b, Zone 3a, Zone 3 with climate change and Zone 2	Overtopping

2.14.1 River Ouseburn Modelling

Areas of land along the Ouseburn and its tributaries have been known to flood or, in accordance with the Flood Zone Maps, are at significant risk of flooding. Land use changes within these areas may alter conveyance and storage characteristics. This may potentially increase localised flood risk and demonstrates the need for the Council and the EA to work together on development and flood risk management issues.

The Environment Agency have commissioned a model updates programme for the River Ouseburn to address a number of concerns raised by previous studies of the watercourse. Model calibration was not possible during previous studies of the Ouseburn as the data didn't exist, however wrack mark data for the updates programme was surveyed in 2008. **It should be noted that these new updates to the River Ouseburn model were not incorporated into the SFRA due to timescale limitations of the study. The integrated Ouseburn model is due to be delivered in May/June 2011.**

2.14.2 River Tyne Modelling

Water levels along the River Tyne are primarily dependent on tide levels and the tidal cycle. The River Tyne is tidally influenced throughout the Newcastle area. It is considered unlikely that any land use changes along the River Tyne could have a significant impact on tidal flood levels.

2.15 Model Outputs

It should be recognised that fluvial flooding could have wider implications for both existing and new development as well as wider communities located outside areas of immediate flood risk. For example, flooding may affect key infrastructure such as transport routes and bridges that provide emergency access during flooding events. Sewer networks may also be inundated, causing flooding in locations outside the expected extent of fluvial flooding and within basements.

Hazard, velocity and depth mapping (Flood Zone 3 including climate change) have been produced as digital appendices to this report. Additional mapping developed for this SFRA is a secondary source of information that helps to quantify the severity of flooding and risk. This addition mapping enhances the available EA data.

In general, the SFRA modelled flood outlines are similar to the existing EA Flood Zones. This demonstrates that fluvial flood risk is generally contained within clearly defined and low-lying areas of Newcastle. As with all SFRAs, the EA's Flood Zone Maps remain the primary source of flood mapping as they relate to UK planning policy. Please refer to the User Guide for more information on how to use and prioritise the mapping data included in this SFRA.

The hazard, velocity and depth mapping associated with the study have been developed using an undefended JFlow scenario using Environment Agency Digital Terrain Mapping and Flood Estimation Handbook catchment descriptors.

Modelling results used to define areas of high risk and rapid inundation were based on the available modelling data provided by the Environment Agency. This information has been supplemented with additional strategic modelling and mapping techniques to provide an overview of areas that are at significant flood hazard.

2.16 The effect of climate change

2.16.1 Introduction

The sensitivity of a particular location and land use to climate change should be factored into planning decisions during the Sequential and Exception Test. In Newcastle, climate change can effect the extent of flooding by increases in both tidal levels and predicted flood flows as rainfall intensifies. This SFRA has focused on assessing the impacts of climate change on fluvial flood risk using recommendations and sensitivity ranges provided in PPS25 and its Practice Guide. The SFRA Hazard Mapping models have been used to make this assessment.

Mitigation measures must be designed to provide an appropriate level of protection to a site for the lifetime of the development. The minimum acceptable standard of protection against flooding for new property within flood risk areas is the 1% AEP flood event for fluvial flooding, including an allowance for climate change over the lifetime of the development.

2.16.2 Fluvial flood levels

It is estimated that peak flow rates for fluvial flood events are likely to increase by 20% over the next 50 to 100 years and the increased volume of flood water will result in higher flood levels.

2.17 Flood Hazard Zones

Flood hazards are useful when considering the risk faced to people during times of flood. For instance when considering flood depths alone, depths below 0.25m may be consider acceptable or pose little risk to human life however couple this with high velocities and debris in the water the picture becomes very different. Hazard ratings therefore become important when considering new development in already hazardous areas and the requirement to have safe access and egress routes during times of flood.

It must be noted that the Hazard Mapping outputs created for the study will be slightly different in extent to the current Environment Agency Flood Map through Newcastle, namely different modelling methods were used to represent the urban during the Hazard Mapping.

Whilst the hazard mapping modelling techniques used better represent flood inundation and flow paths in the urban environment, the current Environment Agency Flood Map should still be used under the initial application of the Sequential Test. The detailed flood hazard outputs should be used to better understand the distribution of flood risk within the Flood Zone, and hence aid the application of the Exception Test. The hazard maps are particularly useful for Part C of the Exception Test, to assess the possibility of safe development within flood risk areas. These issues are discussed in greater detailed with Volume I of this SFRA.

Flood Hazard describes the flood conditions that are likely to affect people. It is a combination of flood depth, velocity and includes consideration of debris and obstruction to flows within river channels. The variables used in the flood hazard rating are;

- Depth of flood water (metres)
- Velocity of flood water (metres /second)
- Debris factor (score)

The Flood Hazard Rating is calculated using the following equation:

HR = d x (v + 0.5) + DF

Where, HR = (flood) hazard rating; d = depth of flooding (m); v = velocity of floodwaters (m/sec); and DF = debris factor.

Table 2-5: Guidance on debris factors for different flood depths, velocities and dominant land uses

Depths	Pasture/Arable	Woodland	Urban
0 to 0.25 m	0	0	0
0.25 to 0.75 m	0	0.5	1
d>0.75 m and/or v>2	0.5	1	1

For the Newcastle SFRA, flood hazard has been presented on the following scale:

Table 2-6: Scales of Flood Hazard

Hazard to people	Hazard to people classification
No Hazard	Negligible
Very Low Hazard " Flood zone with shallow flowing water or deep standing water"	Caution
Danger for some "Danger: flood zone with deep or fast flowing water"	Includes children, the elderly and infirm
Danger for most "Danger: flood zone with deep or fast flowing water"	Includes the general public
Danger for all "Danger: flood zone with deep or fast flowing water"	Includes the emergency services

2.18 Flood Warning Areas

The EA has the lead role in providing flood warning services in England. The aim of the flood warning service is to reduce risk to life, distress to people and damage to property as a result of flooding. This is achieved by providing accurate and timely flood warnings to residents and businesses in river and coastal areas.

People at risk of flooding require appropriate flood warnings in order to take action. In the EA's corporate plan "Creating a Better Place5" they have highlighted three key targets. These are:

- To have 80% of properties at risk in the floodplain receiving an appropriate flood warning service;
- 75% of people, living in flood risk areas, should take appropriate action by 2011, and;
- To have major incident plans in place for high flood risk areas.

Currently the EA operates a Flood Warning Service in specific locations known as Flood Warning Areas. Within these areas, flood warning codes indicate the flood status within an area and are described as follows:

Flood Alert		Flooding is possible. Be prepared.
Flood Warning		Flooding is expected. Immediate action required.
Severe Flood Warning		Severe flooding. Danger to life.

There are 8 Flood Warning Areas covering Newcastle and the location of these areas is shown on Drawing D012 (Flood Risk Management Measures Map), found in Appendix B. These Flood Warning Areas are:

- 121FWFNS105 - River Pont at Ponteland
- 121FWFNW326 - Ouse Burn at Woolsington and Brunton Park
- 121FWFNW327 - Ouse Burn at Whitebridge Park
- 121FWFNW328 - Ouse Burn at South Gosforth
- 121FWFNW329 - Ouse Burn at Upper Brunton Park and South Gosforth
- 121FWTNST50 - Tyne Estuary
- 121FWTNWT49 - Tyne Estuary Riverside
- 121FWTNWT56 - Ouse Burn at Byker

[5] Environment Agency (2006) Creating a Better Place: Corporate Strategy 2006-2011

3. Tidal flood risk

A detailed assessment of tidal flood risk has been undertaken throughout the city to ascertain areas of high flood risk where there is a focus for future development. This has been undertaken using detailed river models provided by the Environment Agency. Results have been verified using approved Environment Agency modelling procedures.

3.1 Introduction

For Newcastle, the risk of tidal flooding is caused by high tides or storm surges in the North Sea, generating extreme water levels within the Tyne estuary and coastal regions. Estuarine flooding can be complex and difficult to predict as flood levels are also influenced by the volume of water flowing down the River Tyne at any time during the tidal cycle.

Apart from a few locations, water levels are contained within the Tyne river channel throughout the Newcastle area. Bank levels are, in general, high enough to contain flood water from the River Tyne during the 0.1% event, far in excess of the functional floodplain scenario. Where flooding does occur the Council will need to review any development proposals identified within these locations.

3.2 Influences on tidal flood risk from the River Tyne

Apart from a few locations, water levels are contained within the river channel throughout the Newcastle area. The River Tyne is, therefore, capable of containing water levels associated with the 0.1% design event. Where flooding does occur the Council will need to review any development proposals identified within these locations.

It is understood that the Environment Agency have already undertaken an appraisal of flood defence requirements for the Quayside (Fish Market to the Law Courts). However, the cost benefit analysis of this scheme was insufficient to merit significant investment.

3.3 Effects of climate change on peak tidal levels

Global sea level will rise, depending on greenhouse gas emissions and the sensitivity of the climate system. The relative sea level rise in England also depends on the local vertical movement of the land, which is generally falling in the south-east and rising in the north and west.

The rise in sea level will change the frequency of occurrence of high water levels relative to today's sea levels, assuming no change in storminess. There may also be secondary impacts such as changes in wave heights due to increased water depths, as well as possible changes in the frequency, duration and severity of storm events. A 10 per cent sensitivity allowance should be added to offshore wind speeds and wave heights by the 2080s.

Allowances for the regional rates of relative sea level rise to 2015 are shown in Table B.1 of PPS25. This should be used as a starting point for considering flooding from the sea, along with the sensitivity ranges for wave height and wind speed in Table B.2, in preparing flood risk assessments.

Peak tidal levels for a range of return periods have been taken from the 2005 River Tyne model. A summary of these results is included as Table 3-1.

Table B.1 of PPS25 gives recommended allowances for net sea level rise to 2115. The 2005 levels were extrapolated using the Defra guidance provided in PPS25 to 2009, 2050 and 2100.

Table 3-1: Effect of sea level rise on water levels in the Tyne Estuary

Return Period	Tidal Levels (m AOD)			
	2005	2009	2050	2100
1 in 10 years	3.56	3.57	3.79	4.37
1 in 25 years	3.71	3.72	3.94	4.52
1 in 50 years	3.80	3.81	4.03	4.61
1 in 100 years	3.94	3.95	4.17	4.75
1 in 200 years	4.01	4.02	4.24	4.82
1 in 1000 years	4.27	4.28	4.50	5.08
Note: 2005 levels were obtained from Tyne & Derwent HEC-RAS model (2005). Climate change levels calculated using values from Table B.1 of PPS25 as a basic assessment of the potential effect of climate change.				

UKCIP02 scenarios also suggest that winters will become wetter over the whole of England by as much as 20% by 2050. A shift in seasonal rainfall patterns is also expected, with summer and autumn months becoming drier than at present. The amount of snowfall is expected to decrease significantly throughout the UK, however, average rainfall intensities are expected to increase.

Rainfall intensity and the increase in the number of days when it is raining could have significant implications for surface water flooding and should be considered when assessing the requirements for drainage systems associated with new developments. A summary of the recommended national precautionary allowances for peak rainfall and river flows, in accordance with Table B.2 of PPS25, is included as Table 3-2, below.

Table 3-2: Recommended national precautionary sensitivity ranges for peak rainfall intensity, peak river flows, offshore wind speeds and wave heights

Parameter	1990 to 2025	2025 to 2055	2055 to 2085	2085 to 2115
Peak rainfall intensity	+5%	+10%	+20%	+30%
Peak river flow	+10%	+20%		
Offshore wind speed	+5%		+10%	
Extreme wave height	+5%		+10%	

Extreme tidal levels, included as Table 3-3, were calculated in the Rivers Tyne and Derwent FRM study in 2005 for the years 1990 and 2004.

Table 3-3: Extreme tidal level estimates

Return Period / Tidal Level	1	10	25	50	100	200	250	500	1000
Level (1990) m AOD	3.20	3.53	3.68	3.77	3.92	3.98	4.06	4.13	4.23
Level (2004) m AOD	3.23	3.56	3.71	3.80	3.94	4.01	4.09	4.16	4.27

3.4 The Coastal Extremes Project

The Coastal Extremes Project was a joint initiative by Defra and the Environment Agency to assess extreme tidal levels off the coast of the UK. The outputs from this project included a new set of coastal flood levels.

The outputs show that the Environment Agency estimate of the 200-yr and 1000-yr tides at Tynemouth are now lower (by approx 200mm) than previously thought. The project does not provide new tidal levels up the Estuary (only have levels for the coast itself) but obviously if the extreme tide levels are lower at Tynemouth they will be lower throughout the Tyne Estuary (as far as Wylam).

The new lower tidal levels have not been included in this SFRA as it was agreed that a change of 100-200mm would make very little difference in most of the proposed development sites (topography dependent). It is however suggested that the new data should be considered for any future work or assessments involving tidal flood risk in Newcastle, as by using the old levels this may be over-estimating the risk leading to un-necessary constraints and/or mitigation on development sites.

4. Flooding from reservoirs and other artificial sources

Following the recommendations of the Pitt Review, DEFRA and the Environment Agency have prepared inundation maps (at various levels of detail) of all reservoirs falling within the remit of the Reservoirs Act 1975. These inundation maps show the effects of a dam breach on the downstream area.

The Environment Agency website plans to offer a facility to allow members of the public to identify whether or not a property is downstream of a reservoir and may be subject to flooding.

4.1 Introduction

Reservoir inundation mapping for reservoirs under the 1975 Reservoirs Act is covered by the Civil Contingencies Act and the information has a national security status. The National Protocol for the Handling, Transmission and Storage of Reservoir Inundation (Flood) Maps for England and Wales classifies reservoir inundation mapping according to map types and reservoir inundation mapping would not be available for public release. For this reason the SFRA has not taken the analysis of reservoir flood risk forward, including mapping the extent of inundation that may be expected following a reservoir breach. Please note that the Reservoirs Act 1975 is amended in the Flood and Water Management Act 2010.

Whilst the probability of dam or embankment failure is small, the consequences of such an event occurring may be significant particularly in an urban setting. The Environment Agency has recently produced simplified inundation maps for all reservoirs under the Reservoirs Act as required by Recommendation 57 of the Pitt Review.

According to the EA's Register of Reservoirs (which identifies those reservoirs under the Reservoirs Act due to "implications for national security"), there are no large raised reservoirs located within Newcastle City Council's boundaries or surrounding council areas. There are however several lakes and large ponds within the city as identified in Map D018 of Appendix B.

Explicit consideration of reservoir overtopping and breach should be considered in detailed site-based FRAs where the reservoir is within or in close proximity to the proposed development.

5. Flooding from surface water and sewers

The SFRA has enhanced the assessment of surface water flood risk by using both the Environment Agency National Areas Susceptible to Surface Water Flooding map and detailed flood incident records for the Newcastle area. Although flood risk data was made available through Northumbrian Water, sewer network details were not available for this study. In the absence of this data, the surface water map shows potential areas where water would flow and pond in the event that sewers surcharge.

5.1 Introduction

This section presents information on flood risk from surface water and sewers within the Newcastle area. New development has the potential to increase impermeable area and unless carefully managed, may result in an associated increase in surface water runoff. An increase in the rate and volume of surface water runoff tends to exacerbate downstream flood risks by, for example, overloading sewers, exceeding the capacity of watercourses, culverts and other associated drainage infrastructure.

Surface water flooding in Newcastle tends to be highly localised. Stakeholders have provided valuable historical flooding records that have been included in the SFRA. These records indicate areas within Newcastle that are susceptible to repeated incidents of localised flooding that cannot be attributed to fluvial sources.

Managing surface water discharges from development is crucial if flood risk to new and existing development is to be reduced. Carefully planned development, and effective use of green infrastructure, can both contribute to this objective.

Local flood risk management will be an important responsibility for local authorities in the future, including managing the risk of flooding from surface water, groundwater and ordinary watercourses. Many of the localised flooding problems can be related to local watercourses that have been culverted as past development has taken place. The condition and standard of protection of these watercourses are unknown but they can be a significant source of flood risk. Flooding in the urban environment is difficult to separate into distinct sources and in reality surface water flooding will be from a combination of overland flows, sewers and highway gullies backing up and overflowing at manholes, local watercourses overtopping, culverts surcharging and potentially high groundwater levels. This is one reason why it is important for one body (the local authority) to take the lead in local FRM delivery.

5.2 Green Infrastructure

The suitability of the Council's green infrastructure area has been assessed to determine those sites that may be used to provide a strategic flood mitigation function in the future. Green infrastructure sites have been assessed based on their proximity to main rivers within the city. Green infrastructure plans are included as Appendix B, and in particular attention should be given to drawing number D024-D025.

However, in reality sites identified for potential development are located throughout the Newcastle area and the potential for strategic flood risk mitigation, is limited.

To prevent potential development increasing flood risk, flood mitigation measures invariably need to be close to, or preferably within the proposed development boundary.

Further strategic mitigation measures may best be located where benefit to both existing development and proposed development can be identified. This will need to form the basis of the Council's SWMP and be linked back to the Green Infrastructure Strategy.

5.3 Surface Water and SUDs Suitability

The Council has made clear its approach to surface water management. All proposals for development must consider how surface water will be effectively controlled, and also propose

valid Sustainable Drainage Systems (SUDS) techniques to fully attenuate surface water generated on the development site. The aim of this approach is to prevent any increase in surface water discharge to receiving watercourses or drainage infrastructure and prevent any increase in flood risk as a result of development.

The planning system has a key role to play in setting standards for SUDS from new developments and ensuring that developments are designed to take account of the risk from surface water flooding. Sustainable drainage and the use of SUDS is supported by the policy direction in Future Water[6], Making Space for Water[7], the Pitt Review[8] and the Flood and Water Management Act[9] that provides for more sustainable management of the water cycle, working in partnership across different agencies and new responsibilities for local flood risk management. In particular, the Flood and Water Management Act requires developers where practical, to include sustainable drainage in new developments to reduce flood risk and improve water quality. It includes '***a requirement on developers to demonstrate that they have met national standards for the application of SUDS techniques before they can connect any residual surface water drainage to a public sewer (amending section 106 of the Water Industry Act 1991).***' As part of their new responsibility for local flood risk management, local authorities will be responsible for approving SUDS for new developments and adopting and maintaining them.

Appendix E outline the suitability of Newcastle City Council's proposed development sites for SUDs suitability schemes. Please note that the results for infiltration SUDS suitability are based on desk study review and further site suitability testing will be required.

The choice of SUDs within a proposed development site will be determined by local ground conditions (including groundwater levels). Whilst infiltration SUDS may be the most suitable for new development, developers must also consider the risk of contamination to underlying aquifers as part of a detailed site-specific FRA.

5.4 Flooding From Sewers

Flooding from drainage systems occurs when water entering a sewer system exceeds the capacity of the sewer network and associated drainage infrastructure. Sewers are designed with only limited capacity and flooding from manholes and gullies occurs when the network becomes surcharged. When this occurs, surface water will flow across the ground following natural topography. Flooding from sewers may be exacerbated by, for example, blockages within the sewers and surcharging during significant fluvial and tidal flood events.

There are three main types of sewer; surface water, foul and combined:

- Surface water drainage systems extend across all developed areas and ultimately discharges into local watercourses.
- Foul systems comprise a network of sewers that link areas of development, to sewage treatment works. Whilst modern networks separate surface water and foul systems, some older combined systems still operate. Combined Sewer Overflows (CSOs) provide an overflow release from the foul system into local watercourses during periods of high flow.
- Combined sewers collects both foul and storm water in a single pipe system.

The majority of NWL's sewer assets in the North East region, comprise 8,500km of combined sewer. There is also some 4,000km of dedicated surface water sewer and some 3,000km of foul sewers in the area. These are built to a 1 in 30 year event standard.

[6] Defra (2008) ***Future Water***
[7] Defra, Department for Transport, HM Treasury and Office of the Deputy Prime Minister (2005) ***Making Space for water: Taking forward a new Government strategy for flood and coastal erosion risk management in England; First Government response to the autumn 2004 Making space for water consultation exercise***
[8] The Pitt Review (2008) ***Learning lessons from the 2007 floods***
[9] Defra (2010) ***Flood and Water Management*** Act © Crown Copyright

5.4.1 Development pressures on the existing sewer infrastructure

New development may increase the pressure on the existing sewer infrastructure. As a result, new development needs to take surface water flooding fully into account, during both the planning and development stages, so that flood risk can be effectively mitigated on site.

New large scales development will need to connect to existing sewer networks which may already have capacity issues. Adding further pressure on the sewer network could place new development at risk of flooding and exacerbate the issue to the surrounding community. The NewcastleGateshead Water Cycle Study outlines the planned quantum and spatial distribution of development in Gateshead and Newcastle, in respect of future residential and employment requirements.

New large scale development and associated urban creep may impact further on the existing sewer systems. Without further investment in the sewer network, to upgrade and enhance the existing infrastructure, urban creep can have a significant impact on the limited capacity of the existing system. The effective mitigation of flood risk should be addressed as part of any development proposals. Implementation of effective surface water mitigation will also need to be address by both NWL and the Council through development and enforcement of policy.

5.4.2 Sewer flooding modelling and mapping

English and Welsh water companies are required to maintain a register of flooding incidents due to hydraulic capacity problems on their sewer networks. This database identifies properties where flooding has occurred on a frequency of 1 in 10 years (10% AEP), 2 in 10 years (20% AEP) and 1 in 20 years (5% AEP). The database is known as the DG5 register. Whilst this data provides an idea of those areas with limited drainage capacities, it should be acknowledged that it is only a register of properties that have flooded due to the hydraulic inadequacies of the sewer systems and does not provide an indication of the scale or type of flooding. Its usefulness in terms of predicting future flooding is, therefore, limited.

Data generated using hydraulic network models such as InfoWorks potentially provide a very useful tool with which to predict more widespread potential for sewer flooding, and the use of such tools should be investigated during a Surface Water Management Plan.

5.5 NewcastleGateshead Water Cycle Study

The WCS examines the capacity in the local water supply, waste water infrastructure and the water environment to ensure that new development can be supplied with the required services and infrastructure it needs. Along with both Councils, the Environment Agency (EA) and Northumbrian Water Limited (NWL) are Key Partners to deliver the study.

The WCS Outline Study (2010) found that a number of pumping stations which pump wastewater to the Sewerage Treatment Works (STW)have been identified as being at or near to full capacity. These are on the north bank of the River Tyne and affect development in Newcastle. Increased development in this densely populated urban area may be restricted due to the existing outflow restrictions at these pumping stations. This is not a barrier to development, but requires further assessment to investigate when the pumping stations would reach capacity and what options are available to NWL to address the restrictions so that they do not inhibit future development.

Howdon Sewerage Treatment Works (STW) serves parts or all of the local authority areas of Newcastle, Gateshead, North Tyneside, South Tyneside and Northumberland which drain to Tyneside. The emerging Newcastle Gateshead Water Cycle Study (produced for Gateshead Council and Newcastle City Council by AECOM Ltd) gives an initial WCS assessment that some headroom is available to facilitate growth, however this headroom is not unlimited, nor can it be said to be equally available to all parts of the catchment. There are locations where the water and sewerage infrastructure is already at or near capacity, while there are others where trade reductions or moving populations mean that the infrastructure is underused.

The Council is liaising with the Environment Agency and Northumbrian Water Limited and the surrounding local authorities whose growth areas fall within the Howdon STW catchment area

to deliver a Statement of Commonality (SOC). The SOC will need to agree the capacity at Howdon STW and the options for intervention to ensure that there is adequate capacity to support development growth in the future.

It is currently estimated (pending formal agreement between the EA and NWL) there is 7-12 years of planned growth within the Howdon STW catchment that can be accommodated, plus any saving for managing surface water on site. It may be unlikely that there will be capital investment to improve the sewerage treatment works capacity. On this basis the solution to increase capacity may need to be based upon reducing surface water flows into mains sewers.

Any future infrastructure requirements that fall into the One Core Strategy plan period will need to be acknowledged in the strategy's accompanying Infrastructure Delivery Plan. NWL will be the responsible organisation for delivering any infrastructure required.

Any recommendations from the WCS, including possible surface water reduction policies, are to be incorporated into future updates of the SFRA. It seems likely that reduction of surface water entering the sewer will be a requirement of facilitating future growth. It is prudent to recognise the tensions in meeting the requirements of directing surface water away from the sewerage system and implementing SUDS on the majority of proposed development sites are unlikely to accommodate infiltration techniques - this may have implications for land take, yields of sites etc.

5.6 Surface Water and Sewer Capacity Mapping

5.6.1 Surface Water Mapping

The Environment Agency national Areas Susceptible to Surface Water Flooding (ASTWF) map provides a useful reference in identifying areas that could be at risk from surface water flooding. The Enhanced Surface Water Mapping undertaken for the SFRA also gives a good indication of flood risk, as well as potential flood pathways between buildings in built up areas of Newcastle which can be used for emergency planning purposes. The SFRA surface water flooding results are shown in Appendix B.

5.6.2 Sewer Mapping

Most new sewers are designed to a 1 in 30 year design standard and hence sewer flooding problems will often be associated with more frequent storm events when a sewer becomes blocked or fails. In the larger events that are less frequent but have a higher consequence, surface water will overflow from the sewer system and flow across the surface of the land. Surface water mapping highlights these potential overland flow routes.

5.6.3 Combined Surface Water and Sewer Mapping

Considering both sewer and surface water flooding together is considered an appropriate methodology when assessing surface water flooding at a strategic level. More detailed consideration of the mechanisms and locations of sewer flooding are beyond the scope of the SFRA. However, the historical mapping provides supporting evidence and patterns of flooding within Newcastle. Where surface water is identified as being a significant issue, then development planning needs to focus on managing the impact of development, or avoiding development where the risk of surface water flooding is considered too high.

5.7 Critical Drainage Areas

The Town and Country Planning Order 2006[10] defines Critical Drainage Areas as "***an area within Flood Zone 1 which has critical drainage problems and which has been notified… [to]…the local planning authority by the Environment Agency.***" However, the Environment Agency Standing Advice[11] also recognises the part that SFRAs play in identifying areas with

[10]HMSO (2006) The Town and Country Planning (General Development Procedure) (Amendment) (No. 2) (England) Order 2006

[11] Environment Agency. Flood Risk Standing Advice for England - PPS25 National Version 2.0. Can be accessed

drainage problems and in doing so highlighting areas that need an FRA to consider drainage in detail.

Certain locations are particularly sensitive to an increase in the rate of surface water runoff and/or volume from new development. There are generally known local flooding problems associated with these areas. These areas have been defined as Critical Drainage Areas (CDAs) in the SFRA.

Specific drainage requirements are required in these areas to help reduce local flood risk. These are areas with complex surface water flooding problems that would benefit from a Surface Water Management Plan and subsequent drainage strategy.

The SFRA has identified Critical Drainage Areas where:

1. There is a high risk of localised flooding from ordinary watercourses, including culverts surcharging and overland surface water flows, including the potential for flooding from the sewer network due to failure/ blockage or exceedance events when the storm return period is greater than the sewer design standard.
2. Where there are areas of significant redevelopment planned that could have a significant impact on surface water runoff to local watercourses and the sewer network.

Screening for Critical Drainage Areas (CDAs) within the city was undertaken using data from the following sources:

- Newcastle City Council incident records and historic mapping
- Tyne and Wear Fire and Rescue flood incident records
- The national Areas Susceptible to Surface Water Flooding map
- Flood Estimation Handbook Catchments
- Northumbrian Water Drainage Area Boundaries
- Historical records from the Environment Agency and Northumbrian Water

Northumbrian Water flood risk data was not available for use in this SFRA. The sewer network can have a significant impact on the location of surface water and sewer flooding for more frequent events. It can also affect the distribution of water throughout urban catchments during flood events, passing excess flows from the combined sewer network into watercourses through combined sewer overflows. It was agreed that without the detailed NW data, natural catchments would be combined with Drainage Areas (showing where sewer systems are interconnected across the boundaries of natural catchments) to define CDA boundaries.

Using available data, screening was undertaken to identify Critical Drainage Areas. The CDAs for Newcastle have been typically identified by a significant density of high vulnerability ASTSWF data, historical flooding records and Northumbrian Water defined drainage area boundaries. The Critical Drainage Areas are mainly in urban areas within the city. Eight key CDAs have been identified and prioritised on this basis. These are included in map number D016, found in Appendix B.

From the surface water mapping it can be seen that without risk-based information for the sewer network the CDAs cover an extensive area. The CDAs provided in the SFRA should be refined over time as more detailed information on flood risk and local flood management assets, including sewered catchments, becomes available. The CDAs identified here should therefore only be taken as a starting point in the identification of areas for which a SWMP would be beneficial.

Using the outputs from the Council's respective SFRA and joint SWMP it is the intension for the NewcastleGateshead One Core Strategy 2030 to contain a strategic policy on flood risk and water management, it is likely that one aspect of this will be the requirement of a Flood

online at http://www.environment-agency.gov.uk/research/planning/82584.aspx

Risk Assessment on sites over 0.5ha in an identified CDA. Appendix F lists those development sites in Newcastle's SHLAA and ELR that are over 0.5 and defined by the SFRA as being within a CDA.

5.8 The NewcastleGateshead Surface Water Management Plan

The NewcastleGateshead Surface Water Management Plan (SWMP) is being prepared by AECOM Ltd. Like the WCS the Environment Agency (EA) and Northumbrian Water Limited (NWL) are Key Partners in preparing and implementing the SWMP along with both Councils.

The SWMP has been funded by Growth Point funding and the EA's City Flood Project and been prepared in conformity with the DEFRA Technical Guidance. Due to LDF timescale pressures the SWMP has been divided into 3 stages, 'Scoping' of issues (completed 2009) assessment of 'Strategic Sites' (expected to be completed April/ May 2011) and 'City/ Borough Wide' assessment (commencing April 2011).

Stage 1, the Scoping included identifying risk and involved producing an Engagement Plan to accompany the SWMP setting out when and how stakeholders will be involved.

Following on from the Scoping, the SWMP focused on 13 'strategic sites' (these are sites that are considered key sites for regeneration and meeting the Council's growth aspirations and commitments) across Newcastle and Gateshead have been subject to a risk assessment. The outputs of these have informed Options for potential measures and principles to manage the risk of surface water and overland flow at these sites. Inventions include the suggestion of where swales should be located on site.

The third and arguable the most valuable stage of the SWMP is the City/ Borough Wide assessment and will involve identifying developed areas at risk of surface water flooding and develop high-level Options by which the risks could be managed for an agreed number considered to be at the highest risk. The Optioneering will take into consideration the presence of potential development sites (SHLAA, ELR and SLR) in terms of the opportunities that they present in terms of surface water management. This stage of the SWMP is expected to be completed by September 2011.

Due to funding and LDF commitments the NewcastleGateshead SWMP (Scoping and Strategic Sites assessment) and the Council's respective SFRAs (level 1 and 2) have been prepared in tandem. Outputs from the SFRA level 1 and initial findings from the level 2 have been fed into the SWMP; however, there have been overlaps between the studies.

It is important as the Council embarks on the third stage of the SMWP that the outputs of the SFRA Level 2 direct inform the scoping and risk assessments included in the SWMP preparation.

5.9 Recommendations for Surface Water Management

Newcastle City Council and the Environment Agency should work closely with Northumbrian Water, British Waterways and the Environment Agency, using the outputs from the SFRA as a starting point, to identify the potential locations of and priorities for SWMPs. They should identify particular hotspots where surface water solutions can be identified or more detailed modelling is needed. A Drainage Strategy should be undertaken as part of or alongside this for key development areas to identify locations suitable for SUDS and how flood risk can be managed and reduced downstream.

The Council, as the lead authority for local flood risk management, should co-ordinate any future surface water management work. The recent Defra Surface Water Management Plan Guidance (2010) supports the use of SFRAs in providing the evidence base for where SWMPs are required.

Surface water management needs to take a holistic approach, taking into account all the sources of local flood risk, including sewers, overland flow, culverted and open watercourses and groundwater. A suite of options is available for surface water management including

source control, such as the implementation of SUDs, increasing the capacity of sewers or watercourses, storing excess water and managing exceedance flows through urban design and "Green Infrastructure". SWMPs should provide the opportunity to undertake detailed sewer modelling and pool together the knowledge and understanding from different organisations to help assess options to reduce surface water flood risk to new and existing development.

Options to reduce flood risk in one location should not increase risk upstream or downstream. SWMP areas may cross one or more local authority areas and different local authorities, the Environment Agency and Northumbrian Water can be brought together in a SWMP partnership to develop sustainable options to manage surface water flood risk.

There is the potential for groups of development sites coming forward to share a central and integrated solution for managing surface water runoff. This is best investigated further through a SWMP or a Drainage Strategy, which may or may not be undertaken at the same time as a SWMP. Such solutions can provide great benefits besides water management, including providing recreational facilities, improving biodiversity and making communities a better place to live. Where there are several sites that would share a communal facility, such facilities may be funded through developer Section 106 or Community Infrastructure Levy payments. Drainage Strategies can be particularly useful for considering, recommending the implementation of, and long term management arrangements for, SUDS and setting appropriate runoff rates from new development.

5.10 Taking Surface Water Management Plans forward

The assessment and recommendations in the SFRA highlight that flood risk in Newcastle comes from many different, but inter-related sources. These should all be considered as part of a SWMP. The assessment also highlights the importance of partnership working and the access to Northumbrian Water flood risk data, which would greatly enhance the definition of CDAs and recommendations for SWMPs.

6. Flooding from groundwater

The SFRA has undertaken a strategic assessment of the risk of groundwater flooding in the Newcastle area. Soil maps have been analysed along with detailed flood incident records for Newcastle.

6.1 Introduction

Groundwater flooding is caused by water emerging from the ground at either point or diffuse locations. The occurrence of groundwater flooding is usually localised and because of the slow rate at which water levels rise, does not generally pose a significant risk to life. The main risks associated with groundwater flooding are the mobilisation of contaminants in the soil and the impact of inundation to low-lying land and buildings with basements.

Groundwater flooding can persist over a number of weeks and poses a significant, if localised, issue that has attracted an increasing amount of public concern in recent years. In most cases groundwater flooding cannot be easily managed or lasting solutions engineered.

It is a PPS25 requirement that the potential effect of groundwater flooding must be assessed in any FRA.

6.2 Geology and Soils

The underlying geology and soils data for Newcastle was reviewed using strategic scale (1:250,000) mapping. The soils map for the area is available from the National Soil Research Institute: **http://www.landis.org.uk/soilscapes/**

According to the soils map the Newcastle area is, in general, underlain by slowly permeable clay soils which tend to impede natural drainage. During periods of heavy rainfall the subsoil tends to become waterlogged.

The quality and, hence, suitability of this information is not considered appropriate for use at site-specific levels and can only be used to provide an early indication of the low potential for infiltration drainage.

Geology and soils should be investigated at a site level during development of a drainage strategy for development. The application of SUDs should be explored at the earliest stage of all developments.

6.3 Sustainable Urban Drainage Systems

Sustainable Urban Drainage Systems (SUDs) are referred to as a sequence of management practices and control structures, designed to drain water in a more sustainable manner than some conventional techniques. SUDs are used to attenuate run-off from development sites.

Although groundwater flooding has not been identified as a major risk within the Newcastle area, this mechanism of flooding should be considered particularly when determining the acceptability of SUDs schemes as a way of managing surface water drainage. Developers should consult with the Council and Environment Agency at an early stage of the assessment.

The quality and, hence, suitability of information in this report is not considered appropriate for use at site-specific levels and can only be used to provide an early indication of the low potential for infiltration drainage. To elaborate, geology and soils should be investigated at a site level during development of a drainage strategy for development. The application of SUDS should be explored at the earliest stage of all developments.

7. Cumulative impacts of future development and drainage design

A strategic appraisal of the impact of development within Newcastle on downstream flood risk has been undertaken.

7.1 Introduction

Carefully planned development can play a role in reducing the number of properties at direct risk from flooding. The planning system has a key role to play in settings standards for sustainable drainage from new developments and ensuring that developments are designed to take account of the risk from flooding.

7.2 Development Drainage Impacts

Development within upstream local authority areas has the potential to adversely affect flood risk within Newcastle. Likewise, if site drainage is inappropriately designed, development within Newcastle itself also has the potential to affect flood risk locally and to the downstream area. This is especially the case for the culverted sections of the major rivers which are especially sensitive to runoff from developments.

The SFRA has undertaken an assessment of the impacts of development within Newcastle on fluvial flood risk both locally and downstream. The SFRA has also considered the additional impact of development in the upstream catchments of the River Tyne on fluvial flood risk in Newcastle.

The management of surface water flooding within Newcastle and beyond is a cross-boundary issue that is discussed in Chapter 5.

7.3 Considering downstream impacts

Development has the potential to both increase and decrease surface water runoff and hence affect flood risk downstream. The assumptions of this SFRA are based on the supposition that after development surface water would be temporarily attenuated on the respective development sites in suitable sustainable drainage systems which mimic natural site drainage (this assumes greenfield discharge rates). The introduction of such systems would attenuate the flows which would minimise flood risk. This is a likely scenario under current legislation and Environment Agency policy.

It is paramount that any new development in the Newcastle area incorporates suitable surface water storage measures to counteract a loss of floodplain storage and to avoid a scenario where after development there would be no storage of surface water on the new development sites. This has the potential to both increase the rate and volume of surface water runoff into the sewer network and local watercourses, increasing flood risk downstream. In the current legislative and policy environment this scenario is unlikely.

The impact of development on flood risk downstream has been based on a methodology for the impact on flood risk during a 1% AEP flood event, considering climate change. Flood Estimation Handbook (FEH) methods were used to calculate flood hydrographs and flows in the river system.

7.4 Wider impacts

Whilst development management policies to reduce surface water discharges from new development could have some benefit locally, development in the wider catchments of Newcastle has an important role to play in reducing flood risk in Newcastle. This highlights

the need for local authorities in the Tyne catchment to work together to reduce flood risk through the planning process.

8. Hydraulic linkages

Flood risk across the borough is present from a number of sources. The interactions between these different sources are fundamental to understanding the risk of flooding at a strategic level and recommending appropriate management measures. The SFRA has looked at the possible interactions between rivers, groundwater and surface water to prompt the appropriate consideration of these issues in site-specific FRAs and further studies such as a SWMP and Drainage Strategies.

8.1 Introduction

In this context, hydraulic interactions are considered as potential interactions between different sources of flooding; for example, fluvial flooding (from rivers), surface water flooding and flooding from drains and sewers. During a significant flood event hydraulic interactions between these systems can have an important, but often overlooked, impact on the distribution, magnitude and extent of flood risk.

Historically, flood risk management in the UK has concentrated on defining the flood extents from separate sources of flooding by treating them independently. Little consideration has been given to the fact that these flood outlines may overlap (representing a double counting of available storage) or to the fact that one system may provide a conduit for conveying water sourced from another. These effects may result in reduced flooding, where additional storage is available in another system (such as sewers); or may increase the flood risk by transporting water out of previous flood extents. Critically, in urban areas where water is conveyed in many systems, often in close proximity, the traditional approach of considering flooding sources in isolation is not completely representative.

This strategic study has not concentrated on quantifying the effects of the hydraulic interactions which may occur in Newcastle, nor has it tried to assign a probability to them. Instead, a desk-based study has been undertaken, to try to define where these interactions may occur. At each location, potential risks have been summarised, with the intention of providing a reference for flood risk managers, planners and developers in the future. Interactions are summarised below.

It is envisaged that improving understanding of how different sources of flooding interact during a flood event and the resulting impact on flood risk will be important components of future studies in the city. Indeed until recently it has not really been possible to accurately model all these interactions. However, a number of software packages are now readily available which have been designed specifically to accommodate the complexities of integrated urban flood modelling. With these developments in modelling software capabilities it is likely that future studies will be better equipped to assess the relationships between drainage systems, surface water and fluvial flooding.

8.2 Hydraulic interactions resulting from reservoir breach

As outlined in Chapter 4, due to implications for national security, reservoir breach modelling and mapping was not undertaken for the SFRA. In the event that a reservoir does breach it is likely that excess water will find its way into other water bodies, including rivers, increasing flood extents and depths and enhancing the effects of the hydraulic interactions between the different sources as set out in this chapter.

8.3 Hydraulic interactions affecting surface water

Compared to other sources of flooding, surface water flooding is distributed much more evenly across the city. This means that there may be interaction between surface water flooding and other sources of flood risk. As a result of the highly dispersed nature of surface water flooding it is not feasible to discuss specific locations in this strategic study. It is

however recommended that possible interactions are considered on a local basis as part of a detailed Flood Risk Assessment.

8.4 Hydraulic interactions affecting the sewer network

Surcharging of drainage and sewerage systems are often a cause of flooding in urban areas. The interaction between these systems and other sources of flooding such as fluvial and surface water is often highly complex. For example, increased water levels in river networks will result in reduced ability for them to convey water away from surface water drain outfalls and from combined sewer overflows. Increased water levels will also submerge piped outfalls to watercourses and restrict discharges. This will typically result in backing up of water levels in the pipe system until the pressure can be relieved by overflows from the lowest nearby manhole. Surcharging of this manhole will result in reduced ability to drain surface water as well as a source of flood water that may interact with surface water. Because of the highly distributed nature of sewer flooding it is not feasible to discuss specific locations in this strategic study; however, it is recommended that possible interactions are considered on a local basis through a Surface Water Management Plan.

9. Summary of risk

A summary of flood risk issues for groups of development sites is presented below. The Sequential Test Spreadsheet is included as Appendix A. Specific reference should also be made to Section 2 of the accompanying User Guide.

9.1 Introduction

In accordance with the requirements of PPS25 the Council, through a process of site screening, has reviewed and rejected inappropriate sites for development (see Appendix A). The Sequential Test Spreadsheet, summarising significant flood risks to Newcastle Council's identified sites is included as Appendix A. The Sequential Test spreadsheet, undertaken for this SFRA, includes all sites currently identified for potential development by the Council. The Council has a full list of sites that have already been rejected during this process owing to high flood risk.

Development sites which are at the greatest risk of flooding have been summarised in terms of flood risk. This will help provide an evidence base for the inclusion of sites and areas within Newcastle's Local Development Framework.

This review of sites is based on a procedure developed to provide a greater appreciation of the actual and residual flood risks. Evaluation of the implications of new development in the high and medium flood risk zones requires the Council to make informed decisions in response to the actual level of protection (and the commitment to current flood mitigation measures) as well as specific measures associated with the proposed development.

The underlying objective is to identify whether there is a need for strategic flood risk mitigation measures or whether it is possible for new development to be permitted and provisions made on a piecemeal basis (it should be noted that this is not the preferred approach according to PPS25). If it is identified that there is a requirement to provide strategic infrastructure then the requirements of Planning Policy Statement 12 (PPS12) should also be addressed.

The risk to key sites has also been summarised by addressing the following range of issues.

9.1.1 Risks associated with fluvial and surface water risk

- Are the development sites in the area at significant risk during a 1% AEP event?
- Are the development sites in the area at significant risk during a 0.1% AEP event?
- Are the development sites in the area at significant risk when climate change is considered?
- Are the development sites in the area at significant risk during a 5% AEP event (Functional Floodplain)?
- Is the development site at risk of high, medium or low surface water flooding?
- Is overall residual risk significant in the area?

9.1.2 Standards of protection

- Is there a consistent asset standard of protection? (assets include culverts)
- Is there a consistent asset condition?
- Is there a significant possibility of assets breaching?
- Could assets overtop during climate change or extreme events?

9.1.3 Design and Management

- Will flood risk be an urban design issue?
- Can residual risk be successfully managed?

- Could development reduce risk?

Preparing responses to these questions for each of the identified locations will generate a profile of:

- The implications of seeking to manage the actual risks to acceptable levels
- The effects of climate change on existing defences and the residual risk due to overtopping
- The consequences of the residual risk in the event that the defences fail

The Sequential Test Spreadsheet provides a summary of flood risks to the key sites across the city.

9.2 Sustainability Appraisal

The Council's Sustainability Appraisal, land allocations and development control policies should be informed by the Newcastle Level 2 SFRA and carried out in liaison with the Environment Agency.

Included in the Sustainability Appraisal is a flood risk objective for sustainable and integrated management of Newcastle's water resources:

'Spatial planning should be integrated with river basin management and strategic flood risk assessment. Therefore, we thought it appropriate to give water management greater consideration in the appraisal process. Sub-questions relating to water and flooding were removed from other objectives.

The Newcastle Level 2 SFRA provides information to support this objective and will provide the evidence base to help direct sustainable development.

9.3 Planning considerations

For the purpose of this SFRA and for any future planning applications the Sequential Test should be applied to all proposed development, in consultation with Newcastle Council to confirm that there are no reasonable alternatives on land with a lower probability of flooding which deliver the same planning objectives.

If, following the application of the Sequential Test, it is identified that there is a requirement to place additional development in areas with a high or medium probability of flooding then the following issues must be considered:

- The level of “actual” flood risk to the strategic sites should be evaluated,
- The implications of climate change on the level of “actual” risk should be understood, and
- The implications of residual risk, as a consequence of overtopping or breach of defences should be determined.

This further review is needed to understand whether development can be made safe from flooding, including whether it has the potential to pass part (C) of the Exception Test if it is needed. In order to pass the Exception Test, the LPA must demonstrate that all of the three conditions must be passed (see paragraph D9 of PPS25):

a. ***It must be demonstrated that the development provides wider sustainability benefits to the community that outweigh flood risk, informed by a SFRA where one has been prepared. If the LDD has reached the ‘submission’ stage (see Figure 4.1 of PPS12: Local Development Frameworks) the benefits of the development should contribute to the Core Strategy’s Sustainability Appraisal;***
b. ***The development should be on developable previously-developed land or, if it is not on previously-developed land, that there are no reasonable alternative sites on developable previously-developed land; and***

c. ***A site-specific Flood Risk Assessment must demonstrate that the development will be safe, without increasing flood risk elsewhere, and, where possible, will reduce flood risk overall.***

Having followed this procedure it is then possible to consider the appropriate responses that will be required to protect the strategic sites/ locations in detail. It will be necessary to consider the full range of responses according to the type of risk being addressed and if new development is being proposed then this must be done in accordance with the guidance given in PPS25 and the associated Practice Guide.

9.4 Development sites benefiting from defences

Of the proposed development sites within Newcastle, none benefit from Environment Agency Areas Benefiting from Defences (ABDs). This has been assessed from Environment Agency flood mapping which displays all England and Wales flood defences that have been constructed during the last five years with a standard of protection equal to or better than 1 per cent AEP from rivers and 0.5 AEP per cent from the sea. Some additional defences, which may be older or have been designed to a lower design standard, are also displayed.

10. Outline Mitigation Strategy

Chapter 10 proposes an outline mitigation strategy by highlighting the mitigation measures that should be considered in accordance with PPS25.

10.1 Introduction

There are a range of planning considerations and mitigation strategies available for flood risk, outlined below.

10.2 Site layout and design

Flood risk should be considered at an early stage in deciding the layout and design of a site to provide an opportunity to reduce flood risk within the development.

The PPS25 Practice Guide states that a sequential, risk-based approach should be applied to try to locate more vulnerable land use to higher ground, while more flood-compatible development (e.g. car parking, recreational space) can be located in higher risk areas.

Waterside areas, or areas along known flow routes, can be used for recreation, amenity and environmental purposes, allowing the preservation of flow routes and flood storage, and at the same time providing valuable social and environmental benefits contributing to other sustainability objectives. Landscaping should ensure safe access to higher ground from these areas and avoid the creation of isolated islands as water levels rise.

10.3 Modification of ground levels

Modifying ground levels to raise the land above the required flood level is a very effective way of reducing flood risk to the site in question.

However, in most areas of fluvial flood risk, floodplain volume would be reduced by raising land above the floodplain, often adversely affecting flood risk in the vicinity and downstream. Compensatory flood storage must be provided, and should be on a level for level, volume for volume basis on land that does not currently flood but is adjacent to the floodplain (in order for it to fill and drain). It should be in the vicinity of the site and within the red line of the planning application boundary (unless the site is strategically allocated).

Where the site is entirely within the floodplain it is not possible to provide compensatory storage at the maximum flood level and this will not be a viable mitigation option. Compensation schemes must be environmentally sound.

10.4 Local flood storage

Where development reduces the volume of floodplain storage it will be necessary to provide compensatory storage locally. This could be an environmental wetland area, designated washland (designed to flood) or a flood basin. This can also be considered within urban design if areas are designated to flood in a flood event (e.g. ground floor of a development with residential on first floor).

On a strategic catchment-wide scale, appropriately located flood storage basins and washlands can not only provide a reduction in flood risk, but can also enhance and contribute to wetland restoration and habitat creation, as well as potentially increasing the recreational value of many river corridors. For upstream flood storage schemes to maximise benefits downstream, they need to be located in suitable areas of the catchment. Locating flood storage basins too far upstream could mean that a large proportion of flood flows are is still able to travel downstream from other areas in the catchment.

The need for compensatory storage must be discussed at the earliest stage of planning as this may require significant land take.

10.5 Raised defences

Construction of raised floodwalls or embankments to protect new development is not a preferred option, as a residual risk of flooding will remain. Compensatory storage must be provided where raised defences remove storage from the floodplain.

Temporary or demountable defences are not acceptable flood protection for a new development unless flood risk is residual only.

10.6 Temporary barriers

Temporary barriers consist of moveable flood defences which can be fitted into doorways and/or windows, etc. The permanent fixings required to install these temporary defences should be discrete and keep architectural impact to a minimum. On a smaller scale temporary snap-on covers for airbricks and air vents can also be fitted to prevent the entrance of flood water.

10.7 Permanent barriers

Permanent barriers can include built-up doorsteps, rendered brick walls and toughened glass barriers.

10.8 Developer contributions to flood defences

In some cases, it may be necessary for the developer to make a contribution to the improvement of flood defence provision that would benefit both the development in question and the local community.

10.9 Building design

The raising of floor levels within a development avoids damage occurring to the interior, furnishings and electrics in times of flood. If it has been agreed with the Environment Agency that, in a particular instance, the raising of floor levels is acceptable, they should generally be raised to 600mm above the maximum water level during a 1% AEP flood event plus climate change. This additional height that the floor level is raised is referred to as the 'freeboard'. The flood depth maps provide an indication of the scale of land raising that may be necessary.

Making the ground floor use of a building water-compatible (for example a car park), is an effective way of raising living space above flood levels.

Putting a building on stilts is not considered an acceptable means of flood mitigation for new development. However it may be allowed in special circumstances if it replaces an existing solid building, as it can improve flood flow routes. In these cases attention should always be paid to safe access and egress and legal protection should be given to ensure the ground floor use is not changed.

10.10 Resistance and resilience

There may be instances where flood risk remains to a development. For example, where the use is water-compatible, where an existing building is being changed, where residual risk remains behind defences, or where floor levels have been raised but there is still a risk in a 1 in 1000 year event. In these cases (and for existing development in the floodplain), additional measures can be put in place to reduce damage in a flood and increase the speed of recovery. These measures should not be relied on as the only mitigation method.

The 2007 document '***Improving the Flood Performance of New Buildings'*** provides further details on possible resistance and resilience measures[12].

This involves designing interiors to reduce damage caused by flooding, for example:

- Electrical circuitry installed at a higher level with power cables being carried down from the ceiling rather than up from the floor level
- Water-resistant materials for floors, walls and fixtures

Resilience measures will be specific to the nature of flood risk, and as such will be informed and determined by the FRA.

10.11 Safe Access

The developer must ensure that safe access and egress is provided to an appropriate level for the type of development. This may involve raising access routes to a suitable level. Environment Agency guidance suggests that all development should have a dry pedestrian and vehicular access and egress in the 1% AEP event with climate change.

As part of the FRA, the developer should review the acceptability of the proposed access in consultation with the Environment Agency. For the purpose of the SFRA it is considered appropriate to provide a low hazard environment in access and egress routes associated with new housing developments.

10.12 Flood Warning and Evacuation

Emergency/evacuation plans should be in place for all properties, large and small, at residual risk of flooding; those developments which house vulnerable people (e.g. care homes and schools) will require more detailed plans.

Implementing mitigation measures on sites that lie within the floodplain could potentially increase the risk of flooding to the wider community (upstream and downstream) in the catchment(s) of the watercourse(s) on which the site lies.

If, for example, development on each of the sites is maximised by using flood defences or ground raising, floodplain storage would be lost (if not compensated) and in certain circumstances floodwater will be displaced and forced elsewhere. This may either result in an increase in water level upstream of the development due to a reduction in floodplain storage or alternatively, it may mean that more flow is passed on downstream placing areas currently not a risk at danger of being flooded.

Within the floodplain, loss of storage or new flood flow obstructions may have particular local impacts, with that volume of water being transferred elsewhere, possibly to neighbouring areas which have historically remained free of flooding.

It is critical that development doesn't increase risk to the surrounding community and that any increase in flood levels/volume are compensated on site in line with the Environment Agency advice. This will be an important consideration for any large sites which have extensive flood risk coverage as this requirement will significantly impact yields achievable if land is raised or defences are provided. This should be considered within the master planning of sites at the earliest stage and the sequential approach to site layout should be considered, placing the least vulnerable parts of the development in the highest flood risk areas. Taking such an approach may in some cases negate the need for significant engineering interventions.

[12] Communities and Local Government (2007) Improving the Flood Performance of New Buildings – Flood Resilient Construction

Appendices

A. Newcastle City Council - Sequential Test

The Sequential Test spreadsheet lists all sites identified by the Council as being potentially suitable for future development in accordance with their perceived development needs. The Council has, as part of the SFRA process, already rejected sites that are unsuitable based on significant flooding issues.

The Sequential Test spreadsheet must be used in conjunction with the Level 2 SFRA report and User Guide which provide evidence on a community wide basis. The report supplies more detailed information on flood risk from the River Ouseburn, the River Tyne and surface water. The additional detail can also inform a sequential approach to development allocation within flood risk areas and mitigation options where appropriate. The User Guide gives additional information on the SFRA process and requirements for Sequential and Exceptions Testing.

Reference	Address	Site Name	Development Type	Area (ha)	Flood Zones									JBA Enhanced Surface Water							Environment Agency 2nd Generation Surface Water Mapping										Environment Agency Comments	Revised SFRA Text (including Council comments)	Remove from SFRA	Site Over 0.5ha and Intersecting a CDA
					Flood Zone 2		Flood Zone 3 Plus Climate Change		Flood Zone 3a		Flood Zone 3b		Total % of site area	1 in 1000 year AEP		1 in 200 year AEP		1 in 75 year AEP		Total % of site area	EA_SurfaceWater_1in200yr_deep		EA_SurfaceWater_1in200yr_shallow		Total % of site area	EA_SurfaceWater_1in30yr_deep		EA_SurfaceWater_1in30yr_shallow		Total % of site area				
			SHLAA / ELA / Combined		Area (ha)	% of total site area	Area (ha)	% of total site area	Area (ha)	% of total site area	Area (ha)	% of total site area	%	Area (ha)	% of total site area	Area (ha)	% of total site area	Area (ha)	% of total site area	%	Area (ha)	% of total site area	Area (ha)	% of total site area	%	Area (ha)	% of total site area	Area (ha)	% of total site area	%				
1574	West Parade Hotel, Westmorland Rd		SHLAA	0.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				
2779	Land west of Burt Terrace, Walbottle		SHLAA	0.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	4.70	4.70	0.00	0.00	0.00	0.00	0.00				
2643	Newcastle Great Park Cell D		SHLAA	28.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.18	0.66	0.15	0.52	0.00	0.00	1.18	0.00	0.00	0.41	1.46	1.46	0.00	0.00	0.17	0.62	0.62		Outline permission part of Newcastle Great Park. Approximately 2% of the site is within the EA's 200yr SW flood outline.		Yes
2769	Burnham Avenue, West Denton		SHLAA	1.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				Yes
1008	BT site, Ponteland Rd		SHLAA	0.88	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.11	0.11	0.00	0.00	0.00	0.00	0.00				Yes
1026	Gap Plant		SHLAA	0.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				
1072	Former scrap metal site, Walker Road		SHLAA	0.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				Yes
1129	CW2 - Lamb Street		SHLAA	1.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	2.82	0.10	9.48	0.08	7.97	20.27	0.05	4.96	0.08	8.00	12.96	0.00	0.00	0.06	5.65	5.65		Allocated for development in Walker Riverside AAP when development comes forward it must have regard to the SWMP. Approximately 13% of the site is within the EA's 200yr SW flood outline. No development within areas classified as being at risk from "deep" SW flooding else drainage strategy, access and attenuation need detailed consideration in conjunction with the Council's SWMP		Yes
1426	46 - 54 Close Quayside		SHLAA	0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				
1540	Beechgrove Road & Bristol Terrace		SHLAA	0.53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				Yes
1591	6-12 Beech Street		SHLAA	0.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				
2670	Former Hillsview School, Carsdale Road, Fawdon		SHLAA	2.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14	5.02	0.00	0.00	0.00	0.00	5.02	0.00	0.00	0.05	1.87	1.87	0.00	0.00	0.03	0.90	0.90		Must have regard to emerging SWMP. Approximately 2% of the site is within the EA's 200yr SW flood outline.		Yes
1422	Land adjacent to Bonded Warehouse, Close		SHLAA	0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	15.73	15.73	0.00	0.00	0.00	0.00	0.00				
2764	Throckley Leazes Estate: Broadshaw Walk / Whinshields Walk / Lydney Close		SHLAA	1.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	1.72	1.72	0.00	0.00	0.00	0.00	0.00				
2830	Land at Trevelyan Drive, Newbiggin Hall		SHLAA	0.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				
1191	Land at St Lawrence Square		SHLAA	3.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	2.48	0.05	1.41	0.00	0.00	3.89	0.00	0.00	0.16	4.22	4.22	0.00	0.00	0.00	0.00	0.00				Yes
1547	Site of Hopedene		SHLAA	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				
1549	Wentworth Court		SHLAA	1.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				Yes
1550	Land at Kirkdale Green		SHLAA	0.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.14	0.14	0.00	0.00	0.00	0.00	0.00				
1518	Land at Dorcas Avenue		SHLAA	1.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				Yes
~~2838~~	~~Tilmouth Park Road, Throckley~~		~~SHLAA~~	~~0.96~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.04~~	~~4.24~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.00~~	~~4.24~~	~~0.01~~	~~0.54~~	~~0.30~~	~~31.72~~	~~32.26~~	~~0.00~~	~~0.00~~	~~0.01~~	~~1.48~~	~~1.48~~		~~Development completed~~	~~Remove~~	
1364	81-85A Clayton Street		SHLAA	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				
1505	312 Elswick Road Elswick		SHLAA	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				
2788	Princes Bingo Hall, Rokeby Street		SHLAA	0.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				
1302	Rialto, Pandon Bank		SHLAA	0.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				
1461	Plummer House (upper floors)		SHLAA	0.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				
1479	108-110 Grainger Street		SHLAA	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				Yes
1100	Wyedale, Rutland Avenue		SHLAA	2.82	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.21	7.35	0.06	2.05	0.13	4.73	14.12	0.06	2.03	0.04	1.57	3.60	0.00	0.00	0.06	1.98	1.98		Must have regard to emerging SWMP. Approximately 4% of the site is within the EA's 200yr SW flood outline. No development within areas classified as being at risk from "deep" SW flooding, else drainage strategy, access and attenuation need detailed consideration in conjunction with the Council's SWMP.		Yes
1102	CD2 - The Stack PH and land to west		SHLAA	0.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				Yes
1294	Land off Roman Avenue		SHLAA	0.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				
1486	Former Dutton Forshaw Garage site, Westgate Road		SHLAA	0.54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	10.20	10.20	0.00	0.00	0.00	0.00	0.00				Yes
2620	Grove Park, Saint Nicholas Avenue		SHLAA	3.65	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.22	0.00	0.00	0.00	0.00	0.22	0.00	0.00	0.00	0.04	0.04	0.00	0.00	0.00	0.00	0.00				Yes
2818	Land at rear of former Big Waters PH Sandy Lane Brunswick Village		SHLAA	0.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.79	0.79	0.00	0.00	0.00	0.00	0.00				
2766	Parkway Special School		SHLAA	3.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				Yes
2572	Site of 22-140 Roundhill Avenue		SHLAA	1.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				Yes
1644	Bewick House Bewick Street		SHLAA	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				Yes
3348	28 The Grove & land to rear		SHLAA	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				
2712	Three Mile Inn, Gosforth		SHLAA	0.60	0.01	1.77	0.00	0.31	0.00	0.00	0.00	0.00	2.08	0.00	0.55	0.00	0.00	0.00	0.00	0.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00		Small percentage of the identified at risk, to be address in an FRA. The layout of any development must take into consideration flood risk, opportunities for open space within the development to act as flood storage. Pervious planning permission granted, now lapsed, extension of existing building for 68 bed hotel, bar and restaurant to remain at ground floor.		Yes
1316	Planet Earth, Low Friar Street		SHLAA	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	8.31	8.31	0.00	0.00	0.00	0.00	0.00				Yes
1325	94-104 Grainger Street		SHLAA	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				Yes
2680	Knightsbridge		SHLAA	0.88	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				Yes
2647	Newcastle Great Park Cell E		SHLAA	5.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	2.35	2.35	0.00	0.00	0.00	0.00	0.00				Yes
1478	Central Exchange Buildings Grainger Street (Second/third floors)		SHLAA	0.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				
1140	Byker Buildings		SHLAA	0.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				
~~1156~~	~~CD1 - Cambrian Estate~~		~~SHLAA~~	~~3.64~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.14~~	~~3.74~~	~~0.06~~	~~1.64~~	~~0.44~~	~~12.18~~	~~17.56~~	~~0.24~~	~~6.49~~	~~0.26~~	~~7.27~~	~~13.76~~	~~0.00~~	~~0.00~~	~~0.08~~	~~2.20~~	~~2.20~~		~~Residential development started.~~	~~Remove~~	~~Yes~~
2509	Newburn Residential Home (East)		SHLAA	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				
1688	40 Hanover Street		SHLAA	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				Yes
~~1256~~	~~Back Saint George's Terrace, Jesmond~~		~~SHLAA~~	~~0.13~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.81~~	~~0.00~~	~~1.97~~	~~2.78~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.81~~	~~0.81~~		~~Development completed~~	~~Remove~~	
1480	Central Exchange Buildings Grainger Street (Second/third floors)		SHLAA	0.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				
1703	Lime Square, Breamish Street		SHLAA	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				Yes
~~1724~~	~~South Northumberland Cricket Club, Moor Road~~		~~SHLAA~~	~~0.41~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.01~~	~~2.52~~	~~2.52~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.82~~	~~0.82~~		~~Development completed~~	~~Remove~~	
1733	Newbiggin Lane (32 units)		SHLAA	0.57	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				Yes
1755	17-21 Dean Street (Floors 1-4)		SHLAA	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				Yes
1779	Pennine House 4 Osborne Terrace Jesmond		SHLAA	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				Yes
1784	Land at Saint Lawrence Road & Former Rose and Crown PH Walker Road, Byker		SHLAA	0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				
1788	Former Walker Baths, Wharrier Street		SHLAA	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				
3004	Former Ice Cream Factory, Denton Grove		SHLAA	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				
3006	7-8 Ouseburn Terrace		SHLAA	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				
3012	Marconi House, Melbourne Street		SHLAA	0.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				
3014	Pandongate House, City Road		SHLAA	0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				
3023	Romulus Court, Hadrian Road		SHLAA	0.51	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				Yes
3024	11-12 Portland Terrace		SHLAA	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				Yes
3027	Throckley Water Treatment Works, Hexham Road		SHLAA	1.56	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				
3028	3 Osborne Terrace (& rear yard of 4) Jesmond		SHLAA	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				Yes
3032	Sanderson Hospital		SHLAA	1.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	2.92	2.92	0.00	0.00	0.00	0.00	0.00				Yes
3033	Site of Big Waters Hotel, Beamonth Street		SHLAA	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				
3034	John Chapman House		SHLAA	0.39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	10.02	0.02	5.99	0.21	52.74	68.75	0.11	27.41	0.15	39.03	66.44	0.03	6.39	0.15	37.17	43.56		Approximately 67% of the site is within the EA's 200yr SW flood outline. No development within areas classified as being at risk from "deep" SW flooding. No development within "shallow" SW flood outline, else drainage strategy, access and attenuation need detailed consideration in conjunction with the Council's SWMP		
3035	Site of former Star Centre (Tyne House), Jubilee Road		SHLAA	0.26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				
3036	Site of Dunnock Lodge, 18A Union Hall Road		SHLAA	0.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				
3037	Site of former Green Tree PH, Tower View, Benwell Village		SHLAA	0.23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				
3038	Land at Gretna Rd/Benwell Village		SHLAA	0.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				
3039	Throckley Middle School, Hexham Road		SHLAA	0.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.41	0.00	0.00	0.00	0.00	0.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				
3041	Coquet Street		SHLAA	0.51	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				Yes
3044	Norden House 41 Stowell Street		SHLAA	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				Yes
3048	West Court, Kenton Road		SHLAA	0.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				
~~3049~~	~~Heaton Manor School~~		~~SHLAA~~	~~2.04~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.08~~	~~4.07~~	~~0.02~~	~~0.84~~	~~0.08~~	~~4.03~~	~~8.93~~	~~0.24~~	~~11.65~~	~~0.24~~	~~11.52~~	~~23.17~~	~~0.00~~	~~0.00~~	~~0.15~~	~~7.11~~	~~7.11~~		~~Development completed~~	~~Remove~~	~~Yes~~
3050	Land south of Newbiggin Hall shopping centre		SHLAA	1.46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	1.62	1.62	0.00	0.00	0.00	0.00	0.00				Yes
3055	Saint Michael's Court, Clifton Road		SHLAA	0.36	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				
3056	Former Quasar Laser, Atkinson Rd, Benwell		SHLAA	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				
3058	High Grove, Sheltered Accom.		SHLAA	0.37	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				
3061	Former Coupland House Denmark Street Byker		SHLAA	0.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				
3062	Fossway Fire Station		SHLAA	0.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.50	0.50	0.00	0.00	0.00	0.00	0.00				
1527	Land to north of Cruddas Park Shopping Centre		SHLAA	0.66	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				Yes
1396	22-28 Westmorland Road & 2 Waterloo St		SHLAA	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				
3075	Pendower Hall, West Road		SHLAA	1.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	2.48	2.48	0.00	0.00	0.00	0.00	0.00				Yes
3076	7 - 15 Nun Street (Upper Floors)		SHLAA	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				Yes
1218	Chillingham Garden Village, Hartford Street		SHLAA	0.94	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	9.25	0.00	0.00	0.00	0.00	9.25	0.00	0.00	0.03	3.28	3.28	0.00	0.00	0.00	0.00	0.00				Yes
3078	Land at Melbury Road		SHLAA	0.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				
3080	Site of 1-47 Apsley Crescent		SHLAA	0.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				
3081	4 Waterloo Street		SHLAA	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				Yes
3086	Land between Raby St & St Peter's Road		SHLAA	1.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.33	0.00	0.23	0.56	0.00	0.00	0.00	0.00	0.00				Yes
3087	Site of Benwell Social Club		SHLAA	0.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				
3088	Ariva Bus Depot, Portland Terrace, Jesmond		SHLAA	0.87	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	4.43	0.03	3.00	0.08	9.05	16.48	0.00	0.00	0.08	8.71	8.71	0.00	0.00	0.00	0.00	0.00				Yes
3094	Lemington First School		SHLAA	0.57	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.05	0.00	0.00	0.00	0.00	0.00				Yes
3096	Birchvale Avenue & Greentree Square, Slatyford		SHLAA	3.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				Yes
3097	Council Depot, Newington Road		SHLAA	2.85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	2.37	2.37	0.00	0.00	0.00	0.00	0.00				Yes
3104	Playing field, Conhope Lane		SHLAA	0.81	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				Yes
3110	Northbourne Street		SHLAA	1.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				Yes
3111	60-64 Bentinck Rd & 300-302 Elswick Rd		SHLAA	0.37	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				
3119	Benwell Low Waterworks, Axwell Park View		SHLAA	1.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				Yes
2792	Land south of Tyne View		SHLAA	0.95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				Yes
3071	Former Eldon Hotel 24 Akenside Terrace Jesmond		SHLAA	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				Yes
1404	Manor Chare Car Park, Broad Chare		SHLAA	0.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				
1009	Walkergate Hospital		SHLAA	0.96	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	1.62	0.00	0.42	0.00	0.00	2.03	0.00	0.00	0.04	4.61	4.61	0.00	0.00	0.00	0.00	0.00				Yes
1392	Canon Cinema Site, Thornton Street		SHLAA	0.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	5.10	5.10	0.00	0.00	0.00	0.00	0.00				
3139	Westerhope First School, Hillhead Road		SHLAA	0.95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				Yes
3140	7 Wellesly Terrace, Arthur's Hill		SHLAA	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				
1552	139 Durham Street (Former Castleton Lodge) Elswick		SHLAA	0.36	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				
3146	22 - 28 Grosvenor Road Jesmond		SHLAA	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				Yes
3147	Waterloo House (1st to 5th floors) Thornton Street		SHLAA	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				Yes
2613	Deck Access Flats, Blakelaw		SHLAA	2.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	4.43	0.00	0.00	0.00	0.00	4.43	0.00	0.00	0.33	16.23	16.23	0.00	0.00	0.00	0.00	0.00				Yes
3155	WG2 - Walker Road allotments		SHLAA	2.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				Yes
1128	WG3 - River's Gate, Walker		SHLAA	2.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				Yes
3152	Site of The Corner House, Benwell Village		SHLAA	0.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				
3153	WG2 - 782-854 Walker Road		SHLAA	0.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				
~~1761~~	~~Site east of Saint James Boulevard 34 - 44 Westmorland Road & 3 - 15 Waterloo Street~~		~~SHLAA~~	~~0.12~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.64~~	~~0.01~~	~~7.98~~	~~0.00~~	~~0.00~~	~~8.62~~	~~0.03~~	~~20.78~~	~~0.01~~	~~11.67~~	~~32.45~~	~~0.02~~	~~15.55~~	~~0.01~~	~~6.07~~	~~21.62~~		~~Development completed~~	~~Remove~~	
3090	Social Service Office, Newburn Road		SHLAA	0.56	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				
1121	CD7 - Land at 1450-1560 Walker Road		SHLAA	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				
3156	Land to rear of 94-136 Evistones Gardens		SHLAA	1.37	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				Yes
3158	PB2 - St Anthony's Primary School		SHLAA	1.77	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	3.33	0.02	0.96	0.25	13.88	18.17	0.10	5.84	0.17	9.44	15.29	0.02	1.09	0.09	5.08	6.17		Approximately 16% of the site is within the EA's 200yr SW flood outline. No development within areas classified as being at risk from "deep" SW flooding else drainage strategy, access and attenuation need detailed consideration in conjunction with the Council's SWMP		Yes
1124	PB5 - Land at Felling View/Caldbeck Avenue/Caldbeck Close		SHLAA	1.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	5.82	0.00	0.00	0.00	0.00	5.82	0.00	0.00	0.09	4.90	4.90	0.00	0.00	0.00	0.00	0.00				Yes
1760	Centralofts, Waterloo Street		SHLAA	0.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	6.77	6.77	0.00	0.00	0.00	0.00	0.00				
1000	Benfield Business Park, Benfield Rd		SHLAA	5.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.53	10.13	0.32	6.04	0.48	9.12	25.29	0.03	0.62	1.06	20.26	20.88	0.00	0.00	0.28	5.43	5.43		Approximately 21% of the site is within the EA's 200yr SW flood outline. No development within areas classified as being at risk from "deep" SW flooding, else drainage strategy, access and attenuation need detailed consideration in conjunction with the Council's SWMP		Yes
3051	Newbiggin Hall shopping centre		SHLAA	3.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	3.14	3.14	0.00	0.00	0.00	0.00	0.00				Yes
1604	Land west of Riverview Lodge, Armstrong Road		SHLAA	0.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				
4667	Allotment gardens, Union Hall Road		SHLAA	1.79	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				
3122	Former Lemington Hotel Northumberland Road Lemington		SHLAA	0.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				
1734	Sallyport Garage 2 Causey Bank		SHLAA	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				Yes
1385	Former site of Cattle Market Saint James Gate Phase 2 Scotswood Road		SHLAA	0.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.00	0.05	0.00	0.00	0.00	0.15	0.15	0.00	0.00	0.00	0.00	0.00				
2606	Elmfield Square, Elmfield Road		SHLAA	1.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				Yes
3126	Saint Silas Church, Clifford Street		SHLAA	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				
2790	Warkworth Street		SHLAA	1.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				Yes
1271	Carlton Terrace, 24-50 Jesmond Road West		SHLAA	0.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				
1729	Ouseburn Wharf, Saint Lawrence Road, Byker		SHLAA	0.44	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				
1606	Park Road, Elswick		SHLAA	0.61	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	7.13	7.13	0.00	0.00	0.00	0.00	0.00				Yes
3218	Osborne House 28 Osborne Road Jesmond		SHLAA	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				Yes
3225	43 - 45 Heaton Road Heaton		SHLAA	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				Yes
~~3238~~	~~18 Tankerville Terrace Jesmond~~		~~SHLAA~~	~~0.05~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.03~~	~~56.68~~	~~56.68~~	~~0.01~~	~~30.09~~	~~0.02~~	~~34.13~~	~~64.21~~	~~0.01~~	~~20.59~~	~~0.02~~	~~37.17~~	~~57.76~~		~~Development completed~~	~~Remove~~	~~Yes~~
3247	7 - 15 Nun Street (Upper Floors)		SHLAA	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				Yes
3281	Walbottle Garage, 1 George Street		SHLAA	0.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	15.74	15.74	0.00	0.00	0.00	0.00	0.00				
3228	Playground, Tunstall Avenue		SHLAA	1.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	4.33	4.33	0.00	0.00	0.03	2.65	2.65		Must have regard to emerging SWMP. Approximately 5% of the site is within the EA's 200yr SW flood outline.		Yes
~~3308~~	~~22 - 40 Brentwood Avenue Jesmond~~		~~SHLAA~~	~~0.07~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.79~~	~~0.02~~	~~22.88~~	~~23.67~~	~~0.02~~	~~23.73~~	~~0.01~~	~~13.79~~	~~37.51~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.73~~	~~0.73~~		~~Development completed~~	~~Remove~~	~~Yes~~
3313	Former Westwood Rest Home 1 - 2 Bentinck Villas Bentinck Road, Elswick		SHLAA	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				Yes
3343	Former Neville House Care Home, Clifton Road		SHLAA	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				Yes
3344	Duke of Northumberland PH 18 Clayton Street (Upper Floors)		SHLAA	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				Yes
3350	Springfield Centre		SHLAA	7.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.11	1.54	0.00	0.00	0.00	0.00	1.54	0.00	0.00	0.00	0.06	0.06	0.00	0.00	0.00	0.00	0.00				Yes
3353	Land at corner of Charminster Gardens and Eastcheap Addycombe Terrace		SHLAA	0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				
3372	27 Rutherford Street		SHLAA	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				Yes
3373	Wrendale Court, William Street		SHLAA	0.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				
3376	134 Sandyford Road and 19A Chester Crescent		SHLAA	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				Yes
~~3386~~	~~Phase 1, Dunblane Crescent, West Denton~~		~~SHLAA~~	~~1.18~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.13~~	~~10.84~~	~~0.03~~	~~2.82~~	~~13.66~~	~~0.07~~	~~5.53~~	~~0.05~~	~~3.91~~	~~9.45~~		~~Development completed~~	~~Remove~~	~~Yes~~
3388	Former Tennis Courts, Fenham Chase		SHLAA	0.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	10.41	0.00	0.00	0.00	0.00	10.41	0.00	0.00	0.12	28.02	28.02	0.00	0.00	0.00	0.00	0.00				
3389	WG1 - Land to rear of 42-98 Kingston Avenue		SHLAA	0.59	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				Yes
3392	Seen & Heard, 17 Queens Lane		SHLAA	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				Yes
3395	Fleming Nuffield Unit, Burdon Terrace, Jesmond		SHLAA	0.56	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	14.58	0.11	20.42	0.00	0.00	35.01	0.00	0.00	0.12	21.76	21.76	0.00	0.00	0.00	0.00	0.00				Yes
~~3396~~	~~Hartburn Mews, Hartburn Drive, Chapel Park~~		~~SHLAA~~	~~0.38~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.01~~	~~1.77~~	~~0.00~~	~~0.11~~	~~0.00~~	~~0.12~~	~~1.99~~	~~0.22~~	~~57.65~~	~~0.02~~	~~4.23~~	~~61.87~~	~~0.00~~	~~0.00~~	~~0.10~~	~~24.92~~	~~24.92~~		~~Development completed~~	~~Remove~~	
3397	University of Northumbria Coach Lane campus		SHLAA	4.86	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.23	0.00	0.00	0.08	1.69	1.92	0.00	0.00	0.28	5.74	5.74	0.00	0.00	0.00	0.00	0.00		Must have regard to emerging SWMP. Approximately 6% of the site is within the EA's 200yr SW flood outline.		Yes
3399	CD3 - Site of 262-314 Church Street, Walker		SHLAA	0.36	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	5.67	0.01	2.14	0.12	34.08	41.88	0.06	15.78	0.11	30.45	46.23	0.00	0.00	0.09	24.06	24.06		Approximately 47% of the site is within the EA's 200yr SW flood outline. No development within areas classified as being at risk from "deep" SW flooding else drainage strategy, access and attenuation need detailed consideration in conjunction with the Council's SWMP. No development within "shallow" SW flood outline else drainage strategy, access and attenuation need detailed consideration in conjunction with the Council's SWMP. (Note significant reduction when compared to JBA's enhanced 200yr SW mapping)		

Reference	Address	Site Name	Development Type	Area (ha)	Flood Zones: Flood Zone 2		Flood Zone 3 Plus Climate Change		Flood Zone 3a		Flood Zone 3b		Total % of site area	JBA Enhanced Surface Water: 1 in 1000 year AEP		1 in 200 year AEP		1 in 75 year AEP		Total % of site area	Environment Agency 2nd Generation Surface Water Mapping: EA_SurfaceWater_1in200yr_deep		EA_SurfaceWater_1in200yr_shallow		Total % of site area	EA_SurfaceWater_1in30yr_deep		EA_SurfaceWater_1in30yr_shallow		Total % of site area	Environment Agency Comments	Revised SFRA Text (including Council comments)	Remove from SFRA	Site Over 0.5ha and Intersecting a CDA
			SHLAA / ELA / Combined		Area (ha)	% of total site area	Area (ha)	% of total site area	Area (ha)	% of total site area	Area (ha)	% of total site area	%	Area (ha)	% of total site area	Area (ha)	% of total site area	Area (ha)	% of total site area	%	Area (ha)	% of total site area	Area (ha)	% of total site area	%	Area (ha)	% of total site area	Area (ha)	% of total site area	%				
3401	Pinewood Leisure Club, 201 Jesmond Road, Jesmond		SHLAA	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				
3417	108-110 Grainger Street		SHLAA	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				Yes
3459	133 Osborne Road Jesmond		SHLAA	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				Yes
3460	Central Exchange Buildings Grainger Street (Second/third floors)		SHLAA	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				Yes
3463	David Grieve House, Chirton Wynd, Byker		SHLAA	0.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				
3465	81 Jesmond Road Jesmond		SHLAA	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				Yes
3468	Jackson House 24 - 34 Northumberland Street		SHLAA	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				Yes
3481	Newcastle Opera House Westgate Road (Upper floors)		SHLAA	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	8.93	8.93	0.00	0.00	0.00	0.00	0.00				Yes
3138	Former Police Station, Newburn Rd		SHLAA	0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				
2614	Land at Yatesbury Avenue and Cragston Avenue		SHLAA	0.53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	10.40	0.00	0.00	0.00	0.02	10.42	0.00	0.00	0.03	5.41	5.41	0.00	0.00	0.00	0.00	0.00				Yes
2649	Newcastle Great Park, Cell F Phase 3		SHLAA	12.21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.20	0.20	0.00	0.00	0.00	0.00	0.00				Yes
3501	Site of The Corner House, Benwell Village		SHLAA	0.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				Yes
1020	Central Grange, Kenton Lane		SHLAA	6.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				Yes
3371	Former Denhofer Wines, 47 Bath Lane		SHLAA	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				Yes
3507	Former Saint Catherine's Convent Greystokes Gardens Jesmond		SHLAA	0.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				Yes
4001	2 Osborne Terrace, Jesmond		SHLAA	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				Yes
4002	6 Osborne Road Jesmond		SHLAA	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				Yes
4016	49B Heaton Road and 43 Heaton Grove		SHLAA	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.45	0.00	1.33	0.00	2.82	4.61	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				
4055	4 Osborne Road Jesmond		SHLAA	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				Yes
4054	5 Osborne Road Jesmond		SHLAA	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				Yes
4014	NEP (UK) Ltd, Benfield Rd		SHLAA	0.46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	1.70	0.00	0.94	0.03	7.15	9.79	0.02	4.30	0.03	5.94	10.24	0.00	0.00	0.02	4.74	4.74		Lapsed planning permission. Approximately 11% of the site is within the EA's 200yr SW flood outline. No development within areas classified as being at risk from "deep" SW flooding else drainage strategy, access and attenuation need detailed consideration in conjunction with the Council's SWMP.		
4087	Whinmoor Place / Fouracres Rd, Cowgate		SHLAA	0.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				
4088	Moorvale Lane / Deepdale Crescent, Cowgate		SHLAA	0.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.15	25.03	0.00	0.16	0.00	0.42	25.60	0.00	0.10	0.11	18.59	18.69	0.00	0.00	0.00	0.12	0.12		Must have regard to emerging SWMP. Approximately 19% of the site is within the EA's 200yr SW flood outline.		Yes
4097	Former Reedsmouth Nursery,	Reedsmouth Place	SHLAA	0.52	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	17.20	17.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				Yes
4106	28 The Grove & land to rear		SHLAA	0.14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				
4123	5-6 Portland Terrace		SHLAA	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				Yes
4124	3-4 Portland Terrace		SHLAA	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				Yes
4161	East Brunton Farm Buildings, Brunton Lane		SHLAA	0.26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	7.21	7.21	0.00	0.00	0.00	0.00	0.00				
4162	Land adjacent East Brunton Farm Buildings, Brunton Lane		SHLAA	0.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				
4176	Former Bonded Warehouse, Close		SHLAA	0.10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				
4177	Car Park at Newbiggin Hall Shopping Centre		SHLAA	0.28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				
~~4204~~	~~Fell House Farm, North Walbottle~~		~~SHLAA~~	~~0.39~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.34~~	~~0.00~~	~~0.70~~	~~0.00~~	~~0.00~~	~~1.03~~	~~0.05~~	~~13.95~~	~~0.03~~	~~7.84~~	~~21.79~~	~~0.00~~	~~0.00~~	~~0.05~~	~~12.62~~	~~12.62~~		~~Development completed~~	~~Remove~~	
~~4207~~	~~The Bakers, Ponteland Road~~		~~SHLAA~~	~~1.19~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.25~~	~~21.30~~	~~0.12~~	~~10.39~~	~~0.41~~	~~34.31~~	~~66.00~~	~~0.04~~	~~3.58~~	~~0.61~~	~~50.87~~	~~54.45~~	~~0.00~~	~~0.00~~	~~0.23~~	~~19.66~~	~~19.66~~		~~Residential development started.~~	~~Remove~~	~~Yes~~
4213	West Benwell Terraces		SHLAA	2.95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				Yes
4214	Westfield Road		SHLAA	2.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				Yes
4221	Wheatfield House, Wheatfield Road		SHLAA	0.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	0.03	0.00	0.00	0.00	0.00	0.00				Yes
4228	IRDL site, Fossway		SHLAA	4.64	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.18	3.95	0.00	0.00	0.00	0.00	3.95	0.00	0.00	0.15	3.29	3.29	0.00	0.00	0.00	0.00	0.00				Yes
4236	Green Tree Court, Benwell Village		SHLAA	0.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				
2765	Phase 2, Dunblane Crescent, West Denton		SHLAA	1.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	5.04	0.00	0.00	0.13	7.36	12.41	0.00	0.00	0.01	0.48	0.48	0.00	0.00	0.00	0.00	0.00				Yes
4242	Land north of Chesterfiled Road, Elswick		SHLAA	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				
4249	CW4 - Bus terminus and open space at junction of Rhodes Street and Titan Road Walker		SHLAA	0.87	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				Yes
4250	CW5 - Industrial area at junction of Rhodes Street and Station Road Walker		SHLAA	1.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	5.30	5.30	0.00	0.00	0.00	0.00	0.00				Yes
4252	CW7/8 - Church Walk Centre Berry Close Walker		SHLAA	5.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.11	21.29	0.03	0.60	0.21	4.10	25.99	0.07	1.36	0.44	8.41	9.77	0.00	0.00	0.06	1.18	1.18		Must have regard to emerging SWMP. Approximately 10% of the site is within the EA's 200yr SW flood outline. No development within areas classified as being at risk from "deep" SW flooding else drainage strategy, access and attenuation need detailed consideration in conjunction with the Council's SWMP.		Yes
4253	CD5/9 - Site of 25 - 161 Dovercourt Road and 1540 - 1572 Walker Road Walker		SHLAA	1.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	1.97	0.01	0.83	0.02	1.16	3.96	0.00	0.00	0.11	6.89	6.89	0.00	0.00	0.00	0.00	0.00		Must have regard to emerging SWMP. Approximately 7% of the site is within the EA's 200yr SW flood outline.		Yes
4255	CD4 - West Walker Primary School Church Street Walker		SHLAA	2.77	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	2.10	0.01	0.21	0.06	2.31	4.62	0.02	0.85	0.22	7.78	8.62	0.00	0.00	0.06	2.16	2.16		Must have regard to emerging SWMP. Approximately 9% of the site is within the EA's 200yr SW flood outline.		Yes
4257	PB3 - Site of 1372 - 1452 Walker Road Walker		SHLAA	0.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	2.11	0.00	0.53	0.00	0.00	2.64	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				
4263	PB1 - Belmont Methodist Church Enslin Street Walker		SHLAA	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.03	11.30	0.01	3.18	0.04	14.56	29.03	0.00	0.00	0.06	23.05	23.05	0.00	0.00	0.00	0.00	0.00				
4258	PB10 - Caldbeck Close		SHLAA	0.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.24	0.00	0.00	0.00	0.00	0.24	0.00	0.00	0.00	0.10	0.10	0.00	0.00	0.00	0.00	0.00				
4260	PB4 - Gaughan House, Winston House and 1 - 16 Gaughan Cl.		SHLAA	0.54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	3.01	0.00	0.00	0.00	0.00	3.01	0.00	0.00	0.01	1.03	1.03	0.00	0.00	0.00	0.00	0.00				Yes
4266	31 - 33 Osborne Road Jesmond		SHLAA	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				Yes
4274	Waterloo House (1st to 5th floors) Thornton Street		SHLAA	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				Yes
4278	CF4 - Selby Court and Clinic Saint Anthony's Road Walker		SHLAA	0.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				
4279	CF1 - Site of 70 - 128 Lancefield Avenue, 1 - 23 Carnaby Road and 1 - 23 Readhead Drive		SHLAA	1.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				Yes
4280	CF1 - 1 - 47 Chalfont Road and 69 - 115 Lancefield Avenue		SHLAA	0.80	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				Yes
4281	CF1 - Lightfoot Centre & Wharrier St Primary School, Walker		SHLAA	7.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.40	5.01	0.11	1.34	0.00	0.00	6.35	0.00	0.00	0.49	6.16	6.16	0.00	0.00	0.06	0.71	0.71		Allocated for housing in Walker Riverside AAP, when development comes forward it must have regards to the SWMP. Approximately 6% of the site is within the EA's 200yr SW flood outline.		Yes
4286	Red Hut Community Centre, Blakelaw		SHLAA	0.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				
4287	Fawdon Service Station, Jubilee Road		SHLAA	0.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				
4288	Site of 2-112 Newlyn Road		SHLAA	0.89	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				Yes
4300	West Farm, Ponteland Road		SHLAA	0.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				
~~4318~~	~~North Farm, Throckley~~		~~SHLAA~~	~~0.56~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.32~~	~~0.04~~	~~7.52~~	~~0.06~~	~~10.38~~	~~18.22~~	~~0.12~~	~~21.82~~	~~0.13~~	~~22.58~~	~~44.40~~	~~0.03~~	~~5.97~~	~~0.17~~	~~29.30~~	~~35.27~~		~~Residential development started.~~	~~Remove~~	
4342	Prospect House, Hexham Road, Throckley		SHLAA	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				
~~4347~~	~~John N Dunn Premises Norham Place Jesmond~~		~~SHLAA~~	~~0.07~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.03~~	~~39.37~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.00~~	~~39.37~~	~~0.00~~	~~0.00~~	~~0.04~~	~~61.61~~	~~61.61~~	~~0.00~~	~~0.00~~	~~0.04~~	~~51.92~~	~~51.92~~		~~Development completed~~	~~Remove~~	
4360	Fencer Hill Square, McCracken Park, Great North Road		SHLAA	0.66	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				Yes
4395	British Bakeries Ltd, Wheatfield Road		SHLAA	2.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	2.32	0.13	5.68	8.00	0.00	0.00	0.11	4.99	4.99		planning permission (residential)		Yes
4399	Atkinson House, Cypress Avenue, Fenham		SHLAA	1.53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				Yes
4400	Hunter's Moor Hospital, Hunter's Road, Spital Tongues		SHLAA	2.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.35	0.00	0.15	0.14	5.56	6.05	0.00	0.00	0.12	5.10	5.10	0.00	0.00	0.03	1.03	1.03		Must have regard to emerging SWMP. Approximately 5% of the site is within the EA's 200yr SW flood outline.		Yes
4402	157-185 High Street, Gosforth		SHLAA	0.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	4.96	4.96	0.00	0.00	0.00	0.00	0.00				
4405	Angel Heights, Westgate Road		SHLAA	0.32	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				
4406	Angel Heights, Westgate Road		SHLAA	0.26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				
4407	Former car dealership, 3 High Row		SHLAA	0.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.33	0.01	7.33	8.66	0.00	1.33	0.00	0.05	1.38		Lapsed planning permission (change of use). Approximately 9% of the site is within the EA's 200yr SW flood outline. No development within areas classified as being at risk from "deep" SW flooding else drainage strategy, access and attenuation need detailed consideration in conjunction with the Council's SWMP.		
4421	Land at Benwell Dene Nursing Home		SHLAA	1.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				Yes
4423	Playground, Pendower Way		SHLAA	0.46	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				
4427	St Anthony's Road Allotments (behind Losh Terrace)		SHLAA	2.79	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	2.78	0.13	4.67	0.02	0.90	8.35	0.04	1.30	0.15	5.35	6.65	0.00	0.00	0.00	0.00	0.00				Yes
4429	Springfield Centre		SHLAA	7.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.11	1.51	0.00	0.00	0.00	0.00	1.51	0.00	0.00	0.00	0.05	0.05	0.00	0.00	0.00	0.00	0.00				Yes
4430	PB9 - Pottery Bank Phase 1		SHLAA	1.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				Yes
4431	PB7 - Pottery Bank Phase 2		SHLAA	0.95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				Yes
4433	St Bede's R.C. Primary School, Whickham View, Benwell		SHLAA	0.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.09	13.76	0.02	2.58	16.34	0.08	12.58	0.01	1.49	14.08		Must have regard to emerging SWMP. Approximately 17% of the site is within the EA's 200yr SW flood outline. No development within areas classified as being at risk from "deep" SW flooding.		Yes
4436	Throckley First School, Coach Road		SHLAA	0.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				
4437	Paddock to south of Throckley Recreation Ground		SHLAA	0.67	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				
4479	Atkinson Road Primary School		SHLAA	0.69	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	1.95	0.00	0.00	0.00	0.00	1.95	0.00	0.00	0.05	6.70	6.70	0.00	0.00	0.00	0.00	0.00				Yes
4482	Site of Chapel Park Middle School		SHLAA	4.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.16	0.16	0.00	0.00	0.00	0.08	0.08		Must have regard to emerging SWMP.		Yes
4484	Westgate Community College (north), Grange Road		SHLAA	2.09	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	0.76	0.08	3.82	0.00	0.00	4.58	0.00	0.00	0.08	3.85	3.85	0.00	0.00	0.00	0.00	0.00				Yes
4496	36-51 Eastgath, Newbiggin Hall		SHLAA	0.29	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				
4516	Elmfield Square, Elmfield Road		SHLAA	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				Yes
4517	Norden House 41 Stowell Street		SHLAA	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				Yes
4520	99-107 Shields Road, Byker		SHLAA	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				Yes
4527	626 Welbeck Road, Walker		SHLAA	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				Yes
4528	Lemington Middle School		SHLAA	6.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	1.92	0.00	0.00	0.00	0.00	1.92	0.10	1.67	0.06	1.05	2.72	0.00	0.00	0.11	1.80	1.80		Approximately 3% of the site is within the EA's 200yr SW flood outline. No development within areas classified as being at risk from "deep" SW flooding else drainage strategy, access and attenuation need detailed consideration in conjunction with the Council's SWMP.		Yes
4534	Newcastle Opera House Westgate Road (Upper floors)		SHLAA	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	14.81	14.81	0.00	0.00	0.00	0.00	0.00				Yes
4539	Playing Fields, Throckley First School		SHLAA	1.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.30	0.01	0.41	0.71	0.00	0.16	0.01	0.41	0.56		Must have regard to emerging SWMP.		
4555	Former Bonded Warehouse, Close		SHLAA	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				Yes
~~4565~~	~~NGP Cell F West Phase 1~~		~~SHLAA~~	~~11.09~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.17~~	~~1.55~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.00~~	~~1.55~~	~~0.00~~	~~0.00~~	~~0.22~~	~~1.94~~	~~1.94~~	~~0.00~~	~~0.00~~	~~0.14~~	~~1.26~~	~~1.26~~		~~Residential development started.~~	~~Remove~~	~~Yes~~
4566	NGP Cell F East Village		SHLAA	3.57	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				Yes
4568	NGP Cell F Phase 2		SHLAA	11.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.55	4.58	0.10	0.83	0.40	3.37	8.78	0.28	2.33	0.42	3.54	5.87	0.16	1.32	0.25	2.10	3.43		Outline permission as part of Newcastle Great Park. Approximately 6% of the site is within the EA's 200yr SW flood outline. No development within areas classified as being at risk from "deep" SW flooding, else drainage strategy, access and attenuation need detailed consideration in conjunction with the Council's SWMP.		Yes
4569	NGP Cell F Local Centre		SHLAA	1.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				Yes
4596	Phase 3, Dunblane Crescent, West Denton		SHLAA	1.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	3.16	0.04	1.78	0.15	7.75	12.69	0.05	2.37	0.09	4.51	6.88	0.00	0.00	0.04	2.26	2.26		Must have regard to emerging SWMP. Approximately 7% of the site is within the EA's 200yr SW flood outline. No development within areas classified as being at risk from "deep" SW flooding, else drainage strategy, access and attenuation need detailed consideration in conjunction with the Council's SWMP.		Yes
4597	Throckley Leazes Estate		SHLAA	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				
4602	Land at Cambo Green, Wychcroft Way		SHLAA	0.68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				Yes
4604	Land at Blakelaw Road/Sunnyway		SHLAA	0.54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				Yes
4617	4 Waterloo Street		SHLAA	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				Yes
4622	51-61 Shields Road, Byker		SHLAA	0.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7.09	0.00	6.06	13.15	0.00	0.00	0.00	0.00	0.00				Yes
4635	Napier House, Napier Street		SHLAA	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				
4638	Former Heaton Library, Heaton Park View		SHLAA	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				
4654	Land at former Heaton Depot and Heaton Down Yard, Marleen Avenue		SHLAA	4.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.24	5.83	0.04	1.06	0.20	4.66	11.54	0.00	0.04	0.26	6.11	6.15	0.00	0.00	0.04	0.95	0.95		Must have regard to emerging SWMP. Approximately 6% of the site is within the EA's 200yr SW flood outline.		Yes
4656	Orchard House, Fenwick Terrace, Jesmond		SHLAA	0.54	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	10.66	0.06	11.57	0.00	0.82	23.05	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				Yes
4675	Land south of Scotswood Road, Lemington		SHLAA	1.69	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.01	0.58	0.01	0.51	0.00	0.00	1.09	0.01	0.58	0.03	1.98	2.56	0.00	0.05	0.01	0.85	0.90		Minor percentage of the site at risk, a FRA will be required. Approximately 3% of the site is within the EA's 200yr SW flood outline. No development within areas classified as being at risk from "deep" SW flooding, else drainage strategy, access and attenuation need detailed consideration in conjunction with the Council's SWMP.		Yes
4676	West 5 Delivery Office, Slatyford Road, Fenham		SHLAA	0.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				
1555	Site of former Snow Street School, Douglas Terrace		SHLAA	0.49	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				
4696	Land at Drysdale Crescent, Brunswick		SHLAA	0.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	1.69	1.69	0.00	0.00	0.00	0.80	0.80		Must have regard to emerging SWMP. Approximately 2% of the site is within the EA's 200yr SW flood outline.		
4697	Dene Lodge, Broadwood Road		SHLAA	0.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.01	0.00	0.01	0.00	0.00	0.01		Must have regard to emerging SWMP.		
4698	Council Depot, Avison Place		SHLAA	0.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				
4700	Land between 44 & 46 Dene Avenue		SHLAA	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	2.90	2.90	0.00	0.00	0.00	0.00	0.00				
4703	Andrew Court, Welbeck Road		SHLAA	0.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				
4704	Land to north of Callerton Court, Marsden Lane		SHLAA	0.53	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				Yes
4723	1 Osborne Terrace		SHLAA	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				Yes
4750	Site of 20-40A(even) Langleeford Road, Newbiggin Hall		SHLAA	0.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	24.86	0.01	6.33	0.05	33.08	64.27	0.06	35.20	0.02	12.96	48.15	0.00	0.02	0.04	21.66	21.68		Development must have regard to the SWMP and mitigation options fully assessed. Approximately 48% of the site is within the EA's 200yr SW flood outline. No development within areas classified as being at risk from "deep" SW flooding, else drainage strategy, access and attenuation need detailed consideration in conjunction with the Council's SWMP. (Note significant reduction when compared to JBA's enhanced 200yr SW mapping)		
4754	Site of 27-41(odd) Etal Lane, Newbiggin Hall		SHLAA	0.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				
4746	Site of 19-51(odd) Hedgehope Road		SHLAA	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.08	0.00	0.00	0.00	0.00	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				
2703		Sandy Lane, Brunswick Industrial Estate	ELR	1.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				
2758		Cutty Coats, Throckley Ind Estate	ELR	1.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	1.21	1.21	0.00	0.00	0.00	0.00	0.00				
2804		Newburn Haugh Allotments	ELR	1.89	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.34	0.02	0.85	0.00	0.00	1.19	0.00	0.16	0.06	3.17	3.32	0.00	0.00	0.02	1.32	1.32		Must have regard to emerging SWMP. Approximately 4% of the site is within the EA's 200yr SW flood outline.		Yes
~~1289~~		~~Walker Riverside South~~	~~ELR~~	~~2.95~~	~~0.20~~	~~6.82~~	~~0.00~~	~~0.00~~	~~0.01~~	~~0.44~~	~~0.00~~	~~0.00~~	~~7.26~~	~~0.02~~	~~0.72~~	~~0.02~~	~~0.64~~	~~0.17~~	~~5.67~~	~~7.03~~	~~0.03~~	~~1.02~~	~~0.06~~	~~2.05~~	~~3.07~~	~~0.00~~	~~0.00~~	~~0.04~~	~~1.32~~	~~1.32~~		~~Development completed~~	~~Remove~~	~~Yes~~
1355		North of Art Gallery, Durant Road	ELR	0.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				
1384		Safestore (former Heron's Garage)	ELR	0.68	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	9.28	0.00	0.43	0.12	17.40	27.12	0.17	25.72	0.06	9.54	35.26	0.14	21.09	0.03	3.96	25.06		Approximately 36% of the site is within the EA's 200yr SW flood outline. No development within areas classified as being at risk from "deep" SW flooding, else drainage strategy, access and attenuation need detailed consideration in conjunction with the Council's SWMP. (Note reduction when compared to JBA's enhanced 200yr SW mapping)		Yes
1502		Scotswood Bridge Head	ELR	1.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	1.74	0.83	67.81	0.00	0.00	69.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				Yes
2794		Shelley Rd, Newburn Ind Estate	ELR	1.14	0.00	0.00	0.00	0.00	0.02	1.33	0.00	0.00	1.33	0.04	3.59	0.13	11.70	0.01	1.19	16.48	0.00	0.00	0.07	5.93	5.93	0.00	0.00	0.00	0.00	0.00	The site is only at minimal risk of tidal flooding where the site comes into contact with the river bank. There is fluvial flood risk present north of the dismantled railway, north of the site. This area of flood zones stops abruptly prior to the watercourse flowing under the railway. The EA consider that this may need to be investigated further to ensure there is an accurate understanding of the flood risk present. The tidal limit of the River Tyne lies just upstream of the site. As the river is still tidal at this location the EA would not make recommendation to impose a discharge restriction if surface water is to be discharged into the river at this point.	Planning permission granted for erection of 2 industrial units (2009/0720/01/DET). Flood risk is to be taken fully into account in any scheme proposed. Less than 1.5% of this site is located within Flood Zone 3a. No development within Flood Zone 3 area. Approximately 6% of the site is within the EA's 200yr SW flood outline.		
2630		Regent Point, Regent Centre	ELR	0.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02	5.23	0.01	1.97	0.07	17.11	24.32	0.00	0.00	0.05	12.53	12.53	0.00	0.00	0.00	0.00	0.00				
1075		Land west of Free Trade PH	ELR	0.22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00				
1077		Ouseburn West	ELR	0.50	0.35	69.76	0.00	0.00	0.00	0.00	0.00	0.00	69.76	0.10	19.27	0.00	0.00	0.00	0.00	19.27	0.00	0.00	0.05	9.50	9.50	0.00	0.00	0.00	0.00	0.00		Site within Ouseburn regeneration area. Existing planning permission for 13 storey residential development.		Yes
~~1611~~		~~Condercum Road East~~	~~ELR~~	~~0.30~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.04~~	~~0.00~~	~~1.54~~	~~1.58~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.04~~	~~0.04~~		~~Development completed~~	~~Remove~~	

Reference	Address	Site Name	Development Type	Area (ha)	Flood Zones									JBA Enhanced Surface Water							Environment Agency 2nd Generation Surface Water Mapping										Environment Agency Comments	Revised SFRA Text (including Council comments)	Remove from SFRA	Site Over 0.5ha and Intersecting a CDA
			Development Type		Flood Zone 2		Flood Zone 3 Plus Climate Change		Flood Zone 3a		Flood Zone 3b		Total % of site area	1 in 1000 year AEP		1 in 200 year AEP		1 in 75 year AEP		Total % of site area	EA_SurfaceWater_1in200yr_deep		EA_SurfaceWater_1in200yr_shallow		Total % of site area	EA_SurfaceWater_1in30yr_deep		EA_SurfaceWater_1in30yr_shallow		Total % of site area				
			SHLAA / ELA / Combined		Area (ha)	% of total site area	Area (ha)	% of total site area	Area (ha)	% of total site area	Area (ha)	% of total site area	%	Area (ha)	% of total site area	Area (ha)	% of total site area	Area (ha)	% of total site area	%	Area (ha)	% of total site area	Area (ha)	% of total site area	%	Area (ha)	% of total site area	Area (ha)	% of total site area	%				
1090		Heaton Terrace, Shields Road West	ELR	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	0.00	**0.00**				
1616		Caroline Street and Maria Street	ELR	1.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	0.00	**0.00**				Yes
1701		The Side	ELR	0.12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	0.00	0.35	0.00	0.85	0.00	0.00	**1.20**	0.00	0.00	0.01	6.76	**6.76**	0.00	0.00	0.00	0.00	**0.00**				
3025		General Hospital Site	ELR	7.58	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	0.14	1.85	0.00	0.00	0.16	2.09	**3.95**	0.27	3.52	0.60	7.96	**11.48**	0.00	0.01	0.43	5.65	**5.66**		Must have regard to emerging SWMP. Approximately 12% of the site is within the EA's 200yr SW flood outline. No development within areas classified as being at risk from "deep" SW flooding, else drainage strategy, access and attenuation need detailed consideration in conjunction with the Council's SWMP.		Yes
3031		Hanover Buildings	ELR	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	0.00	**0.00**				
3052		Siemens, Shields Road south	ELR	6.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	0.00	**0.00**				Yes
3070		Violet Close and Buddle Road	ELR	1.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.03	2.46	**2.46**	0.00	0.00	0.00	0.00	**0.00**				Yes
1684		Westgate House	ELR	0.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	0.03	12.32	0.00	1.02	0.11	43.86	**57.21**	0.07	29.39	0.01	3.89	**33.28**	0.00	0.00	0.04	17.74	**17.74**		Planning permission (commercial) in place, if sites comes forward in the future development proposals must have regard to the SWMP, need to assess site mitigation options to manage risk. Approximately 34% of the site is within the EA's 200yr SW flood outline.		
3079		Pitt Street Site	ELR	0.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	0.00	**0.00**				
~~1225~~		~~Land adjacent to DSS offices, Benton Park Road~~	~~ELR~~	~~24.45~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.00~~	~~**0.00**~~	~~0.49~~	~~1.99~~	~~0.13~~	~~0.55~~	~~0.13~~	~~0.53~~	~~**3.07**~~	~~0.06~~	~~0.25~~	~~0.66~~	~~2.72~~	~~**2.97**~~	~~0.00~~	~~0.00~~	~~0.04~~	~~0.18~~	~~**0.18**~~		~~Development completed~~	~~Remove~~	~~Yes~~
1323		Terrace Place Car Parks	ELR	0.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.03	8.67	**8.67**	0.00	0.00	0.00	0.00	**0.00**				
1713		Southside, Newcastle Airport	ELR	40.88	0.31	0.77	1.36	3.33	0.87	2.12	2.50	6.12	**12.34**	1.59	3.88	0.75	1.82	3.08	7.53	**13.24**	2.44	5.97	2.99	7.32	**13.29**	0.97	2.38	2.19	5.36	**7.74**	The eastern border of the site is at risk from fluvial flooding. As there is fluvial flood risk on the site if surface water is to be discharged into neighbouring watercourses it must be restricted to at least no more than that from the existing greenfield site including an allowance for climate change and freeboard.	This is considered a key employment site. Need to consider revising the site boundary to exclude area at risk. An FRA will be required and opportunities for flood storage will need to be considered in parts of the site where risk is identified. A drainage strategy, including consideration of access and attenuation requirements needs to be developed in conjunction with the Council's SWMP. Flood risk is to be taken fully into account in any scheme proposed. Less than 2.5% of this site is located within Flood Zone 3a. Approximately 12.5% of the site is located within Flood Zone 3b. No development within Flood Zone 3 area which is to be designated as public open space or water compatible uses only. Approximately 13% of the site is within the EA's 200yr SW flood outline. Small percentage of the site at risk, an FRA will be required, possibility of reducing the site to avoid risk. Approximately 7% of the site is within the EA's 200yr SW flood outline. No development within areas classified as being at risk from "deep" SW flooding else drainage strategy, access and attenuation need detailed consideration in conjunction with the Council's SWMP.		Yes
1056		Portland Road Phase 2	ELR	1.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.05	2.57	**2.57**	0.00	0.00	0.00	0.00	**0.00**				Yes
1116		Upper Steenbergs - Upper Plateau	ELR	0.31	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	0.00	**0.00**				
3210		Siemens, Shields Road north	ELR	1.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	0.00	**0.00**				Yes
3302		Clavering Place & Hanover Square	ELR	0.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	0.00	**0.00**				
3359		Lemington Glassworks	ELR	1.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	0.01	0.50	0.04	3.79	0.00	0.00	**4.29**	0.00	0.00	0.17	16.03	**16.03**	0.00	0.00	0.06	5.75	**5.75**		Must have regard to emerging SWMP. Approximately 16% of the site is within the EA's 200yr SW flood outline.		Yes
3360		Former Caravan Site	ELR	1.70	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	0.26	15.30	0.36	21.13	0.24	14.27	**50.70**	0.04	2.35	0.07	4.00	**6.35**	0.00	0.00	0.05	2.94	**2.94**		Development must have regard to the SWMP and mitigation options assessed. Approximately 7% of the site is within the EA's 200yr SW flood outline. No development within areas classified as being at risk from "deep" SW flooding. (Note increase when compared to JBA's enhanced SW mapping)		Yes
3374		Collingwood Buildings	ELR	0.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	0.00	**0.00**				
1414		Strawberry Place	ELR	0.34	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	0.07	20.29	0.00	0.00	0.00	0.00	**20.29**	0.00	0.00	0.01	4.19	**4.19**	0.00	0.00	0.00	0.00	**0.00**				
1328		Strawberry Place	ELR	0.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	0.04	7.03	0.00	0.00	0.00	0.00	**7.03**	0.00	0.00	0.00	0.07	**0.07**	0.00	0.00	0.00	0.00	**0.00**				Yes
~~1492~~		~~Haymarket Metro~~	~~ELR~~	~~0.41~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.00~~	~~**0.00**~~	~~0.12~~	~~29.03~~	~~0.02~~	~~5.09~~	~~0.00~~	~~0.00~~	~~**34.12**~~	~~0.00~~	~~0.00~~	~~0.07~~	~~18.11~~	~~**18.11**~~	~~0.00~~	~~0.00~~	~~0.02~~	~~5.54~~	~~**5.54**~~		~~Development completed~~	~~Remove~~	
~~4137~~		~~A&P Yard, Walker Riverside North~~	~~ELR~~	~~13.74~~	~~0.15~~	~~1.06~~	~~0.00~~	~~0.00~~	~~6.18~~	~~44.97~~	~~0.00~~	~~0.00~~	~~**46.03**~~	~~1.39~~	~~10.10~~	~~1.02~~	~~7.45~~	~~0.58~~	~~4.25~~	~~**21.81**~~	~~0.28~~	~~2.04~~	~~0.70~~	~~5.06~~	~~**7.10**~~	~~0.02~~	~~0.16~~	~~0.29~~	~~2.09~~	~~**2.26**~~	~~The Environment Agency have previously been consulted on this site by the LPA during planning consultation. The proposals involve infilling of the docks to create a development platform. An FRA was submitted as the site is partially within tidal flood zones and greater than 1 ha. Due to the tidal nature of the site surface water, ground raising and infilling of the dry docks was not a flood risk concern. Mitigation measures included raising ground levels above the 1 in 200 year event level to bring the development platform above flood levels and safe access was confirmed. Further planning applications have been received for the construction of an industrial unit on the site which was not a concern due to the previous flood risk mitigation.~~	~~A Committed site. Approximately 5% of the site is within the EA's 200yr SW flood outline. No development within areas classified as being at risk from "deep" SW flooding. Development started (industrial).~~	~~Remove~~	~~Yes~~
4144		Time Central, Gallowgate	ELR	0.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	0.00	1.67	0.00	0.00	0.00	0.00	**1.67**	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	0.00	**0.00**				
4202		Sandy Lane, Brunswick Industrial Estate	ELR	3.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	0.00	**0.00**				
4211		NGP office block D, Cell C	ELR	0.65	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	0.00	**0.00**				Yes
4219		Whitehouse Enterprise Centre	ELR	3.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	0.00	**0.00**				Yes
4329		NCC Coach Park	ELR	0.36	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	0.00	**0.00**				
4330		WH Smith Depot	ELR	0.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	0.00	**0.00**				
4358		Southside, Newcastle Airport	ELR	4.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	0.04	1.12	0.15	3.78	0.02	0.42	**5.31**	0.00	0.00	0.74	18.56	**18.56**	0.00	0.00	0.27	6.68	**6.68**		Must have regard to emerging SWMP. Approximately 19% of the site is within the EA's 200yr SW flood outline.		Yes
4359		S of Freight Village, Airport	ELR	5.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	0.03	0.56	0.03	0.68	0.13	2.58	**3.82**	0.07	1.32	0.07	1.33	**2.65**	0.00	0.02	0.03	0.62	**0.64**		Outline permission for erection of business park. Approximately 3% of the site is within the EA's 200yr SW flood outline.		Yes
4374		AMC Dismantlers, Union Street	ELR	0.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	0.02	10.29	0.00	1.41	0.00	0.00	**11.69**	0.04	20.94	0.01	6.86	**27.80**	0.00	0.00	0.02	11.10	**11.10**		Development must have regard to the SWMP and mitigation options assessed. Approximately 28% of the site is within the EA's 200yr SW flood outline. No development within areas classified as being at risk from "deep" SW flooding, else drainage strategy, access and attenuation need detailed consideration in conjunction with the Council's SWMP. (Note significant reduction when compared to JBA's enhanced SW mapping)		
4398		Co-op Building	ELR	0.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	0.01	1.12	0.00	0.08	0.00	0.29	**1.49**	0.02	3.94	0.02	4.29	**8.22**	0.02	3.39	0.00	0.17	**3.57**		Must have regard to emerging SWMP. Approximately 8% of the site is within the EA's 200yr SW flood outline. No development within areas classified as being at risk from "deep" SW flooding, else drainage strategy, access and attenuation need detailed consideration in conjunction with the Council's SWMP.		
4438		Dobson's Yard, Wincomblee Road	ELR	0.85	0.35	41.46	0.00	0.00	0.26	31.10	0.00	0.00	**72.56**	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	0.00	**0.00**	The site is at tidal flood risk and therefore the Environment Agency would not be against ground raising to be undertaken to mitigate the flood risk. As flood risk is tidal surface water discharge into the River Tyne would not be restricted.	Considered a key employment site, allocated in Walker Riverside AAP. Industrial uses likely to come forward, an FRA will be required, demonstrated need to locate at this site will be required. Development considered feasible. Flood risk is to be taken fully into account in any scheme proposed. 31% of this site is located within Flood Zone 3a.		Yes
4543		Winns Products, Shieldfield Industrial Estate	ELR	0.25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.03	11.81	**11.81**	0.00	0.00	0.00	0.00	**0.00**				
4544		Upper Steenbergs - Lower Plateau	ELR	0.26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	0.00	**0.00**				
4545		Portland Road Phases 1A and 1B	ELR	1.76	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.04	1.99	**1.99**	0.00	0.00	0.02	1.28	**1.28**		Planning permission (student accommodation, A1, A2, A3). Approximately 2% of the site is within the EA's 200yr SW flood outline.		Yes
4546		StGeorge's Car Park & TA Centre	ELR	0.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	0.02	4.27	0.00	0.00	0.00	0.00	**4.27**	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	0.00	**0.00**				
4547		Newcastle Arena	ELR	3.66	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	0.21	5.69	0.00	0.00	0.00	0.00	**5.69**	0.00	0.00	0.21	5.86	**5.86**	0.00	0.00	0.00	0.00	**0.00**				Yes
4549		Generator Studios	ELR	0.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	0.04	14.11	0.02	6.76	0.01	4.08	**24.95**	0.00	0.00	0.01	2.10	**2.10**	0.00	0.00	0.00	0.00	**0.00**				
4552		57-59 Melbourne Street	ELR	0.08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	0.00	**0.00**				Yes
4721		Walker Riverside South	ELR	1.77	0.06	3.46	0.00	0.00	0.01	0.55	0.00	0.00	**4.01**	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	0.00	**0.00**	The tidal flood risk to the site is restricted to the banks of the River Tyne. Therefore, the EA would have recommendations in relation to this site coming forward for development. The River Tyne is tidal at this location so the EA would not have any recommendations to restricting surface water should it be discharged into the neighbouring watercourse.	Existing planning permission for technology centre and office. A small percentage of the site at risk, an FRA would be required. Development considered feasible. Flood risk is to be taken fully into account in any scheme proposed. Less than 1% of this site is located within Flood Zone 3a. No development within Flood Zone 3 area.		Yes
4756		Dolphin Street Community Centre, Dolphin Street	ELR	0.07	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	0.00	**0.00**				Yes
4757		Land adjacent to DSS offices, Benton Park Road	ELR	1.81	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	0.05	2.80	0.05	3.03	0.13	7.19	**13.01**	0.00	0.00	0.19	10.47	**10.47**	0.00	0.00	0.00	0.00	**0.00**				Yes
4758		Phoenix Works, High Street, Newburn	ELR	0.66	0.30	45.72	0.00	0.00	0.00	0.00	0.00	0.00	**45.72**	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	0.00	**0.00**		0.00		Yes
1035	Land west of Spillers Mill	Spillers Quay	Combined	1.54	0.55	35.53	0.00	0.00	0.00	0.00	0.00	0.00	**35.53**	0.45	28.98	0.31	19.87	0.43	27.60	**76.45**	0.00	0.00	0.52	33.71	**33.71**	0.00	0.00	0.08	5.36	**5.36**		Key development site in a regeneration area, and an FRA will be required. Development will need to have reference to the SWMP and mitigation options assessed. Approximately 34% of the site is within the EA's 200yr SW flood outline. No development within "shallow" SW flood outline, else drainage strategy, access and attenuation need detailed consideration in conjunction with the Council's SWMP.		Yes
1038	Ouseburn Central (Foundry Lane)	Ouseburn Central	Combined	1.66	0.00	0.06	0.00	0.28	0.00	0.10	0.00	0.00	**0.44**	0.01	0.69	0.01	0.44	0.02	1.08	**2.21**	0.00	0.00	0.04	2.66	**2.66**	0.00	0.00	0.00	0.00	**0.00**	Flood risk at this site is restricted only to the banks of the Ouseburn so the EA would have no issue with development coming forward for this site.	Minor percentages of the site identifed at risk. Reference to SWMP. Approximately 3% of the site is within the EA's 200yr SW flood outline. The site is located within a committed regeneration area. A small percentage of the site at risk, an FRA would be required. The findings of the SWMP in relation to the Ouseburn should be considered. Development considered feasible. Flood risk is to be taken fully into account in any scheme proposed. Approximately 3% of the site is within the EA's 200yr SW flood outline.		Yes
1331	St James Park Metro Station	St James Metro Station	Combined	1.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	0.02	2.06	0.00	0.48	0.16	15.62	**18.15**	0.11	10.74	0.10	10.00	**20.73**	0.00	0.00	0.17	17.31	**17.31**		Approximately 21% of the site is within the EA's 200yr SW flood outline. No development within areas classified as being at risk from "deep" SW flooding, else drainage strategy, access and attenuation need detailed consideration in conjunction with the Council's SWMP.		Yes
1398	South of Pottery Lane, east of Shot Factory Lane	South of Pottery Lane	Combined	3.15	0.01	0.26	0.00	0.00	0.00	0.00	0.00	0.00	**0.26**	0.02	0.72	0.03	0.82	0.00	0.00	**1.54**	0.00	0.00	0.03	1.01	**1.01**	0.00	0.00	0.00	0.01	**0.01**		Minor percentages of the site identifed at risk, must have regards to SWMP. Approximately 1% of the site is within the EA's 200yr SW flood outline.		Yes
2802	Newburn Riverside	Newburn Riverside	Combined	51.33	0.32	0.62	0.00	0.00	0.21	0.42	0.00	0.00	**1.04**	5.51	10.73	1.96	3.81	3.63	7.07	**21.62**	0.17	0.33	4.28	8.34	**8.67**	0.06	0.11	1.33	2.59	**2.70**	The site at risk of flooding on the banks of the River Tyne and is restricted to a very small section of the site. The Environment Agency would therefore have no issue with this site coming forward for development. As this site is greater than 1ha surface water drainage would need to be assessed, however as the watercourse is tidal at this location the EA would not impose a restriction for disposal into the watercourse at this point.	Minor percentages of the site identifed at risk, must have regards to SWMP. Approximately 8% of the site is within the EA's 200yr SW flood outline. No development within areas classified as being at risk from "deep" SW flooding. Key employment site, see SWMP recommendations regarding surface water risk. Development considered feasible. Flood risk is to be taken fully into account in any scheme proposed. Less than 1% of this site is located within Flood Zone 3a. No development within Flood Zone 3 area. Approximately 9% of the site is within the EA's 200yr SW flood outline. No development within areas classified as being at risk from "deep" SW flooding else drainage strategy, access and attenuation need detailed consideration in conjunction with the Council's SWMP		Yes
1076	Central East Quayside (Plot 12)	Plot 12 Quayside	Combined	0.58	0.09	16.26	0.00	0.00	0.00	0.00	0.00	0.00	**16.26**	0.01	1.31	0.01	1.31	0.03	4.39	**7.01**	0.00	0.00	0.03	5.63	**5.63**	0.00	0.00	0.00	0.26	**0.26**		Remaining vacant site on the Quayside, previous permission was for a hotel. An FRA will be required for the site. Planning permission now lapsed for mixed use development with 61 residential units.. Approximately 6% of the site is within the EA's 200yr SW flood outline.		Yes
1078	Former Ice Factory	Former Ice Factory, Maling Steet	Combined	0.37	0.03	7.47	0.00	0.14	0.01	3.11	0.00	0.00	**10.72**	0.00	0.18	0.00	0.11	0.00	0.11	**0.41**	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	0.00	**0.00**		Site within committed regeneration area. Small percentage of the site at risk, an FRA would be required. The findings of the SWMP in relation to the Ouseburn should be considered. Lapsed permission on the site for 55 apartments and mixed retail and leisure units. Development considered feasible. Flood risk is to be taken fully into account in any scheme proposed. Approximately 3% of this site is located within Flood Zone 3a. No development within Flood Zone 3 area. Minor percentages of the site identifed at risk, an FRA will be required. Planning permission was granted, now lapsed for 112 residential units and mixed and retail on the ground floor.		
1313	East Pilgrim Street	East Pilgrim Street Masterplan Area	Combined	3.77	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	0.13	3.40	0.01	0.19	0.02	0.54	**4.14**	0.07	1.93	0.01	0.15	**2.08**	0.02	0.44	0.01	0.19	**0.63**		Must have regard to emerging SWMP. Approximately 2% of the site is within the EA's 200yr SW flood outline.		Yes
1400	Stephenson Quarter, South of Central Station	Stephenson Quarter	Combined	4.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.06	1.47	**1.47**	0.00	0.00	0.00	0.00	**0.00**				Yes
1407	Blandford Square	Blandford Square	Combined	1.32	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	0.11	**0.11**	0.00	0.00	0.00	0.00	**0.00**				Yes
1110	Hume Street (Heaney's)	Heaney's, Land west of Hume Street	Combined	0.31	0.00	1.14	0.00	0.21	0.01	4.69	0.00	0.00	**6.04**	0.00	1.17	0.00	0.96	0.00	0.40	**2.53**	0.00	0.00	0.01	4.42	**4.42**	0.00	0.00	0.00	0.00	**0.00**	Flood risk is restricted to the banks of the Ouseburn therefore flood risk is currently minimal.	Site within committed regeneration area. Small percentage of the site at risk, an FRA would be required. The findings of the SWMP in relation to the Ouseburn should be considered. Development considered feasible. Flood risk is to be taken fully into account in any scheme proposed. Approximately 5% of this site is located within Flood Zone 3a. No development within Flood Zone 3 area. Approximately 5% of the site is within the EA's 200yr SW flood outline.		
~~2644~~	~~Newcastle Great Park Cell A (South of Coach Lane)~~	~~Newcastle Great Park (NGP) Cell A~~	~~Combined~~	~~55.18~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.00~~	~~0.00~~	~~**0.00**~~	~~2.69~~	~~4.88~~	~~1.09~~	~~1.97~~	~~1.51~~	~~2.73~~	~~**9.58**~~	~~0.41~~	~~0.74~~	~~2.86~~	~~5.19~~	~~**5.93**~~	~~0.10~~	~~0.18~~	~~1.07~~	~~1.94~~	~~**2.12**~~		~~Outline permission part of Newcastle Great Park~~	~~Remove~~	~~Yes~~
3022	Percy Street West (Modern Street/St Thomas St)	Percy Street West	Combined	0.60	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.05	8.74	**8.74**	0.00	0.00	0.00	0.00	**0.00**				Yes
3042	47-49 Lime Street, Ouseburn	47-49 Lime Street	Combined	0.18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	0.00	**0.00**				
3064	Maling Street	Maling Street	Combined	0.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	0.00	**0.00**				
3066	Stephen Eastern	Stephen Easten	Combined	0.14	0.10	72.48	0.00	1.31	0.00	0.04	0.00	0.00	**73.82**	0.03	19.31	0.00	0.23	0.00	0.00	**19.54**	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	0.00	**0.00**	The majority of the site lies within tidal flood zones. The EA have been consulted on a planning application for a proposed residential development on this site. The EA have recommended conditions in accordance with the submitted flood risk assessment. This included finished floor levels, flood proofing measures and safe access routes.	Site within committed regeneration area. Small percentage of the site at risk, an FRA would be required. The findings of the SWMP in relation to the Ouseburn should be considered. Development considered feasible. Flood risk is to be taken fully into account in any scheme proposed.		
3067	Morleys	Morley's, Albion Row	Combined	1.42	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	0.00	**0.00**				Yes
3068	Cement works, Pottery Lane	Cement works and scrap yard	Combined	1.42	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	**0.02**	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	0.00	0.14	0.00	0.00	**0.14**	0.00	0.04	0.00	0.11	**0.14**		0.00		Yes
3069	GD Metal Recycling	GD Metal Recycling, Quality Row	Combined	1.57	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	0.05	3.08	0.06	3.66	**6.74**	0.00	0.00	0.00	0.00	**0.00**				Yes

Reference	Address	Site Name	Development Type	Area (ha)	Flood Zones									JBA Enhanced Surface Water							Environment Agency 2nd Generation Surface Water Mapping									Environment Agency Comments	Revised SFRA Text (including Council comments)	Remove from SFRA	Site Over 0.5ha and Intersecting a CDA
					Flood Zone 2		Flood Zone 3 Plus Climate Change		Flood Zone 3a		Flood Zone 3b		Total % of site area	1 in 1000 year AEP		1 in 200 year AEP		1 in 75 year AEP		Total % of site area	EA_SurfaceWater_1in200yr_depth		EA_SurfaceWater_1in200yr_shallow		Total % of site area	EA_SurfaceWater_1in30yr_depth		EA_SurfaceWater_1in30yr_shallow		Total % of site area				
			SHLAA / ELA / Combined		Area (ha)	% of total site area	Area (ha)	% of total site area	Area (ha)	% of total site area	Area (ha)	% of total site area	%	Area (ha)	% of total site area	Area (ha)	% of total site area	Area (ha)	% of total site area	%	Area (ha)	% of total site area	Area (ha)	% of total site area	%	Area (ha)	% of total site area	Area (ha)	% of total site area	%				
3077	South of Tyne Brewery Bottling Plant	Heber Street and brewery offices	Combined	0.78	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	0.02	2.88	0.00	0.63	**3.51**	0.01	1.90	0.00	0.00	**1.90**		Must have regard to emerging SWMP. Approximately 4% of the site is within the EA's 200yr SW flood outline. No development within areas classified as being at risk from "deep" SW flooding, else drainage strategy, access and attenuation need detailed consideration in conjunction with the Council's SWMP.	Yes	
3103	Atkinson Road Clinic, St James Crescent	Atkinson Road	Combined	0.26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.05	19.52	**19.52**	0.00	0.00	0.00	0.00	**0.00**				
1062	7-17 Lime Street, Byker	7-17 Lime Street	Combined	0.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	0.00	**0.00**				
1374	Forth Goods Yard	Forth Goods Yard	Combined	2.77	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	0.03	0.92	0.00	0.00	0.00	0.00	**0.92**	0.00	0.00	0.05	1.73	**1.73**	0.00	0.00	0.00	0.00	**0.00**			Yes	
1515	Loadman Street (Land north of Beaumont Street)	Loadman Street	Combined	5.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	0.00	**0.00**			Yes	
3391	Zaks site, Hanover Square	2-4 hanover Square	Combined	0.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	0.00	**0.00**				
3393	George Street/Westmorland Road/St James Boulevard	George Street 'Triangle'	Combined	1.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	0.03	2.07	0.08	5.53	**7.60**	0.00	0.00	0.04	2.47	**2.47**		Must have regard to emerging SWMP. Approximately 8% of the site is within the EA's 200yr SW flood outline.	Yes	
1412	Tyne Brewery (Science Central)	Main former brewery site	Combined	7.83	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	0.02	0.32	0.09	1.15	0.00	0.00	**1.47**	0.04	0.54	0.09	1.15	**1.69**	0.00	0.00	0.10	1.28	**1.28**		Must have regard to emerging SWMP. Approximately 2% of the site is within the EA's 200yr SW flood outline.	Yes	
4029	Condercum Industrial Estate	Condercum Road West	Combined	2.73	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.09	3.45	**3.45**	0.00	0.00	0.00	0.00	**0.00**			Yes	
4223	Former Tyne Tees Studios, City Road	Former Tyne Tees studios	Combined	0.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	0.00	**0.00**			Yes	
4227	Westgate Community College (south), West Road	Westgate Community College	Combined	1.70	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.06	3.64	**3.64**	0.00	0.00	0.00	0.00	**0.00**			Yes	
4285	Spillers Mill	Spillers Mill, Quayside	Combined	1.98	1.13	57.06	0.00	0.00	0.00	0.00	0.00	0.00	**57.06**	0.07	3.39	0.03	1.50	0.29	14.49	**19.37**	0.00	0.00	0.40	20.07	**20.07**	0.00	0.00	0.15	7.80	**7.80**		Site within key regeneration area, a FRA will be required. Approximately 20% of the site is within the EA's 200yr SW flood outline.	Yes	
4289	Quay Timber, Hume Street	Quay Timber Site	Combined	0.25	0.00	1.33	0.00	0.02	0.00	0.10	0.00	0.00	**1.45**	0.00	0.75	0.00	0.28	0.00	0.00	**1.03**	0.00	0.00	0.02	6.49	**6.49**	0.00	0.00	0.00	0.00	**0.00**	The site is at lowest probability of flooding therefore the EA have no objections in this site coming forward for development.	Approximately 6% of the site is within the EA's 200yr SW flood outline. Site within committed regeneration area. Small percentage of the site at risk, an FRA would be required. The findings of the SWMP in relation to the Ouseburn should be considered. Development considered feasible. Flood risk is to be taken fully into account in any scheme proposed. Approximately 7% of the site is within the EA's 200yr SW flood outline.		
4290	Ince Building, Hume Street	Ince Site	Combined	0.19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.04	22.63	**22.63**	0.00	0.00	0.00	0.00	**0.00**				
4292	CWS building, Blandford Square	CWS Engineering Depot	Combined	0.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	0.00	**0.00**				
4331	Land south of junction of Dunn Street & Skinnerburn Road	Skinnerburn Road B	Combined	0.22	0.03	11.82	0.00	0.00	0.00	0.00	0.00	0.00	**11.82**	0.22	100.00	0.00	0.00	0.00	0.00	**100.00**	0.10	48.31	0.02	10.18	**58.49**	0.09	42.18	0.02	7.78	**49.96**		Approximately 58% of the site is within the EA's 200yr SW flood outline. No development within areas classified as being at risk from "deep" SW flooding, else drainage strategy, access and attenuation need detailed consideration in conjunction with the Council's SWMP.		
4332	Land south of Skinnerburn Road	Skinnerburn Road A	Combined	0.22	0.01	4.15	0.00	0.00	0.00	0.00	0.00	0.00	**4.15**	0.22	100.00	0.00	0.00	0.00	0.00	**100.00**	0.00	0.63	0.09	42.27	**42.90**	0.00	0.00	0.04	16.53	**16.53**		Approximately 43% of the site is within the EA's 200yr SW flood outline. No development within "shallow" SW flood outline, else drainage strategy, access and attenuation need detailed consideration in conjunction with the Council's SWMP.		
4542	Pigeon Crees, Lime Street	Lime Street Pigeon Crees	Combined	0.06	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	0.00	**0.00**			Yes	
4653	Land at junction of Westmorland Rd and St James Boulevard	George Street 'Triangle'	Combined	0.48	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	0.00	0.97	0.00	0.00	0.00	0.00	**0.97**	0.00	0.00	0.02	3.69	**3.69**	0.00	0.00	0.00	0.00	**0.00**				
4711	Land at Atherton Drive	Land at Atherton Drive, Benwell	Combined	0.69	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	0.00	**0.00**			Yes	
4759	Kelly Plant, Foundry Lane	Kelly Plant	Combined	0.06	0.05	86.57	0.00	0.00	0.00	0.00	0.00	0.00	**86.57**	0.03	40.52	0.00	0.00	0.00	0.00	**40.52**	0.00	0.00	0.00	0.00	**0.00**	0.00	0.00	0.00	0.00	**0.00**		Minor percentage of site identified at risk. Demolition of listed building completed.	Yes	

B. Newcastle City Council - SFRA Maps

Map Name	Map Reference	Map Title	Map Description
Set A - PPS25 Flood Zones	2010s4294-D001	PPS25 FLOOD ZONE MAP	Environment Agency Flood Zones & Functional Floodplain outline at city level. These maps show Flood Zones 2, 3a, 3b and proposed development allocations. These maps enable application of the Sequential Test by Spatial Planners and Development Management officer.
Set A - PPS25 Flood Zones	2010s4294-D001a	PPS25 FLOOD ZONE MAP	Environment Agency / other defences held in NFCDD (National Flood and Coastal Defence Database). The flood extents shown represent the risk of flood if these defences were not maintained to 5% AEP or greater. In the absence of flood defences, sites covered by this extent would be designated as Flood Zone 3b. Also shown are the Environment Agency Areas Benefiting from Defences.
Set A - PPS25 Flood Zones	2010s4294-D002	PPS25 FLOOD ZONE MAP	Environment Agency Flood Zones at 1:10,000 resolution (North Newcastle - Dinnington and Brunswick)
Set A - PPS25 Flood Zones	2010s4294-D003	PPS25 FLOOD ZONE MAP	Environment Agency Flood Zones at 1:10,000 resolution (West Central Newcastle - Woolsington)
Set A - PPS25 Flood Zones	2010s4294-D004	PPS25 FLOOD ZONE MAP	Environment Agency Flood Zones at 1:10,000 resolution (East Central Newcastle - Hazlerigg and North Gosforth)
Set A - PPS25 Flood Zones	2010s4294-D005	PPS25 FLOOD ZONE MAP	Environment Agency Flood Zones at 1:10,000 resolution (South West Newcastle)
Set A - PPS25 Flood Zones	2010s4294-D006	PPS25 FLOOD ZONE MAP	Environment Agency Flood Zones at 1:10,000 resolution (South West Central Newcastle)
Set A - PPS25 Flood Zones	2010s4294-D007	PPS25 FLOOD ZONE MAP	Environment Agency Flood Zones at 1:10,000 resolution (South East Central Newcastle - Nuns and Town Moor)
Set A - PPS25 Flood Zones	2010s4294-D008	PPS25 FLOOD ZONE MAP	Environment Agency Flood Zones at 1:10,000 resolution (South East Newcastle)
Set B - Flood Zone 3 Depth Map	2010s4294-D009	FLOOD ZONE 3 DEPTH MAP	This map provides an indication of the depths of flooding within Flood Zone 3 obtained from JFlow+ modelling outputs undertaken by JBA Consulting in 2010 for the Newcastle City Council Level 2 SFRA. It also displays proposed development sites within the city. A strategic depth grid has been created using the extent of Flood Zone 3 and topographic data. These maps enable identification of variation in flood risk throughout the Flood Zone.
Set C - Flood Hazard Map	2010s4294-D010	FLOOD HAZARD MAP	This map provides an indication of strategic flood hazards during a Flood Zone 3 storm event. The hazard grid was obtained from JFlow+ modelling outputs undertaken by JBA Consulting in 2010 for the Newcastle City Council Level 2 SFRA.
Set D - Flood Velocity Map	2010s4294-D011	FLOOD VELOCITY MAP	This map provides an indication of strategic flood velocities during a Flood Zone 3 storm event. The velocity grid was obtained from JFlow+ modelling outputs undertaken by JBA Consulting in 2010 for the Newcastle City Council Level 2

			SFRA.
Set E - Flood Risk Management Measures	2010s4294-D012	FLOOD RISK MANAGEMENT MEASURES MAP	Flood risk management measures, including the location of Environment Agency, Local Authority and privately owned defence assets. It also indicates the Environment Agency Flood Warning Areas. These maps provide the location of current Flood Risk Management (FRM) measures within the area including defences and areas benefiting from defences (1 in 100 year standard of protection). This map can be used to identify communities that are currently protected to some level.
Set F - Areas Vulnerable to Surface Water Flooding	2010s4294-D013	SURFACE WATER FLOODING MAP	Environment Agency 1 in 30 AEP Event Surface Water Mapping at city level. These maps have been produced from the Environment Agency 2nd Generation Surface Water Flooding map. Surface water flooding has been classified as deep and shallow susceptibility. These maps are supplemented by the wealth of historical flooding data that is available in the Newcastle area.
Set F - Areas Vulnerable to Surface Water Flooding	2010s4294-D013a	SURFACE WATER FLOODING MAP	Environment Agency 1 in 200 AEP Event Surface Water Mapping at city level. These maps have been produced from the Environment Agency 2nd Generation Surface Water Flooding map. Surface water flooding has been classified as deep and shallow susceptibility. These maps are supplemented by the wealth of historical flooding data that is available in the Newcastle area.
Set F - Areas Vulnerable to Surface Water Flooding	2010s4294-D013b	SURFACE WATER FLOODING MAP	JBA Consulting Enhanced Surface Water Flood Mapping at city level. This map represents the 1 in 75 Annual Exceedance Probability flood.
Set F - Areas Vulnerable to Surface Water Flooding	2010s4294-D013c	SURFACE WATER FLOODING MAP	JBA Consulting Enhanced Surface Water Flood Mapping at city level. This map represents the 1 in 200 Annual Exceedance Probability flood.
Set F - Areas Vulnerable to Surface Water Flooding	2010s4294-D013d	SURFACE WATER FLOODING MAP	JBA Consulting Enhanced Surface Water Flood Mapping at city level. This map represents the 1 in 1000 Annual Exceedance Probability flood.
Set G - Climate Change Sensitivity	2010s4294-D014	FLUVIAL CLIMATE CHANGE SENSITIVITY MAP	Fluvial Flood Zone 3 with Climate Change outlines from Environment Agency models at city level. These maps provide early indication of areas in which fluvial flooding is likely may increase over the next 50 years. These maps are useful when carrying out a sweep of sites that may require the Exception Test by Spatial Planners, Development Management and developers in assessing possible future fluvial risks. Emergency planners may also find them useful when designating access routes.
Set G - Climate Change Sensitivity	2010s4294-D015	TIDAL CLIMATE CHANGE SENSITIVITY MAP	Tidal Flood Zone 3 with Climate Change outlines from Environment Agency models at city level. These maps provide early indication of areas in which tidal flooding is likely may increase over the next 50 years. These maps are useful when carrying out a sweep of sites that may require the Exception Test by Spatial Planners, Development Management and developers in assessing possible future tidal risks. Emergency planners may also find them useful when designating access routes.
Set H - Critical Drainage Areas	2010s4294-D016	CRITICAL DRAINAGE	Displays Critical Drainage Areas and Historical Flooding Records.

		AREAS	This map has been produced showing the boundary of Critical Drainage Areas based on known historical flood events, the refined surface water mapping and natural catchment boundaries. The map should be used to scope site-specific FRAs and as a starting point in the identification of areas for SWMPs.
Set I - Growth_Points	2010s4294-D017	PPS25 FLOOD ZONE & GROWTH POINT MAP	Displays Growth Point Areas within Newcastle. These maps display PPS25 Flood Zones and Growth Point communities that are pursuing large-scale, sustainable housing growth through a partnership between local organisations and central government.
Set I - Growth Points	2010s4294-D017a	SURFACE WATER & GROWTH POINT MAP	Displays Growth Point Areas within Newcastle. These maps display Environment Agency 1 in 200 year rainfall and Growth Point communities that are pursuing large-scale, sustainable housing growth through a partnership between local organisations and central government.
Set J - Other Sources of Flooding	2010s4294-D018	OTHER SOURCES OF FLOODING	Displays key water features in Newcastle including lakes and other water features. The reservoirs located within the council area have been mapped. This map should not influence the spatial placement of development during the Sequential Test; however, should inform the need for emergency planning to take account of the risk within community plans.
Set K - Historical Flooding	2010s4294-D019	HISTORICAL FLOODING	Displays a sample of Historical Flooding Data provided by Newcastle Council, The Environment Agency, Northumbrian Water and The Highways Agency and Tyne and Wear Fire and Rescue, with associated fluvial flood mapping.
Set K - Historical Flooding	2010s4294-D020	HISTORICAL FLOODING	This map displays Tyne and Wear Fire and Rescue Service historical flood records collected during consultation for the Newcastle City SFRA and a sample of Historical Flooding Data provided by Newcastle Council.
Set K - Historical Flooding	2010s4294-D021	HISTORICAL FLOODING	This map displays Northumbrian Water records collected during consultation for the Newcastle City SFRA and a sample of Historical Flooding Data provided by Newcastle Council.
Set K - Historical Flooding	2010s4294-D022	HISTORICAL FLOODING	This map displays a sample of Historical Flooding Data provided by Newcastle Council. It displays Historical Flood Data from 2005 - 2010 that is within 20 metres of a main river.
Set K - Historical Flooding	2010s4294-D023	HISTORICAL FLOODING	This map displays a sample of Historical Flooding Data provided by Newcastle City Council. It displays Historical Flood Data from 2005 that intersect proposed development sites.
Set K - Historical Flooding	2010s4294-D023a	HISTORICAL FLOODING	Displays a sample of Historical Flooding Data provided by Newcastle Council, The Environment Agency, Northumbrian Water and The Highways Agency and Tyne and Wear Fire and Rescue, with associated pluvial flood mapping.
Set L - Open Space	2010s4294-D024	OPEN SPACE	Displays areas of Open Space in Newcastle, assessed using 10k OS mapping and

			proposed development sites.
Set L - Open Space	2010s4294-D025	OPEN SPACE	Displays sites of Open Space in Newcastle that could potentially be used for Flood Alleviation. It also shows Proposed Development Sites.
Set M - Strategic Sites	2010s4294-D026	STRATEGIC SITES	Displays key strategic sites in the Newcastle city.
Set N - ABDs and Defences	2010s4294-D027	ABDS & DEFENCES	Displays the location of Main Rivers, Defences and Areas Benefiting from Defences, within the local authority area.

C. Newcastle City Council - Data Register

Newcastle City Council Strategic Flood Risk Assessment Level 2 Data Request Register

Project Title:	Strategic Flood Risk Assessment
Client:	Newcastle City Council
Client Contact:	Rachael Ashworth
JBA Ref:	Q10-3433
Date:	02-Jul-10
JBA Project Manager:	Howard Keeble

Reference Number	Data Source	Title	Description	Media Type	Importance	Comments	Contact Name/Details	Date Received for the Level 1 SFRA	Data Requested	Data Received	Additional Comments
1	Environment Agency & Newcastle City Council	Environment Agency Flood Map	Latest Version of Flood Zone 2 & 3, National Historical Flood Map, National River Centrelines.	GIS - Shapefiles	High	The Flood Zones used for the Level One study were the the Environment Agency's Flood Map (version 3.15 issued in September 2009). Please could you send us the most current version (version 3.18 issued in June 2010)		02/07/2009	08/07/2010	03/08/2010	
2	Environment Agency & Newcastle City Council	NFCDD	Latest full version with SoP and condition ratings	GIS - Shapefiles	High	Presumably updated since the Level 1 study		02/07/2009	08/07/2010	04/08/2010	
3	Environment Agency & Newcastle City Council	LiDAR Data	Current LiDAR data for the region - 2m and 1m (filtered and unfiltered) where available	Grids	High	Request through Geomatics Newcastle	Rachael Ashworth	29/07/2009	08/07/2010	12/07/2010	Require LiDAR from Newcastle SWMP consultant to infill gaps
4	Environment Agency	Historical Flood Data (EA Flood Incident Management)	Historical Outlines & location of known flood incidents. Ouseburn modelling completed by JBA for the EA	GIS - Shapefiles or database	High	If any additional updates since the Level 1 study		01/07/2009	08/07/2010		"There have been no new historic flood outlines since 2009" Sarah Baillie (EA) 03rd August 2010
5	Environment Agency	EA Flood Warning Areas	Local Flood Warning Plan for Newcastle	GIS - Shapefiles or report	High	Any updates?		02/07/2009	08/07/2010	30/07/2010 & 02/08/2010	
6	Environment Agency	Hydraulic Models within Newcastle (Specifically any River Tyne Fluvial and Tidal models, the River Ouseburn and any other relevant studies that have been updated since the Level 1 study)	Latest version of model with each available scenario ran	ISIS (all files) / TUFLOW	High	Model inputs such as cross sections and hydrology files will also be required		08/07/2009	08/07/2010	2002 Ouseburn Flood Study 04/01/2011	"There have been no new studies carried out since 2009." Sarah Baillie (EA) 03rd August 2010.
7	Environment Agency	Hydraulic River Model Outputs (that have been updated since the Level 1 study)	Latest version of each model outline for all available scenarios run (cross -sections & outlines)	GIS - Shapefiles or TAB files	High	Depths, velocities, hazards, outlines for all return periods including climate change			08/07/2010		"There have been no new studies carried out since 2009." Sarah Baillie (EA) 03rd August 2010.
8	Environment Agency	Hydraulic river modelling reports		Report	Meduim	If there have been any updates since the Level 1 SFRA			08/07/2010		"There have been no new studies carried out since 2009." Sarah Baillie (EA) 03rd August 2010.
10	Environment Agency	Future FRA Schemes	Strategy and other feasibility reports. Current position statements on the projects.	Report	High				08/07/2010		
13	Environment Agency	EA National Surface Water Map	This was produced by JBA for the EA	GIS - Shapefiles	High	If there have been any updates since the Level 1 SFRA		02/07/2009	08/07/2010		"Surface Water Maps can be requested from the Local Authority " Sarah Baillie (EA) 03rd August 2010
14	Newcastle City Council	Master Map Data	OS Data	GIS - Shapefiles	High	Data needed for SFRA mapping. Master Map Data (for the whole of the city) in .GZ format		17/06/2009	07/07/2010	15/07/2010	
15	Newcastle City Council	Council Ward Outlines	OS Data	GIS - Shapefiles	Medium	Data needed for SFRA mapping. Any updates since the Level 1?		17/06/2009	07/07/2010	22/07/2010	
16	Newcastle City Council	Historical Flood Data / Flood Incident Records	Historical Outlines & location of known flood incidents	GIS - Shapefiles or database	High	This should include all sources of flooding		14/07/2009	07/07/2010	Taken that there are no updates since the Level 1 SFRA	
17	Newcastle City Council	Council Emergency Planning Documents		GIS - Shapefiles or report	Medium				07/07/2010	Resilience Planning Documents 12/07/2010	
18	Newcastle City Council	Ordinary Watercourses	Location data & any drainage information	GIS - Shapefiles or report	High	Any updated information?		11/08/2009	07/07/2010	Taken that there are no updates since the Level 1 SFRA	
19	Newcastle City Council	Local authority defences	Any information on local authority defences (location, heights, maintenance, schemes)	GIS - Shapefiles or report	High	Any updated information?			07/07/2010		
20	Newcastle City Council	Site Specific FRAs	Completed FRAs within Study Area or relevance to SFRA	GIS - Shapefiles or report	Medium	Update to recent		05/08/2009	07/07/2010	Taken that there are no updates since the Level 1 SFRA	
21	Newcastle City Council	Green Infrastructure Strategy			Medium	Any changes / new schemes?			07/07/2010		
22	Newcastle City Council	Relevant planning / other initiatives / projects	SFRAs / SWMPs / WCSs / Drainage Strategies / GI / Masterplans	Report	High	Please could you send us a draft copy of your SWMP.	Rachael Ashworth		07/07/2010	Resilience Planning documents received 12/07/2010, SWMP and WCR received 13/07/2010, SWMP GIS, assessment outputs and associated models received 20/07/2010	
24	Newcastle City Council	SUDs within the borough	Any relevant SUDs information within the Newcastle Borough	GIS or report	High	Any changes / new schemes?			07/07/2010		
25	Newcastle City Council	Council GP Sites (all relevant data)	Location of each allocation Growth Points to be assessed within SFRA	GIS - Shapefiles	High	Assumed no change since Level 1 SFRA. Please confirm		28/07/2009	07/07/2010	Taken that there are no updates since the Level 1 SFRA	
26	Newcastle City Council	ELR Sites	ELR proposed development sites	GIS - Shapefiles	High	Assumed no change since Level 1 SFRA. Please confirm	Rachael Ashworth		08/07/2010	12/07/2010	
27	Newcastle City Council	SHLAA - sites	Strategic Housing Land Availability Assessment proposed development sites	GIS - Shapefiles	High	Assumed no change since Level 1 SFRA. Please confirm	Rachael Ashworth	29/07/2009	07/07/2010	12/07/2010	
29	Newcastle City Council	1:50,000 Scale Mapping	OS Data	Tiff images	High	If there have been any updates since the Level 1 SFRA		03/11/2009	07/07/2010	22/07/2010	
30	Newcastle City Council	1:50,000 Scale Mapping (Black and White)	OS Data	Tiff images	High	If there have been any updates since the Level 1 SFRA		23/11/2009	07/07/2010	22/07/2010	
31	Newcastle City Council	OS 10k Tiles	OS Data	GIS - Grids	High	If there have been any updates since the Level 1 SFRA		16/04/2009	07/07/2010	22/07/2010	
32	Newcastle City Council	Council LDF Documents		Report	High	If there have been any updates since the Level 1 SFRA			07/07/2010	Newcastle and Gateshead Water Cycle Scoping Report 13/07/2010 & Resilience Planning Documents 12/07/2010	
33	Newcastle City Council	SWMP DSM	SWMP DSM	DSM	High		Rachael Ashworth		16/07/2010	20/07/2010	
34	Northumbrian Water	DG5 Records	Location of all know flooding incidents or known problem areas	GIS - Shapefiles or database	High			11/08/2009	02/07/2010	Sent from Newcastle City Council 08/10/2010	
35	Northumbrian Water	Drainage Areas	Identification of drainage catchment area	GIS - Shapefiles	Medium	JBA to contact and agree availability - need synergy with other studies (SWMPs)			02/07/2010		
36	Northumbrian Water	Historical flood records	DG5/DG10 Drainage Level and Street Level	GIS - Shapefiles	High	JBA to contact and agree availability - need synergy with other studies (SWMPs)			02/07/2010		
37	Northumbrian Water	Sewerage incident database	Drainage Level and Street Level	GIS - Shapefiles	Medium	JBA to contact and agree availability - need synergy with other studies (SWMPs)			02/07/2010		
38	Northumbrian Water	Asset data		GIS - Shapefiles	Medium	JBA to contact and agree availability - need synergy with other studies (SWMPs)			02/07/2010		
39	Northumbrian Water	Location of Capital Projects	Include location of future projects	Report/spreadsheet	High	JBA to contact and agree availability - need synergy with other studies (SWMPs)			02/07/2010		
40	Northumbrian Water	Outputs from sewer modelling	1, 2, 5, 10, 20 & 30 years return rainfall storms	GIS - Shapefiles	High	JBA to contact and agree availability - need synergy with other studies (SWMPs)			02/07/2010		
41	Highways Agency	Historical Flood Records	Location of all know flooding incidents or known problem areas	GIS - Shapefiles or database	Medium	This should include all sources of flooding. Have there been any updates since the previous JBA request for data used in the Level 1 SFRA?		28/07/2009	02/07/2010	No record updates since the Level 1 SFRA	
42	Tyne & Wear Fire & Rescue Authority	Historical Flood Records	Location of all call outs dealing with flooding	GIS - Shapefiles or database	High	This should include all sources of flooding. Have there been any updates since the previous JBA request for data used in the Level 1 SFRA?		28/07/2009	02/07/2010	09/07/2010	

Please re send any data that has been superseded with more recent versions since the Level 1 study (June 2009) and mark on the spreadsheet where it has not changed (and therefore can be used in this study). Please provide the relevant data licence to use all of the data requested (even if it has not been updated since the Level 1 study) for the period July 2010 to January 2011. Thank you.

D. Flood Zone 3 - Site Assessments

The Council has Sequentially Tested all sites of interest. At each stage of the review difficult or inappropriate sites have been eliminated from the development planning process. Included in this Appendix is a summary of the estimated depths of flooding and corresponding flood mapping for each site that includes some area within Flood Zone 3.

Table D-1: Indicative depths of flooding

Site	Site Ref	Return Period	Fluvial Depths (m)			Surface water Depths (m)			Coastal Depths (m)		
			min	max	mean	min	max	mean	min	max	mean
Dobsons Yard	4438	Q75	0	5.3	1.1	0	1.1	0	0	3.5	1.8
		Q100	0	5.5	1.2	---	---	---	0	3.5	1.6
		Q200	0	5.9	1.5	0	1.1	0	0	3.6	1.4
		Q1000	0	6.9	2.3	0	1.1	0	0	3.6	1.2
Ouseburn Central	1038	Q75	0	1.9	0.4	0	0.8	0	---	---	---
		Q100	0	1.9	0.4	---	---	---	---	---	---
		Q200	0	2	0.5	0	0.8	0	---	---	---
		Q1000	0	2.5	0.5	0	0.9	0	---	---	---
Former Ice Factory	1078	Q75	0	4.4	0.8	0	1.4	0	---	---	---
		Q100	0	4.6	0.9	---	---	---	---	---	---
		Q200	0	5.1	1.2	0	1.5	0	---	---	---
		Q1000	0	6.1	1.4	0	1.8	0.1	---	---	---
Heaney's	1110	Q75	0	2.5	0.7	0	0.9	0	---	---	---
		Q100	0	2.7	0.7	---	---	---	---	---	---
		Q200	0	3	0.7	0	1	0	---	---	---
		Q1000	0	3.9	0.9	0	1.3	0	---	---	---
Southside, Newcastle Airport	1713	Q75	---	---	---	0	0.8	0	---	---	---
		Q100	---	---	---	0	0	0	---	---	---
		Q200	---	---	---	0	1.1	0.1	---	---	---
		Q1000	---	---	---	0	2.1	0.1	---	---	---
Shelley Rd, Newburn Ind Estate	2794	Q75	0	4.6	1	0	0.2	0	0	0	0

		Q100	0	4.8	1.1	---	---	---	0	0	0
		Q200	0	5.3	1.4	0	0.4	0.1	0.2	0.2	0.2
		Q1000	0	6.6	2.1	0	0.6	0.2	0.2	0.2	0.2
Newburn Riverside	2802	Q75	0	5.4	1.9	0	1.2	0	0.4	1.3	0.8
		Q100	0	5.6	2	---	---	---	0.4	1.9	0.9
		Q200	0	6	2.3	0	1.5	0.1	0.5	1.4	1
		Q1000	0	6.6	2.9	0	2.2	0.1	0.7	1.6	1.1
Stephen Easten	3066	Q75	0	2	0.5	0	0.2	0	---	---	---
		Q100	0	2	0.5	---	---	---	---	---	---
		Q200	0	2	0.5	0	0.2	0	---	---	---
		Q1000	0	2.1	0.6	0	0.3	0	---	---	---
A&P Yard	4137	Q75	0	4.8	1.4	0	1	0	0	3.4	2.1
		Q100	0	4.9	1.5	---	---	---	0	3.4	2.1
		Q200	0	5.3	1.7	0	1	0.1	0	3.5	2.2
		Q1000	0	6.1	2.3	0	1.1	0.1	0	3.7	2
Quay Timber Site	4289	Q75	0.1	2.5	0.7	0	0.2	0	---	---	---
		Q100	0.1	2.5	0.8	---	---	---	---	---	---
		Q200	0.1	2.6	0.9	0	0.2	0	---	---	---
		Q1000	0	2.9	0.9	0	0.5	0	---	---	---
Walker Riverside South	4721	Q75	0	4.1	1.7	0	0.5	0	0.1	3.8	1.6
		Q100	0.1	4.2	1.8	---	---	---	0.2	3.8	1.6
		Q200	0	4.6	1.9	0	0.6	0	0.2	3.9	1.7
		Q1000	0	5.5	2.2	0	0.8	0	0.4	4	1.9


Coastal Flood Risk at
Dobsons Yard (429759,564176)
Site
75 Year
100 Year
200 Year
1000 Year
JBA Comprehensive Flood Map 2010
Ordnance Survey data © Crown copyright and database right 2011
JBA consulting
Wincomblee
Works
School
TA Centre
Scrap Yard
Wks
Riverside Park
Car Park
Wharf
MHW
BATH STREET
WHITE STREET
WINCOMBLEE ROAD
STATION ROAD
MALAYA DRIVE
RHODES ST
FOSTER ST
WINSLOW PLACE
MARY'S PL
HIBERNIA
SWAN R
Dismtd Rly


Works
MARY'S PL
STAITH
BATH STREET
WINSLOW PLACE
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WHITE STREET
FOSTER ST
School
TA Centre
Car Park
Riverside Park
WINCOMBLEE ROAD
RHODES ST
Scrap Yard
Works
STATION ROAD
MALAYA DRIVE
BEVERLEY
HIBERNIA
MHW
Wharf
Wharf
Fluvial Flood Risk at
Dobsons Yard (429759,564176)
Site
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JBA Comprehensive Flood Map 2010
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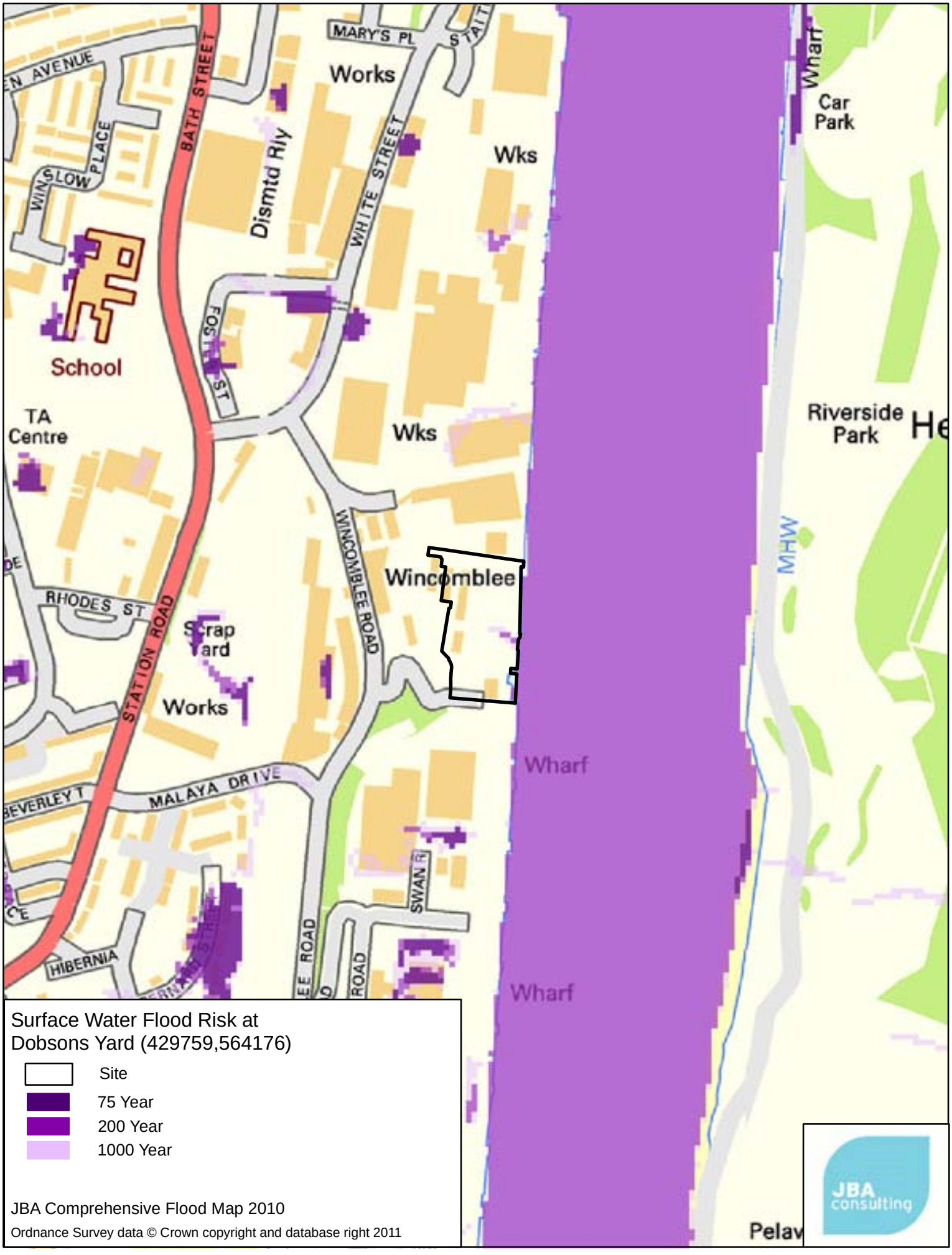
Surface Water Flood Risk at
Dobsons Yard (429759,564176)
Site
75 Year
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JBA Comprehensive Flood Map 2010
Ordnance Survey data © Crown copyright and database right 2011
JBA consulting
Works
Wks
School
TA Centre
Wincomblee
Wincomblee Road
Wharf
Car Park
Riverside Park
MHW
Dismtd Rly
Bath Street
White Street
Station Road
Rhodes St
Malaya Drive
Hibernia
Swan R
Mary's Pl
Winslow Place
Scrap Yard

Coastal Flood Risk at
Ouseburn Central (426320,564477)

- Site
- 75 Year
- 100 Year
- 200 Year
- 1000 Year

JBA Comprehensive Flood Map 2010

JBA consulting


Fluvial Flood Risk at
Ouseburn Central (426320,564477)
Site
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200 Year
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JBA Comprehensive Flood Map 2010
Ordnance Survey data © Crown copyright and database right 2011
City Stadium
Riverside Junction
Byker Bridge
Ouseburn Bridge
St Ann's
St Lawrence
St Lawrence Park
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Depot
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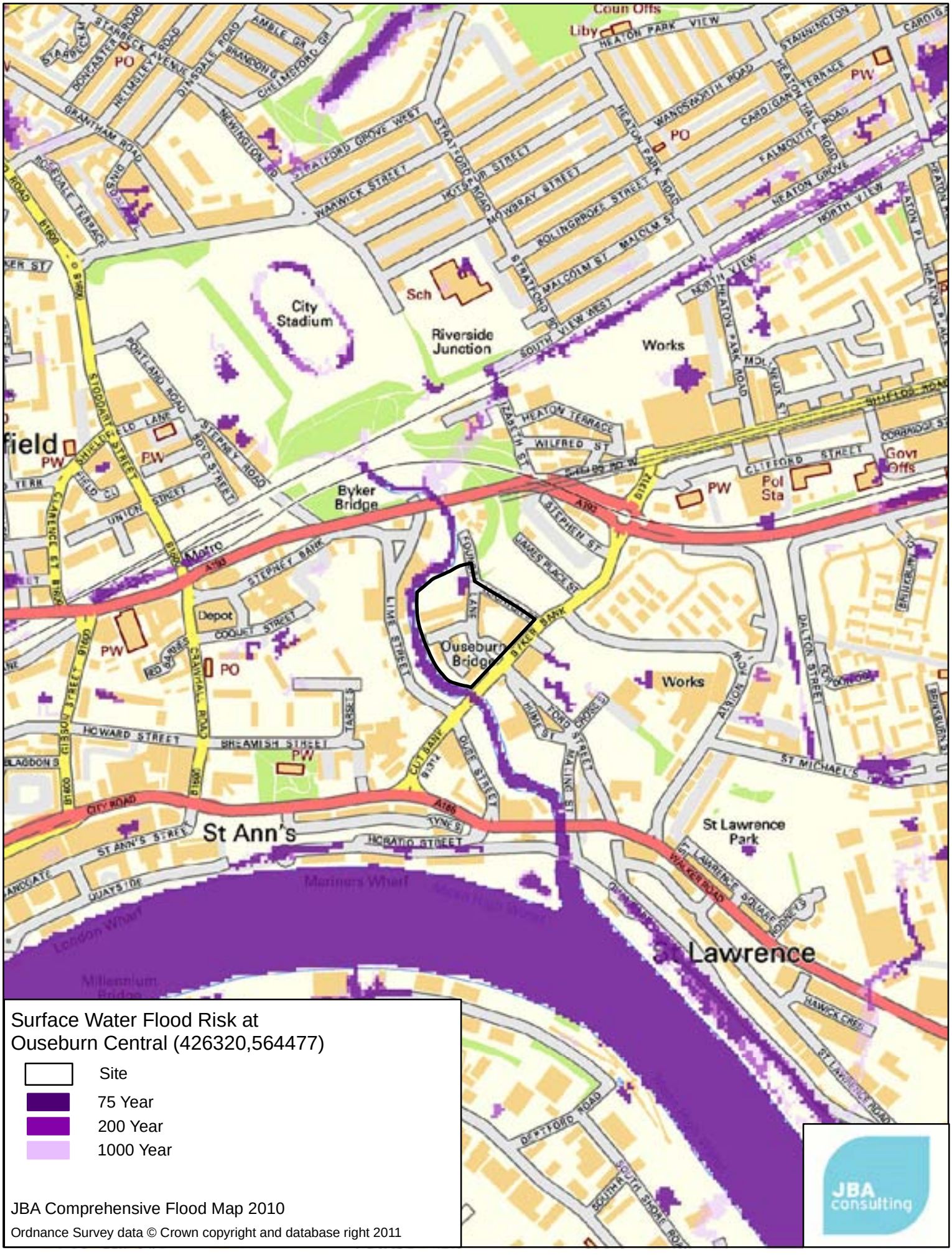
Surface Water Flood Risk at
Ouseburn Central (426320,564477)
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JBA Comprehensive Flood Map 2010
Ordnance Survey data © Crown copyright and database right 2011
JBA consulting
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Riverside Junction
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Ouseburn Bridge
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St Lawrence Park
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LIME STREET
BYKER BANK
ST MICHAEL'S
CITY ROAD
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HOWARD STREET
SHEAVISH STREET
HORATIO STREET
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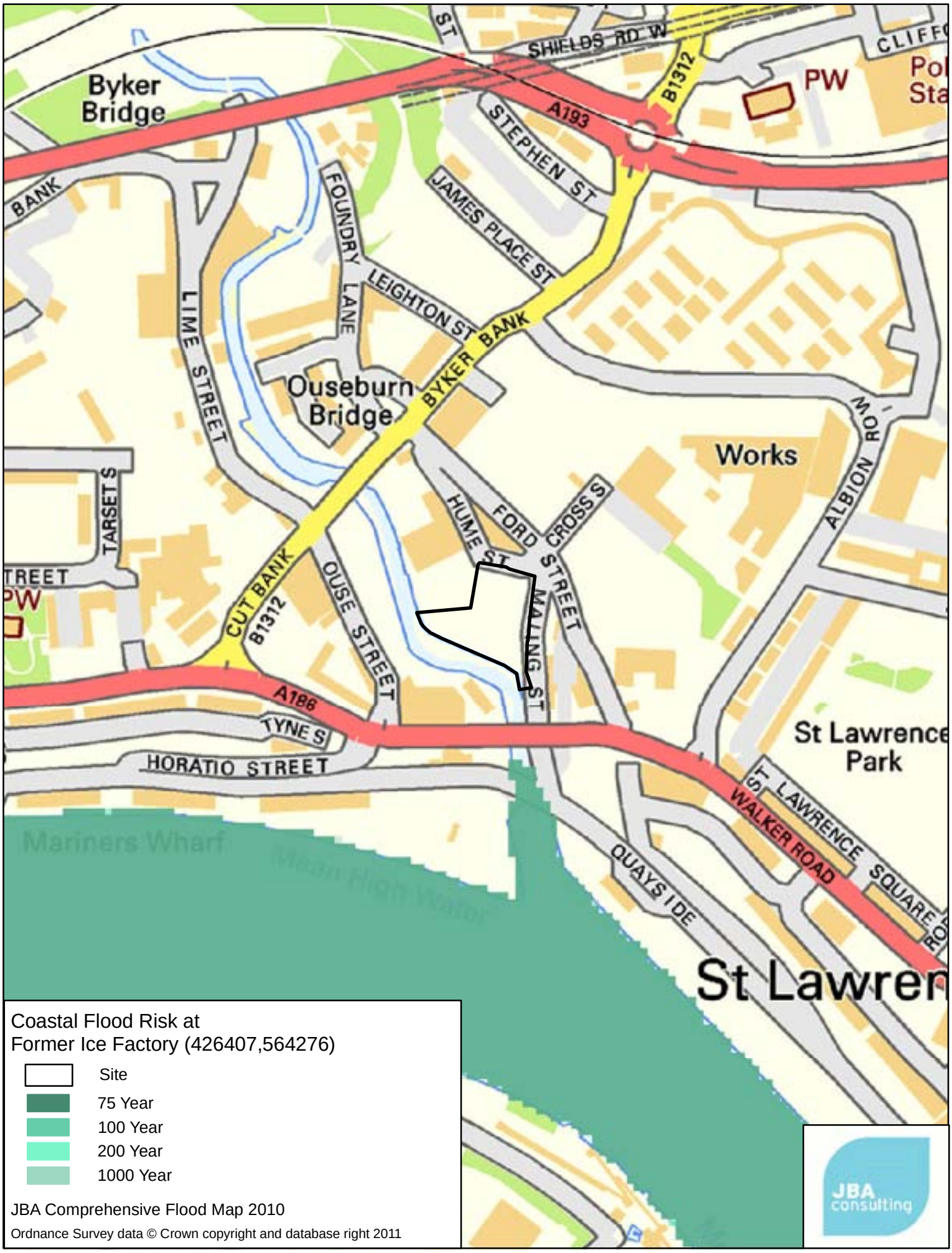
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LEIGHTON ST
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Ouseburn Bridge
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TARSET S
HUME ST
FORD CROSS S
CUT BANK
B1312
OUSE STREET
MALING ST
A186
TYNE S
HORATIO STREET
St Lawrence Park
ST LAWRENCE SQUARE
WALKER ROAD
QUAYSIDE
Mariners Wharf
Mean High Water
St Lawren
PW
Coastal Flood Risk at
Former Ice Factory (426407,564276)
Site
75 Year
100 Year
200 Year
1000 Year
JBA Comprehensive Flood Map 2010
Ordnance Survey data © Crown copyright and database right 2011
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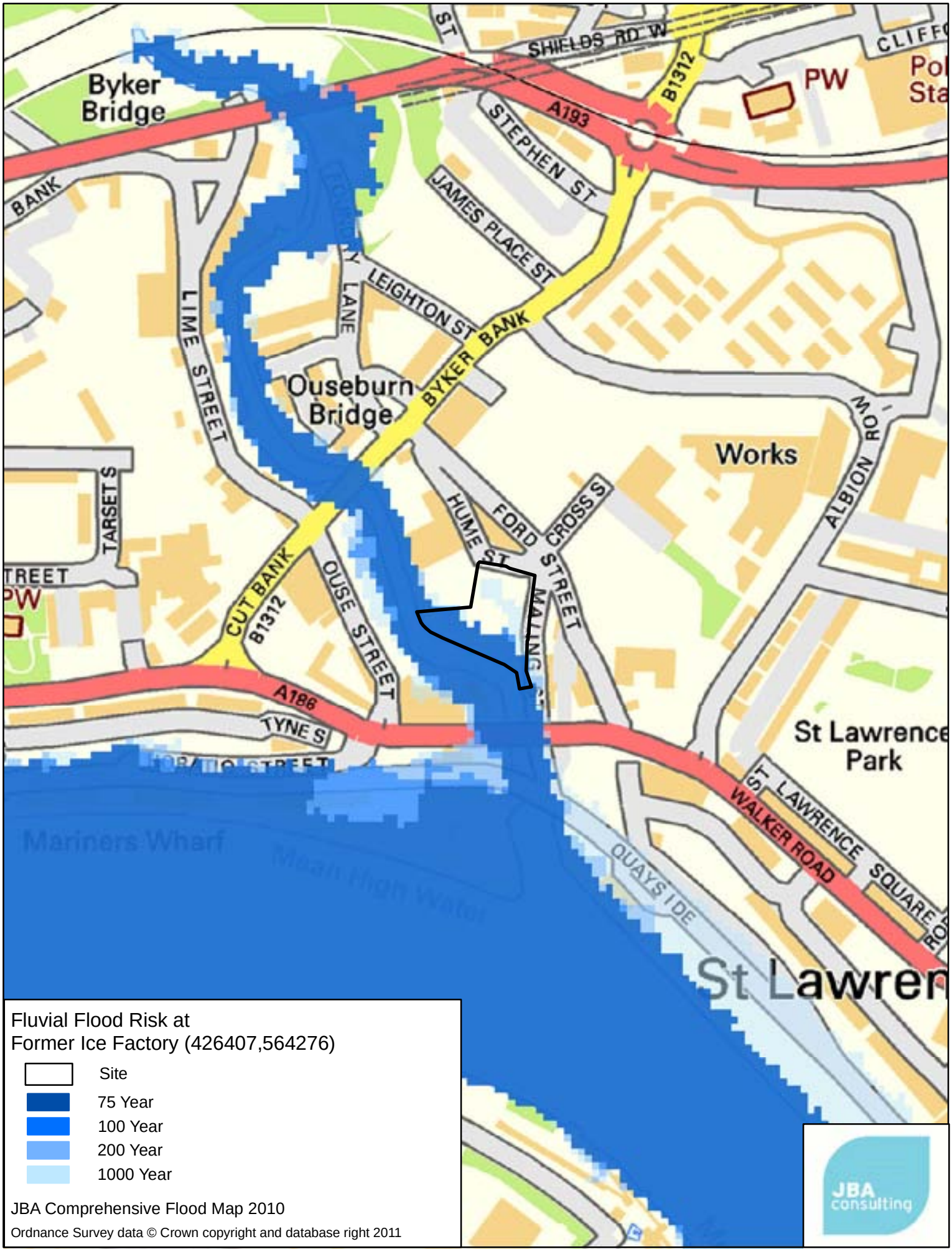
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ST LAWRENCE SQUARE
WALKER ROAD
QUAYSIDE
Mariners Wharf
Mean High Water
St Lawren
PW
Fluvial Flood Risk at
Former Ice Factory (426407,564276)
Site
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JBA Comprehensive Flood Map 2010
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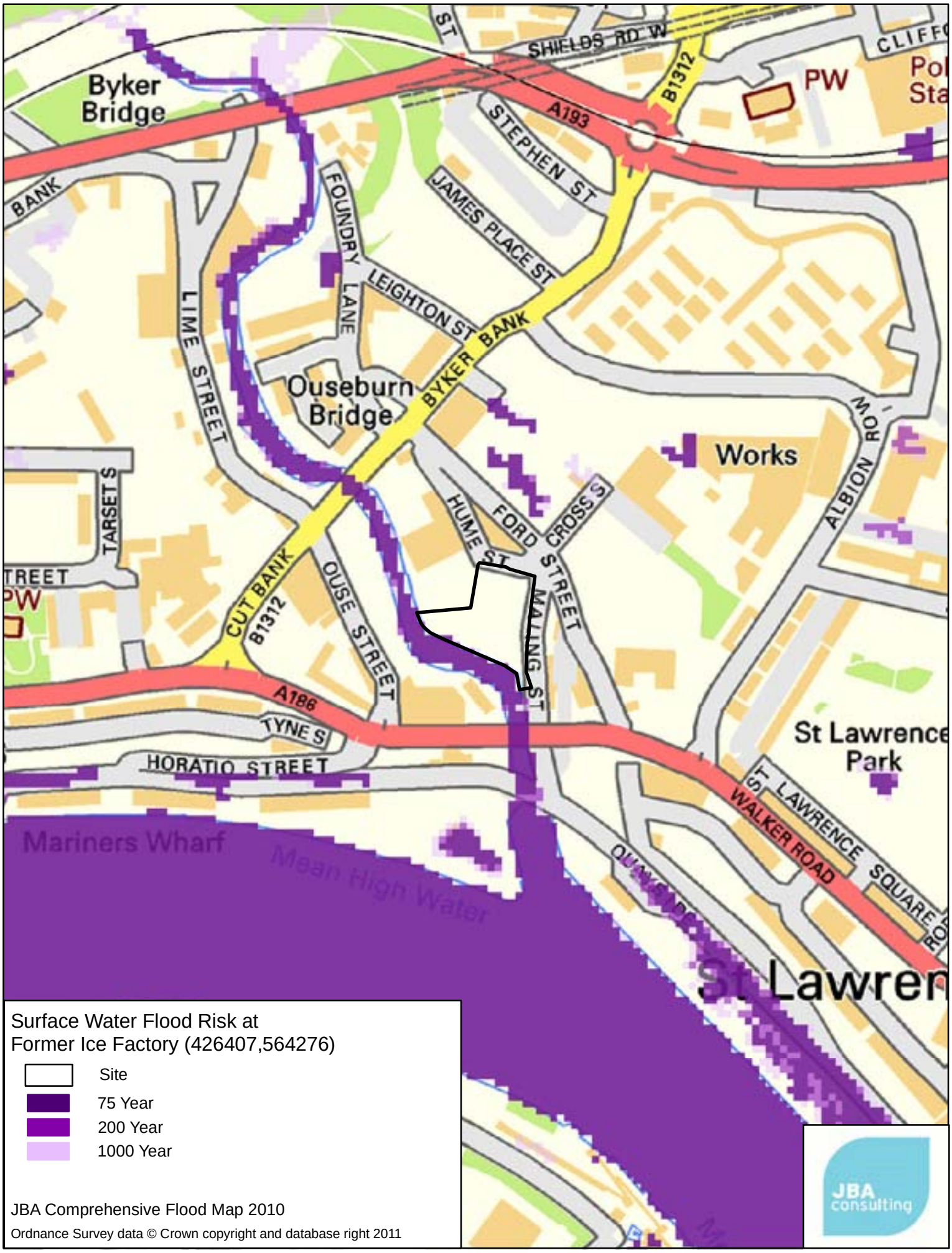
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MALING ST
CUT BANK
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HORATIO STREET
St Lawrence Park
ST LAWRENCE
WALKER ROAD
SQUARE
Mariners Wharf
Mean High Water
PW
Surface Water Flood Risk at
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Site
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200 Year
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JBA Comprehensive Flood Map 2010
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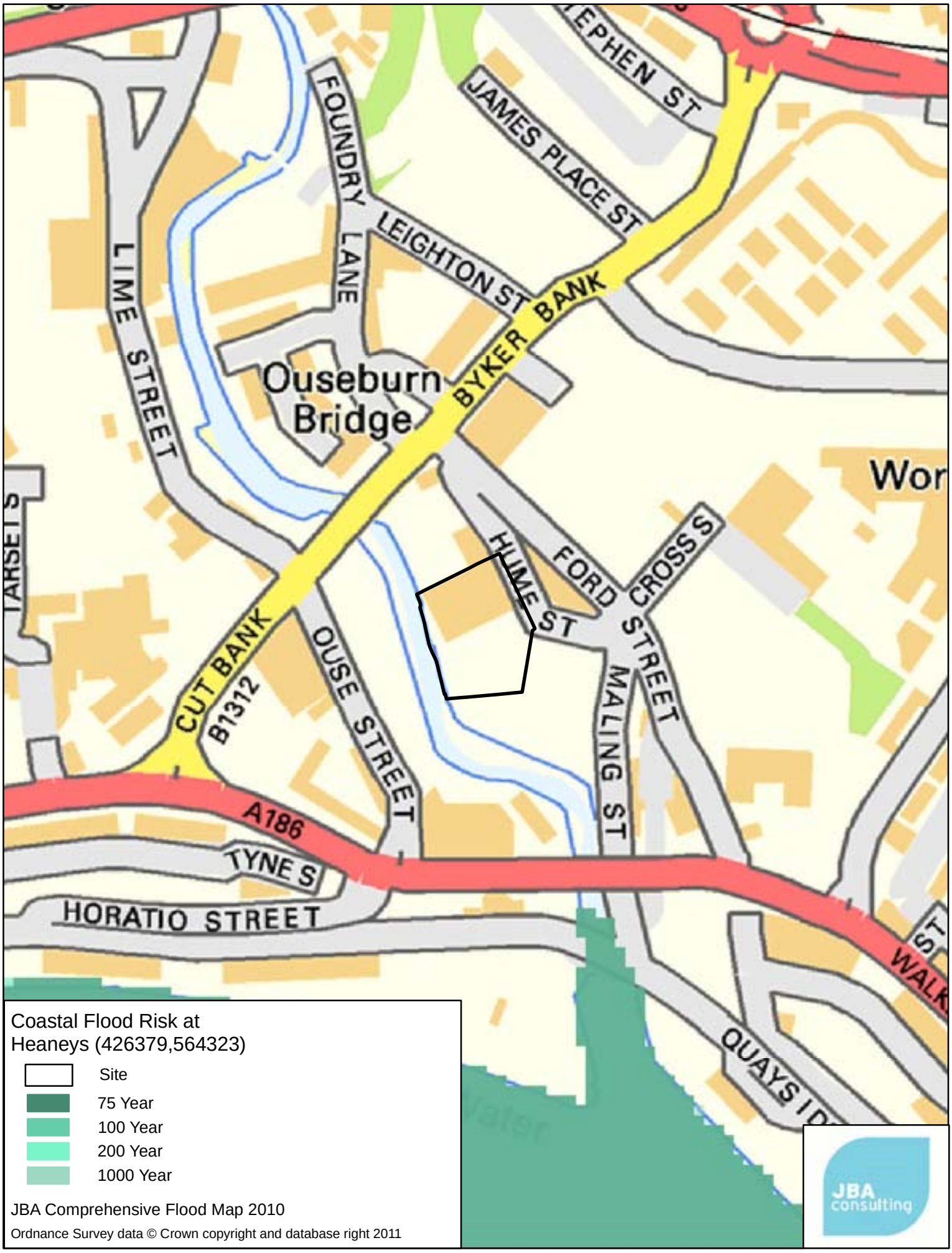
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HORATIO STREET
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Coastal Flood Risk at Heaneys (426379,564323)
Site
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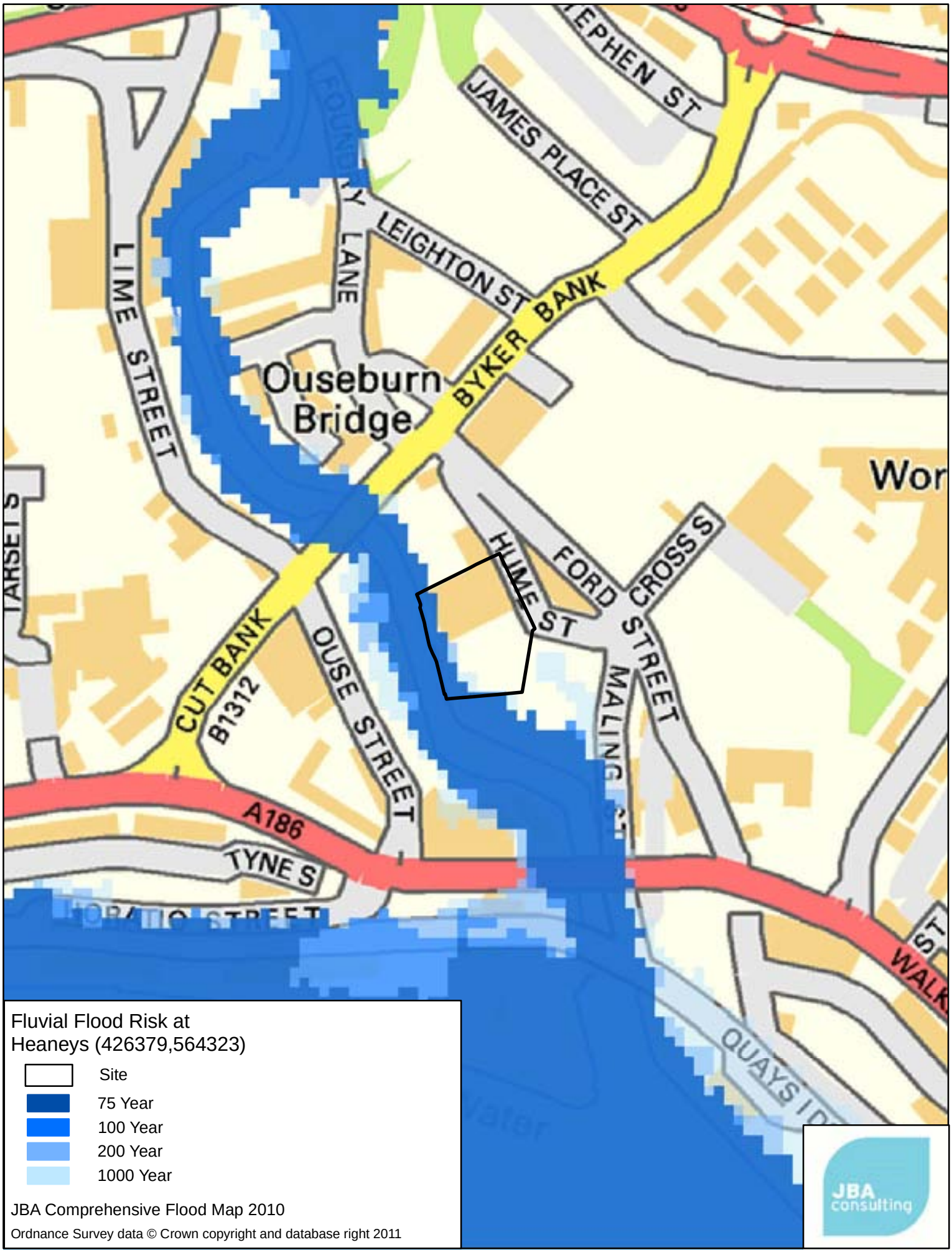
JBA Comprehensive Flood Map 2010
Ordnance Survey data © Crown copyright and database right 2011
JBA consulting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Fluvial Flood Risk at Heaneys (426379,564323)
Site
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JBA Comprehensive Flood Map 2010
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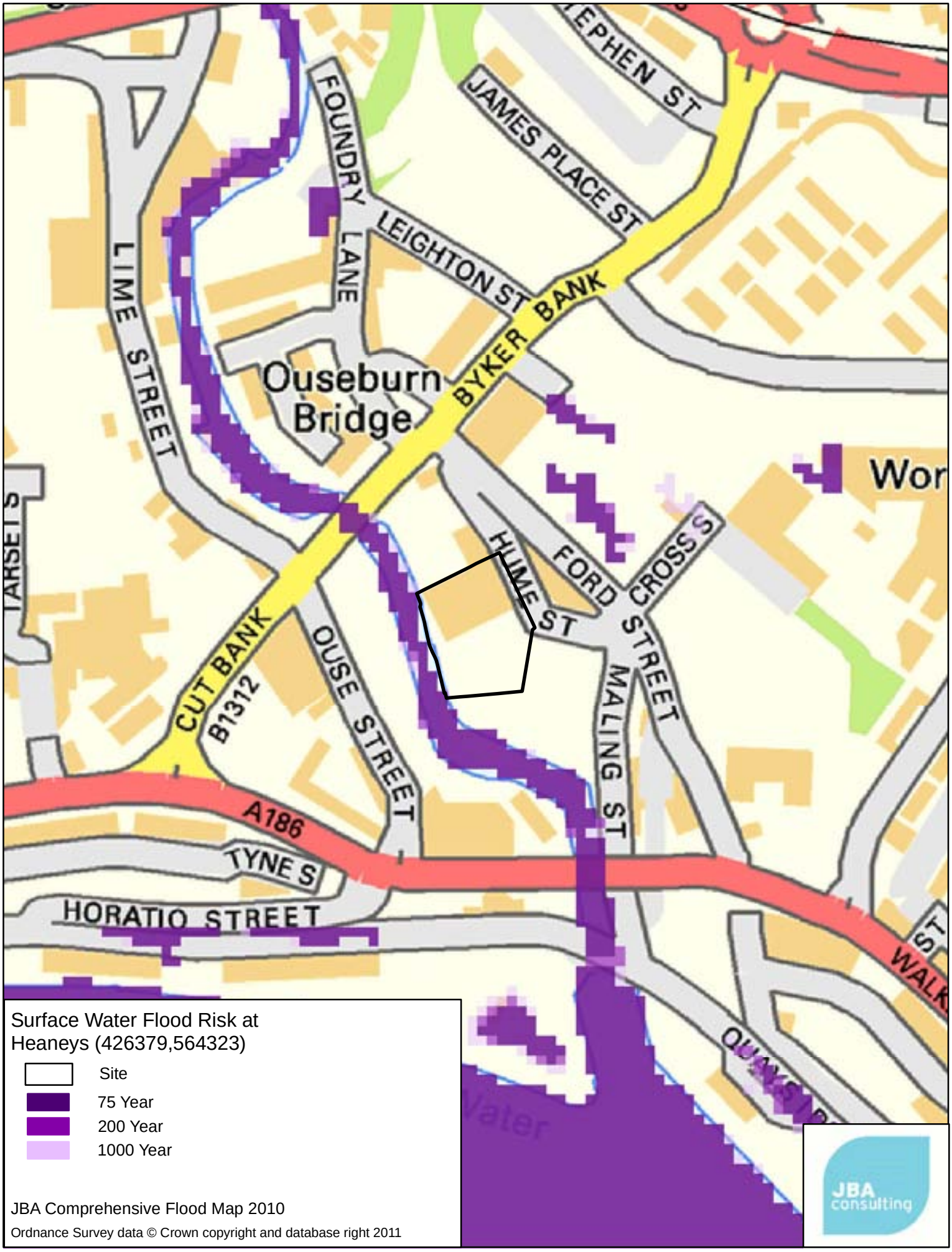
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OUSE STREET
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TYNE S
HORATIO STREET
Surface Water Flood Risk at Heaneys (426379,564323)
Site
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JBA Comprehensive Flood Map 2010
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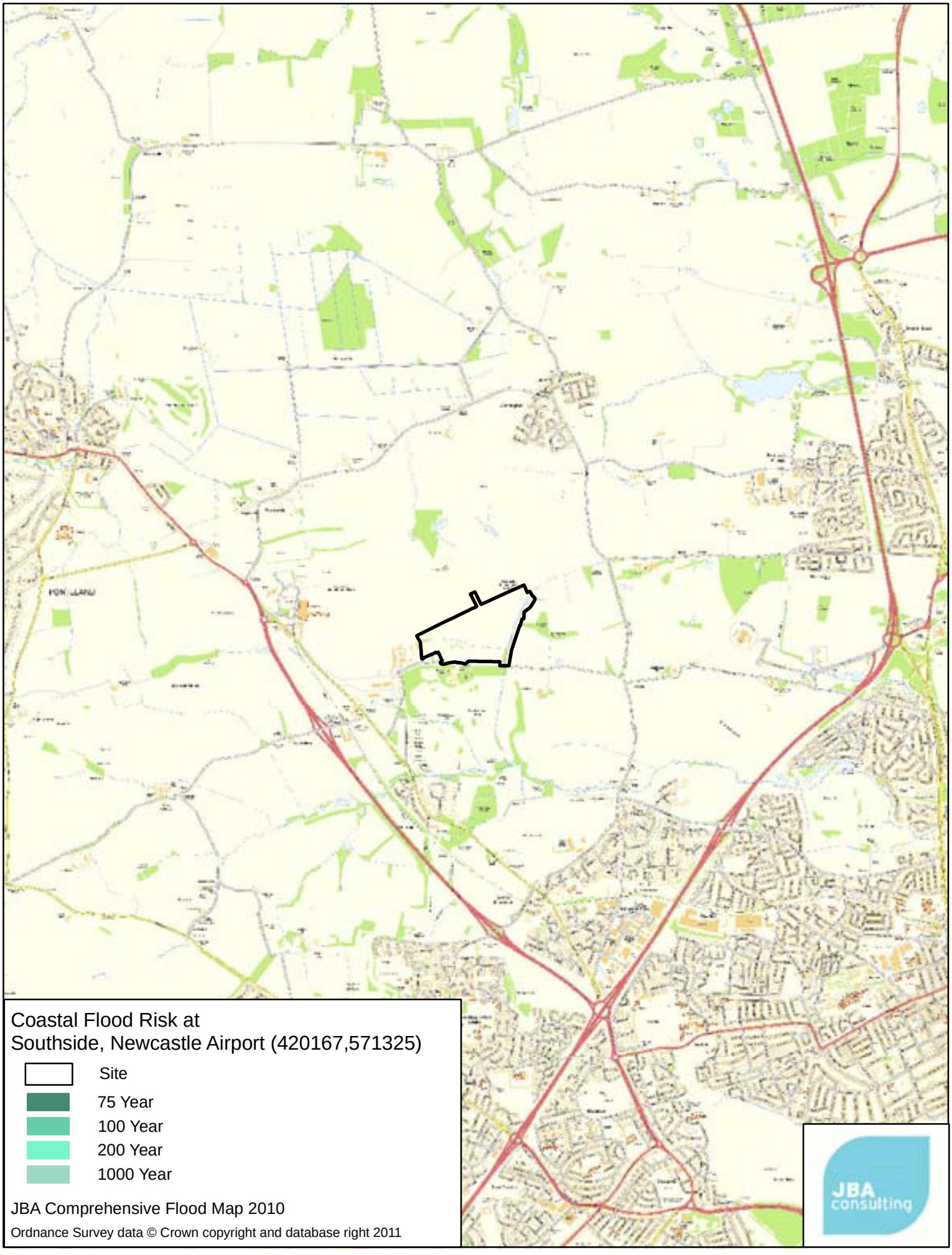
Coastal Flood Risk at
Southside, Newcastle Airport (420167,571325)
Site
75 Year
100 Year
200 Year
1000 Year
JBA Comprehensive Flood Map 2010
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Fluvial Flood Risk at
Southside, Newcastle Airport (420167,571325)
Site
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200 Year
1000 Year
JBA Comprehensive Flood Map 2010
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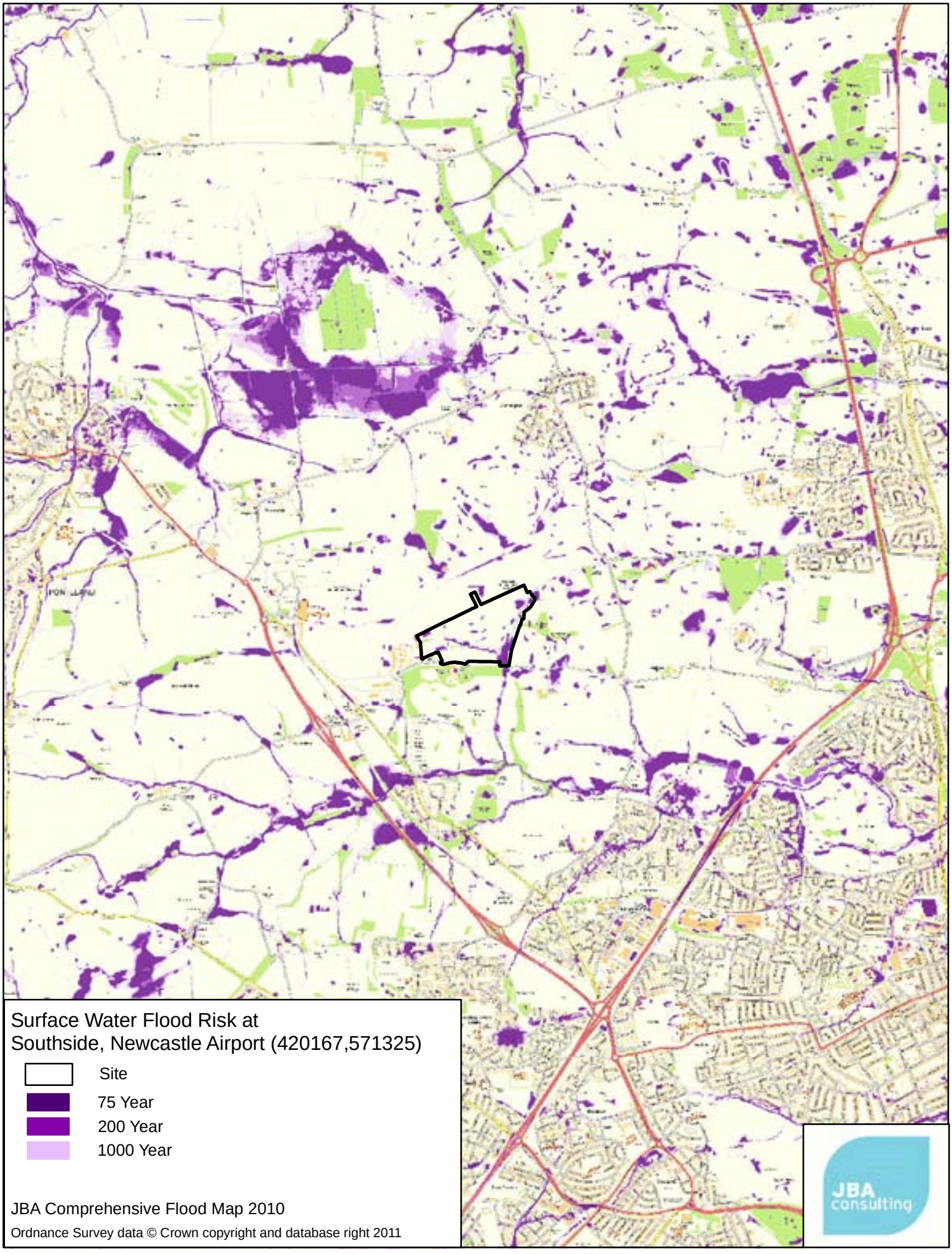
Surface Water Flood Risk at
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Site
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JBA Comprehensive Flood Map 2010
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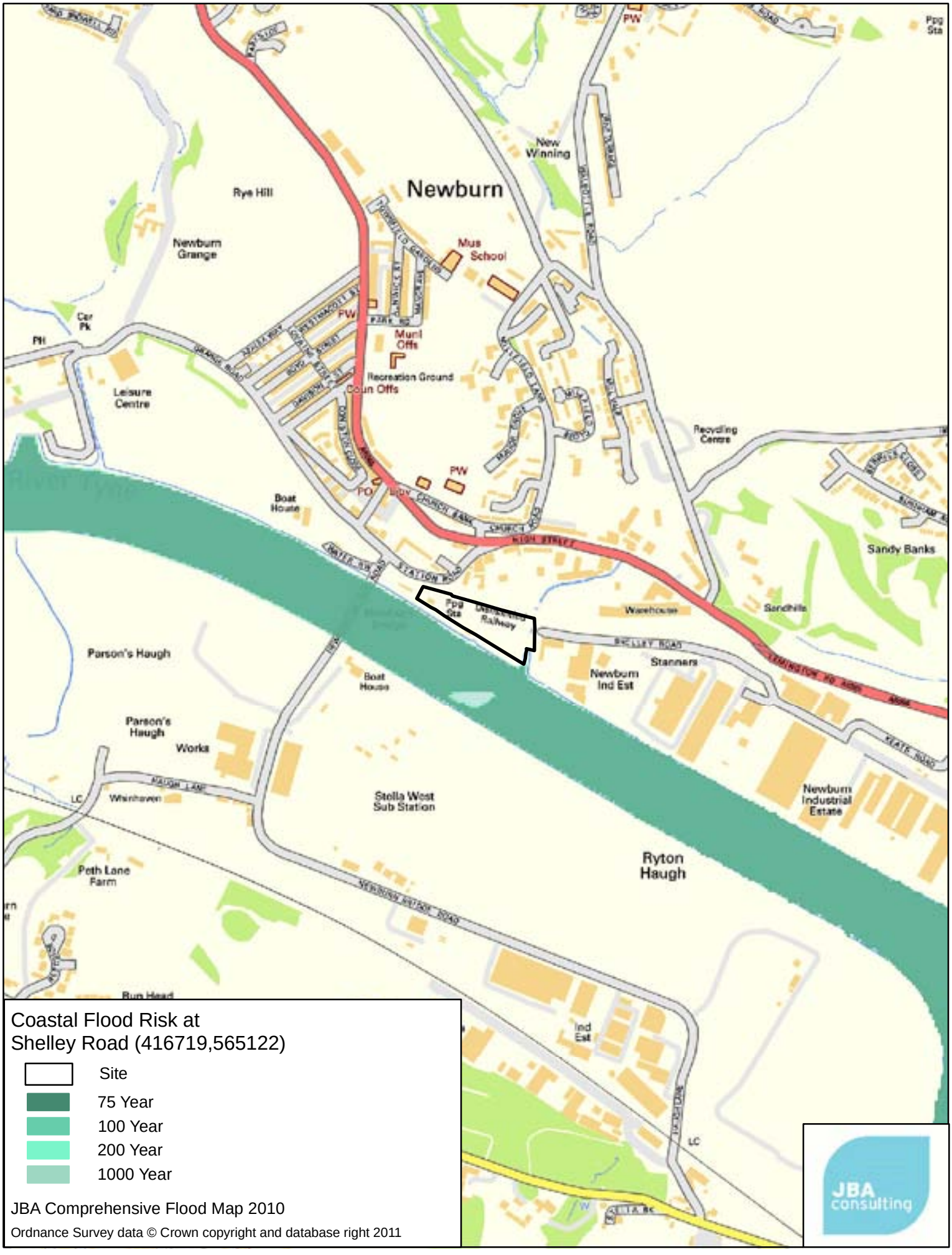
Newburn
Rye Hill
Newburn Grange
New Winning
Mus School
Muni Offs
Recreation Ground
Coun Offs
Leisure Centre
Recycling Centre
Boat House
Sandy Banks
Sandhills
Warehouse
Stanners
Newburn Ind Est
Parson's Haugh
Parson's Haugh Works
Boat House
Stella West Sub Station
Newburn Industrial Estate
Ryton Haugh
Peth Lane Farm
Wisenhaven
Ind Est
Coastal Flood Risk at
Shelley Road (416719,565122)
Site
75 Year
100 Year
200 Year
1000 Year
JBA Comprehensive Flood Map 2010
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Newburn
Rye Hill
Newburn Grange
Mus
School
Muni Offs
Recreation Ground
Coun Offs
PW
PO
Recycling Centre
Sandy Banks
Sandhills
Warehouse
Peth Lane Farm
Run Head
Fluvial Flood Risk at
Shelley Road (416719,565122)
Site
75 Year
100 Year
200 Year
1000 Year
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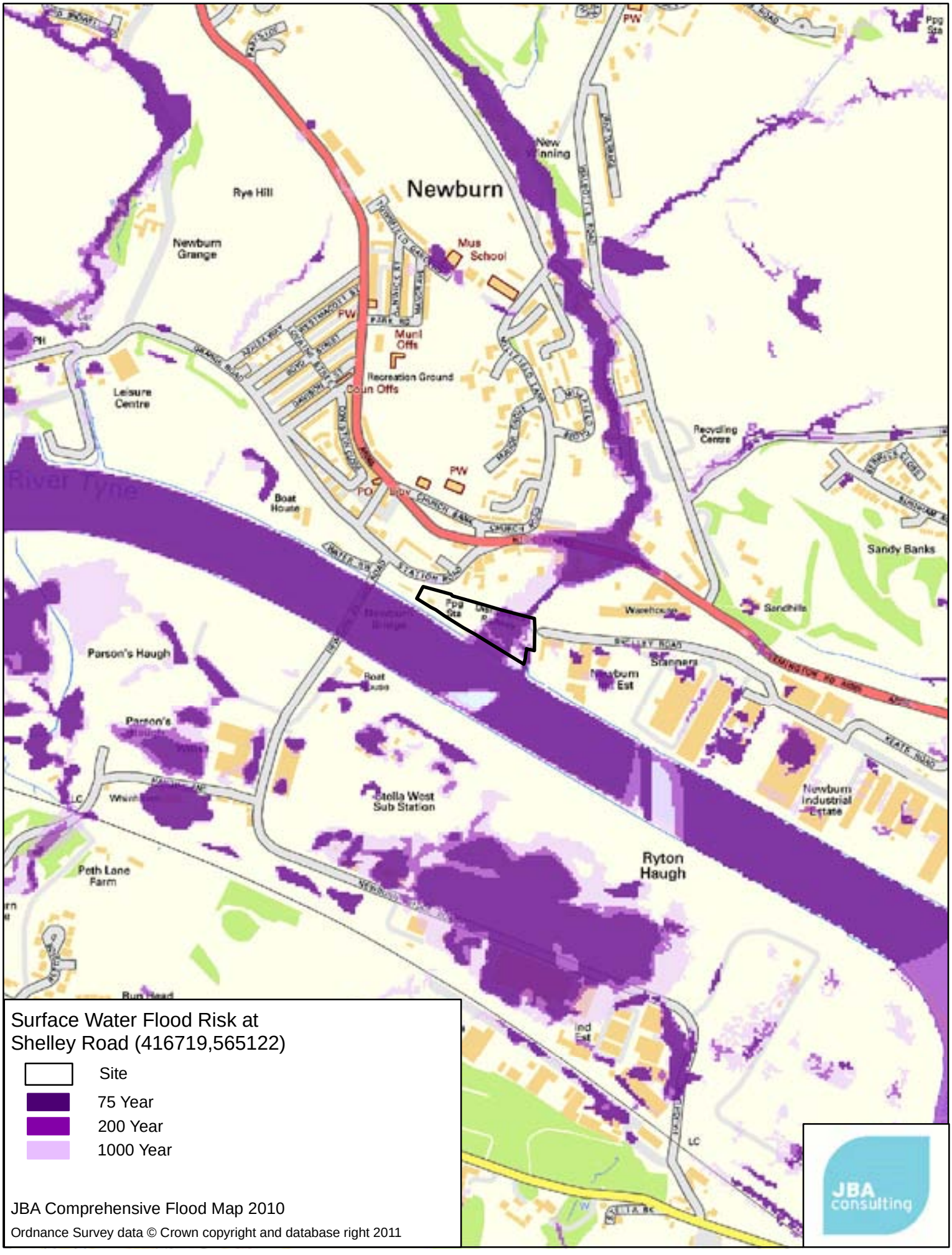
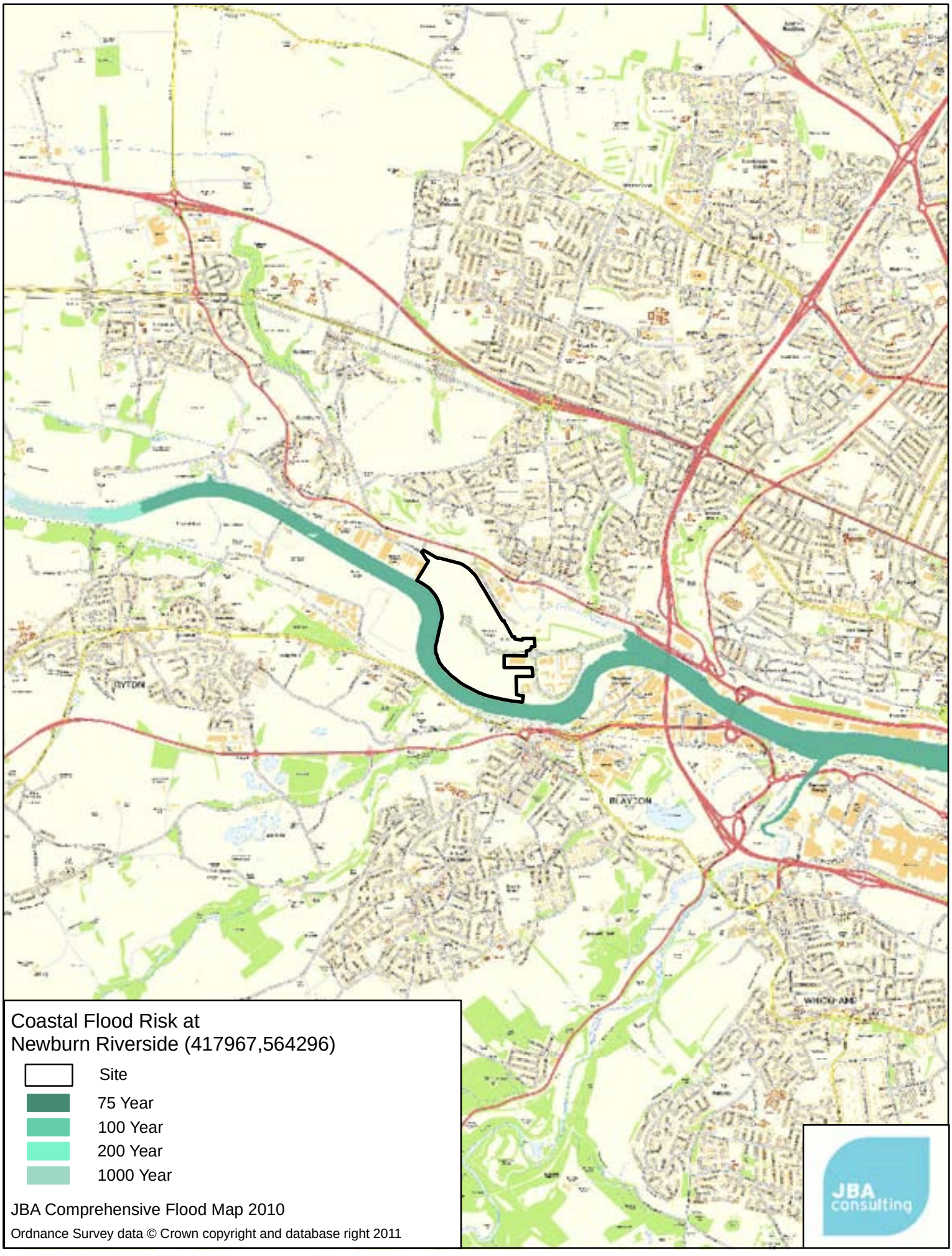


Surface Water Flood Risk at
Shelley Road (416719,565122)

- Site
- 75 Year
- 200 Year
- 1000 Year

JBA Comprehensive Flood Map 2010


Coastal Flood Risk at
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Site
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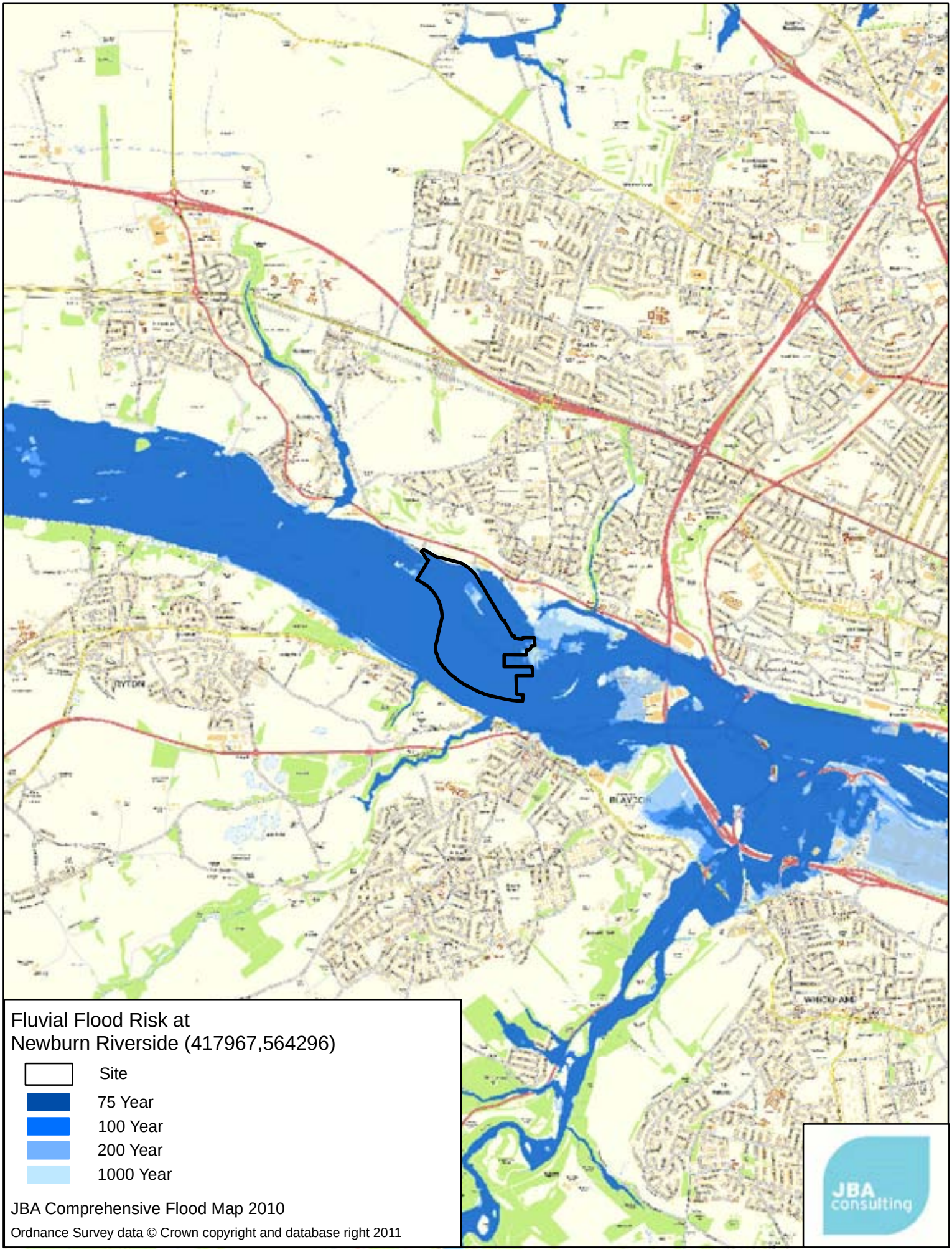
100 Year
200 Year
1000 Year
JBA Comprehensive Flood Map 2010
Ordnance Survey data © Crown copyright and database right 2011
JBA consulting


Fluvial Flood Risk at
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Site
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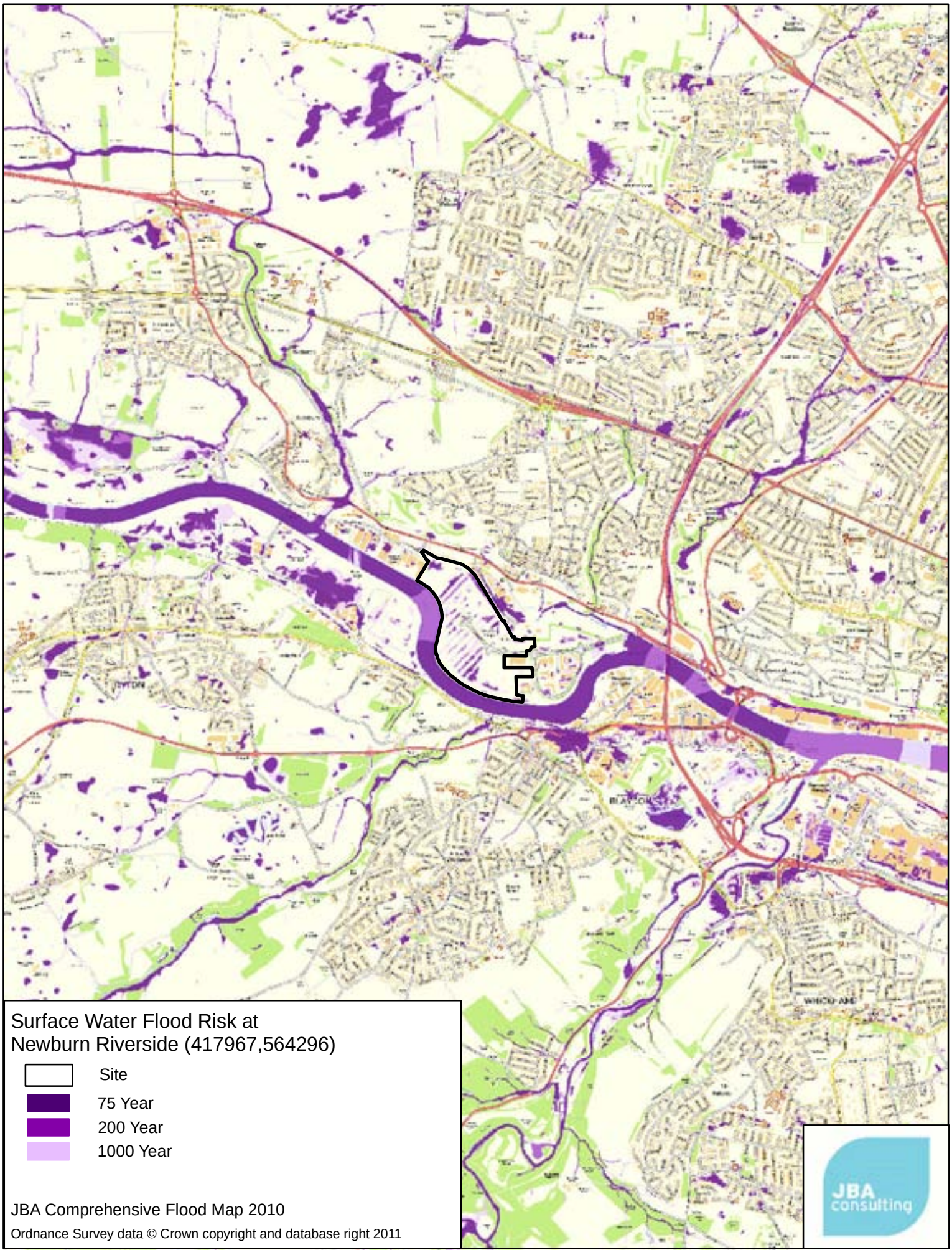
200 Year
1000 Year
JBA Comprehensive Flood Map 2010
Ordnance Survey data © Crown copyright and database right 2011
JBA consulting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Ordnance Survey data © Crown copyright and database right 2011
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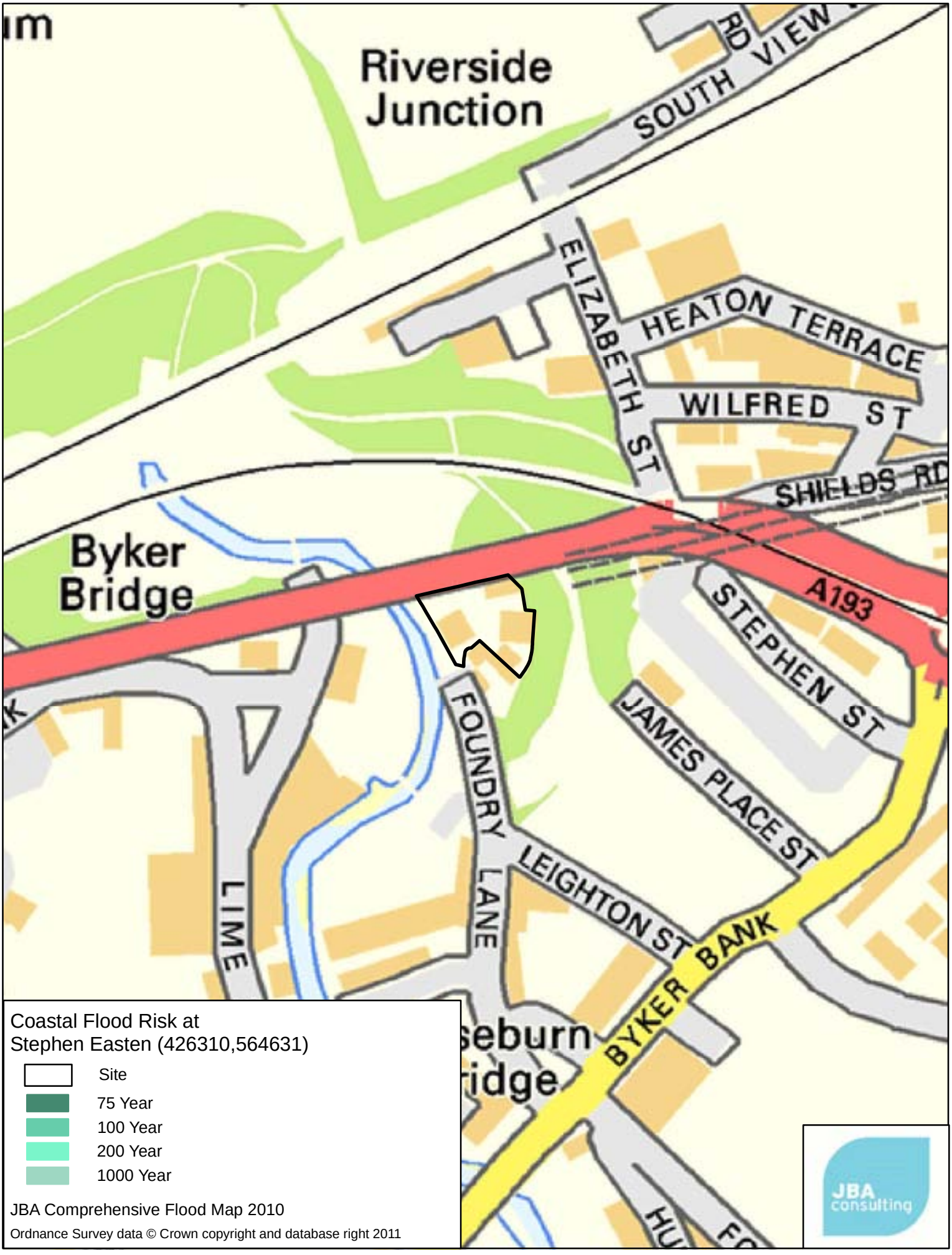
Riverside Junction
SOUTH VIEW RD
ELIZABETH ST
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WILFRED ST
SHIELDS RD
Byker Bridge
A193
STEPHEN ST
JAMES PLACE ST
FOUNDRY LANE
LEIGHTON ST
LIME
BYKER BANK
Coastal Flood Risk at
Stephen Easten (426310,564631)
Site
75 Year
100 Year
200 Year
1000 Year
JBA Comprehensive Flood Map 2010
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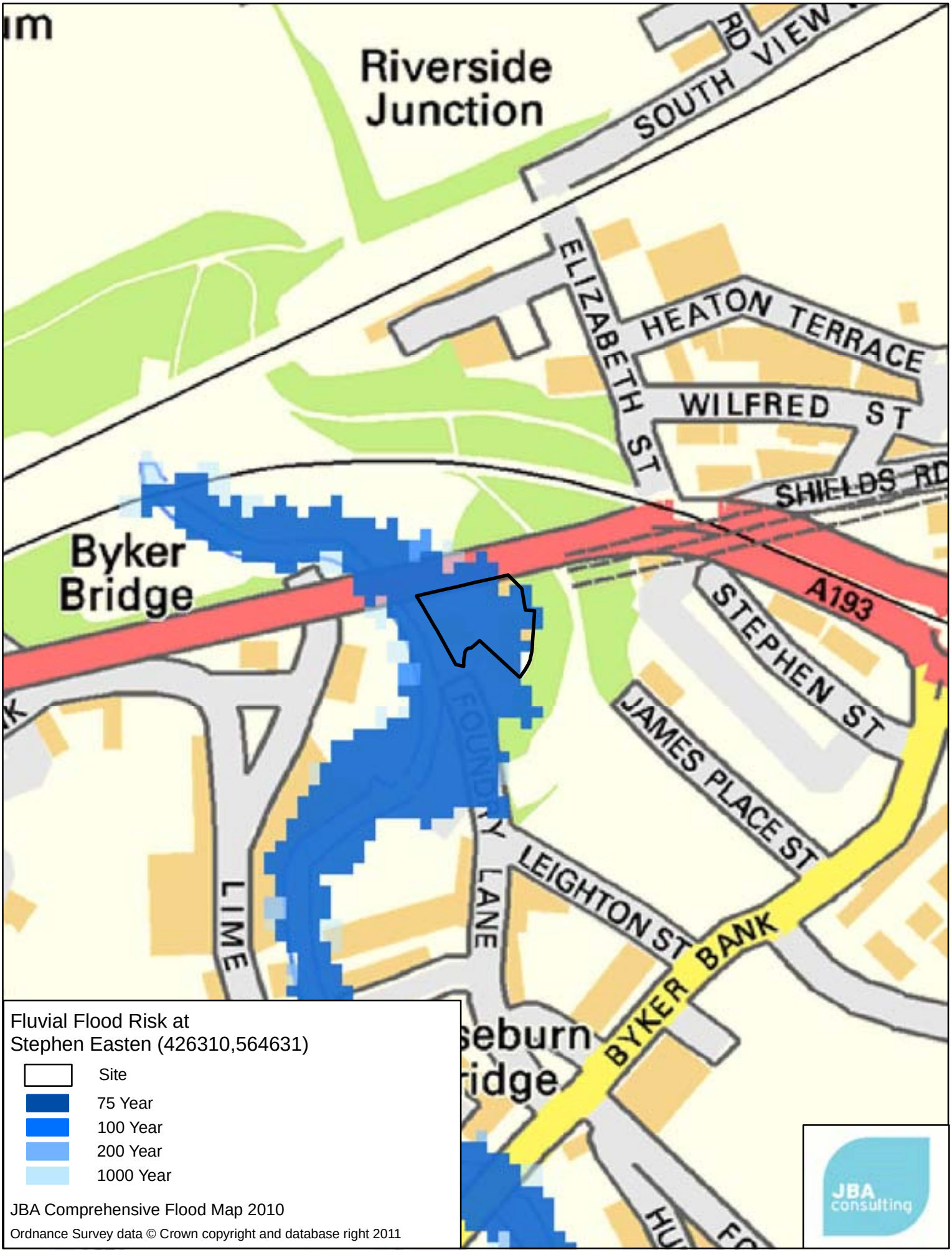
Riverside
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Bridge
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JAMES PLACE ST
LEIGHTON ST
BYKER BANK
LIME
LANE
Fluvial Flood Risk at
Stephen Easten (426310,564631)
Site
75 Year
100 Year
200 Year
1000 Year
JBA Comprehensive Flood Map 2010
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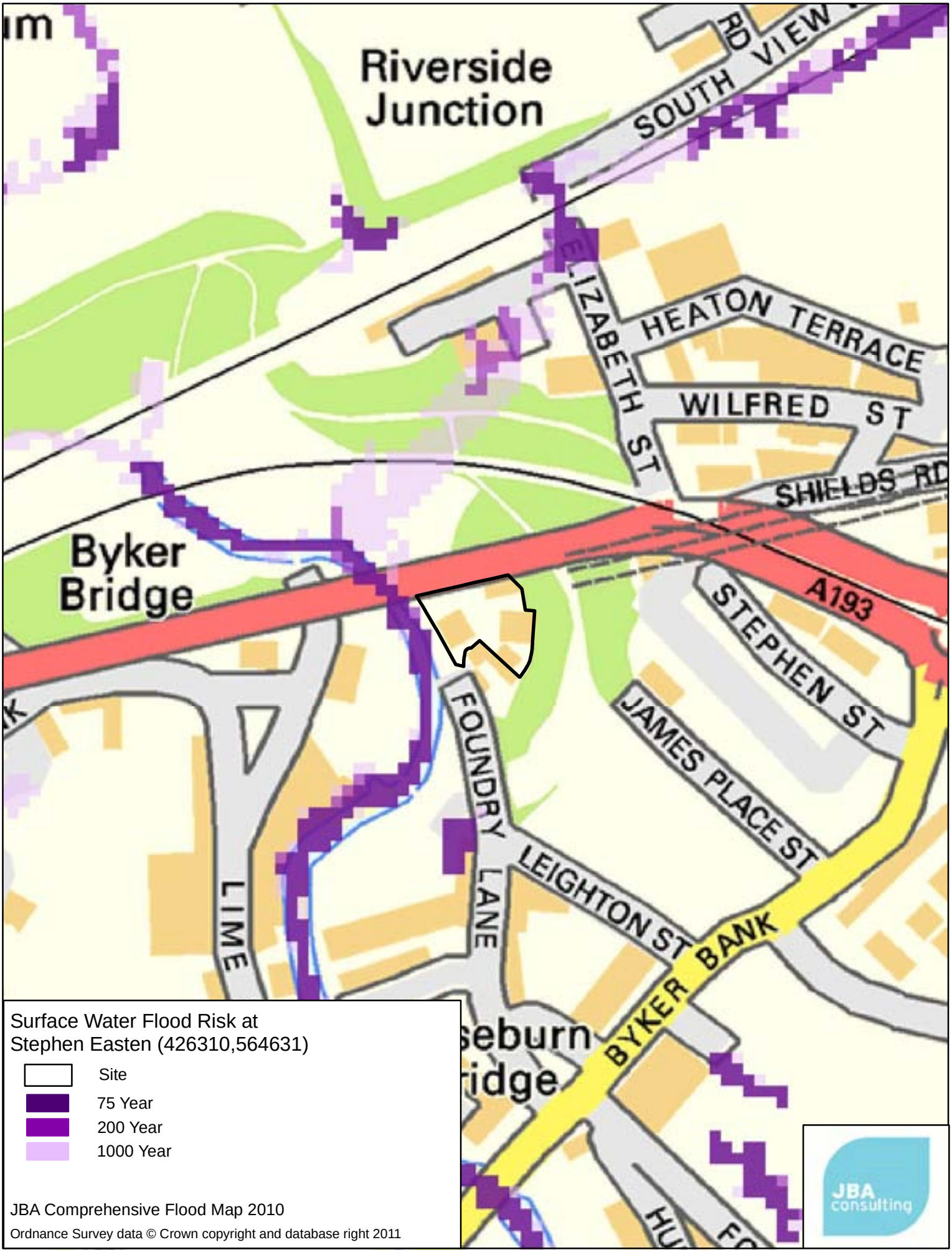
Riverside Junction
SOUTH VIEW RD
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WILFRED ST
SHIELDS RD
Byker Bridge
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STEPHEN ST
JAMES PLACE ST
FOUNDRY LANE
LEIGHTON ST
BYKER BANK
LIME
Surface Water Flood Risk at
Stephen Easten (426310,564631)
Site
75 Year
200 Year
1000 Year
JBA Comprehensive Flood Map 2010
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Coastal Flood Risk at
A and P Yard (429924,565436)

- Site
- 75 Year
- 100 Year
- 200 Year
- 1000 Year

JBA Comprehensive Flood Map 2010

JBA consulting


Willington Square
Willington
Holy Cross
WALLSEND
Point Pleasant
Hebburn Colliery
HEBBURN
Low Walker
Walker
Walkergate
Fluvial Flood Risk at
A and P Yard (429924,565436)
Site
75 Year
100 Year
200 Year
1000 Year
JBA Comprehensive Flood Map 2010
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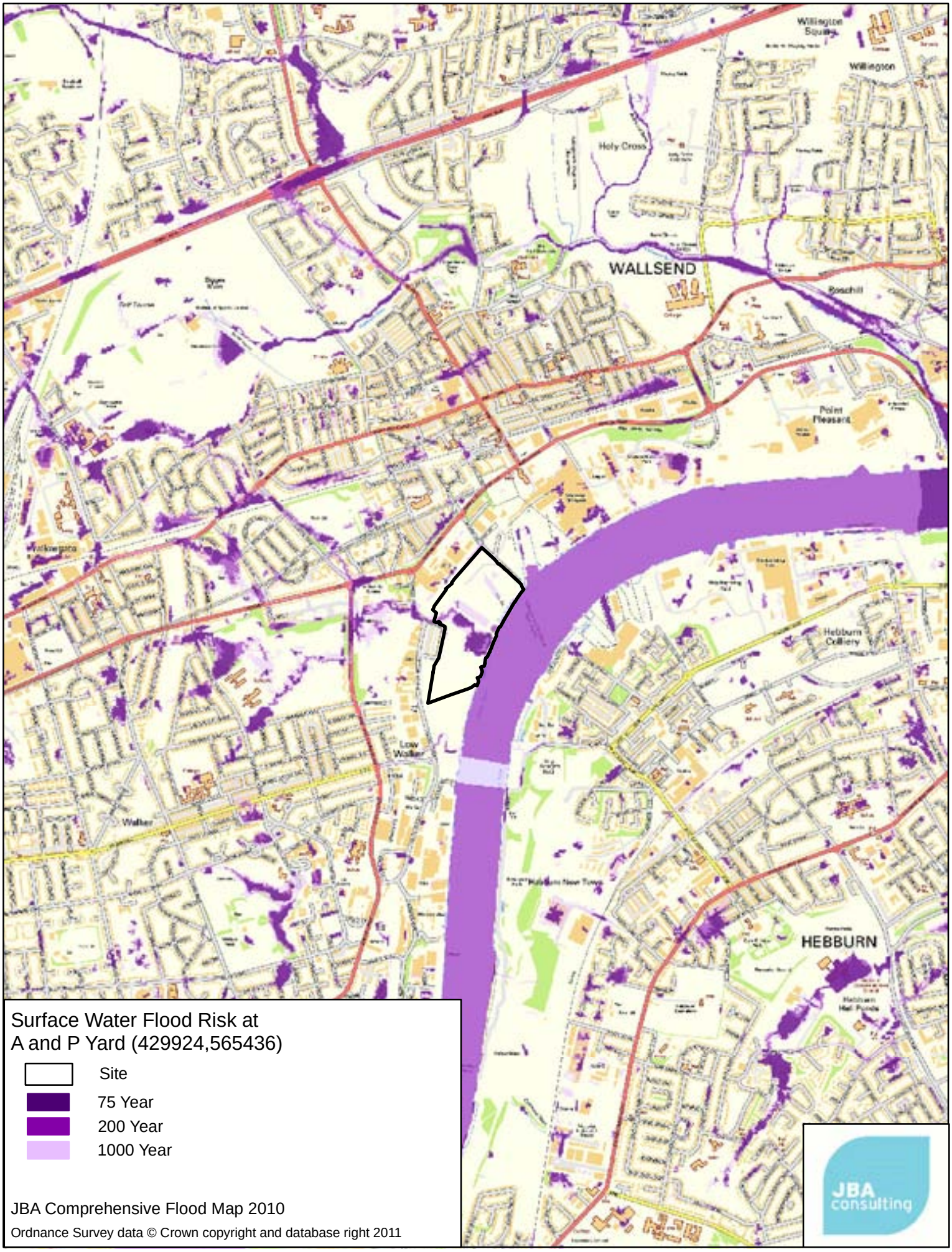
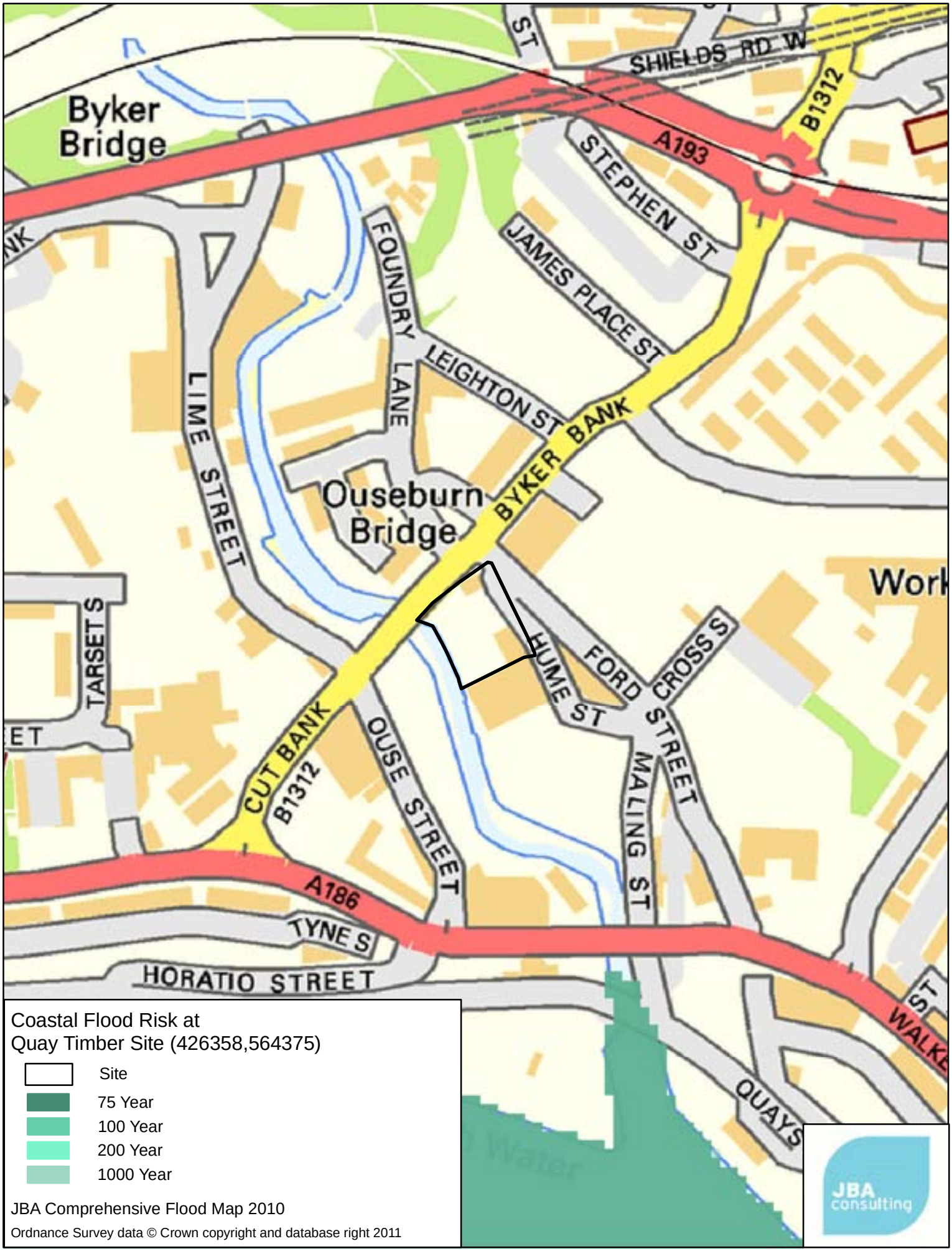
JBA consulting



Surface Water Flood Risk at
A and P Yard (429924,565436)

- Site
- 75 Year
- 200 Year
- 1000 Year

JBA Comprehensive Flood Map 2010


Byker Bridge
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A193
B1312
STEPHEN ST
JAMES PLACE ST
FOUNDRY LANE
LEIGHTON ST
BYKER BANK
LIME STREET
Ouseburn Bridge
TARSET S
HUME ST
FORD CROSS S
CUT BANK
B1312
OUSE STREET
MALING ST
STREET
A186
TYNE S
HORATIO STREET
QUAYS
Coastal Flood Risk at
Quay Timber Site (426358,564375)
Site
75 Year
100 Year
200 Year
1000 Year
JBA Comprehensive Flood Map 2010
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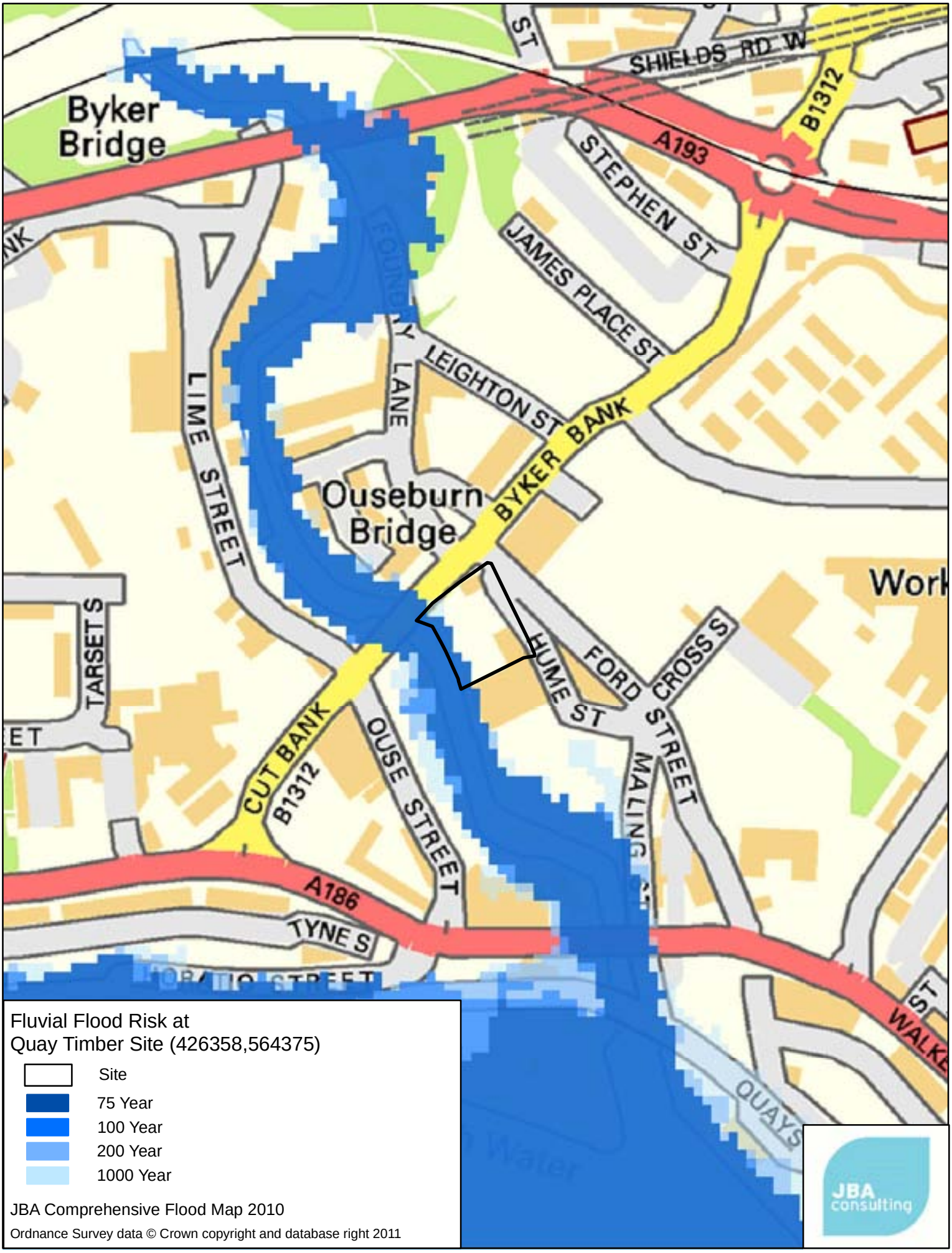
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Fluvial Flood Risk at
Quay Timber Site (426358,564375)
Site
75 Year
100 Year
200 Year
1000 Year
JBA Comprehensive Flood Map 2010
Ordnance Survey data © Crown copyright and database right 2011
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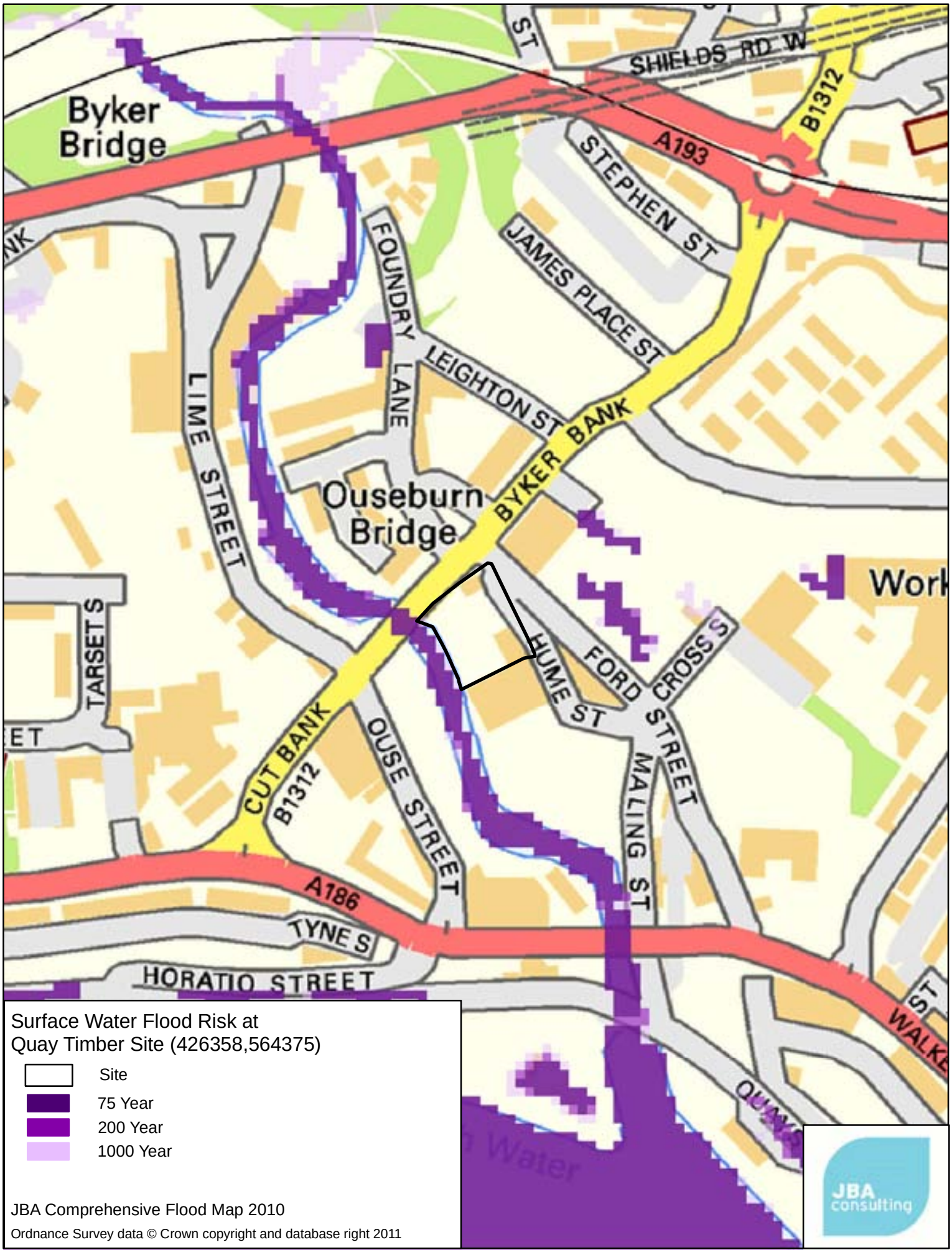
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LEIGHTON ST
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Ouseburn Bridge
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CUT BANK
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OUSE STREET
MALING ST
A186
TYNE S
HORATIO STREET
Surface Water Flood Risk at
Quay Timber Site (426358,564375)
Site
75 Year
200 Year
1000 Year
JBA Comprehensive Flood Map 2010
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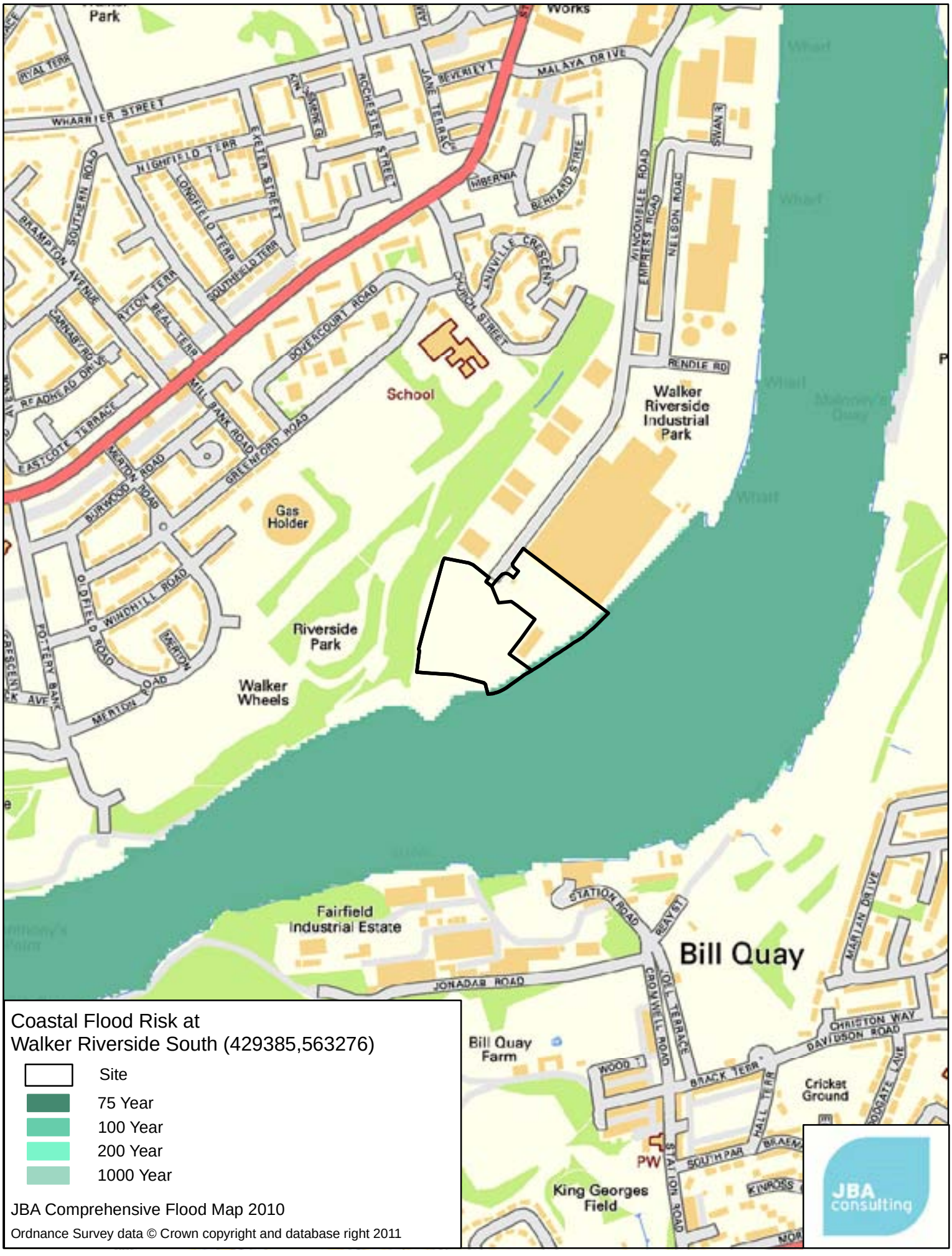
Coastal Flood Risk at
Walker Riverside South (429385,563276)
Site
75 Year
100 Year
200 Year
1000 Year
JBA Comprehensive Flood Map 2010
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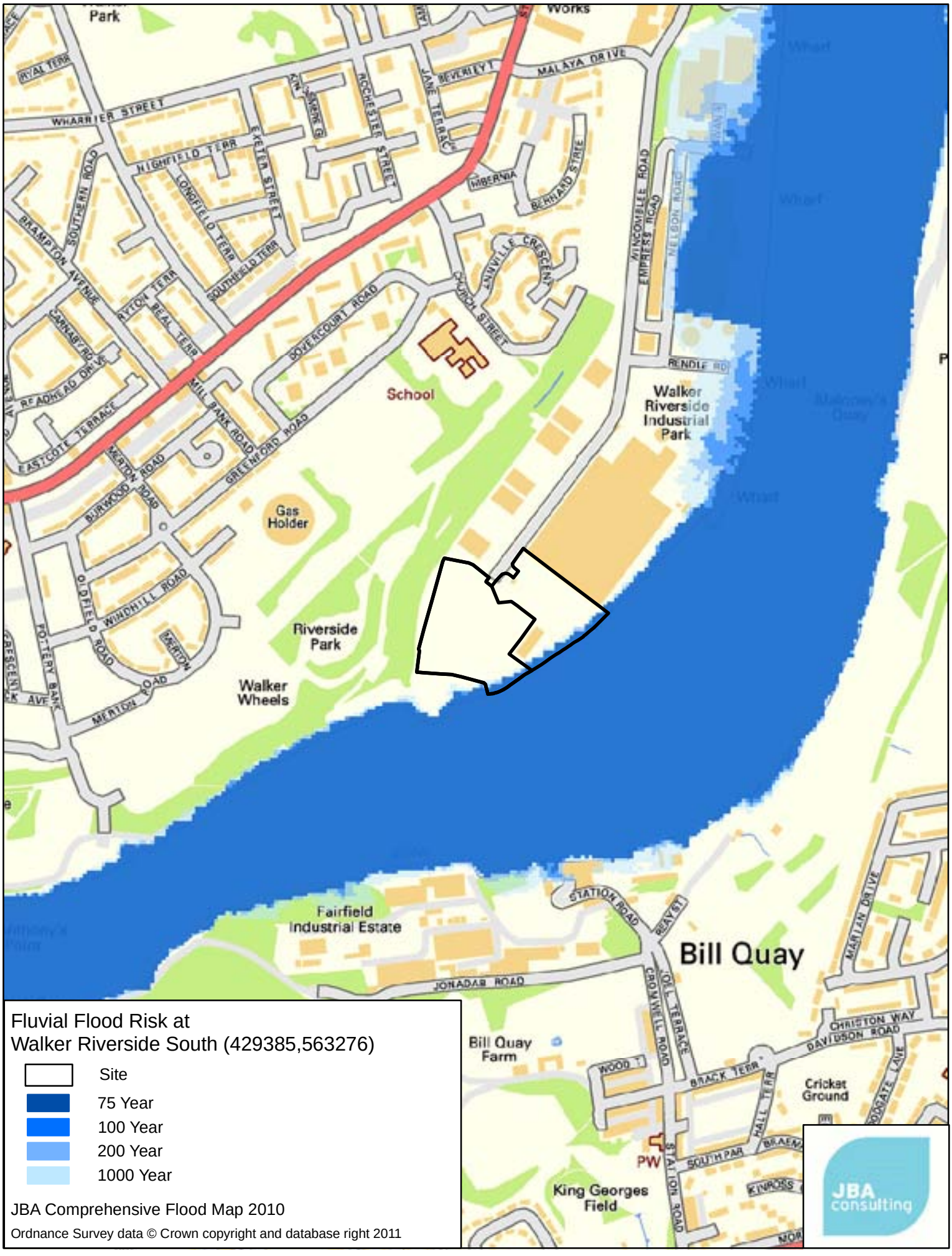
School
Gas Holder
Riverside Park
Walker Wheels
Walker Riverside Industrial Park
Fairfield Industrial Estate
Bill Quay
Bill Quay Farm
Cricket Ground
King Georges Field
MALAYA DRIVE
WHARRIER STREET
BEVERLEY
JANE TERRACE
ROCHESTER STREET
EXETER STREET
HIGHFIELD TERR
LONGFIELD TERR
SOUTHFIELD TERR
SOUTHERN ROAD
BRAMPTON AVENUE
RYTON TERR
REAL TERR
CARRAGH RD
READHEAD DRIVE
EASTCOTE TERRACE
BOYER COURT ROAD
CHURCH STREET
ANNVILLE CRESCENT
HIBERNIA
BERNARD STREET
WINCOMBLEE ROAD
EMPERORS ROAD
NELSON ROAD
SWAN ST
RENDLE RD
MILL BANK ROAD
GREENFORD ROAD
MERTON ROAD
BURWOOD ROAD
OLDFIELD ROAD
WINDHILL ROAD
FOTHERY BANK
STATION ROAD
BEAVER ST
JONADAB ROAD
CROMWELL ROAD
COLL TERRACE
BRACK TERR
HALL TERR
SOUTH PAR
MARLAN DRIVE
CHRISTON WAY
DAVIDSON ROAD
WOOD T
PW
JBA consulting

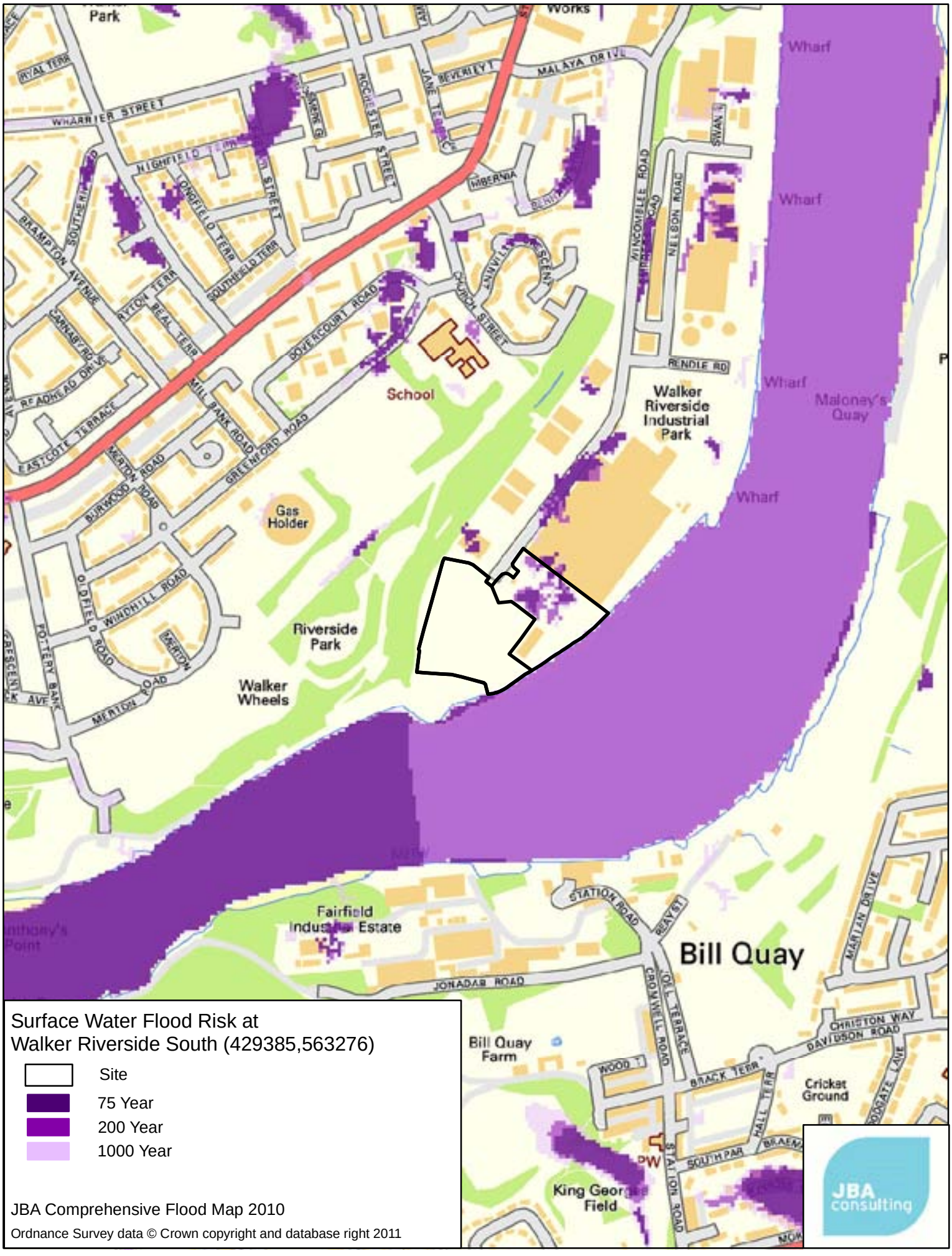


Fluvial Flood Risk at
Walker Riverside South (429385,563276)

- Site
- 75 Year
- 100 Year
- 200 Year
- 1000 Year

JBA Comprehensive Flood Map 2010

JBA consulting


Surface Water Flood Risk at
Walker Riverside South (429385,563276)
Site
75 Year
200 Year
1000 Year
JBA Comprehensive Flood Map 2010
Ordnance Survey data © Crown copyright and database right 2011
School
Gas Holder
Walker Riverside Industrial Park
Riverside Park
Walker Wheels
Fairfield Industrial Estate
Bill Quay
Bill Quay Farm
Cricket Ground
King George Field
Wharf
Maloney's Quay
MALAYA DRIVE
WHARRIER STREET
ROCHESTER STREET
JANE TERRACE
BEVERLEY
HIBERNIA
WINCOMBLEE ROAD
NELSON ROAD
RENDLE RD
SWAN ST
SOUTHERN RD
BRAMPTON AVENUE
RYTON TERR
REAL TERR
SOUTHFIELD TERR
NIGHFIELD TERR
OAKFIELD TERR
SOVEREIGN ROAD
CHURCH STREET
ST ANNE'S
READHEAD DRIVE
EASTCOTE TERRACE
MILL BANK ROAD
GREENFORD ROAD
MERTON ROAD
BURWOOD ROAD
WINDHILL ROAD
OLDFIELD ROAD
FOTHERY BANK
MARTON ROAD
STATION ROAD
JONADAB ROAD
CROMWELL ROAD
WOOD TERR
BRACK TERR
HALL TERR
SOUTH PAR
CHRISTON WAY
DAVIDSON ROAD
MARLAN DRIVE
JBA consulting

E. Newcastle City Council - SUDs Suitability

Groundwater flooding has not been identified as a major risk within the Newcastle area, however this mechanism of flooding should be considered particularly when determining the acceptability of SUDs schemes. The choice of SUDs system will be determined by local ground conditions (including seasonal groundwater levels, soil types and contamination). The SFRA has therefore assessed the soil conditions of proposed development sites through a desk top study. The results are summarised in Table E-1 and Table E-2 below. It should be noted that this is not an exhaustive assessment and further site assessment will be required.

Table E-1: Potential Suitability for Infiltration SUDS within the Newcastle City

Potential Suitability for Infiltration SUDs; High/Medium/Low	Total Number of Proposed Development Sites within Infiltration SUDs category
Low	361
Medium	6
High	6

Table E-2: Potential Suitability for Infiltration SUDS within each Newcastle Ward

Ward	No. Sites with Low Potential for Infiltration SUDS	No. Sites with Medium Potential for Infiltration SUDS	No. Sites with High Potential for Infiltration SUDS	Total Sites in Ward
Benwell and Scotswood	23	0	1	24
Blakelaw	12	0	0	12
Byker	26	0	0	26
Castle	14	0	0	14
Dene	4	0	0	4
Denton	3	0	0	3
East Gosforth	5	0	0	5
Elswick	23	0	2	25
Fawdon	5	0	0	5
Fenham	5	0	0	5
Kenton	5	0	0	5
Lemington	11	5	0	16
Newburn	16	0	3	19
North Heaton	2	0	0	2
North Jesmond	8	0	0	8
Ouseburn	26	0	0	26
Parklands	5	0	0	5
South Heaton	12	0	0	12
South Jesmond	20	0	0	20
Walker	32	0	0	32
Walkergate	4	0	0	4
West Gosforth	6	0	0	6
Westerhope	6	0	0	6
Westgate	69	1	0	70

Wingrove	5	0	0	5
Woolsington	14	0	0	14

Table E-3: Proposed SHLAA Development Site SUDs Suitability

Site Reference	Address	Proposed Development Type	Soil Type	Potential Suitability for Infiltration SUDs; High/Medium/Low
4161	East Brunton Farm Buildings, Brunton Lane	SHLAA	Slowly permeable seasonally wet acid loamy and clayey soils	Low
4162	Land adjacent East Brunton Farm Buildings, Brunton Lane	SHLAA	Slowly permeable seasonally wet acid loamy and clayey soils	Low
4360	Fencer Hill Square, McCracken Park, Great North Road	SHLAA	Slowly permeable seasonally wet acid loamy and clayey soils	Low
4566	NGP Cell F East Village	SHLAA	Slowly permeable seasonally wet acid loamy and clayey soils	Low
2509	Newburn Residential Home (East)	SHLAA	Freely draining floodplain soils	High
1574	West Parade Hotel, Westmorland Rd	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
2779	Land west of Burt Terrace, Walbottle	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
2769	Burnham Avenue, West Denton	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
1008	BT site, Ponteland Rd	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
1026	Gap Plant	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
1072	Former scrap metal site, Walker Road	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
1129	CW2 - Lamb Street	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
1426	46 - 54 Close Quayside	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
1540	Beechgrove Road & Bristol Terrace	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
1591	6-12 Beech Street	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
2670	Former Hillsview School, Carsdale Road, Fawdon	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
1422	Land adjacent to Bonded Warehouse, Close	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
2764	Throckley Leazes Estate: Broadshaw Walk / Whinshields Walk /	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low

	Lydney Close			
2830	Land at Trevelyan Drive, Newbiggin Hall	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
1191	Land at St Lawrence Square	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
1547	Site of Hopedene	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
1549	Wentworth Court	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
1550	Land at Kirkdale Green	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
1518	Land at Dorcas Avenue	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
2838	Tilmouth Park Road, Throckley	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
1364	81-85A Clayton Street	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
1505	312 Elswick Road Elswick	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
2788	Princes Bingo Hall, Rokeby Street	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
1302	Rialto, Pandon Bank	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
1479	108-110 Grainger Street	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
1100	Wyedale, Rutland Avenue	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
1102	CD2 - The Stack PH and land to west	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
1294	Land off Roman Avenue	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
1486	Former Dutton Forshaw Garage site, Westgate Road	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
2620	Grove Park, Saint Nicholas Avenue	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
2818	Land at rear of former Big Waters PH Sandy Lane Brunswick Village	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
2766	Parkway Special School	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low

2572	Site of 22-140 Roundhill Avenue	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
1644	Bewick House Bewick Street	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
3348	28 The Grove & land to rear	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
1316	Planet Earth, Low Friar Street	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
1325	94-104 Grainger Street	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
2680	Knightsbridge	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
1140	Byker Buildings	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
1156	CD1 - Cambrian Estate	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
1688	40 Hanover Street	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
1256	Back Saint George's Terrace, Jesmond	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
1703	Lime Square, Breamish Street	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
1724	South Northumberland Cricket Club, Moor Road	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
1733	Newbiggin Lane (32 units)	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
1779	Pennine House 4 Osborne Terrace Jesmond	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
1784	Land at Saint Lawrence Road & Former Rose and Crown PH Walker Road, Byker	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
1788	Former Walker Baths, Wharrier Street	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
3004	Former Ice Cream Factory, Denton Grove	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
3006	7-8 Ouseburn Terrace	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
3012	Marconi House, Melbourne Street	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low

3014	Pandongate House, City Road	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
3023	Romulus Court, Hadrian Road	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
3024	11-12 Portland Terrace	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
3027	Throckley Water Treatment Works, Hexham Road	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
3028	3 Osborne Terrace (& rear yard of 4) Jesmond	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
3032	Sanderson Hospital	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
3033	Site of Big Waters Hotel, Beamonth Street	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
3034	John Chapman House	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
3035	Site of former Star Centre (Tyne House), Jubilee Road	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
3036	Site of Dunnock Lodge, 18A Union Hall Road	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
3037	Site of former Green Tree PH, Tower View, Benwell Village	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
3038	Land at Gretna Rd/Benwell Village	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
3039	Throckley Middle School, Hexham Road	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
3041	Coquet Street	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
3044	Norden House 41 Stowell Street	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
3048	West Court, Kenton Road	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
3049	Heaton Manor School	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
3050	Land south of Newbiggin Hall shopping centre	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
3055	Saint Michael's Court, Clifton Road	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
3056	Former Quasar Laser,	SHLAA	Slowly permeable seasonally	Low

	Atkinson Rd, Benwell		wet slightly acid but base-rich loamy and clayey soils	
3058	High Grove, Sheltered Accom.	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
3061	Former Coupland House Denmark Street Byker	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
3062	Fossway Fire Station	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
1527	Land to north of Cruddas Park Shopping Centre	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
1396	22-28 Westmorland Road & 2 Waterloo St	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
3075	Pendower Hall, West Road	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
1218	Chillingham Garden Village, Hartford Street	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
3078	Land at Melbury Road	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
3080	Site of 1-47 Apsley Crescent	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
3081	4 Waterloo Street	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
3086	Land between Raby St & St Peter's Road	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
3087	Site of Benwell Social Club	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
3088	Ariva Bus Depot, Portland Terrace, Jesmond	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
3094	Lemington First School	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
3096	Birchvale Avenue & Greentree Square, Slatyford	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
3097	Council Depot, Newington Road	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
3104	Playing field, Conhope Lane	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
3110	Northbourne Street	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
3111	60-64 Bentinck Rd & 300-302 Elswick Rd	SHLAA	Slowly permeable seasonally wet slightly acid but base-	Low

			rich loamy and clayey soils	
3119	Benwell Low Waterworks, Axwell Park View	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
2792	Land south of Tyne View	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
3071	Former Eldon Hotel 24 Akenside Terrace Jesmond	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
1404	Manor Chare Car Park, Broad Chare	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
1009	Walkergate Hospital	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
1392	Canon Cinema Site, Thornton Street	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
3139	Westerhope First School, Hillhead Road	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
3140	7 Wellesly Terrace, Arthur's Hill	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
1552	139 Durham Street (Former Castleton Lodge) Elswick	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
3146	22 - 28 Grosvenor Road Jesmond	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
2613	Deck Access Flats, Blakelaw	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
3155	WG2 - Walker Road allotments	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
1128	WG3 - River's Gate, Walker	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
3152	Site of The Corner House, Benwell Village	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
3153	WG2 - 782-854 Walker Road	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
1761	Site east of Saint James Boulevard 34 - 44 Westmorland Road & 3 - 15 Waterloo Street	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
3090	Social Service Office, Newburn Road	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
1121	CD7 - Land at 1450-1560 Walker Road	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
3156	Land to rear of 94-136 Evistones Gardens	SHLAA	Slowly permeable seasonally wet slightly acid but base-	Low

			rich loamy and clayey soils	
3158	PB2 - St Anthony's Primary School	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
1124	PB5 - Land at Felling View/Caldbeck Avenue/Caldbeck Close	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
1760	Centralofts, Waterloo Street	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
1000	Benfield Business Park, Benfield Rd	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
3051	Newbiggin Hall shopping centre	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
1604	Land west of Riverview Lodge, Armstrong Road	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
4677	Allotment gardens, Union Hall Road	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
3122	Former Lemington Hotel Northumberland Road Lemington	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
1734	Sallyport Garage 2 Causey Bank	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
1385	Former site of Cattle Market Saint James Gate Phase 2 Scotswood Road	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
2606	Elmfield Square, Elmfield Road	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
3126	Saint Silas Church, Clifford Street	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
2790	Warkworth Street	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
1271	Carlton Terrace, 24-50 Jesmond Road West	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
1729	Ouseburn Wharf, Saint Lawrence Road, Byker	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
1606	Park Road, Elswick	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
3218	Osborne House 28 Osborne Road Jesmond	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
3225	43 - 45 Heaton Road Heaton	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
3238	18 Tankerville Terrace Jesmond	SHLAA	Slowly permeable seasonally wet slightly acid but base-	Low

			rich loamy and clayey soils	
3281	Walbottle Garage, 1 George Street	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
3228	Playground, Tunstall Avenue	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
3308	22 - 40 Brentwood Avenue Jesmond	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
3313	Former Westwood Rest Home 1 - 2 Bentinck Villas Bentinck Road, Elswick	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
3343	Former Neville House Care Home, Clifton Road	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
3350	Springfield Centre	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
3353	Land at corner of Charminster Gardens and Eastcheap Addycombe Terrace	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
3372	27 Rutherford Street	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
3373	Wrendale Court, William Street	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
3376	134 Sandyford Road and 19A Chester Crescent	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
3386	Phase 1, Dunblane Crescent, West Denton	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
3388	Former Tennis Courts, Fenham Chase	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
3389	WG1 - Land to rear of 42-98 Kingston Avenue	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
3392	Seen & Heard, 17 Queens Lane	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
3395	Fleming Nuffield Unit, Burdon Terrace, Jesmond	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
3396	Hartburn Mews, Hartburn Drive, Chapel Park	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
3397	University of Northumbria Coach Lane campus	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
3399	CD3 - Site of 262-314 Church Street, Walker	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
3401	Pinewood Leisure Club,	SHLAA	Slowly permeable seasonally	Low

	201 Jesmond Road, Jesmond		wet slightly acid but base-rich loamy and clayey soils	
3417	108-110 Grainger Street	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
3459	133 Osborne Road Jesmond	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
3463	David Grieve House, Chirton Wynd, Byker	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
3465	81 Jesmond Road Jesmond	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
3468	Jackson House 24 - 34 Northumberland Street	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
2614	Land at Yatesbury Avenue and Cragston Avenue	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
3501	Site of The Corner House, Benwell Village	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
1020	Central Grange, Kenton Lane	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
3371	Former Denhofer Wines, 47 Bath Lane	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
3507	Former Saint Catherine's Convent Greystokes Gardens Jesmond	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
4001	2 Osborne Terrace, Jesmond	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
4002	6 Osborne Road Jesmond	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
4016	49B Heaton Road and 43 Heaton Grove	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
4055	4 Osborne Road Jesmond	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
4054	5 Osborne Road Jesmond	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
4014	NEP (UK) Ltd, Benfield Rd	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
4087	Whinmoor Place / Fouracres Rd, Cowgate	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
4088	Moorvale Lane / Deepdale Crescent, Cowgate	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
4097	Former Reedsmouth Nursery,	SHLAA	Slowly permeable seasonally wet slightly acid but base-	Low

	Reedsmouth Place		rich loamy and clayey soils	
4106	28 The Grove & land to rear	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
4123	5-6 Portland Terrace	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
4124	3-4 Portland Terrace	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
4176	Former Bonded Warehouse, Close	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
4177	Car Park at Newbiggin Hall Shopping Centre	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
4204	Fell House Farm, North Walbottle	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
4207	The Bakers, Ponteland Road	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
4213	West Benwell Terraces	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
4214	Westfield Road	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
4221	Wheatfield House, Wheatfield Road	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
4228	IRDL site, Fossway	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
4236	Green Tree Court, Benwell Village	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
2765	Phase 2, Dunblane Crescent, West Denton	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
4242	Land north of Chesterfiled Road, Elswick	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
4249	CW4 - Bus terminus and open space at junction of Rhodes Street and Titan Road Walker	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
4250	CW5 - Industrial area at junction of Rhodes Street and Station Road Walker	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
4252	CW7/8 - Church Walk Centre Berry Close Walker	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
4253	CD5/9 - Site of 25 - 161 Dovercourt Road and 1540 - 1572 Walker Road Walker	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
4255	CD4 - West Walker	SHLAA	Slowly permeable seasonally	Low

	Primary School Church Street Walker		wet slightly acid but base-rich loamy and clayey soils	
4257	PB3 - Site of 1372 - 1452 Walker Road Walker	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
4263	PB1 - Belmont Methodist Church Enslin Street Walker	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
4258	PB10 - Caldbeck Close	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
4260	PB4 - Gaughan House, Winston House and 1 - 16 Gaughan Cl.	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
4266	31 - 33 Osborne Road Jesmond	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
4278	CF4 - Selby Court and Clinic Saint Anthony's Road Walker	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
4279	CF1 - Site of 70 - 128 Lancefield Avenue, 1 - 23 Carnaby Road and 1 - 23 Readhead Drive	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
4280	CF1 - 1 - 47 Chalfont Road and 69 - 115 Lancefield Avenue	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
4281	CF1 - Lightfoot Centre & Wharrier St Primary School, Walker	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
4286	Red Hut Community Centre, Blakelaw	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
4287	Fawdon Service Station, Jubilee Road	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
4288	Site of 2-112 Newlyn Road	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
4300	West Farm, Ponteland Road	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
4318	North Farm, Throckley	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
4342	Prospect House, Hexham Road, Throckley	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
4347	John N Dunn Premises Norham Place Jesmond	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
4395	British Bakeries Ltd, Wheatfield Road	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
4399	Atkinson House, Cypress Avenue, Fenham	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
4400	Hunter's Moor Hospital,	SHLAA	Slowly permeable seasonally	Low

	Hunter's Road, Spital Tongues		wet slightly acid but base-rich loamy and clayey soils	
4402	157-185 High Street, Gosforth	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
4405	Angel Heights, Westgate Road	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
4406	Angel Heights, Westgate Road	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
4407	Former car dealership, 3 High Row	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
4421	Land at Benwell Dene Nursing Home	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
4423	Playground, Pendower Way	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
4427	St Anthony's Road Allotments (behind Losh Terrace)	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
4429	Springfield Centre	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
4430	PB9 - Pottery Bank Phase 1	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
4431	PB7 - Pottery Bank Phase 2	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
4433	St Bede's R.C. Primary School, Whickham View, Benwell	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
4436	Throckley First School, Coach Road	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
4437	Paddock to south of Throckley Recreation Ground	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
4479	Atkinson Road Primary School	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
4482	Site of Chapel Park Middle School	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
4484	Westgate Community College (north), Grange Road	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
4496	36-51 Eastgath, Newbiggin Hall	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
4516	Elmfield Square, Elmfield Road	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
4517	Norden House 41 Stowell Street	SHLAA	Slowly permeable seasonally wet slightly acid but base-	Low

			rich loamy and clayey soils	
4520	99-107 Shields Road, Byker	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
4527	626 Welbeck Road, Walker	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
4528	Lemington Middle School	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
4539	Playing Fields, Throckley First School	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
4555	Former Bonded Warehouse, Close	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
4569	NGP Cell F Local Centre	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
4596	Phase 3, Dunblane Crescent, West Denton	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
4597	Throckley Leazes Estate	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
4602	Land at Cambo Green, Wychcroft Way	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
4604	Land at Blakelaw Road/Sunnyway	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
4617	4 Waterloo Street	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
4622	51-61 Shields Road, Byker	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
4635	Napier House, Napier Street	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
4638	Former Heaton Library, Heaton Park View	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
4654	Land at former Heaton Depot and Heaton Down Yard, Marleen Avenue	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
4656	Orchard House, Fenwick Terrace, Jesmond	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
4676	West 5 Delivery Office, Slatyford Road, Fenham	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
1555	Site of former Snow Street School, Douglas Terrace	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
4696	Land at Drysdale Crescent, Brunswick	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low

4697	Dene Lodge, Broadwood Road	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
4698	Council Depot, Avison Place	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
4700	Land between 44 & 46 Dene Avenue	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
4703	Andrew Court, Welbeck Road	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
4704	Land to north of Callerton Court, Marsden Lane	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
4723	1 Osborne Terrace	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
4750	Site of 20-40A(even) Langleeford Road, Newbiggin Hall	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
4754	Site of 27-41(odd) Etal Lane, Newbiggin Hall	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
4746	Site of 19-51(odd) Hedgehope Road	SHLAA	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
2643	Newcastle Great Park Cell D	SHLAA	Slowly permeable seasonally wet acid loamy and clayey soils and slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
2712	Three Mile Inn, Gosforth	SHLAA	Slowly permeable seasonally wet acid loamy and clayey soils and slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
2647	Newcastle Great Park Cell E	SHLAA	Slowly permeable seasonally wet acid loamy and clayey soils and slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
3138	Former Police Station, Newburn Rd	SHLAA	Slowly permeable seasonally wet acid loamy and clayey soils and slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
2649	Newcastle Great Park, Cell F Phase 3	SHLAA	Slowly permeable seasonally wet acid loamy and clayey soils and slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
4565	NGP Cell F West Phase 1	SHLAA	Slowly permeable seasonally wet acid loamy and clayey soils and slowly permeable seasonally wet slightly acid but base-rich loamy and	Low

			clayey soils	
4568	NGP Cell F Phase 2	SHLAA	Slowly permeable seasonally wet acid loamy and clayey soils and slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
4675	Land south of Scotswood Road, Lemington	SHLAA	Freely draining floodplain soils and slowly permeable seasonally wet acid loamy and clayey soils	Medium

Table E-4: Proposed ELR Development Site SUDs Suitability

Site Reference	Address	Proposed Development Type	Soil Type	Potential Suitability for Infiltration SUDs; High/Medium/Low
4211	NGP office block D, Cell C	ELR	Slowly permeable seasonally wet acid loamy and clayey soils	Low
1502	Scotswood Bridge Head	ELR	Freely draining floodplain soils	High
4758	Phoenix Works, High Street, Newburn	ELR	Freely draining floodplain soils	High
2703	Sandy Lane, Brunswick Industrial Estate	ELR	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
2758	Cutty Coats, Throckley Ind Estate	ELR	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
1289	Walker Riverside South	ELR	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
1355	North of Art Gallery, Durant Road	ELR	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
1384	Safestore (former Heron's Garage)	ELR	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
2630	Regent Point, Regent Centre	ELR	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
1075	Land west of Free Trade PH	ELR	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
1611	Condercum Road East	ELR	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
1090	Heaton Terrace, Shields Road West	ELR	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
1616	Caroline Street and Maria Street	ELR	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
1701	The Side	ELR	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
3025	General Hospital Site	ELR	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
3031	Hanover Buildings	ELR	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
3052	Siemens, Shields Road south	ELR	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
3070	Violet Close and Buddle Road	ELR	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low

1684	Westgate House	ELR	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
3079	Pitt Street Site	ELR	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
1225	Land adjacent to DSS offices, Benton Park Road	ELR	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
1323	Terrace Place Car Parks	ELR	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
1713	Southside, Newcastle Airport	ELR	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
1056	Portland Road Phase 2	ELR	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
1116	Upper Steenbergs - Upper Plateau	ELR	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
3210	Siemens, Shields Road north	ELR	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
3302	Clavering Place & Hanover Square	ELR	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
3374	Collingwood Buildings	ELR	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
1414	Strawberry Place	ELR	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
1328	Strawberry Place	ELR	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
1492	Haymarket Metro	ELR	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
4144	Time Central, Gallowgate	ELR	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
4202	Sandy Lane, Brunswick Industrial Estate	ELR	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
4219	Whitehouse Enterprise Centre	ELR	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
4329	NCC Coach Park	ELR	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
4330	WH Smith Depot	ELR	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
4358	Southside, Newcastle Airport	ELR	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
4359	S of Freight Village,	ELR	Slowly permeable seasonally	Low

	Airport		wet slightly acid but base-rich loamy and clayey soils	
4374	AMC Dismantlers, Union Street	ELR	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
4398	Co-op Building	ELR	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
4438	Dobson's Yard, Wincomblee Road	ELR	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
4543	Winns Products, Shieldfield Industrial Estate	ELR	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
4544	Upper Steenbergs - Lower Plateau	ELR	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
4545	Portland Road Phases 1A and 1B	ELR	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
4546	StGeorge's Car Park & TA Centre	ELR	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
4547	Newcastle Arena	ELR	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
4549	Generator Studios	ELR	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
4552	57-59 Melbourne Street	ELR	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
4721	Walker Riverside South	ELR	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
4756	Dolphin Street Community Centre, Dolphin Street	ELR	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
4757	Land adjacent to DSS offices, Benton Park Road	ELR	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
2804	Newburn Haugh Allotments	ELR	Freely draining floodplain soils and slowly permeable seasonally wet acid loamy and clayey soils	Medium
2794	Shelley Rd, Newburn Ind Estate	ELR	Freely draining floodplain soils	High
1077	Ouseburn West	ELR	Slowly permeable seasonally wet acid loamy and clayey soils	Medium
3359	Lemington Glassworks	ELR	Freely draining floodplain soils and slowly permeable seasonally wet acid loamy and clayey soils	Medium
3360	Former Caravan Site	ELR	Freely draining floodplain soils and slowly permeable seasonally wet acid loamy and clayey soils	Medium

4137	A&P Yard, Walker Riverside North	ELR	Slowly permeable seasonally wet acid loamy and clayey soils	Medium

Table E-5: Proposed Combined Development Site SUDs Suitability

Site Reference	Address	Proposed Development Type	Soil Type	Potential Suitability for Infiltration SUDs; High/Medium/Low
4331	Land south of junction of Dunn Street & Skinnerburn Road	Combined	Freely draining floodplain soils	High
4332	Land south of Skinnerburn Road	Combined	Freely draining floodplain soils	High
1038	Ouseburn Central (Foundry Lane)	Combined	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
1331	St James Park Metro Station	Combined	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
1076	Central East Quayside (Plot 12)	Combined	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
1078	Former Ice Factory	Combined	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
1313	East Pilgrim Street	Combined	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
1400	Stephenson Quarter, South of Central Station	Combined	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
1407	Blandford Square	Combined	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
1110	Hume Street (Heaney's)	Combined	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
3022	Percy Street West (Modern Street/St Thomas St)	Combined	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
3042	47-49 Lime Street, Ouseburn	Combined	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
3064	Maling Street	Combined	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
3066	Stephen Eastern	Combined	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
3067	Morleys	Combined	Slowly permeable seasonally wet slightly acid but base-rich loamy	Low

			and clayey soils	
3068	Cement works, Pottery Lane	Combined	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
3069	GD Metal Recycling	Combined	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
3077	South of Tyne Brewery Bottling Plant	Combined	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
3103	Atkinson Road Clinic, St James Crescent	Combined	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
1062	7-17 Lime Street, Byker	Combined	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
1374	Forth Goods Yard	Combined	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
1515	Loadman Street (Land north of Beaumont Street)	Combined	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
3391	Zaks site, Hanover Square	Combined	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
3393	George Street/Westmorland Road/St James Boulevard	Combined	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
1412	Tyne Brewery (Science Central)	Combined	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
4029	Condercum Industrial Estate	Combined	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
4223	Former Tyne Tees Studios, City Road	Combined	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
4227	Westgate Community College (south), West Road	Combined	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
4285	Spillers Mill	Combined	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
4289	Quay Timber, Hume Street	Combined	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low

4290	Ince Building, Hume Street	Combined	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
4292	CWS building, Blandford Square	Combined	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
4542	Pigeon Crees, Lime Street	Combined	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
4653	Land at junction of Westmorland Rd and St James Boulevard	Combined	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
4711	Land at Atherton Drive	Combined	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
4759	Kelly Plant, Foundry Lane	Combined	Slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils	Low
1035	Land west of Spillers Mill	Combined	Slowly permeable seasonally wet acid loamy and clayey soils	Medium
1398	South of Pottery Lane, east of Shot Factory Lane	Combined	Freely draining floodplain soils and slowly permeable seasonally wet acid loamy and clayey soils	Medium
2802	Newburn Riverside	Combined	Freely draining floodplain soils and slowly permeable seasonally wet acid loamy and clayey soils	Medium

Footnotes to Table:
1 - The soils information displayed in this table references the Cranfield University National Soil Resources Institute website available at; **http://www.landis.org.uk/soilscapes/**
2 - Where permeability is low, alternative SUDS techniques may be appropriate. Please refer to Appendix G of the User Guide for details of alternatives to infiltration SUDS.

F. Development Sites Over 0.5ha Intersecting Critical Drainage Areas

Benwell and Scotswood Ward

Site Reference	Site Address	Site Type	Site Area (Hectares)
4433	St Bede's R.C. Primary School, Whickham View, Benwell	SHLAA	0.63
4479	Atkinson Road Primary School	SHLAA	0.69
4711	Land at Atherton Drive	Combined	0.69
3070	Violet Close and Buddle Road	ELR	1.02
1616	Caroline Street and Maria Street	ELR	1.12
3119	Benwell Low Waterworks, Axwell Park View	SHLAA	1.19
4421	Land at Benwell Dene Nursing Home	SHLAA	1.2
1502	Scotswood Bridge Head	ELR	1.22
1518	Land at Dorcas Avenue	SHLAA	1.49
3075	Pendower Hall, West Road	SHLAA	1.78
4214	Westfield Road	SHLAA	2.02
4219	Whitehouse Enterprise Centre	ELR	3.04

Blakelaw Ward

Site Reference	Site Address	Site Type	Site Area (Hectares)
2614	Land at Yatesbury Avenue and Cragston Avenue	SHLAA	0.53
4604	Land at Blakelaw Road/Sunnyway	SHLAA	0.54
4602	Land at Cambo Green, Wychcroft Way	SHLAA	0.68
2572	Site of 22-140 Roundhill Avenue	SHLAA	1.11
4207	The Bakers, Ponteland Road	SHLAA	1.19
4399	Atkinson House, Cypress Avenue, Fenham	SHLAA	1.53
2613	Deck Access Flats, Blakelaw	SHLAA	2.02
3350	Springfield Centre	SHLAA	7.15
4429	Springfield Centre	SHLAA	7.29

Byker Ward

Site Reference	Site Address	Site Type	Site Area (Hectares)
3389	WG1 - Land to rear of 42-98 Kingston Avenue	SHLAA	0.59
3228	Playground, Tunstall Avenue	SHLAA	1.04
3067	Morleys	Combined	1.42
1035	Land west of Spillers Mill	Combined	1.54
3069	GD Metal Recycling	Combined	1.57

1038	Ouseburn Central (Foundry Lane)	Combined	1.66
3086	Land between Raby St & St Peter's Road	SHLAA	1.93
4285	Spillers Mill	Combined	1.98
3155	WG2 - Walker Road allotments	SHLAA	2.03
1191	Land at St Lawrence Square	SHLAA	3.72
4228	IRDL site, Fossway	SHLAA	4.64

Castle Ward

Site Reference	Site Address	Site Type	Site Area (Hectares)
4211	NGP office block D, Cell C	ELR	0.65
4569	NGP Cell F Local Centre	SHLAA	1.43
4566	NGP Cell F East Village	SHLAA	3.57
2647	Newcastle Great Park Cell E	SHLAA	5
4565	NGP Cell F West Phase 1	SHLAA	11.09
4568	NGP Cell F Phase 2	SHLAA	11.93
2649	Newcastle Great Park, Cell F Phase 3	SHLAA	12.21
2643	Newcastle Great Park Cell D	SHLAA	28
2644	Newcastle Great Park Cell A (South of Coach Lane)	Combined	55.18

Dene Ward

Site Reference	Site Address	Site Type	Site Area (Hectares)
4757	Land adjacent to DSS offices, Benton Park Road	ELR	1.81
3049	Heaton Manor School	SHLAA	2.04
3397	University of Northumbria Coach Lane campus	SHLAA	4.86
1225	Land adjacent to DSS offices, Benton Park Road	ELR	24.45

Denton Ward

Site Reference	Site Address	Site Type	Site Area (Hectares)
3386	Phase 1, Dunblane Crescent, West Denton	SHLAA	1.18
2765	Phase 2, Dunblane Crescent, West Denton	SHLAA	1.8
4596	Phase 3, Dunblane Crescent, West Denton	SHLAA	1.99

East Gosforth Ward

Site Reference	Site Address	Site Type	Site Area (Hectares)
2620	Grove Park, Saint Nicholas Avenue	SHLAA	3.65

Elswick Ward

Site Reference	Site Address	Site Type	Site Area (Hectares)
1606	Park Road, Elswick	SHLAA	0.61
3104	Playing field, Conhope Lane	SHLAA	0.81
3393	George Street/Westmorland Road/St James Boulevard	Combined	1.43
3110	Northbourne Street	SHLAA	1.44
4029	Condercum Industrial Estate	Combined	2.73
4547	Newcastle Arena	ELR	3.66
1515	Loadman Street (Land north of Beaumont Street)	Combined	5.06

Fawdon Ward

Site Reference	Site Address	Site Type	Site Area (Hectares)
4288	Site of 2-112 Newlyn Road	SHLAA	0.89
2670	Former Hillsview School, Carsdale Road, Fawdon	SHLAA	2.78

Fenham Ward

Site Reference	Site Address	Site Type	Site Area (Hectares)
4097	Former Reedsmouth Nursery, Reedsmouth Place	SHLAA	0.52
4227	Westgate Community College (south), West Road	Combined	1.7
4484	Westgate Community College (north), Grange Road	SHLAA	2.09
3096	Birchvale Avenue & Greentree Square, Slatyford	SHLAA	3.63

Kenton Ward

Site Reference	Site Address	Site Type	Site Area (Hectares)
1008	BT site, Ponteland Rd	SHLAA	0.88
1020	Central Grange, Kenton Lane	SHLAA	6.24

Lemington Ward

Site Reference	Site Address	Site Type	Site Area (Hectares)
4667	Allotment gardens, Union Hall Road	SHLAA	1.79
3094	Lemington First School	SHLAA	0.57
2792	Land south of Tyne View	SHLAA	0.95
2769	Burnham Avenue, West Denton	SHLAA	1.05
3359	Lemington Glassworks	ELR	1.06
2790	Warkworth Street	SHLAA	1.16
4675	Land south of Scotswood Road, Lemington	SHLAA	1.69

3360	Former Caravan Site	ELR	1.7
4528	Lemington Middle School	SHLAA	6.15
2802	Newburn Riverside	Combined	51.33

Newburn Ward

Site Reference	Site Address	Site Type	Site Area (Hectares)
4758	Phoenix Works, High Street, Newburn	ELR	0.66

North Jesmond Ward

Site Reference	Site Address	Site Type	Site Area (Hectares)
4656	Orchard House, Fenwick Terrace, Jesmond	SHLAA	0.54

Ouseburn Ward

Site Reference	Site Address	Site Type	Site Area (Hectares)
1077	Ouseburn West	ELR	0.5
3041	Coquet Street	SHLAA	0.51
1076	Central East Quayside (Plot 12)	Combined	0.58
4223	Former Tyne Tees Studios, City Road	Combined	0.71
1056	Portland Road Phase 2	ELR	1.75
4545	Portland Road Phases 1A and 1B	ELR	1.76

Parklands Ward

Site Reference	Site Address	Site Type	Site Area (Hectares)
2712	Three Mile Inn, Gosforth	SHLAA	0.6
4360	Fencer Hill Square, McCracken Park, Great North Road	SHLAA	0.66
2680	Knightsbridge	SHLAA	0.88

South Heaton Ward

Site Reference	Site Address	Site Type	Site Area (Hectares)
1218	Chillingham Garden Village, Hartford Street	SHLAA	0.94
3210	Siemens, Shields Road north	ELR	1.18
4654	Land at former Heaton Depot and Heaton Down Yard, Marleen Avenue	SHLAA	4.2
1000	Benfield Business Park, Benfield Rd	SHLAA	5.24
3052	Siemens, Shields Road south	ELR	6.41

South Jesmond Ward

Site Reference	Site Address	Site Type	Site Area (Hectares)
3507	Former Saint Catherine's Convent Greystokes Gardens Jesmond	SHLAA	0.55
3395	Fleming Nuffield Unit, Burdon Terrace, Jesmond	SHLAA	0.56
3088	Ariva Bus Depot, Portland Terrace, Jesmond	SHLAA	0.87
3097	Council Depot, Newington Road	SHLAA	2.85

Walker Ward

Site Reference	Site Address	Site Type	Site Area (Hectares)
4260	PB4 - Gaughan House, Winston House and 1 - 16 Gaughan Cl.	SHLAA	0.54
4280	CF1 - 1 - 47 Chalfont Road and 69 - 115 Lancefield Avenue	SHLAA	0.8
4438	Dobson's Yard, Wincomblee Road	ELR	0.85
4249	CW4 - Bus terminus and open space at junction of Rhodes Street and Titan Road Walker	SHLAA	0.87
1102	CD2 - The Stack PH and land to west	SHLAA	0.91
4431	PB7 - Pottery Bank Phase 2	SHLAA	0.95
4279	CF1 - Site of 70 - 128 Lancefield Avenue, 1 - 23 Carnaby Road and 1 - 23 Readhead Drive	SHLAA	1.01
1129	CW2 - Lamb Street	SHLAA	1.06
4430	PB9 - Pottery Bank Phase 1	SHLAA	1.09
4250	CW5 - Industrial area at junction of Rhodes Street and Station Road Walker	SHLAA	1.15
3156	Land to rear of 94-136 Evistones Gardens	SHLAA	1.37
4253	CD5/9 - Site of 25 - 161 Dovercourt Road and 1540 - 1572 Walker Road Walker	SHLAA	1.63
3158	PB2 - St Anthony's Primary School	SHLAA	1.77
4721	Walker Riverside South	ELR	1.77
1124	PB5 - Land at Felling View/Caldbeck Avenue/Caldbeck Close	SHLAA	1.8
1128	WG3 - River's Gate, Walker	SHLAA	2.44
4255	CD4 - West Walker Primary School Church Street Walker	SHLAA	2.77
4427	St Anthony's Road Allotments (behind Losh Terrace)	SHLAA	2.79
1289	Walker Riverside South	ELR	2.95
4252	CW7/8 - Church Walk Centre	SHLAA	5.24

	Berry Close Walker		
4281	CF1 - Lightfoot Centre & Wharrier St Primary School, Walker	SHLAA	7.9

Walkergate Ward

Site Reference	Site Address	Site Type	Site Area (Hectares)
1009	Walkergate Hospital	SHLAA	0.96
1100	Wyedale, Rutland Avenue	SHLAA	2.82
4137	A&P Yard, Walker Riverside North	ELR	13.74

West Gosforth Ward

Site Reference	Site Address	Site Type	Site Area (Hectares)
2606	Elmfield Square, Elmfield Road	SHLAA	1.02
3032	Sanderson Hospital	SHLAA	1.33

Westerhope Ward

Site Reference	Site Address	Site Type	Site Area (Hectares)
4221	Wheatfield House, Wheatfield Road	SHLAA	0.91
3139	Westerhope First School, Hillhead Road	SHLAA	0.95
4395	British Bakeries Ltd, Wheatfield Road	SHLAA	2.24
2766	Parkway Special School	SHLAA	3.23
4482	Site of Chapel Park Middle School	SHLAA	4.9

Westgate Ward

Site Reference	Site Address	Site Type	Site Area (Hectares)
1540	Beechgrove Road & Bristol Terrace	SHLAA	0.53
3022	Percy Street West (Modern Street/St Thomas St)	Combined	0.6
1328	Strawberry Place	ELR	0.63
1384	Safestore (former Heron's Garage)	ELR	0.68
3077	South of Tyne Brewery Bottling Plant	Combined	0.78
1331	St James Park Metro Station	Combined	1.01
1549	Wentworth Court	SHLAA	1.04
1407	Blandford Square	Combined	1.32
3068	Cement works, Pottery Lane	Combined	1.42
1374	Forth Goods Yard	Combined	2.77
1398	South of Pottery Lane, east of Shot Factory Lane	Combined	3.15

1313	East Pilgrim Street	Combined	3.77
1400	Stephenson Quarter, South of Central Station	Combined	4.27
1412	Tyne Brewery (Science Central)	Combined	7.83

Wingrove Ward

Site Reference	Site Address	Site Type	Site Area (Hectares)
3023	Romulus Court, Hadrian Road	SHLAA	0.51
1486	Former Dutton Forshaw Garage site, Westgate Road	SHLAA	0.54
4400	Hunter's Moor Hospital, Hunter's Road, Spital Tongues	SHLAA	2.43
3025	General Hospital Site	ELR	7.58

Woolsington Ward

Site Reference	Site Address	Site Type	Site Area (Hectares)
4704	Land to north of Callerton Court, Marsden Lane	SHLAA	0.53
1733	Newbiggin Lane (32 units)	SHLAA	0.57
3050	Land south of Newbiggin Hall shopping centre	SHLAA	1.46
3051	Newbiggin Hall shopping centre	SHLAA	3.2
4358	Southside, Newcastle Airport	ELR	4.01
4359	S of Freight Village, Airport	ELR	5.03
1713	Southside, Newcastle Airport	ELR	40.88

G. Environment Agency and NWL comments with responses from JBA

It should be noted that Newcastle City Council approached Northumbrian Water Limited to review the findings of the SFRA, however they were unavailable for comment. NWL consider that previous comments provided for the Gateshead SFRA Level 1 stand for all SFRAs in their administrative boundaries. These comments were made available and have been incorporated where possible and appropriate in this SFRA.

Newcastle City Council
Regeneration Directorate
Civic Centre
Newcastle upon Tyne
Tyne and Wear
NE1 8PD

Our ref: NA/2006/100161/SF-02/IS1-L01
Your ref:

Date: 01 April 2011

Dear Sir/Madam

Newcastle Draft Level 2 Strategic Flood Risk Assessment (SFRA)

Thank you for referring the above study for comment. Based on the information submitted we wish to make the following comments.

Delineation of Flood Zone 3a and 3b
We agree with the approach taken and would support that there is no functional flood plain in tidal areas or behind defences.

Surface Water Management Plan
With section 5.7. and 5.8 of the SFRA there is no mention of Newcastle Gateshead joint Surface Water Management Plan (SWMP). This section should reflect the work that has been progressed so far and give anticipated timelines /outputs etc. The existing text is very generic and does not reflect the work undertaken locally.

Data Mapping
The study has not undertaken new mapping or model outputs that we can use to update our Flood Map. Our existing models on the Ouseburn and Tyne have been used to undertake some very broad scale JFLOW modelling for other areas. The only watercourses for which we have Flood Zones in Newcastle are the Ouseburn, its tributaries and the Tyne - the SFRA has not undertaken any additional modelling on these rivers.

We acknowledge that the report has recognised that an integrated Ouseburn model is due to be delivered in May/June and that the tidal Tyne model is re-run with the new levels. If timescales allow we would recommend these updates are incorporated into the next iteration of the SFRA.

Water Cycle Study (WCS)

Howdon Sewerage Treatment Works (STW) serves parts or all of the local authority areas of Newcastle, Gateshead, North Tyneside, South Tyneside and Northumberland which drain to Tyneside. The emerging Newcastle Gateshead Water Cycle Study gives an initial WCS assessment that some headroom is available to facilitate growth, however this headroom is not unlimited, nor can it be said to be equally available to all parts of the catchment. There are locations where the water and sewerage infrastructure is already at or near capacity, while there are others where trade reductions or moving populations mean that the infrastructure is underused.

We consider that the findings of the WCS should be considered within the SFRA. It may be unlikely that there will be capital investment to improve the sewerage treatment works capacity. On this basis the solution to increase capacity may need to be based upon reducing surface water flows into mains sewers.

Annex E of the SFRA shows that the potential suitability for infiltration SUDS within the Newcastle City is very low – 361 of 373 sites considered to have low suitability. This may mean that there is increasing pressure to direct surface water to sewers. Given the WCS outlines that this cannot be maintained further consideration of the issue should be undertaken with an appropriate policy framework and recommendations for SUD's be developed.

Flood Risk Assessment requirements:

All planning applications for the following sites will need to be accompanied by a flood risk assessment. This should be written in accordance with Annex E of PPS25, which outlines the minimum requirements for a flood risk assessment as well as all other PPS25 guidance. The sequential approach should be implemented for all sites to ensure development is directed towards the areas of lowest flood risk

Within the site boundaries development should be directed towards the areas of lowest flood risk. If development comes forward within Flood Zones 2 and 3 floor levels must be no lower than the 1 in 100 year event flood level for development in areas of fluvial risk and no lower than the 1 in 200 year event flood level for tidal flood risk. This must also include an allowance for climate change in accordance with Annex B of PPS25 and 600mm freeboard. Flood resistant and flood resilient construction measures should also be included within the development and suitable safe access and egress should be ensured for all.

Flood Zone 1 FRA requirements

Where sites are greater than 1 ha, are in areas affected by fluvial flood risk or where surface water discharge may cause increased risk a surface water drainage assessment will also need to be included.

Surface water drainage design should be in accordance with the drainage hierarchy within the Building Regs Part H. Generally surface water discharge rates to neighbouring watercourses should be restricted to no more than the existing runoff from the site including an allowance for climate change in accordance with Annex B of PPS25. Where the site is currently greenfield discharge rates will be restricted to greenfield run off rates. Given the emerging recommendations of the WCS we recommend further consideration be given to local recommendations for the restriction of run-off rates .

Cont/d..

Local Flood Risk Advice

1. A&P Yard

We have previously been consulted on this site by the LPA during planning consultation. The proposals involve infilling of the docks to create a development platform. An FRA was submitted as the site is partially within tidal flood zones and greater than 1 ha. Due to the tidal nature of the site surface water, ground raising and infilling of the dry docks was not a flood risk concern. Mitigation measures included raising ground levels above the 1 in 200 year event level to bring the development platform above flood levels and safe access was confirmed. Further planning applications have been received for the construction of an industrial unit on the site which was not a concern due to the previous flood risk mitigation.

2. Dobsons Yard

The site is at tidal flood risk and therefore we would not be against ground raising to be undertaken to mitigate the flood risk. As flood risk is tidal surface water discharge into the River Tyne would not be restricted.

3. Former Ice Factory

No comments

4. Heaneys

Flood risk is restricted to the banks of the Ouseburn therefore flood risk is currently minimal.

5. Newburn Riverside

The site at risk of flooding on the banks of the River Tyne and is restricted to a very small section of the site. We would therefore have no issue with this site coming forward for development. As this site is greater than 1ha surface water drainage would need to be assessed however as the watercourse is tidal at this location we would not impose a restriction for disposal into the watercourse at this point.

6. Ouseburn Central

Flood risk at this site is restricted only to the banks of the Ouseburn so we would have no issue with development coming forward for this site.

7. Quay Timber Site

The site is at lowest probability of flooding therefore we have no objections in this site coming forward for development.

8. Shelley Road

The site is only at minimal risk of tidal flooding where the site comes into contact with the river bank. There is fluvial flood risk present north of the dismantled railway, north of the site. This area of flood zones stops abruptly prior to the watercourse flowing under the railway. We consider that this may need to be investigated further to ensure there is an accurate understanding of the flood risk present. The tidal limit of the River Tyne lies just upstream of the site. As the river is still tidal at this location we would not make recommendation to impose a discharge restriction if surface water is to be discharged into the river at this point.

9. Southside, Newcastle Airport

Cont/d..

The eastern border of the site is at risk from fluvial flooding. As there is fluvial flood risk on the site if surface water is to be discharged into neighbouring watercourses it must be restricted to at least no more than that from the existing greenfield site including an allowance for climate change and freeboard.

10. Stephen Eastern
The majority of the site lies within tidal flood zones. We have been consulted on a planning application for a proposed residential development on this site. We have recommended conditions in accordance with the submitted flood risk assessment. This included finished floor levels, flood proofing measures and safe access routes.

11. Walker Riverside South
The tidal flood risk to the site is restricted to the banks of the River Tyne. Therefore, we would have recommendations in relation to this site coming forward for development. The River Tyne is tidal at this location so we would not have any recommendations to restricting surface water should it be discharged into the neighbouring watercourse.

Please do not hesitate to contact me should you wish to discuss any of these issues further.

Yours faithfully

Cameron Sked
Planning Technical Specialist

Direct dial 01912034295
Direct fax 01912034004
Direct e-mail cameron.sked@environment-agency.gov.uk

End

Environment Agency - North East Region
Tyneside House
Skinnerburn Road
Newcastle Business Park
NEWCASTLE UPON TYNE
NE4 7AR

For the attention of Cameron Sked, Planning Technical Specialist

Our Ref: RW\2010s4294-S-L007-1.doc

11 April 2011

Dear Sirs,

Newcastle City Council Level 2 SFRA

Thank you for your comments received by email on 5 April 2011 with regards to the Newcastle City Council Level 2 SFRA. We have included our response (in blue), on behalf of the Council, addressing each of your points below using the same subheadings as used in your letter reference NA/2006/100161/SF-02/IS1-L01 dated 1 April 2011.

Delineation of Flood Zone 3a and 3b

We agree with the approach taken and would support that there is no functional flood plain in tidal areas or behind defences.

No further action.

Surface Water Management Plan

With section 5.7 and 5.8 of the SFRA there is no mention of NewcastleGateshead joint Surface Water Management Plan (SWMP). This section should reflect the work that has been progressed so far and give anticipated timelines / outputs etc. The existing text is very generic and does not reflect the work undertaken locally.

The NewcastleGateshead SWMP is at an early stage of development and, as far as we are aware only a preliminary assessment of strategic sites has been completed so far.

Propose to insert the following text into the report:

"The NewcastleGateshead Surface Water Management Plan (SWMP) is being prepared by AECOM Ltd. Like the WCS the Environment Agency (EA) and Northumbrian Water Limited (NWL) are Key Partners in preparing and implementing the SWMP along with both Councils.

The SWMP has been funded by Growth Point funding and the EA's City Flood Project and been prepared in conformity with the DEFRA Technical Guidance.

Due to LDF timescale pressures the SWMP has been divided into 3 stages, 'Scoping' of issues (completed 2009) assessment of 'Strategic Sites' (expected to be completed April/ May 2011) and 'City/ Borough Wide' assessment (commencing April 2011).

Stage 1, the Scoping included identifying risk and involved producing an Engagement Plan to accompany the SWMP setting out when and how stakeholders will be involved.

Following on from the Scoping, the SWMP focused on 13 'strategic sites' (these are sites that are considered key sites for regeneration and meeting the Council's growth aspirations and commitments) across Newcastle and Gateshead have been subject to a risk assessed.

The outputs of these have informed Options for potential measures and principles to manage the risk of surface water and overland flow at these sites. Inventions include the suggestion of where swales should be located.

The third and arguable the most valuable stage of the SWMP is the City/ Borough Wide assessment and will involve identifying developed areas at risk of surface water flooding and develop high-level Options by which the risks could be managed for an agreed number considered to be at the highest risk. The Optioneering will take into consideration the presence of potential development sites (SHLAA, ELR and SLR) in terms of the opportunities that they present in terms of surface water management. This stage of the SWMP is expected to be completed by September 2011.

Due to funding and LDF commitments the NewcastleGateshead SWMP (Scoping and Strategic Sites assessment) and the Council's respective SFRAs (level 1 and 2) have been prepared in tandem. Outputs from the SFRA level 1 and initial findings from the level 2 have been fed into the SWMP; however, there have been overlaps between the studies.

It is important as the Council embarks on the third stage of the SMWP that the outputs of the SFRA Level 2 direct inform the scoping and risk assessments included in the SWMP preparation".

Data Mapping

The study has not undertaken new mapping or model outputs that we can used to update our Flood Map. Our existing models on the Ouseburn and Tyne have been used to undertake some very broad scale JFLOW modelling for other areas. The only watercourses for which we have Flood Zones in Newcastle are the Ouseburn, its tributaries and the Tyne - the SFRA has not undertaken any additional modelling on these rivers.

We acknowledge that the report has recognised that an integrated Ouseburn model is due to be delivered in May/June and that the tidal Tyne model is re-run with the new levels. If timescales allow we would recommend these updates are incorporated into the next iteration of the SFRA.

The strategic mapping is both a suitable and proven technique used to understand strategic risk and the likely variation in depths, velocities and hazards across potential development sites.

We understand that the Environment Agency is currently updating the R. Ouseburn modelling. Whilst we have considered the likely impacts of these changes it is not appropriate to base development planning decisions on modelling that is still subject to change. The Council are aware that the SFRA will need to include the revised Flood

Zone when this becomes available from the EA. We feel that it is appropriate for the current version of the report to be signed off in the intervening period.

Water Cycle Study (WCS)

Howdon Sewerage Treatment Works (STW) serves parts or all of the local authority areas of Newcastle, Gateshead, North Tyneside, South Tyneside and Northumberland which drain to Tyneside. The emerging Newcastle Gateshead Water Cycle Study gives an initial WCS assessment that some headroom is available to facilitate growth, however this headroom is not unlimited, nor can it be said to be equally available to all parts of the catchment. There are locations where the water and sewerage infrastructure is already at or near capacity, while there are others where trade reductions or moving populations mean that the infrastructure is underused.

We consider that the findings of the WCS should be considered within the SFRA. It may be unlikely that there will be capital investment to improve the sewerage treatment works capacity. On this basis the solution to increase capacity may need to be based upon reducing surface water flows into mains sewers.

Annex E of the SFRA shows that the potential suitability for infiltration SUDS within the Newcastle City is very low – 361 of 373 sites considered to have low suitability. This may mean that there is increasing pressure to direct surface water to sewers. Given the WCS outlines that this cannot be maintained further consideration of the issue should be undertaken with an appropriate policy framework and recommendations for SUD's be developed.

The SFRA makes clear the requirement for surface water management by stipulating the Council's approach to surface water attenuation and development.

Whilst the SFRA indicates that the potential suitability of infiltration SUDs within the Newcastle City is very low, attenuation techniques (ponds, swales and enhance storage within the site SW system) are still appropriate forms of SUDS for the borough.

Propose to inert the following text on the Water Cycle Study into the report:

"A Water Cycle Study (WCS) was produced for Gateshead Council and Newcastle City Council by AECOM Ltd.

The WCS examines the capacity in the local water supply, waste water infrastructure and the water environment to ensure that new development can be supplied with the required services and infrastructure it needs. Along with both Councils, the Environment Agency (EA) and Northumbrian Water Limited (NWL) are Key Partners to deliver the study.

The WCS Outline Study (2010) found that a number of pumping stations which pump wastewater to the Sewerage Treatment Works (STW)have been identified as being at or near to full capacity. These are on the north bank of the River Tyne and affect development in Newcastle. Increased development in this densely populated urban area may be restricted due to the existing outflow restrictions at these pumping stations. This is not a barrier to development, but requires further assessment to investigate when the pumping stations would reach capacity and what options are available to NWL to address the restrictions so that they do not inhibit future development.

In addition to Gateshead and Newcastle, the catchment area of Howdon STW takes in parts of North Tyneside, South Tyneside and South Northumberland. The potential

increased flows from future development across the whole catchment area would place added pressure on Howdon STW. It is therefore prudent for an assessment to be undertaken that takes account of development across the whole catchment area of Howdon STW.

The Council is liaising with the Environment Agency and Northumbrian Water Limited and the surrounding local authorities whose growth areas fall within the Howdon STW catchment area to deliver a Statement of Commonality (SOC). The SOC will need to agree the capacity at Howdon STW and the options for intervention to ensure that there is adequate capacity to support development growth in the future.

It is currently estimated (pending formal agreement between the EA and NWL) there is 7-12 years of planned growth within the Howdon STW catchment that can be accommodated, plus any saving for managing surface water on site.

Any future infrastructure requirements that fall into the One Core Strategy plan period will need to be identified in the strategy's accompanying Infrastructure Delivery Plan. NWL will be the responsible organisation for delivering any infrastructure required".

Flood Risk Assessment requirements

All planning applications for the following sites will need to be accompanied by a flood risk assessment. This should be written in accordance with Annex E of PPS25, which outlines the minimum requirements for a flood risk assessment as well as all other PPS25 guidance. The sequential approach should be implemented for all sites to ensure development is directed towards the areas of lowest flood risk.

Within the site boundaries development should be directed towards the areas of lowest flood risk. If development comes forward within Flood Zones 2 and 3 floor levels must be no lower than the 1 in 100 year event flood level for development in areas of fluvial risk and no lower than the 1 in 200 year event flood level for tidal flood risk. This must also include an allowance for climate change in accordance with Annex B of PPS25 and 600mm freeboard. Flood resistant and flood resilient construction measures should also be included within the development and suitable safe access and egress should be ensured for all.

We agree with the Environment Agency's approach for residential development. However, as a development requirement, we feel the approach is not tempered by firstly understanding actual and residual risks. This is almost a default scenario.

The approach does not consider the following:

- Where development is located (i.e. within the constraints of an existing streetscape);
- The flood mitigating impacts of exiting of proposed flood mitigation measures;
- Assessment of residual risk;
- Or the vulnerability of development;
- The difference in depth and extent of flooding (i.e. what is the variation between 1% and 0.1% flood depths, is a further 600mm appropriate?)

Whilst we agree with this idea in concept, the focus needs to remain on providing detailed assessment at FRA stage with effective design rather than a "one size fits all" approach.

Flood Zone 1 FRA requirements

Where sites are greater than 1 ha, are in areas affected by fluvial flood risk or where surface water discharge may cause increased risk a surface water drainage assessment will also need to be included.

Surface water drainage design should be in accordance with the drainage hierarchy within the Building Regs Part H. Generally surface water discharge rates to neighbouring watercourses should be restricted to no more than the existing runoff from the site including an allowance for climate change in accordance with Annex B of PPS25. Where the site is currently greenfield discharge rates will be restricted to greenfield run off rates. Given the emerging recommendations of the WCS we recommend further consideration be given to local recommendations for the restriction of run-off rates.

Environment Agency text to be inserted into the report.

Local Flood Risk Advice

1. A&P Yard

We have previously been consulted on this site by the LPA during planning consultation. The proposals involve infilling of the docks to create a development platform. An FRA was submitted as the site is partially within tidal flood zones and greater than 1 ha. Due to the tidal nature of the site surface water, ground raising and infilling of the dry docks was not a flood risk concern. Mitigation measures included raising ground levels above the 1 in 200 year event level to bring the development platform above flood levels and safe access was confirmed. Further planning applications have been received for the construction of an industrial unit on the site which was not a concern due to the previous flood risk mitigation.

2. Dobsons Yard

The site is at tidal flood risk and therefore we would not be against ground raising to be undertaken to mitigate the flood risk. As flood risk is tidal surface water discharge into the River Tyne would not be restricted.

3. Former Ice Factory

No comments.

4. Heaneys

Flood risk is restricted to the banks of the Ouseburn therefore flood risk is currently minimal.

5. Newburn Riverside

The site at risk of flooding on the banks of the River Tyne and is restricted to a very small section of the site. We would therefore have no issue with this site coming forward for development. As this site is greater than 1ha surface water drainage would need to be assessed however as the watercourse is tidal at this location we would not impose a restriction for disposal into the watercourse at this point.

6. Ouseburn Central

Flood risk at this site is restricted only to the banks of the Ouseburn so we would have no issue with development coming forward for this site.

7. Quay Timber Site

The site is at lowest probability of flooding therefore we have no objections in this site coming forward for development.

8. Shelley Road

The site is only at minimal risk of tidal flooding where the site comes into contact with the river bank. There is fluvial flood risk present north of the dismantled railway, north of the site. This area of flood zones stops abruptly prior to the watercourse flowing under the railway. We consider that this may need to be investigated further to ensure there is an accurate understanding of the flood risk present. The tidal limit of the River Tyne lies just upstream of the site. As the river is still tidal at this location we would not make recommendation to impose a discharge restriction if surface water is to be discharged into the river at this point.

9. Southside, Newcastle Airport

The eastern border of the site is at risk from fluvial flooding. As there is fluvial flood risk on the site if surface water is to be discharged into neighbouring watercourses it must be restricted to at least no more than that from the existing greenfield site including an allowance for climate change and freeboard.

10. Stephen Eastern

The majority of the site lies within tidal flood zones. We have been consulted on a planning application for a proposed residential development on this site. We have recommended conditions in accordance with the submitted flood risk assessment. This included finished floor levels, flood proofing measures and safe access routes.

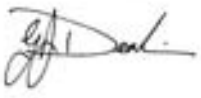
11. Walker Riverside South

The tidal flood risk to the site is restricted to the banks of the River Tyne. Therefore, we would have recommendations in relation to this site coming forward for development. The River Tyne is tidal at this location so we would not have any recommendations to restricting surface water should it be discharged into the neighbouring watercourse.

This is some really useful feedback and the text will be inserted into the SFRA. We will reiterate effective surface water management, which is currently being developed in the SWMP.

Please do not hesitate to contact me should you wish to discuss any of these issues further. We trust this letter addresses all your concerns and we do not anticipate any further changes beyond those discussed above. We will therefore issue the Final version of our SFRA and issue one hard copy to yourselves for your records.

Yours faithfully,
For **Jeremy Benn Associates Limited**



PP

Howard Keeble
Project Manager
howard.keeble@jbaconsulting.co.uk

Rosalind Whitham

From: Rosalind Whitham
Sent: 15 April 2011 13:43
To: 'Sked, Cameron'; Ashworth, Rachael
Cc: Howard Keeble; Brumwell, Caroline
Subject: RE: Newcastle Draft Level 2 Strategic Flood Risk Assessment (SFRA)

Cameron,

Thanks very much for your comments. We will update the report accordingly and produce the final version.

Have a nice Easter.

Kind Regards,

Rosalind Whitham
Analyst

From: Sked, Cameron [mailto:cameron.sked@environment-agency.gov.uk]
Sent: 15 April 2011 12:46
To: Rosalind Whitham; Ashworth, Rachael
Cc: Howard Keeble; Brumwell, Caroline
Subject: RE: Newcastle Draft Level 2 Strategic Flood Risk Assessment (SFRA)

Rosalind,

Thanks for the response to our comments. We are in general agreement with the comments, however would like to outline the following.

Water Cycle Study

We think it would be useful to note that any recommendations from the WCS, including possible surface water reduction policies, to be incorporated into future updates of the SFRA. It seems likely that reduction of surface water entering the sewer will be a requirement of facilitating future growth. It seems prudent to recognise the tensions in meeting the requirements of directing surface water away from the sewerage system and implementing SUDS on the majority of sites that are unlikely to accommodate infiltration techniques - this may have implications for land take, yields of sites etc .

FRA requirements

- We do take into account actual and residual risk and treat each application on its on merits. All of the bullets outlines in the response consider for every application. Our paragraph was only intended as a brief summary of our general requirements and we did not want to take list every requirement as we did not think this was appropriate in such a strategic document. I feel perhaps paragraph has been miss interpreted.
- We are happy for the bullets proposed by JBA to be used in the SFRA but not the paragraph saying our approach is tempered and a default scenario as this is not the case.

Today is my last day in the office for two weeks, however if you need to you can discuss these issues further with my colleague Caroline Brumwell (cc'd).

Regards

Cameron

From: Rosalind Whitham [mailto:rosalind.whitham@jbaconsulting.co.uk]
Sent: 12 April 2011 11:49
To: Sked, Cameron; Ashworth, Rachael

Cc: Howard Keeble
Subject: RE: Newcastle Draft Level 2 Strategic Flood Risk Assessment (SFRA)

Good Morning Cameron,

Thanks very much for your comments on the Newcastle City Council Level 2 SFRA. We have found them very useful. Please find attached a letter response which has been approved by the Council. Please could you let us know if you have any further comments or that you are happy to sign off the study?

Thanks in advance.

Kind Regards,

Rosalind Whitham
Analyst

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From: Sked, Cameron [mailto:cameron.sked@environment-agency.gov.uk]
Sent: 05 April 2011 17:22
To: Ashworth, Rachael; Rosalind Whitham
Cc: Howard Keeble
Subject: Newcastle Draft Level 2 Strategic Flood Risk Assessment (SFRA)

Rachael Rosalind,

Apologies for the delay in replying, I've been waiting to know a bit more regarding the emerging Water Cycle Study outputs and NWL's position on addressing some of these issues. Attached is our response for the level 2 SFRA.

The emerging WCS, presents a number of challenges in managing surface water run-off. In is clear from the SFRA that infiltration SUDS are generally unsuitable and on this basis there are tensions in meeting the requirements of directing surface water away from the sewerage system and implementing SUDS. I'd really appreciate some further discussion regarding this issue.

Regards

Cameron

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