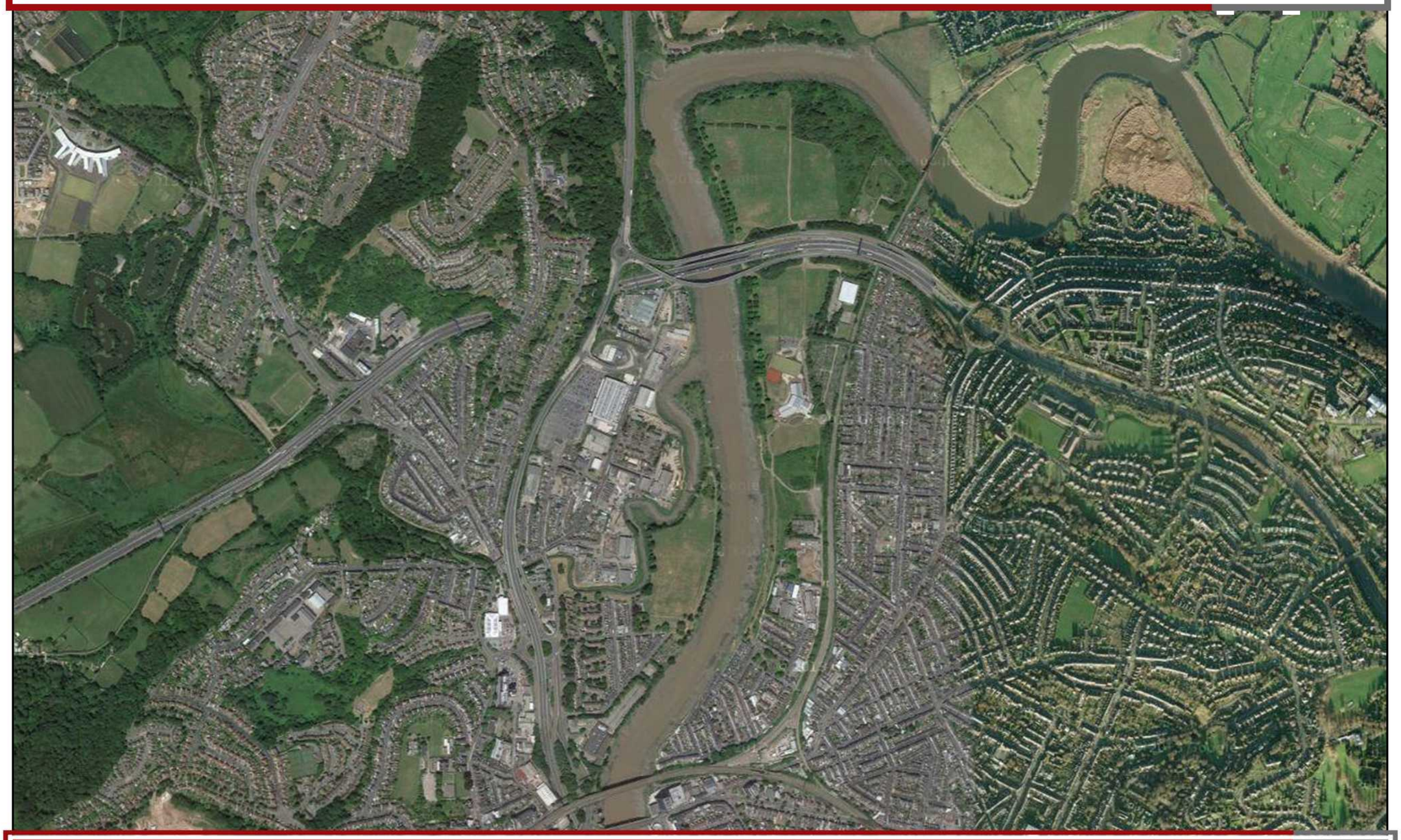
environmental statement
land south of glan usk, newport

december2013



written statement

volume 2

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VOLUME 2: CONTENTS

LAND SOUTH OF GLAN USK PRIMARY SCHOOL, HERBERT ROAD NEWPORT

ENVIRONMENTAL STATEMENT

VOLUME 2
CHAPTER 1: INTRODUCTION

1. INTRODUCTION

FOREWORD

1.1 This Environmental Statement has been prepared on behalf of Greenhill Construction Ltd. in support of a full planning application submitted to Newport City Council in respect of a proposed residential development and other associated works. The planning application description is as follows:

'Development of 248no. dwellings and associated works at land south of Glan Usk Primary School, Herbert Road'

1.2 This Environmental Statement has been prepared in accordance with the Town and Country Planning (Environmental Impact Assessment) (England and Wales) Regulation 1999. It summarises the findings of the Environmental Impact Assessment (EIA) for the construction and operation of the proposed development, which has been deemed as necessary for the extent of the proposed development that is the subject of this full planning application.

Screening and Scoping Opinion

1.3 A screening opinion was requested from Newport City Council on the 19th October 2012. On the 26th November 2013 Newport City Council provided an opinion that the proposed scheme constituted EIA development since the development area is over 0.5 hectares and is located adjacent to a 'sensitive area' as defined by Reg. 2 of the EIA Regulations. The proposed development therefore is considered to fall within Schedule 2 10(b) of the EIA Regulations as an Urban Development Project. The screening request also included a scoping request, this is discussed in more detail below. A copy of the screening and scoping request is included in Appendix 1.1.

1.4 Development that falls within Schedule 2 of the EIA Regulations should be assessed against Schedule 3 of the EIA regulations which requires consideration of the:

- Characteristics of the development
- Location of development
- Characteristics of Potential Impact of development

1.5 The proposed development, when assessed against Schedule 3, was considered to be EIA development for the following reasons:

- The site is adjacent to the River Usk which is designated as a Site of Special Scientific Interest (SSSI) and as a Special Area of Conservation (SAC). Protected species are known to use the River and its bank as habitat and for transit; and
- The site is considered to be contaminated and adjacent site that have been developed have confirmed contamination. The contamination poses a risk to the River Usk, during construction phase and site end users;
- Access to the site is constrained and can only be achieved by routing through densely populated urban areas which are often heavily parked;
- The Usk River Front is an important vista in the area and contains an important public right of way that connects into the wider strategic network of public rights of way;
- Noise from the industrial uses to the south of the site and from the railway line on

the eastern boundary of the site are likely to be significant and potentially adverse;
- A large part of the site lies within a defended floodplain (C1) as identified in the Welsh Government's Development Advice Maps;
- There are Air Quality Management Areas located in close proximity to the site.

1.6 In accordance with regulations 10(1) of the Town & Country Planning (EIA) (England & Wales) Regulations 1999 in the screening request sent to Newport City Council on the 19th October 2013 (included in Appendix 1.1) it was requested that, should the LPA consider the scheme was EIA development, to also provide a scoping opinion to outlining relevant topics to be dealt with in an Environmental Statement that accompanies a future planning application.

1.7 On the 26th November 2013 Newport City Council provided a scoping opinion in relation to the development was received from the principal planning officer at Newport City Council's Planning Department. A copy of this document together with individual consultation responses attached can be found in Volume 2 Appendix 1.2.

ENVIRONMENTAL STATEMENT

1.8 This Environmental Statement reports the Environmental Impact Assessment for the Herbert Road Site in accordance with Schedule 4 of the EIA Regulations and with reference to Welsh Office Circular 11/99 Environmental Impact Assessment.

The Purpose of the Environmental Impact Assessment

1.9 In broad terms, Environmental Impact Assessment (EIA) is the process of establishing the existing environmental (baseline) conditions and compiling, evaluating and presenting the significant environmental effects of the proposed development. The assessment is designed to assist in producing an environmentally sympathetic development. Recognising the potentially significant adverse environmental effects will lead to the early identification and incorporation of appropriate mitigation measures into the design of the development. These effects are considered during the construction and operation stages of the proposed development. The main steps in the assessment procedure can be summarised as follows:-

- Examination of the environmental character of the area and whether it is likely to be affected by the proposed development through baseline studies and surveys;
- Consider the possible interactions between the proposed development and the existing and future site conditions;
- Predict the possible effects, both beneficial and adverse, of the development on the environment;
- Propose design and operation modifications or other measures to avoid, minimise, mitigate or compensate effects or to enhance positive effects.

1.10 This ES sets out the findings of the EIA. It includes:-
- A non-technical summary;
- The results of the assessment for the development considered including the baseline environment, likely significant effects, mitigation measures and residual impacts;
- A summary of the beneficial and adverse effects of the proposed development.

SCOPE AND CONTENT OF THE EIA

1.11 Scoping is the process of identifying the likely significant effects that should be considered in the Environmental Impact Assessment. These issues may arise during construction and eventual operation of a development. As part of the scoping process, assessment methods were identified and consultations were carried out to confirm the approach to be taken.

1.12 The scope for the EIA was developed following a formal scoping opinion from Newport City Council (Appendix 1.2 refers).

1.13 The key issues identified by the local planning authority and which are included in the content of this Environmental Statement, are as follows:-

- Contamination
- Access and Highways
- Landscape and Visual Impact;
- Ecology and Nature Conservation;
- Hydrology and Drainage;
- Noise;
- Socio-economic; and
- Air Quality

1.14 In addition to the issues identified by the LPA the following issues are also considered important and will be dedicated a chapter of ES:

- Socio- Economic Considerations
- Planning Policy Context

1.15 Schedule 4 of the Town and Country Planning (Environmental Impact Assessment) Regulations 1999 (as amended) sets out the information to be included in an Environmental Impact Assessment. The Directive and Regulations require that an Environmental Statement should include at least the following:-

- Description of the development, comprising information about the site and the design and size of the project;
- Outline of the main alternatives considered and an indication of the main reasons for the chosen scheme;
- Data necessary to identify and assess the main effects which the project is likely to have on the environment;
- Description of the likely significant effects of the project on the environment;
- Description of the measures envisaged in order to avoid, reduce or remedy any significant adverse effects;
- Indication of any difficulties encountered in compiling the required information; and
- Non-technical summary of the above information.

1.16 The Regulations state that a description of the likely significant effects of the development on the environment must include 'direct, indirect, secondary, cumulative, short, medium and long-term, permanent and temporary, positive and negative' effects of the proposed development on the environment. This requirement will be incorporated into the Environmental Statement.

Appropriate Assessment

1.17 Under Regulation 48(1) of the Conservation (Natural Habitats &c.) Regulations 1994 (as amended), the competent authority must undertake an Appropriate Assessment where a plan or project is likely to have a significant effect on a European site in Great Britain (either alone or in combination with other plans or projects). The aim of an Appropriate Assessment is to assess the implications for the site in view of the site's conservation objectives.

1.18 Effort has been made to include sufficient information within this Environmental Statement to enable Newport City Council (the competent authority) to undertake the relevant significance test and, if necessary, an Appropriate Assessment.

THE STRUCTURE OF THE ENVIRONMENTAL STATEMENT

1.19 The assessment described in this Environmental Statement (ES) relates to the design of the scheme as it stands in May 2012. The ES is published in three volumes:-

- Volume 1: Non-Technical Summary
- Volume 2: Written Statement; and
- Volume 3: Appendices to Written Statement

1.20 A summary of the ES is provided in Volume 1 – Non-Technical Summary. Using non-technical language, this provides a summary of the proposed development, the main likely environmental effects, the proposed mitigation measures and the predicted residual effects of the proposed development.

1.21 Volume 2 contains preliminary chapters and technical chapters for all issues addressed in the EIA, with Volume 3 providing the appendices referenced in Volume 2.

1.22 The following table displays the structure of the ES including all the relevant volumes:-

Table 1-1: EIA Structure

Volume 1

- **Non-Technical Summary**

Volume 2

- **Written Statement**

Chapter No.	**Title**
Chapter 1	Introduction
Chapter 2	The EIA process
Chapter 3	Site Context
Chapter 4	Project Description
Chapter 5	Planning Policy Context
Chapter 6	Landscape and Visual Impact
Chapter 7	Ecology & Nature Conservation
Chapter 8	Ground Conditions
Chapter 9	Flood Risk
Chapter 10	Drainage
Chapter 11	Traffic, Transport and Movement
Chapter 12	Noise
Chapter 13	Air Quality

Chapter 14	Socio-Economic
Chapter 15	Summary & Conclusions

Volume 3

- **Figures and Appendices to Written Statement**

THE CONSULTANT TEAM

1.23 The Environmental Impact Assessment will be managed by Asbri Planning Ltd, with the assistance and guidance of the following:-

- WYG – who undertook the Landscape and Visual Impact Assessment;
- Peter Sturgess Ecology – who undertook the necessary biodiversity assessment incorporating statutory nature conservation sites, legally protected species, UK and Local Biodiversity Action Plan habitats and NERC Act Section 42 habitats and species;
- Asbri Transport – who undertook the transport assessment; and
- Terra Firma- who undertook assessments relating to ground conditions
- Waterman Group –who undertook hydrology and drainage, cultural heritage, noise and vibration, and air quality.

LAND SOUTH OF GLAN USK PRIMARY SCHOOL, HERBERT ROAD NEWPORT

ENVIRONMENTAL STATEMENT

VOLUME 2
CHAPTER 2: THE EIA PROCESS

2. THE EIA PROCESS

INTRODUCTION

2.1 This chapter explains the main stages in the Environmental Impact Assessment (EIA) process, the approach followed to complete the EIA, including the legal requirements and other guidance underpinning the EIA process and the proposed approach to assessing impacts is also included in this chapter.

LEGISLATION

2.2 In the UK, EIA's have been undertaken for certain major developments since the implementation of the European Council Directive on Environmental Assessment in 1985[1]. The Directive was subsequently amended in 1997[2]. 2003[3] and 2009[4] before being codified under Directive 2011/92/EU of 13th December 2011. The Directive requires that an Environmental Statement (ES) should include a certain level of information as set out in Paragraph 1.21 of the previous chapter.

2.3 The requirements of the Directive are implemented into UK legislation through the Environmental Impact Assessment (England and Wales) Regulations 1999, as amended in 2000.

THE EIA PROCESS

Main Stages and Guidance

2.4 The main steps in the assessment procedure leading up to the publication of the ES are as follows:-

- Scoping;
- Description of the project/development;
- Complete detailed baseline surveys;
- Identification of potential environmental impacts;
- Prediction of impacts;
- Evaluation and assessment of significance;
- Identification of mitigation measures and modifications to the design;
- Identification of residual impacts and cumulative impacts; and

[1] Council Directive 85/337/EEC of 27th June 1985 on the assessment of the effects of certain public and private projects on the environment

[2] Council Directive 97/11/EC of 3rd March 2007 amending Directive 85/337/EEC of 27th June 1985 on the assessment of the effects of certain public and private projects on the environment

[3] Directive 2003/35/EC of the European Parliament and of the Council of 26th May 2003 providing for public participation in respect of the drawing up of certain plans and programmes relating to the environment and amending with regard to public participation and access to Council Directives 85/337/EEC and 96/61/EC.

[4] Directive 2009/31/EC of the European Parliament and of the Council of 23rd April 2009 on the geological storage of carbon dioxide and amending Council Directive 85/337/EEC, European Parliament and Council Directives 2000/60/EC, 2001/80/EC, 2004/35/EC, 2006/12/EC, 2008/1/EC and Regulation (EC) No. 1013/2006.

- Presentation of results of the EIA in the ES (up to 16 week decision period).

2.5 The approach involves a close working partnership between those undertaking the EIA and the engineering / design teams. Key stages in the process can be summarised as follows:-

- Identify relevant natural and man-made processes that may change the character of the site;
- Consider the possible interactions between the proposed development and both existing and future site conditions;
- Using the initial designs of the development, predict the possible environmental effects of construction and operation, both direct and indirect;
- Recommendations can then be made to avoid, minimise or mitigate adverse effects and enhance positive effects. Alterations to the design can then be reassessed and the effectiveness of mitigation proposals determined; and
- Any uncertainties inherent in the methods used, impact predictions made and conclusions drawn would be identified during the course of the assessment process.

2.6 The EIA has been undertaken, and the ES prepared, taking into account UK Environmental Legislation and guidance, including the published 'Environmental Impact Assessment: A Guide to Good Practice and Procedures' and The Institute of Environmental Management and Assessment (IEMA) 'Guidelines for Environmental Impact Assessment (2004)'.

Approach to the Assessment of Impacts

2.7 The determination of the significance of the impacts arising from the proposed development is a key stage in the EIA process. It is this judgement that is crucial to informing the decision-making process. However, defining what is significant is not a simple task. The following criteria have been used (where appropriate to the issue being addressed) in the EIA to inform the assessment of the significance of an impact:-

- Type of impact (adverse/beneficial);
- Extent and magnitude of impact;
- Duration of impact (short term/long term);
- Sensitivity of receptor;
- Comparison with legal requirements, policies and standards;
- Comparison with applicable environmental thresholds; and
- Effectiveness of mitigation.

2.8 It should be noted that the residual significance of impacts is assessed taking into account mitigation, i.e. the assessment applies to the residual impacts. A residual impact is any impact that would remain following the implementation of proposed mitigation measures.

2.9 Using these criteria, the significance of the impacts arising from the proposed development have been categorised throughout the ES (where appropriate) using a seven point scale, as follows:-

- Insignificant;
- Minor (adverse or beneficial);

- Moderate (adverse or beneficial); and
- Major (adverse or beneficial).

2.10 The above criterion is not appropriate to assess the significance of impacts of all issues assessed in the ES. Where this criterion is not suitable a significance of impact criteria appropriate to the particular topic has been applied. This will indicated to the reader in the appropriate topic chapters.

2.10 Impacts are assessed for all phases of the development. Construction impacts are considered to be temporary, short term impacts which occur during the construction phase only. Permanent impacts are those long terms effects which would occur as a result of the proposed development once it is in operation.

Cumulative Impacts

2.11 Regulation 2(1) of the Town and Country Planning (EIA) Regulations 1999 (as amended) emphasise the need for the consideration of cumulative effects at a project level. Cumulative impacts relate to 'other' projects and plans and not different aspects of the proposal. However, best proactive guidelines recommend that an EIA should assess the effects of the development cumulatively with other developments only when there are likely to be significant effects. We note that no request for an assessment of cumulative impacts was made by Newport City Council's screening and scoping opinion (Appendix 1.2 refers); therefore, this is not considered in detail as part of each technical assessment contained in this written statement.

LAND SOUTH OF GLAN USK PRIMARY SCHOOL, HERBERT ROAD NEWPORT

ENVIRONMENTAL STATEMENT

VOLUME 2
CHAPTER 3: SITE CONTEXT

3. SITE CONTEXT

INTRODUCTION

3.1 This chapter provides an overview of the site context, in particular the site location and site description, which is used to inform the detailed technical assessment in future chapters.

SITE LOCATION

3.2 The application Site, which lies south of Glan Usk Primary School is situated within the Newport City Council administrative authority, north east of the city centre, in a wholly urban area.

3.3 The Site lies immediately adjacent to the eastern banks of the river Usk and south of the M4 over bridge near to junction 25a, Glebelands Park and the recently developed Glan Usk Primary School. It is enclosed to the south by industrial estates and the west by the Newport to Hereford Railway line (see location plan in Appendix 3.1).

3.4 The main transport routes that serve the local area are the B4596 which runs to the east and south which leads to the M4 at junction 25 to the north-east and to the A4042 to the south west. The A4042 leads to the A4052 to the west linking to junction 26 of the M4.

SITE DESCRIPTION

3.5 The Site measures 5.83 hectares and approximate National Grid Reference is 331718E, 189369N. The Site from the 1930s has been in industrial use which industrial units of various sizes constructed at the site which have all now been demolished. Given the previous use the Site is classed as a brownfield site

3.6 The Site is an irregular shape comprising of three distinct land parcels. To the north of the Site are two larger land parcels which are accessed via the third land parcel which is a narrow strip of land that lies between the river bank and the adjacent industrial units and residential dwellings along Courtney Street and Morgan Street.

3.7 The Site has a right of way along the western edge of the site. The location of the right of way is shown in the plan in Appendix 3.2. The plan in Appendix 3.2 indicates the location of the recorded right of way location is west of the formal footpath at Site. The formal footpath is the route primarily used at the Site opposed to the recorded right of way.

3.8 The land parcel furthest north at the application is a grassed area of land which is separated from the wider site to the south by a reen, known as Lottery's Reen. This parcel of land is well maintained with mown grass and was remediated during the development of the school to the north, under planning permission 00/0768 (outline) and reserved matters 03/1531.

3.9 The land parcel south of the reen is the site of a former factory. The buildings associated with the former factory have been cleared and the site is currently vacant scrub land interspersed with some hardstandings with overgrown shrubs.

3.10 The reen that dissects the two land parcels to the north of the application site, as mentioned above, is known as Lottery's Reen. Lottery's Reen flows westwards from the eastern boundary to an outfall into the River Usk. Its steep northern bank is mostly fringed by bramble and Willow scrub, with Common Reed dominating the more open parts at its eastern end. The southern bank is bordered by a steep-sided scrub-covered bund at its eastern end, but the western part is more gently sloping.

3.11 The third parcel comprises the riverside walkway with grassed areas either side which extends south to Collier Street. The area of the site is the narrowest and is currently a popular walking location for local residents and provides a pedestrian access to Glan Usk Primary School.

3.12 The topography of the site varies across the site. The existing ground levels in the north east portion of the site are around 6.9 metres AOD and rises to the east to approximately 7.4 metres AOD. The main expanse of the site varies from 7.0 metres AOD and 8.0 metres AOD. The ground running immediately adjacent to the River Usk along the western boundary of Site is generally higher, with levels rising from 9.0 metres AOD in the north to approximately 10 metres AOD halfway along the site, before dropping to 9.5 metres AOD at the southern extent.

3.13 The site is devoid of any built structures and does not have any Tree Preservation Orders (TPO's) that apply. The application is not within a Conservation Area and the land is not classified as agricultural land.

3.14 The Site does not have any ecological designations. It does, however, lie adjacent to the river Usk which is a Special Area of Conservation (SAC) and a Site of Special Scientific Interest (SSSI). The Site does not have any landscape designations but the river Usk front is an important vista.

SURROUNDINGS

3.15 The site is bounded to the north by the Glan Usk Primary School, a new constructed school with associated play grounds to the north. Adjacent to the north eastern corner of the site is Bank Street allotments. Further north is the Glebelands Park which is an open green area with playing fields and is well used by local residents for dog walking and recreation.

3.16 The eastern boundary lies immediately adjacent to the Newport to Hereford railway line separated by a tree planted buffer. Beyond the railway line the land use is predominantly in residential use and interspersed with typical mixed uses, for example, community halls, shops and places of worship.

3.17 The River Usk is immediately adjacent to the western boundary and although is no formal demarcation between the site and the river Usk to the top of the river banks are clearly defined. As mentioned above, the river Usk is a SAC and SSSI.

3.18 The south of site is bounded by industrial units and associated yards and the residential streets of Morgan Street, Courtney Street and Collier Street.

Access

3.19 The main access to the site is gained via an access point located at the convergence of the north of Collier Street and north-west of Courtney Street. A pedestrian only access to the site is available to the north via the Glebelands Park which is access via Bank Street.

LAND SOUTH OF GLAN USK PRIMARY SCHOOL, HERBERT ROAD NEWPORT

ENVIRONMENTAL STATEMENT

VOLUME 2
CHAPTER 4: PROJECT DESCRIPTION

4. PROJECT DESCRIPTION

INTRODUCTION

4.1 The development comprises a full planning application for the construction of 248no. dwellings at land south of Glan Usk School, Herbert Road, Newport. The description of development as presented to Newport City Council as the local planning authority (LPA) on the application forms is as follows:

'Development of 248no. dwellings and associated works'

4.2 The plans referred to and included as part of the Planning Application, and which provide context for the Environmental Statement and represent the scheme proposed are as follows:

- Site Location Plan, drawing number: sw49 (00) 01
- Proposed Site Layout, drawing number: sw(04) 01
- Bin Store Details_Type 1, drawing number: sw49 (04) 02
- Bin Store Details_Type 2, drawing number: sw49 (04) 03
- Bin Store Details_Type 3, drawing number: sw49 (04) 04
- Bin Store Details_Type 4, drawing number: sw49 (04) 05
- Boundary Treatment, drawing number: sw49 (04) 06
- Timber Shed Details, drawing number: sw49 (04) 07
- Proposed Sheet Elevations (1 of 5), drawing number: sw49 (04) 10
- Proposed Sheet Elevations (2 of 5), drawing number: sw49 (04) 11
- Proposed Sheet Elevations (3 of 5), drawing number: sw49 (04) 12
- Proposed Sheet Elevations (4 of 5), drawing number: sw49 (04) 13
- Proposed Sheet Elevations (5 of 5), drawing number: sw49 (04) 14
- Plots 1-36_2B 3P flats_Plans & Elevations, drawing number: sw49 (04) L100
- Block 1_799 &877 House types_Plans and Elevations, drawing number: sw49 (04) L200
- Block 2_910 & 666 House Types_Plans & Elevations, drawing number: sw49 (04) L300
- Plots 52 – 57_2B 3P Flats, Plans & Elevations, drawing number: sw49 (04) L400
- Block 3, 910 & 666, House Types, Plans & elevations, drawing number: sw49 (04) L500
- Block 4, 799, House Types, Plans & Elevations, drawing number: sw49 (04) L600
- Block 5, 910, House types, Plans and Elevations, drawing number: sw49 (04) L700
- Block 6, 799 & 666, House Types, Blocks and elevations, drawing number: sw49 (04) L800
- Block 7, 799 & 666, House Types, Blocks and elevations, drawing number: sw49 (04) L900
- Block 8, 799 & 666, House Types, Blocks and elevations, drawing number: sw49 (04) L1000
- Block 9, 877, House Types, Blocks and elevations, drawing number: sw49 (04) L1100
- Block 10, 877 & 666, House Types, Blocks and elevations, drawing number: sw49 (04) L1200
- Plots 62 – 83, 2B 3P & 1B 2P Flats, GF and FF Plans, drawing number: sw49 (04) L1300

- Plots 62 – 83, 2B 3P & 1B 2P Flats, SF and TF Plans, drawing number: sw49 (04) L1301
- Plots 62 – 83, 2B 3P & 1B 2P Flats, Elevations, drawing number: sw49 (04) L1302
- Plots 205-210, 1B 2P Flats, Plans and Elevations, drawing number: sw49 (04) S100
- Plots 211- 216, 2B 3P Flats, Plans and Elevations, drawing number: sw49 (04) S200
- Plots 217- 228, 2B 3P Flats, Plans and Elevations, drawing number: sw49 (04) S300
- Plots 217- 228, 2B 3P Adapted Plans & Floor Plans, drawing number: sw49 (04) S301
- Presili House type, 2B 4P Plants & Elevations, sw49 (04) S400
- Tryfan House type, 3B 5P Plans and Elevations, drawing number: sw49 (04) S500
- Presili & Brecon, House Types, 2B 4P, Plans and Elevations, drawing number: sw49 (04) S600
- Tryfan House Type, 3P 5P Plans & Elevations, drawing number: sw49 (04) S700
- Presili & Brecon, House Types, 2B 4P, Plans and Elevations, drawing number: sw49 (04) S800
- Plots 229 -240, 2P 3B Flats, Plans and Elevations, drawing number: sw49 (04) G100
- Plots 241- 248, 2P 3B Flats, Plans & Elevations, drawing number: sw49 (04) G200
- Topographical Survey, drawing number: 2396
- Highway Layout Sheet 1 of 4,drawing number: sw49 (ENG) 700
- Highway Layout Sheet 2 of 4,drawing number: sw49 (ENG) 701
- Highway Layout Sheet 3 of 4,drawing number: sw49 (ENG) 702
- Highway Layout Sheet 4 of 4,drawing number: sw49 (ENG) 703
- Highway Layout Pavement Construction Sheet 1 of 4, drawing number: sw49 (ENG) 710
- Highway Layout Pavement Construction Sheet 2 of 4, drawing number: sw49 (ENG) 711
- Highway Layout Pavement Construction Sheet 3 of 4, drawing number: sw49 (ENG) 712
- Highway Layout Pavement Construction Sheet 4 of 4, drawing number: sw49 (ENG) 713
- Construction Details and Cross sections, sheet 1 of 2, drawing number: sw49 (ENG) 714
- Construction Details and Cross sections, sheet 2 of 2, drawing number: sw49 (ENG) 715
- Drainage Details, drawing number: sw49 (ENG) 504
- Combined Foul and Surface Water Drainage Strategy, drawing number: se49 (ENG) 520
- Landscape Layout, drawing number: A079274 LA1[B]
- Planting Details 1 of 7A079274 LA2[B]
- Planting Details 2 of 7, drawing number: A079274 LA3[B]
- Planting Details 3 of 7, drawing number: A079274 LA4[B]
- Planting Details 4 of 7, drawing number: A079274 LA5[B]
- Planting Details 5 of 7, drawing number: A079274 LA6[B]
- Planting Details 6 of 7, drawing number: A079274 LA7[B]
- Planting Details 7 of 7, drawing number: A079274 LA8[B]

4.3 In addition, the following documents accompany the application:

- Design and Access Statement
- Code for Sustainable Homes, Pre-Assessment Specification, Version 1

- Transport Assessment
- Statement of Community Consultation

VISION

4.4 The vision for the application site is to develop a well-integrated residential development that responds to its riverside location, promotes national and local planning policy aims whilst providing an attractive place to live for future occupiers with particular regard given to the enhancement of the existing public right of way and ecological features to benefit existing and future local residents.

4.5 It is considered the vision has been achieved through an iterative process involving early consultation with key stakeholders including Newport City Council Planning Departments and other key departments including Highways, Ecology and Landscaping.

4.6 Natural Resources Wales (NRW) and Dwr Cymru Welsh Water (DCWW) were also consulted to discuss key issues at the application site including ecological features, potential drainage options and flood risk at the site.

4.7 In addition to this, a comprehensive set of surveys and investigations were carried out to identify the opportunities and constraints at the Site. Surveys in relation to the following have informed the preparation of this ES and informed the final design of the scheme:

- Ecology
- Landscape Impact
- Air Quality
- Noise Assessment
- Potential for Site Contamination
- Transportation Impacts
- Flooding and Drainage

4.8 A public consultation was held on the 4th and 7th December 2013 at Glan Usk Primary School to inform local residents of the plans to develop the site and gain feedback from the local community.

4.9 The consultation was helpful in highlighting concerns the local residents had in relation to the scheme and provided local residents with an opportunity to make suggestions to improve the scheme. The applicant, as far as possible, sought to react to residents' concerns and ideas.

4.10 The information gathered relating to the application site through surveys undertaken at the site, involvement with key stakeholders and the applicant's aspirations for the development have led to the evolution of the site layout to its current form. The key features that have been considered when developing the site include the following:

- Raising land to address flooding
- Retention and improvement of Public Right of Way
- Integrated landscaping plan to complement riverside location and reduce landscape impact and visual impact of development
- Inclusion of bund to provide protection for otters and the river bank habitat
- Retention, enlargement and inclusion of lottery's reen within residential scheme
- Provision of residential dwellings including a mix of houses and apartments

- Provision of parking
- Adoptable standard road network
- Consideration of noise sensitive locations

4.11 The site layout is included in appendix 4.1 and the remainder of this chapter described to development proposed.

LOCATION OF DEVELOPMENT

4.12 The application site is located in the St. Julian's area of Newport on the east banks of the river Usk directly south of the recently developed Glan Usk Primary school. A more detailed description of the site's location is included in the preceding chapter, Chapter 3: Site Context.

4.13 The proposed residential development will be located within the red lined area identified on the site location plan which accompanies the planning application and included in Appendix 3.1. The red line area encompasses 5.83 hectares of land including areas dedicated to landscaping and ecological mitigation. These areas will not be subject to built-up development but incorporated to secure enhanced landscaping and protection to ecological features through the planning application. The development of the proposed dwellings and associated infrastructure will cover approximately 5.03 hectares of the application site.

4.14 The application site is not within the applicant's ownership and relevant landowners have been notified of the submission of this application.

THE QUANTUM OF DEVELOPMENT

4.15 Full planning permission is sought for 248no. dwellings and associated works including parking, new highways, ecological areas, landscaping and the provision of a riverside walkway.

LAYOUT

4.16 The predominant design of the layout is in the form of linear rows of houses in perimeter blocks served by an interlinked road and footpath network to reflect the existing urban grain.

4.17 The primary access point to the Site is via the most southern boundary of the site and the convergence of Collier Street and Courtney Street. This access point is devoid of built up development has specifically been designed this way to retain the open, green nature of the existing entrance to the site. This ensures the access of the Site is a welcoming environment which invites local residents to access and continue to use the existing right of way. The omission of built development in this area also protects the amenity of Morgan Street and Courtney Street.

4.18 Further north of the primary access point along the narrow portion of the site three storey apartment blocks (three in total) are proposed. The linear nature of the application site in this location lends itself well to the development of flats since they require less amenity space than other types of residential units.

4.19 Further north of primary access point application site widens slightly therefore larger apartment blocks are proposed. Despite this area widening it is still considered most suitable for apartment blocks given the lesser amenity space requirement.

4.20 Furthermore, this area of the application site is located immediately adjacent to the existing industrial estate and there is potential for noise pollution that could adversely impact future outside amenity areas, as identified in the Chapter 12: Noise of this ES. This further reaffirms the suitability of this area of the application site for apartments as opposed to houses given the reduced amenity area and this approach was recommended by Chapter 12: Noise.

4.21 Parking to the apartments units along this parcel of the application site is primarily proposed to the rear and side to enable increased green, landscaping areas along the primary access to the development.

4.22 It is considered the dwellings proposed along the narrow strip of the Site represent the best design solution given the constraints described above. The proposed apartments provide substantial natural surveillance to the access road, riverside walkway and parking areas.

4.23 The wider parcel of the site, as mention earlier in Chapter 3: Site Context, is split into two distinct parcels which has dictated how these areas have been designed.

4.24 The furthest land parcel to the north has a mix of apartments and houses. The apartments are proposed along the north eastern boundary separated from the railway line by the existing trees and vegetation which provides a convenient natural buffer between the proposed development, railway line and the existing residential development on the opposite side of the railway.

4.25 Apartments are proposed in this location to prevent any overbearing or dominating relationship with Glan Usk Primary School. These apartment blocks are, however, considered key to providing natural surveillance of the footpath being retained along the northern boundary which leads to the subway which links the site to Charnwood Road. The subway is a known area for anti-social and criminal activity and therefore increased over looking will improve local community safety.

4.26 Further west to the apartments blocks mentioned above a mixture of terrace and semi-detached dwellings are proposed. These dwellings are proposed in a perimeter block formation lined by an almost loop road, which to the south is adjacent to the reen and to the north adjacent to the school boundary. These roads do not connect and are each terminated by a turning head.

4.27 This area has been designed with particular consideration of the school and all dwellings are orientated, as far as possible, away from direct views towards the school whilst mindful that the existing footpath is well overlooked. It is considered the positions of the dwelling in these areas successfully balance the amenity of the school whilst also improving community safety.

4.28 The houses proposed furthest west on this parcel of land are a row of terraced dwellings orientated towards the river Usk to take advantage of the views of the river and expanse of open green area in this area leading to the Glebelands. These dwellings also provide an active frontage to the river to encourage the use and accessibility of the river front walkway, a key aim of Newport City Council as discussed further in Chapter 5: Planning Policy Context.

4.29 The land parcel discussed above is separated from wider site to the south by Lottery's Reen.

4.30 The proposed layout incorporated Lottery's Reen and enlarges it to enhance and protect its ecological value whilst also providing green break within the development to enhance the visual amenity of the scheme. The enlargement of Lottery's Reen also has benefits in terms of providing flood storage and this is discussed in more detail in Chapter 9: Flood risk.

4.31 The land south of Lottery's Reen is the largest land parcel of the application site and provides the greatest opportunity within the Site to mirror the existing urban grain through more uniform perimeter form development served by a series of interlinking loop roads.

4.32 The dwellings located to the west of this area are orientated towards the River Usk. These dwellings include predominantly houses with two apartment blocks located on the corner of the perimeter blocks, please refer to site layout included in Appendix 4.1. The benefit of dwellings fronting the river Usk has been discussed above.

4.33 It is proposed to development a row of housing along the eastern boundary (plots 152- 180), adjacent to the railway line. These dwellings compromise of a mix of two and three bed units within a range of terrace and semi-detached units. These units are set away from the railway boundary by a minimum of 16.5 metres to a maximum of 32 metres including the retained vegetation and proposed rear gardens. These dwellings will be separated from the railway line by tree planting and native scrub planting. It is considered the relationship between the proposed dwellings and the railway line is acceptable. The noise generation from the railway line has been assessed and it is considered not to cause an adverse impact on the future residents, for further details please refer to Chapter 12: Noise.

4.34 Plots 152 – 180 do not have adverse impact on dwellings located on the opposite side of the railways achieving privacy distances of approximately 39 metres to 59 metres which is ample distance to predict neighbour amenity.

4.35 Plots 103-107 and plots 148- 151 are located adjacent to the industrial estate to the south. This has been assessed in the noise assessment and is considered an acceptable arrangement providing a 2.6 metre façade. The 2.6 metre façade will be provided in the form of an acoustic fence along the effect boundary.

4.36 Centrally to this part of the Site a number of plots are front to front, for example, plots 114 to 116 front plots 118 to 121. It has been ensures where this relationship exists privacy distances of at least 21 metres achieved in accordance widely accepted privacy distances.

4.37 The layout also retains the public right of way along the riverside which stretches from the main entrance of the Site at Collier Street/Courtney Street to the Glebelands to the north. The path is 3 metres wide to encourage pedestrians and cyclists to use the path and tree lined for its full length. It is well overlooked by the plots along the west of the site all of which, as mentioned above, are orientated towards the path.

SITE ACCESS

4.38 The proposed scheme has three access points, one of which will provide vehicular access.

4.39 The vehicular access point is located at the corner of Collier Street and Courtney Street, in the same location as the existing vehicular access and represents the primary access point for the development. It is proposed to improve this access to enable it to support increase traffic generation associated with the proposed development. The improvements include the re-grading of land create a more level access and a roundabout junction. This access point will provide access to pedestrians.

4.40 An improved vehicular access will be provided via the primary access to the Sea Cadets hall located to the east of the Site. The current access lane to this facility is included as part of the development and will not be accessible. The new access to the sea Cadets hall is an improvement and will benefit the users of this facility.

4.41 The application site has an existing right of way located across it which leads from the south stretches alongside the river Usk linking to the Glebelands in the north, a plan indicating the right of way is included in appendix 3.2. The legal right of way is currently an informal, unlit route without natural surveillance.

4.42 The right of way will be retained and enhanced as part of this proposal. The enhancements include the formalising the right of way by surfacing it, widening it to 3 metres and lighting it will appropriate street lighting that will not negatively impact on the ecological features of the river Usk. This will create an attractive riverside walkway and contribute towards the continuous riverside walkway promoted by Newport city Council, this discussed in further detail below.

4.43 The riverside walkway will link to the primary access to the south and Glebelands Park to the north.

4.44 A pedestrian only access is proposed to the south of the application site where it meets the south of Morgan Street, slightly north east of the primary access. Due to the topography of the site in this location the access will be via steps and a winding path that will link to the footpath to the east of the proposed internal road. The addition of a pedestrian access off Morgan Street was included following the requests of local residents along this street following the public consultation events.

4.45 The proposed riverside walkway will link to two pedestrian access points to the north of application site which link to the Glebelands Park to the north west and to the subway to the north east which links the Site to Charnwood Road on the eastern side of the railway line.

4.46 The applicant is required to maintain an emergency access route from the primary access to Glan Usk Primary school. It is proposed to provide a link via a turning head located adjacent to the northern boundary with the school. An emergency access route will be maintained through the construction phase.

MOVEMENT AND CIRCULATION

4.47 The proposed site layout proposes an internal street network which is legible, provides delineation of pedestrian and vehicle routes and integrates well with the existing highway and pedestrian network.

4.48 The existing right of way will be retained and enhanced as part of this proposal, as discussed above.

4.49 The application site well served by public transport, with a number of scheduled bus services connecting Newport with destinations such as Cardiff, Cwmbran, Pontypool and Monmouth. Existing bus stops are located on Caerleon Road. The development of the application site will not impact upon the existing bus services.

4.50 The proposed site layout also provides convenient pedestrian access routes to the wider St. Julian's area and local amenities at both the southern and northern boundaries of the Site.

OPEN SPACE

4.51 The application site is located adjacent to two recreational areas, the Glebelands to the north and a local area of play (LAP) to the south.

4.52 The Glebelands is a large open green area comprising playing fields, walking routes and a play area with equipment for small children. This area is publicly accessible and from the application site.

4.53 The LAP to the south of the site is located centrally to Collier Street, Courtney Street and Turner Street. This, like the Glebelands is also publically accessible.

4.54 Given the recreational facilities located within such close proximity to the application site it is not proposed to provide a recreational open space at the application site. The riverside walkway, however, will be provide a recreational along the whole stretch of the western boundary of the site along the riverside which will link the application site to both the Glebelands to the north and the LAP to the south. This route will enable both pedestrians and cyclist access to the riverside.

4.55 The provision of the riverside walkway will also promote Newport City Council's vision for the River Usk which is to increase accessibility to the river by providing a continuous attractive walkway the adjacent to the banks for its whole stretch throughout the Newport administrative authority. The provision of the riverside walkway at the application site supports this vision and provides an attractive, safe route to key recreational facilities within the locality.

4.56 The proposals also retained of Lottery's reen which, as discussed in chapter 3, bisects the application site from east to west towards the north of the site. The reen will be enlarged in width, cleared of all rubbished and planted with reeds to create an attractive green area within the development site. This will also enhance the ecological features of the reen. The reen will not be publicly accessible but will be adjacent to a footpath providing an attractive welcoming pedestrian route within the development. Part of the reen, approximately 180 metres, will be culverted to allow for the development but the enlargement in width, and

other ecological enhancements (discussed in Chapter 7: Ecology and Nature Conservation) is considered suitable mitigation for this loss.

LANDSCAPING

4.57 Along the River Usk care has been taken to ensure that the landscape proposals avoid disturbance of the river-bank/SAC habitats. Manipulation of landform between the footpath and the top of the riverbank allow the area to be maintained as open grassland with areas of native scrub whilst discouraging walkers from entering these sensitive habitats. The planting proposals achieve a balance between maintaining separation between the proposed development and the Special Area of Conservation (SAC) along the River Usk whilst creating an attractive route for pedestrians.

4.58 The planting proposals along the river edge of the development help to integrate the development into its surroundings and filter views of the proposed built development from the west. Planting will help to break up the outline of the houses in views from the west. The proposals avoid the creation of continuous or dense screen planting that would cause shading of the retained grassland habitats. It aims to maintain views towards the river from the development. Informal groups of trees help to soften the appearance of the development from Shaftesbury Park and the west.

4.59 The proposed ecological enhancement of Lottery's Reen and the green space to the south maintains an attractive 'natural' space within the development. Wetland planting with areas of scrub compensates for the reduction in the length of the reen, but the approach also reflects the existing semi-natural habitats along the river.

COMMUNITY SAFETY

4.60 Natural surveillance is encouraged throughout the site layout by virtue of the positioning and orientation of dwellings towards key routes through the site including the riverside walkway and the footpath to the north. Window orientation has also been designed to ensure parking area are well overlooked in both public parking areas that serve the apartment blocks and semi-private parking areas associated with the houses.

4.61 The perimeter block formation avoids back alleys and secluded areas which could attract crime and anti-social behaviour.

4.62 Moreover, the site development brings currently vacant site back into beneficial use which enhances the safety for the users of the Glan Usk Primary School, pedestrians that use the existing right of way and the existing industrial uses to the south.

ENVIRONMENTAL SUSTAINABILITY

4.63 The dwellings on site are required to attain a minimum of Level 3+ under the Code for Sustainable Homes, including a mandatory 1 credit requirement for Ene 1 – Dwelling Emission Rate. This is in line with the requirements of the Welsh Government's guidance in Planning Policy Wales at section 4.11.4.

4.64 In this regard, a Code for Sustainable Homes Pre-Assessment has been which accompanies this planning application submission and indicates all dwellings achieve a score of 58% or above, which is code level 3+ thus meeting the Welsh Government's required standard. The Pre-Assessment outlines the credits that are being targeted and predicts the score each dwelling type is likely to achieve.

DRAINAGE AND ENGINEERING OPERATIONS

4.65 It is proposed to provide separate foul and surface drainage systems and to implement Sustainable Urban Drainage System (SUDS) for surface water drainage where possible. The key aim of the drainage strategy in terms of the surface water is to ensure the hydrological status quo is retained thereby ensuring that the flood risk to third parties is not exacerbated.

4.66 The surface water drainage strategy comprises two distinct disposal methods.

4.67 The narrow strip forming the southern half of the development is an infiltration based design, with all impermeable areas such as roofs and footpaths draining to ground via soakaways or other forms of infiltration. The estate road and plot driveways in the southern strip are of permeable block paving construction.

4.68 The remainder of the development to the north is served by a proposed piped surface water drainage system with no inherent flow/source control, which collects all impermeable area runoff and discharges to Lottery's reen at three separate points. Discharge to the watercourse is unattenuated on the basis that downstream properties will not be affected due to the tidal nature of the watercourse outfall to the River Usk and the large capacity of the river at this location.

4.69 Notwithstanding the above, the watercourse is to be locally widened and reshaped as part of the development landscaping proposals to provide a wetland area, as discussed earlier. In addition to the enhanced ecological and amenity value afforded by this area, the additional flood storage provided will help to mitigate future flood risk in storm conditions

4.70 Foul water discharge will be disposed of via the main sewerage network. Discussions have been undertaken with DCWW and it is proposed to connect the foul water generated by the development via three points of connection which have been agreed in principle by DCWW. The connection points are:

- a new manhole connection in the rear garden of plot 164/165 near the eastern site boundary
- connection to an existing manhole on the footpath in front of the adjacent primary school at the northern site boundary
- a new manhole connection in the proposed estate road along the western site boundary near block 229-234.

4.71 These points are shown on the Drainage Strategy Plan included in Appendix 10.1.

4.72 It is proposed to build all on-site sewerage to adoptable standards including specific requirements of the adopting authority, in this case DCWW.

4.73 This chapter has provided a detailed description of the proposed project. The following chapters provide the technical basis against which the proposals were devised.

LAND SOUTH OF GLAN USK PRIMARY SCHOOL , HERBERT ROAD NEWPORT

ENVIRONMENTAL STATEMENT

VOLUME 2
CHAPTER 5: PLANNING POLICY CONTEXT

5. PLANNING POLICY CONTEXT

INTRODUCTION

5.1 This section considers the predicted effects of the proposed Herbert Road development on planning policy. It includes only those impacts, which directly affect, either beneficially or adversely, policies and plans within the development envelope of the site. It is based upon the information available and contained within the scoping opinion request from Newport City Council in accordance with Regulation 10 (i) of the Town and Country Planning (Environmental Impact Assessment) (England and Wales) Regulation 1999, submitted in August 2013.

ASSESSMENT METHODOLOGY

5.2 The assessment of the impact of the proposed development upon relevant policy begins by identifying relevant policy (at both a local and national level). Because of the nature of the receptors it is not considered that a scale of significance to measure the extent of impact is appropriate and nor would it be appropriate to assess the scheme independent of any mitigation, or separately for construction and operational phases. As such the overall anticipated impact of the proposed development on each of the identified policies will simply be assessed using the assessment criteria adverse, beneficial or neutral.

5.3 The following policies to national, regional and development planning guidance, taking into account the following:

i. Planning Policy Wales 5th Edition (2012)
ii. Technical Advice Note (TAN) 1: Joint Housing Availability Studies (2006)
iii. Technical Advice Note (TAN) 2: Planning and Affordable Housing (2006)
iv. Technical Advice Note (TAN) 5: Nature Conservation and Planning (2009)
v. Technical Advice Note (TAN) 8: Energy Efficiency (2005)
vi. Technical Advice Note (TAN) 12: Design (2009)
vii. Technical Advice Note (TAN) 15: Development and Flood Risk (2004)
viii. Technical Advice Note (TAN) 18: Transport (2007)
ix. Technical Advice Note (TAN) 21: Waste (2001)
x. Technical Advice Note (TAN) 22: Sustainable Buildings (2010)
xii. Welsh Office Circular 20/01: New Guidance for Local Planning Authorities on European Protected Species and Changes in Licensing Procedures
xiii. Newport Unitary Development Plan 1996 – 2011 (Adopted May 2006)
xiv. Supplementary Planning Guidance
xv. Newport Revised Deposit Local Development Plan (June 2013)

BASELINE CONDITIONS

5.4 The following represents the review of relevant planning policies / guidance notes and planning applications pertinent to the proposed Herbert Road development.

Planning Policy Wales 5th Edition (Nov 2012)

Section 4.6: Priorities for urban and rural areas

5.5 The guidance recognises the important function of urban areas and one of the priorities is to: *'secure environmentally sound and socially inclusive regeneration to those urban areas which require it, so that they become more desirable places to live and work'.*

Section 4.7 : Sustainable settlement strategy: locating new development

5.6 The policy encourages local authorities to: *'promote sustainable patterns of development, identifying previously developed land and buildings, and indicating locations for higher density development at hubs and interchanges and close to route corridors where accessibility on foot and by bicycle and public transport is good'.*

Section 4.9: Preference for the re-use of land

5.7 The guidance states that previously developed (or Brownfield) land should wherever possible be used in preference to Greenfield sites.

Section 4.11: Promoting sustainability through good design

5.8 The guidance note states that good design could protect the environment and enhance its quality. It also states that local planning authorities and developers should consider the issue of accessibility for all.

Section 3.3: Environmental impact assessment

5.9 The guidance note describes the Environmental Impact Assessment (EIA) process, what should be included in the assessment and when it is necessary to carry out an EIA.

Section 5.2: Caring for biodiversity

5.10 The guidance note introduces the UK Biodiversity Action Plan (UKBAP) and describes its objectives, which include the conservation and where practicable, the enhancement of: '***populations of native species and wildlife, quality and range of wildlife habitats, internationally important and threatened species, species, habitat and natural managed ecosystems characteristic of local areas and biodiversity of natural and semi-natural habitats where this has been diminished over recent decades***'

Section 5.3: Measures to conserve landscape and biodiversity: Statutory designations

5.11 The policy states that: *'**the Assembly will ensure that international responsibilities and obligations for conservation are fully met, and that, consistent with the objectives of the designation, statutorily designated sites are protected from damage and***

deterioration, with their important features conserved by appropriate management'.

Section 5.5: Development control and the conservation and improvement of the natural heritage

5.12 The policy advises how biodiversity and landscape issues should be taken into account in determining planning applications. Of particular relevance is part 5.5.9, which refers to the need for EIA where a development is likely to affect a designated area such as a Special Area of Conservation (SAC). Additionally, part 5.5.11 advises that the presence of a species that is protected under European or UK legislation is a material consideration, if the development is likely to disturb or harm that species or its habitat.

Section 7.2: Planning for Economic Development

5.13 Part 7.2.1 states that plans and decisions should be based on up to date and locally specific evidence which demonstrates the suitability of the existing employment land supply.

Section 8.2: Promoting walking and cycling

5.14 The guidance seeks to promote opportunities for walking and cycling through the development plan system.

Section 8.4: Managing traffic and parking

5.15 Part 8.4.2 states that local authorities should ensure that new developments should provide lower levels of parking than have generally been achieved in the past and minimum parking standards are no longer appropriate.

Section 9.3: Development management and housing

5.16 The guidance states that new housing developments should be well integrated and connected to existing patterns of settlement. Additionally, the guidance recognises that high quality design and landscaping standards are important to enable high-density developments to fit into existing residential areas.

Section 12.4: Development management and water

5.17 The policy outlines that adequacy of water supply and sewage infrastructure is material in considering planning applications. Development proposals in sewered areas must connect to the main sewer.

Section 12.7: Development management and waste planning

5.18 The guidance states that: *'adequate facilities for the collection, composting and recycling of waste materials should be incorporated into the design of any major development'.*

Section 13.2: Flood risk and climate change

5.19 The policy states that consideration should be given to flood risk in land use planning and outlines how local authorities should approach flood risk issues.

Section 13.3: Development plans and flood risk

5.20 The policy advises that local planning authorities should consult with other authorities and the Environment Agency (now NRW) to ensure that as well as not being at risk itself, development should not increase the likelihood of flooding elsewhere.

Section 13.4: Development management and flood risk

5.21 The guidance outlines the need to work closely with the Environment Agency when planning a development within areas of flood risk.

Section 13.7 Development management and contaminated land

5.22 Planning decisions need to take into account the potential hazard that contamination presents to the development itself, its occupants and the local environment.

Technical Advice Notes (TANs)

TAN 1: Joint Housing Land Availability Studies

5.23 The advice note describes the process for undertaking Joint Housing Land Availability Studies. The purpose of the studies is to: ***'Monitor the provision of market and affordable housing, provide an agreed statement of residential land availability for development planning and control purposes, and set out the need for action in situations where an insufficient supply is identified'.*** The advice note also states that local planning authorities must ensure that sufficient land is genuinely available to provide a five-year supply of land for housing.

TAN 2: Planning and Affordable Housing

5.24 The advice note outlines the general concept of affordable housing being; ***'the ability of households or potential households to purchase or rent property that satisfies the needs of the household without subsidy'***. The guidance requires local planning authorities to: **'*include an affordable housing target in the development plan which is based on the housing need identified in the local housing market assessment, indicate how the target will be achieved using identified policy approaches and monitor the provision of affordable housing against the target and where necessary take action to ensure that the target is met'.***

TAN 5: Nature Conservation and Planning

5.25 The advice note summarises issues relevant to nature conservation and planning. This includes advice on the protection of species and development plans in protected areas such as Sites of Special Scientific Interest (SSSI), Special Protection Areas (SPA) and Special Areas of Conservation (SAC) among others. It is stated that when a SAC will be potentially affected by a proposed development, an Environmental Impact Assessment

(EIA) will usually be required. Additionally if the proposals are likely to have a significant effect on the site, then an Appropriate Assessment of the development's implications will need to be carried out as required by the Habitats Regulations 1994.

TAN 8: Renewable Energy

5.26 The advice note addresses issues relating to renewable energy, energy efficiency, and energy conservation and planning. Of particular relevance is Section 4.0 of the advice note, Design and Energy and Section 5.0, Implications for Development Plans. These sections address how new developments can be more energy efficient and outlines guidance the Welsh Assembly consider best practice (i.e. EcoHome scheme for residential developments and BREEAM scheme) for non-residential developments.

TAN 12: Design

5.27 The advice note recognises the Assembly Government's commitment to achieving good design in all developments at every scale throughout Wales. The advice note details how this can be achieved within the planning system.

5.28 Section 5.0 describes in more detail on how good design can be integrated into developments under several sub-headings. Of particular relevance to this project are: transport and movement, biodiversity, urban regeneration, the public realm, housing design and layout, employment and commercial areas, resource efficient layout, resource efficient layout and design and public safety.

TAN 15: Development and Flood Risk

5.29 The advice note highlights issues relating to planning and flood risk, including background information regarding flooding, such as climate change, development advise maps, assessing flooding consequences, action through development plans and development control.

TAN 18: Transport

5.30 The advice note covers all aspects of transport and the planning system. Sections 12-16 address "Complementary Transport Measures" with specific reference to pedestrians and cyclists. Local authorities are encouraged to promote the development of facilities for these users. Other issues addressed in the TAN, which are relevant to the development include: traffic management and parking.

TAN 21: Waste

5.31 The advice note covers a range of planning issues relating to waste, including how compliance with legislation should be met (i.e. The Waste Framework Directive, The Landfill Directive and the Waste Strategy 2000). Of most relevance in terms of the development are issues described under the following sub-headings: sustainable waste management, planning considerations in waste issues and construction and demolition waste.

TAN 22: Sustainable Buildings

5.32 The advice note sets out the Welsh Government's land use planning policies in respect of planning for sustainable buildings. This includes a national development

management policy on planning for sustainable buildings that expects minimum sustainable building standards to be achieved for most new planning applications for residential and non-residential development.

Welsh Office Circular 20/01: New Guidance for Local Planning Authorities on European Protected Species and Changes in Licensing Procedures

5.33 The circular informs local planning authorities in Wales of the new licensing procedures under EC Directive 92/43/EEC (the Habitats Directive) for developments affecting European Protected Species, of which otters and various aquatic species associated with the River Usk are included.

Newport City Council Unitary Development Plan 1996 – 2011 – Adopted May 2006

5.34 Newport City Council is required under the Town and Country Planning Act 1990, to produce and keep under review a Unitary Development Plan (UDP). Although time expired the UDP will remain as the statutory document until replaced by an adopted Local Development Plan.

5.35 In the adopted UDP the site largely corresponds with proposed housing site H1 (5) Glebelands (2.83 hectares, 153 dwellings). It is identified as an existing commitment as the planning permission originally granted for the primary school to the north (now implemented) included the site as a residential component associated with the Private Finance Initiative which aimed to cross subsidise construction of the school.

5.36 Land extending along the riverfront to the south is also included within the application site boundary, which is identified as an Environmental Space under Policy CE33.

5.37 Key to the overall plan strategy is its emphasis on the regeneration of 'brownfield' sites. Newport had a considerable amount of regeneration sites, a large proportion of which have now been developed, and their redevelopment was a key aim to the plan.

5.38 The UDP is divided into two parts, which deal with strategic and detailed policies. Policies, which are relevant to the project, are listed below:

Strategic Policies

5.39 SP1 – Sustainability – the policy includes support for energy conservation, access to public transport and provision of facilities for walking and cycling, the re-used of previously developed urban land, the conservation and the enhancement of the natural and built environment, improving the environment; facilities and services for the wider community and the minimisation and reuse of waste.

5.40 SP2 – Quality of Development – high quality design is sought in all development proposals, which enhance the site and surrounding area to the benefit of the community as a whole.

5.41 SP7 – Conservation of the Natural Environment – in areas designated for their nature conservation value, or where there are resources of historic and archaeological importance, development will only be permitted if it conserves or enhances the features, which produce the special character.

5.42 SP 9 – Conservation of the built environment – Buildings or groups of buildings of architectural or historic interests and also other features that contribute to the quality of the built environment will be protected and where appropriate, enhanced.

5.43 SP10 – Housing – allocation of sufficient land for housing throughout the plan period.

5.44 SP11 – Planning Obligations – Where it is relevant, necessary and directly linked in scale and kind to a development proposal benefits for the community will be sought.

5.45 SP12 – Transport and Communication – encouragement of more energy efficient transport, particularly cycling and walking. This in turn will help urban regeneration and will provide access to new development areas.

5.46 SP13 – Integrated Transport – Among other things the council's integrated transport strategy will encourage: co-ordinated pedestrian networks and facilities for public transport, walking and cycling within new developments.

5.47 SP17 – Urban Regeneration – favours proposals, which assist in the regeneration of the urban area.

5.48 SP18 – Retailing – Retailing proposals in or adjoining the city centre will be permitted where they enhance the retail function of that centre, and are an appropriate scale for that centre.

5.49 SP22 – Waste Disposal – a hierarchical approach to waste management is favoured as follows:

- Waste reduction
- Reuse
- Recycling
- Composting of organic waste
- Incineration with energy recovery
- Safe disposal

5.50 SP23 – Public Utilities – utilities service provision should seek to minimise impact on the natural and built environment consistent with the siting requirements of the utility companies.

5.51 SP27 – Flood Consequence Assessment – where flood risk is identified as a constraint, developments will only be permitted where a detailed assessment of flood risk has been undertaken to ensure that:

- The nature of the proposed development is acceptable in terms of flood risk
- The development is designed to cope with the consequence of flooding
- The funding and maintenance provision is appropriate for the lifetime of the development.

Conservation and the Environment

5.52 CE4 – relates to landscaping schemes. A landscape design statement should accompany planning applications for significant and prominent developments.

5.53 CE5 – relates to proposals affecting European or Ramsar sites. Where there is anticipated to be an adverse effect, the development will only be permitted if it is directly necessary for the beneficial management of the site or if there are imperative reasons of overriding public interest for the development and there are no alternative solutions. Where the site also hosts a priority natural habitat or species, development will only be permitted if it is directly necessary for human health, public safety or it is directly connected with the beneficial management of the site.

5.54 CE6 – development affecting national sites (e.g. Sites of Special Scientific Interest) will only be permitted if the development does not unacceptably adversely affect the site or if the reasons for the development clearly outweigh the value of the site itself.

5.55 CE8 – relates to replacement habitats. Where some or all of a designated site are to be lost, the developer will be expected to create replacement habitat and make provisions for its long-term management.

5.56 CE9 – species protected by European legislation – consent will not be given where development would disturb or adversely affect protected species, unless no alternative location exists and it can be established that the development would not be detrimental to the protected species.

5.57 CE10 – species protected by UK legislation – development only permitted where it can be mitigated.

The Built Environment

5.58 CE30 – urban regeneration schemes will be encouraged particularly those, which result in, the protection and enhancement of the built and natural environment, re-use of vacant and derelict land and a reduction in the adverse effects of road traffic.

5.59 CE31 – in predominantly residential areas the maintenance and improvement of environmental quality for residents will be sought.

5.60 CE33 – areas identified for having importance for visual qualities, biodiversity or recreation/amenity (Environmental Spaces), development will be permitted where either i) environmental qualities are approved; ii) no site with recognized environmental qualities is adversely affected; loss of a facility can be replaced.

5.61 CE36 – the council will undertake the reclamation of derelict land and environmental improvement to prevent additional or reversion to dereliction. The Banks of the Usk are listed as a priority location.

Design of Development

5.62 CE38 – concerned with achieving a good quality of design, which takes on board a number of principles, which aim to create a safe, attractive and convenient environment.

5.63 CE39 – proposals for new residential developments should respect or complement existing surroundings or neighbouring buildings in terms of scale, design, materials, siting, density and layout.

5.64 CE44 – adequate arrangements for securing an accessible environment for everyone will be required in the development proposals, especially where the public would reasonably require having access.

5.65 CE45 – safety and security should be taken into account when designing a scheme, particularity in relation to building location, design and location of parking, open spaces and landscaping, access provision and lighting arrangements.

Housing

5.66 H1 – identifies sites of ten or more dwellings allocated for housing and includes the site as described above.

5.67 H2 – states that residential developments will only be permitted within settlement boundaries if they conform to several criteria such as: not an unacceptable loss of open space valued for its amenity or conservation value, there will not be a significant adverse effect on amenities for local residents, adequate open space will be provided onsite or nearby etc.

5.68 H5 – states that new housing developments on a substantial scale within settlement areas should contain a mix of housing types and sizes to capable of meeting a range of housing needs.

Transport

5.69 T14 – encourages the creation of safe cycleways and walkways including access along the riverbanks, watercourses and coasts where practicable.

5.70 T16 – states that any public right of way affected, development will require retention or the provision of a suitable alternative.

Urban Regeneration

5.71 ED5 – the development of derelict, unsightly, underused and vacant urban land will be permitted provided that any development or activity is compatible with the surrounding land uses.

5.72 ED15 – tourism related development would be encouraged through appropriate urban regeneration schemes and initiatives including construction of continuous riverside promenades and cycleways along both banks of the Usk.

Recreation, education and community facilities

5.73 CF4 – Open Space Standards – provision of open space at a minimum standard of 2.4 hectares per 1000 population will be sought on all new housing developments.

5.74 CF6 – public access along both east and west riverfronts will be encouraged where practicable. Joint use by pedestrians and cyclists will be implemented through appropriate design and legislation.

Utilities, flood risk, energy and pollution

5.75 U1 – operational development of utility services will be permitted for new and existing developments subject to conditions.

5.76 U3 – Planning permission will only be granted where the development can be served by a satisfactory foul sewer system.

5.77 U4 – developers should seek to incorporate sustainable drainage systems in to development proposals.

5.78 U5 – Planning permission will only be granted if a development does not result in demand for water that cannot be adequately met, has an unacceptable impact on the quality or quantity of surface or groundwater or has an unacceptable adverse effect on the integrity of watercourse corridor, water features, nature conservation interest, archaeological interest or landscape features.

5.79 U6 – developments that could increase the risk of flooding due to increased surface water run-off must include appropriate and environmentally sympathetic measures.

5.80 U7 – flood plans have been identified within the valleys of the River Usk, Rhymney, Lwyd and Ebbw and their catchment tributaries where development and land raising will not be allowed.

5.81 U8 – developments should assist in the conservation of energy by the design and layout of individual buildings and catering for cyclists and pedestrians as well as taking other measures.

5.82 U13 – proposals affecting a site that is known or suspected of being contaminated or unstable will need to be made the subject of a comprehensive site assessment in order to establish the extent and nature of the problem. Developments will then only be permitted if affective measures are taken in order to overcome any problems.

Supplementary Planning Guidance

5.83 The following relevant Supplementary Planning Guidance which has been adopted to supplement Unitary Development Plan policies is relevant to the planning application:

- Accessibility Design Guide
- Flood Risk and Sustainable Drainage Systems
- Newport Parking Standards
- Newport Public Realm Strategy
- Outdoor Play Space Provision

- Planning Obligations
- Residential Design Guide
- Wildlife and Development
- The River Usk Strategy

Newport Revised Deposit Local Development Plan

5.84 A Revised Deposit Local Development Plan was published in June 2013. The LDP when adopted will replace the adopted Unitary Development Plan.

5.85 However, as the LDP has yet to be subject to Examination procedures it does not have any status until the future Inspector decides that the prescribed Tests of Soundness have been met. As yet its policies, which largely reflect those of the UDP as applied to this site, have not been assessed in relation to these proposals.

5.86 It can be noted that on the Revised Deposit Plan Proposals Map the site continues to be identified as a housing land commitment under Policy H1 (5). As with the UDP allocation, land within the application site boundary which extends along the river to the south is not included. However this land is no longer proposed as an Environmental Space in the emerging LDP.

Planning applications

5.87 There have been a number of previous planning applications on the application site – the ones most relevant to this application are identified in the Table below:

Table - List of planning applications in the immediate area

Planning Application Reference	Description	Planning Status
00/0768	Replacement primary school, all weather pitch, soft and hard play areas & residential development	Granted with conditions
03/1531	Erection of replacement primary school, all weather pitch, soft and hard play areas and residential development (pursuant to 00/0768)	Granted with Conditions

5.88 These consents, which included residential development on the application site, have been part implemented through the construction of the primary school (Glan Usk Primary School) and therefore remain capable of completion in perpetuity. The application site, therefore, currently benefits from an extant planning permission for residential development.

ASSESSMENT OF POTENTIAL IMPACTS

5.89 Assessment of the significance of any environmental impact is based upon characteristics of the impact and the receptor. Within this assessment, magnitude of effect has been defined using the Beneficial, Neutral and Adverse categories. This represents accepted best practice methodology for assessment of policies and plans in EIAs.

5.90 An explanation of the criteria is as follows:

- **Beneficial** – where the proposals complement the objectives of the policy/ plan
- **Neutral** – where the proposal has neither a beneficial or adverse affect on the objectives of the policy / plan, or where more than one policy applies, benefits / adverse effects are cancelled out.
- **Adverse** – where the scheme adversely affects the objective for the policy/ plan.

Relevant planning policies and significance of impact

Document	Impact
Planning Policy Wales	
Section 4.6: Priorities for urban and rural areas	**Beneficial** – the scheme will help to '*secure environmentally sound and socially inclusive regeneration to those urban areas which require it, so that they become more desirable places to live and work'.*
Section 4.7 : Sustainable settlement strategy: locating new	**Beneficial** – the development reflects sustainable principals such as being located on previously developed land, being close to public transport and being of mixed-use.
Section 4.9: Preference for the re-use of land	**Beneficial** – the development is located on previously developed land (foundations of previous uses visible).
Section 4.11: Promoting sustainability through good design	**Beneficial** – the proposed development will help enhance the quality of the environment, and help attract investment through good design.
Section 3.3: Environmental Impact Assessment	**Beneficial** – an Environmental Impact Assessment is being carried out as part of the planning application for the proposed development.
Section 5.2: Caring for biodiversity	**Beneficial** –Additional vegetation will be introduced as part of the mitigation measures to be carried out as well as bunding along the embankment to deter dog walkers having an impact on otters. Additionally, relevant measures will be taken during construction in order to mitigate construction related disturbance.
Section 5.3: Measures to conserve landscape and biodiversity: Statutory designations	**Beneficial** – as above.
Section 5.5: Development management and the conservation and improvement of the natural heritage	**Beneficial** – as above
Section 7.2: Planning for economic development	**Beneficial** – the development will create employment during the construction phase
Section 8.2: Promoting walking and cycling	**Beneficial** – the development will involve the construction of a pedestrian/cycleway along the east bank of the Usk, which will help promote cycling and walking in the city centre.

Policy Topic	Impact
Section 8.4: Managing traffic and parking	**Beneficial** – the development makes provisions for car parking that will conform to the requirements of the local authority.
Section 9.3: Development management and housing	**Beneficial** – the development will integrate well with existing patterns of settlement.
Section 12.4: Development control and	**Beneficial** – there is an adequacy of water supply and sewage capacity for the development to take place.
Section 12.7: Development management and waste planning	**Beneficial** – the development has regard for the waste management objectives in the national waste strategy.
Section 13.2: Flood risk and climate change	**Neutral** – development is occurring within the flood plain but effects are being mitigated as part of the scheme with raised levels and bunds.
Section 13.3: Development Plans and flood risk	**Neutral**– the flood defences are likely to be sustainable in the long-term.
Section 13.4 Development management and flood risk	**Neutral** – the development can be justified in its riverside location, although it is a high flood risk area. Mitigation will be provided as above. It may result in the intensification of development and may increase surface run-off. However, the NRW's advice has been obtained and they are happy for the development to proceed.
Section 13.7 Development management and contaminated land	**Beneficial** – the raising of land levels with inert materials will remove potential pathways to contamination.
Technical Advice Notes	
TAN 1: Joint Housing Land Availability Studies	**Beneficial** – the development will provide residential housing, which will contribute to the local planning authority's five-year supply of land for housing.
TAN 2: Planning and Affordable Housing	**Beneficial** – A proportion of the housing supplied by the development will be 'affordable housing'.
TAN 5: Nature Conservation and Planning	**Beneficial** – the development will deliver improved bankside vegetation, which will have a positive impact on protected sites i.e. River Usk SAC and Lower Usk SSSI and protected species, including otters. Additionally, relevant measures will be taken during construction in order to mitigate construction related disturbance.
TAN 8: Renewable Energy	**Beneficial** – various energy efficient and energy saving methods have been incorporated into the design.
TAN 12: Design	**Beneficial –** the advice note has been fully considered and taken account of when developing the design for the scheme.
TAN 15: Development and Flood	**Neutral** – the development is taking place within the flood plain, however, its location in this area is justified and the

Policy Topic	Impact
	Raising of levels and bunding will mitigate the risk posed to this area by flooding.
TAN 18: Transport	**Beneficial** – the scheme will provide and integrate facilities for walking and cycling.
TAN 21: Waste	**Beneficial** – any arisings within the scheme will seek to be reused within the scheme. Additionally, the development itself will comply with relevant legislation (i.e. The Waste Framework Directive, The Landfill Directive and the Waste Strategy, 2000).
TAN 22 : Sustainable Buildings	**Beneficial** – the development will meet the minimum Code standard of 3+
Welsh Office Circulars	
WOC 23/01: New Guidance for Local Planning Authorities on European Protected Species and Changes in Licensing Procedures	**Beneficial** – the advice given in the circular will be taken account of in relation to otters when developing the scheme.
Newport City Council Unitary Development Plan	
Strategic Policies:	
Sustainability - SP1	**Beneficial** – the development provides facilities for walking and cycling
Quality of Development - SP2	**Beneficial** – development will have a high quality design which will enhance the site and surrounding area
Housing – SP10	**Beneficial** – the development will deliver a range and choice of housing including affordable elements.
Planning Obligations – SP11	**Beneficial** – where appropriate the development will contribute appropriate S 106 obligations
Transport and Communication - SP12	**Beneficial** – the riverfront treatment promotes more energy efficient transport such as cycling and walking.
Integrated Transport – SP13	**Beneficial** – the development will encourage co-ordinated pedestrian networks and facilities for public transport, walking and cycling.
Urban Regeneration - SP17	**Beneficial** – development assists with the regeneration of urban areas
Waste Disposal – SP22	**Beneficial** - any arisings within the scheme will seek to be reused within the scheme. Additionally, the development itself will comply with relevant legislation (i.e. The Waste Framework Directive, The Landfill Directive).
Public Utilities – SP23	**Beneficial** – provision of utilities to the development will seek to minimise impact on the natural and built environment consistent with the siting requirements of the utility companies.
Flood Consequence Assessment – SP27	**Neutral** – Flood risk has been adequately assessed and is not a constraint.
Detailed Policies:	
Conservation and the Environment CE4	**Beneficial** – a landscape design statement has been produced for the scheme.

Conservation and the Environment - CE5	**Beneficial** – the scheme will have benefits effects upon biodiversity interest in the River Usk by increasing the amount of saltmarsh and bank vegetation along the eastern side of the river. Additionally, relevant measures will be taken during construction in order to mitigate construction related disturbance.
Conservation and the Environment - CE6	**Beneficial** – enhanced habitat along the eastern bank of the River Usk will be provided as part of the mitigation for the scheme. Additionally, relevant measures will be taken during construction in order to mitigate construction related disturbance.
Conservation and the Environment - CE8	**Beneficial** – enhanced habitat along the eastern bank of the River Usk will be provided as part of the mitigation for the scheme.
Conservation and the Environment - CE9	**Beneficial** – the development may have an effect European and UK protected species (such as the otter), through construction disturbance and by reducing bank side vegetation, which is used by the otter for cover. Mitigation in the form of replacement and relocation of habitat will be provided and wildlife sensitive working practises will be employed.
Conservation and the Environment - CE10	**Beneficial** – mitigation for species protected by European and UK law will be provided.
The Built Environment - CE30	**Beneficial** – development will protect and enhance the built and natural environment, re-use vacant and derelict land and will help reduce the adverse effects of road traffic
The Built Environment – CE31	**Beneficial** - maintenance and improvement of environmental quality for residents will be sought.
Environmental Spaces – CE33	**Neutral –** the riverfront strip identified as an environmental space will be developed, but provision will be made to address nature conservation elements, open land will be retained along the reen and additional planting.
The Built Environment – CE36	**Beneficial** – the scheme will involve the reclamation and improvement of derelict land along the eastern bank of the River Usk.
Design of Development - CE38	**Beneficial** – the development design is of a good quality, which aims to create a safe, attractive and convenient environment.
Design of Development – CE39	**Beneficial** – the scheme will complement existing buildings and surroundings.
Design of Development - CE44	**Beneficial** – the development will be easily accessible to the public and will provide connectivity with the City Centre.
Design of Development - CE45	**Beneficial** – safety and security have been taken into account when designing the scheme.
Housing - H1 (5)	**Beneficial** – the development will take place on land set-aside for housing as part of the original Glebelands school proposals and as a housing land allocation H1 (5)
Housing – H2	**Beneficial** – the scheme which involves the development of residential properties takes account of the criteria listed in the policy for allowing residential developments within settlement boundaries.
Housing – H5	**Beneficial** – the development will include a mix of housing types and sizes capable of meeting a range of housing needs.
Transport - T14	**Beneficial** – development will create an enhanced safe walkway / cycle way along a riverbank.

Transport - T16	**Beneficial** – a new 3 metre wide footpath/cycleway will form a minor diversion to the existing route with enhanced planting along its length.
Urban Regeneration – ED5	**Beneficial** – the scheme will involve the redevelopment of unused, derelict land for residential use.
Urban Regeneration - ED15	**Beneficial** – the development will provide an enhanced promenade/ walkway along the eastern bank of the Usk.
Recreation, Education and Community Facilities – CF4	**Beneficial** – the area is already well served by play and recreational facilities, including those associated with the adjacent Glan Usk Primary School. A hierarchy of open spaces will be provided including suitable treatment of the reen corridor.
Recreation, Education and Community Facilities - CF6	**Beneficial** – the development will encourage joint access by cyclists and pedestrians along the eastern bank of the Usk
Utilities, Flood Risk, Energy and Pollution – U1	**Beneficial** – the installation of utilities for the development will conform to the guidance given.
Utilities, Flood Risk, Energy and Pollution – U3	**Beneficial** – the development can be served by a satisfactory foul sewer system.
Utilities, Flood Risk, Energy and Pollution – U4	**Neutral** – the development will probably not include SUDs because they are largely deemed unnecessary, as the development is so close to the River Usk. All run-off will however go through interceptors etc. which will ensure water quality is sufficiently good before it is discharged into the River Usk
Utilities, Flood Risk, Energy and Pollution – U5	**Beneficial** – the development will not result in demand for water that cannot be adequately met, does not have unacceptable impact on the quality or quantity of surface or groundwater and does not have an unacceptable adverse effect on the integrity of watercourse corridor, water features, nature conservation interest, archaeological interest or landscape features.
Utilities, Flood Risk, Energy and Pollution – U6	**Neutral** – the development will include appropriate and environmentally sympathetic measures.
Utilities, Flood Risk, Energy and Pollution – U7	**Neutral** – the development will take place on the floodplain of the Usk, which goes against the general aim of the policy, however the scheme is an exceptional case that will bring benefit to the area and requires a riverside location. Additionally, mitigation from flooding, in the form of a flood defence strategy will be completed first before the housing development is carried out.

Utilities, Flood Risk, Energy and Pollution - U8	**Beneficial** – development assists in the conservation of energy by encouraging sustainable transport.
Utilities, Flood Risk, Energy and Pollution – U13	**Beneficial** – the development site has been made the subject of a comprehensive site assessment in order to establish the extent and nature of any possible contamination problem. Landraising with inert materials will reduce risk of pathways for pollution.
Supplementary Planning Guidance	
Newport Parking Standards	**Negligible –** a sustainability assessment has been carried out in accordance with 'Newport Parking Standards' SPG criteria and the site qualifies for a reduced parking provision. The reduced parking provision has been provided on site.
The River Usk Strategy	**Beneficial –** the proposals include provision of riverside walkway which supports the aim of the 'The River Usk Strategy' to improve the accessibility of the river Usk along its banks within Newport administrative authority.

CONCLUSION

5.91 The assessment has established that 69 national and local planning policies will be affected by the scheme. Of these, the scheme will effect 60 beneficially, 0 adversely and 9 neutrally. The fact that the vast majority of polices considered are supported beneficially by the scheme suggests that the proposals have been well integrated within the planning framework and broadly supports national and development planning policy.

LAND SOUTH OF GLAN USK PRIMARY SCHOOL, HERBERT ROAD NEWPORT

ENVIRONMENTAL STATEMENT

VOLUME 2
CHAPTER 6: LANDSCAPE/TOWNSCAPE AND VISUAL IMPACT ASSESSMENT

6.0 LANDSCAPE/TOWNSCAPE & VISUAL IMPACT ASSESSMENT

INTRODUCTION

6.1 This chapter of the Environmental Statement relates to the landscape and visual impact of the development. It has been prepared by WYG based on Landscape and Visual Impact Assessment Standards.

6.2 The purpose of this chapter is to assess the existing landscape and townscape of the local area and assess the impact of the development on it and provide mitigation measures to avoid and prevent the adverse impacts on the existing landscape and townscape.

6.3 The findings have guided the preparation of the proposals for the Site which aim to minimise potential adverse impacts on townscape and amenity. The appraisal is supported by drawings and photographs which illustrate features of the Site and its context. Figures are included in Appendix 6 of this report.

ASSESSMENT METHODOLOGY

6.4 This report considers the effects of the construction and occupation of the proposed development on the landscape/townscape of the Site and its environs, and on visual amenity.

6.5 The first stage of the Environmental Statement is the landscape/townscape and visual appraisal, which provides the baseline against which the effects of the proposed development, on the landscape of the Site and its context, would be assessed. The design of the proposed development and the identification of mitigation measures incorporated to minimise adverse effects, is informed by the findings of the appraisal. During the assessment, effects on features identified as important to the landscape quality, or effects on the landscape/townscape character of the Site and its setting are assessed. Effects on views of the Site and its setting, or visual amenity, would also be assessed.

6.6 For the purposes of landscape/townscape and visual impact assessment of this proposal, study areas have been defined:

- The “site” extends to the planning application boundary
- The “landscape/townscape context” extends to a radius of about 1.0 kilometre from the Site, as shown on Figure LA.01, included in Appendix 6.1.
- The study area for the townscape and visual impact assessment of the development is 2.5 kilometres from the Site, as shown on Figure LA.01, included in Appendix 6.1. Locations beyond this distance were also visited to establish if the Site would be a perceptible feature in views from beyond 2.5 kilometres.

6.7 The objectives of the assessment are to:

- describe and evaluate the townscape and visual amenity of the Site and surrounding area which may be affected by the proposed development;
- identify and assess the significance of any effects on townscape or visual amenity,

associated with the proposed development;

- examine the development proposals and analyse the potential effects on the townscape and visual amenity associated with the scheme's design, construction and occupation of the proposed development;
- set out mitigation measures which have been incorporated into the scheme design and are proposed in order to avoid, reduce or remedy adverse effects;
- describe any enhancements of the landscape or visual amenity incorporated into the design of the proposed development; and
- provide an assessment of the significance of the landscape/townscape and visual effects of the proposed development.

6.8 This report is supported by the following drawings, included in Appendix 6. All photographs were taken during the Site appraisal in January 2013. The figures are:

Appendix 6.1 Figure LA.01 Site Location
Appendix 6.2 Figure LA.02 Site Designations
Appendix 6.3 Figure LA.03 LANDMAP Overall Evaluation

- LA.03-1 LANDMAP Visual and Sensory Overall Evaluation
- LA.03-2 LANDMAP Historic Landscape Overall Evaluation
- LA.03-3 LANDMAP Geological Landscape Overall Evaluation
- LA.03-4 LANDMAP Landscape Habitats Overall Evaluation
- LA.03-5 LANDMAP Cultural Landscape Overall Evaluation

Appendix 6.4 Figure LA.04 LANDMAP Classification

- LA.04-1 LANDMAP Visual and Sensory Classification
- LA.04-2 LANDMAP Historic Landscape Classification
- LA.04-3 LANDMAP Geological Landscape Classification
- LA.04-4 LANDMAP Landscape Habitats Classification
- LA.04-5 LANDMAP Cultural Landscape Classification

Appendix 6.5 Figure LA.05 Appraisal Photographs

- LA.05-1 Appraisal Photographs 1-3
- LA.05-2 Appraisal Photographs 4-5
- LA.05-3 Appraisal Photographs 6-8
- LA.05-4 Appraisal Photographs 9-10

6.9 The methodology used for assessing the landscape/townscape and visual effects of the proposed development is based on the recommendations and guidance published by the Countryside Commission[1], in addition to the Guidelines for Landscape and Visual Impact Assessment (GLVIA), published by The Landscape Institute and the Institute of Environmental Management and Assessment[2]. The Landscape/townscape and Visual Impact assessment for the Site at Herbert Road was largely prepared between November 2012 and January 2013, using the 2nd Edition of the Guidelines for Landscape and Visual Impact Assessment as the basis for the assessment methodology.

6.10 The 3rd Edition of the Guidelines were published on 17th April 2013. In response to queries from members, the LI's Technical Committee produced a statement on the transition from the 2nd to the 3rd edition:
GLVIA3 replaces the second edition GLVIA2. In general terms the approach and methodologies in the new edition are the same. The main difference is that GLVIA3

1 **Countryside Commission,** Landscape Assessment Guidance**, 1993.**

2 **The Landscape Institute and the Institute of Environmental Management & Assessment,** Guidelines for Landscape and Visual Impact Assessment (2nd Edition), E&FN Spon 2002

places greater emphasis on professional judgement and less emphasis on a formulaic approach. Members have asked for clarification on the status of projects developed under GLVIA2, but reviewed or implemented after publication of the third edition.

An assessment started using GLVIA2 should be completed using that edition. However, if in the view of the professional a comparison should be undertaken with GLVIA3, and subsequently if necessary a re-assessment undertaken according to GLVIA3, then this should be discussed and agreed with the client in the first instance. Obviously, assessments started after the publication of GLVIA3 should use it, rather than GLVIA2

6.11 In principle, then, the LVIA for the proposed development has been completed using GLVIA 2nd Edition guidance, even though it will be submitted with a planning application more than 7 months after publication of the 3rd Edition. Although the approach and methodologies in the 3rd Edition are the same in principle, the new Guidelines set out a step-wise approach to assessing sensitivity of receptor, magnitude of change and significance of effect. The terminology in the LVIA may not accord with that of GLVIA3, but a clear chain of reasoning is set out, from description of the baseline, through consideration of the changes likely to arise from the development proposals, the sensitivity of landscape/townscape and visual receptors to those changes, the magnitude of the changes and, hence, the level significance of the effect.

6.12 The first stage of this landscape/townscape and visual impact assessment is the landscape/townscape and visual appraisal, which provides the baseline for the assessment of effects. The appraisal is undertaken in two stages; these are the desk study and the field survey. The desk study includes reference to other studies and landscape assessments, including those undertaken at a national, regional and local level. The subsequent landscape/townscape and visual field survey was undertaken in January 2013.

6.13 In summary, the landscape/townscape appraisal involved:

- an inspection of publicly accessible viewpoints, representing the range of views available of the Site from within the Site study area and landscape/townscape context, including a photographic survey;
- a review of landscape designations, planning policies for the landscape, and of other landscape strategies published by the Unitary Authority;
- a review of published landscape assessments of relevance;
- an evaluation of the sensitivity of the landscape/townscape and visual amenity, and ability to accommodate the changes likely to arise from the development; and
- confirmation of the extent of theoretic visibility of the development and potentially sensitive views or view locations, and a viewpoint analysis.

6.14 Landscape/townscape and visual impact assessment requires a combination of objective analysis and subjective professional judgment. It follows a clearly defined methodology based on published guidance comprising a combination of desk studies and field surveys, with subsequent analysis. It involves analysis and evaluation of the baseline, including landscape/townscape features, landscape/townscape character, and views available of the Site and the effects on them likely to arise from the proposed development. In outline, the assessment involves:

- a viewpoint analysis of the likely effect on visual amenity of the public in the

surrounding area, including local communities and residents;
- consideration of mitigation and enhancement measures to avoid, reduce or remedy significant effects on the landscape/townscape or on views; and
- the identification of potential landscape/townscape and visual effects of the proposed development, their magnitude and significance, with the mitigation proposals in place.

Landscape/townscape baseline survey

Potential receptors

6.15 Landscape/townscape receptors include elements of the physical landscape/townscape or landscape/townscape fabric, for example vegetation, boundaries, landform, land use and other landscape features. These are combinations of features and patterns, which give rise to particular characteristics or landscape/townscape character, and which may be affected by the proposed development.

6.16 In summary, the potential landscape/townscape and visual receptors include:

- landscape elements and features such as trees, hedges;
- vegetation patterns, landform and vegetation characteristics;
- qualities such as tranquillity;
- landscape/townscape character;
- the character and setting of nearby properties and settlement;
- views from: properties; public rights of way; public open space and land with open access rights;
- designations relating to the landscape/townscape or where landscape and visual amenity is of relevance, for example National Parks and conservation areas.
- trees covered by tree preservation orders;
- landscapes, gardens and parks of historic interest.

Landscape/townscape character

6.17 The landscape/townscape character baseline is based on fieldwork observations and reference to other landscape/townscape studies and landscape/townscape character assessments where available. This includes the LANDMAP information available on the Countryside Council for Wales[3] (CCW) website[4]. LANDMAP is defined as "…a specially devised national landscape information system … [that] gathers, organises and evaluates information about landscape into a nationally consistent data set...". Individual studies of topics or 'aspect areas' of the landscape are carried out by 'aspect specialists' and the outcomes are drawn together, with 'non-evaluated aspect' information (land use, settlement, etc.) in a set of landscape character areas.

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3 With effect from 1 April 2013 **Natural Resources Wales** has now taken over the functions of the Countryside Council for Wales, Environment Agency Wales and the Forestry Commission Wales

4 **LANDMAP website:** http://landmap.ccw.gov.uk/map/Map.aspx

6.18 LANDMAP Aspect Areas are evaluated according to the criteria in **Table 6.1**. Reference has been made to LANDMAP Information Guidance Note 3[5] on the use of LANDMAP during landscape/townscape and visual impact assessment.

LANDMAP Evaluation	Definition
Outstanding	*of international or national importance*
High	*of regional or county importance*
Moderate	*of local importance*
Low	*of little or no importance*
Unknown	*insufficient information exists to evaluate*

Table 6.1: Criteria for evaluating LANDMAP 'Aspect Areas'

6.19 The most relevant aspect area sheets are referred to below where the detailed descriptions are summarised. The findings of the LANDMAP studies have formed the basis of the landscape/ townscape and visual appraisal which informs the baseline for the landscape/townscape and visual impact assessment.

Landscape and recreational designations

6.20 Landscape designations are an indication of landscape value; they are areas that have been recognised for the scenic beauty and recreational potential of the landscape. National, regional and local level landscape designations are reviewed during the desk-study.

5 **LANDMAP Information Guidance Note 3**: LANDMAP, Landscape and Visual Impact Assessment, Countryside Council for Wales, 2008.

6.21 National Parks and Areas of Outstanding Natural Beauty (AONB) are statutory national landscape designations with the highest status of protection in relation to landscape and scenic value.

6.22 Open access land is a statutory national recreational designation. It includes land managed by the Forestry Commission[6] and areas with public access rights under the Countryside and Rights of Way Act, 2000. The right of access does not extend to camping, cycling, horse riding or driving a vehicle, nor does it apply to developed land, gardens or cultivated land. The extent of open access land is shown on new editions of the Ordnance Survey (OS) Explorer maps and on the Natural Resources Wales (NRW) website. Public rights of way are also shown on (OS) Explorer maps.

6.23 Other landscape designations reviewed during the desk-study are non-statutory. These are generally designated by Local Authorities as a Special Landscape Area (SLA).

Visual baseline survey

Visual receptors

6.24 'Visual receptors'[7], as defined in GLVIA, were identified during the during the desk study, visual appraisal, from consultee responses and during public consultation events. Receptors can be divided into two main groups based upon their location and activities, which influence the way that they experience the landscape/townscape and views.

6.25 The two main types of receptors are:

- **Location Receptors** are those in particular locations within which they are able to appreciate a relatively constant view or views towards the Site, including residents, users of public open spaces and visitors to outdoor visitor attractions.
- **Route Receptors** are those travelling along linear routes, including motorists on public highways, railway passengers and walkers, cyclists or horse riders on public rights of way.

6.26 The main differences between the two types of receptors relate to their perception of changes in views, or their sensitivity to change. Location receptors can perceive long-term changes in a view for an appreciable duration. In contrast, route receptors are already experiencing a constantly changing series of views, potentially making them less aware of any one view or group of views in the sequence.

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6 With effect from 1 April 2013 **Natural Resources Wales** has now taken over the functions of the Countryside Council for Wales, Environment Agency Wales and the Forestry Commission Wales

7 **GLVIA definition of visual receptors:** 'Visual receptors include the public or community at large, residents, visitors, and other groups of viewers as well as the visual amenity of the people affected'.

Viewpoint analysis

6.27 The viewpoint analysis considers views from locations that represent the main visual receptors. A representative selection of views is taken forward to the impact assessment.

6.28 For each of the views selected, the visual receptors were identified along with their 'sensitivity' to the changes that would occur as a result of the proposed development. 'Sensitivity' to change has a number of contributing factors, which are:

- the location and context of the viewpoint;
- the extent of the location over which the changes would be visible;
- the field of view occupied by the proposed development or its associated infrastructure;
- the activity of the receptor and duration of the view for moving receptors;
- the expectation of the receptor in relation to the view available;
- orientation - of receptors in relation to the development, and
- the importance of the view / location - potentially indicated by designations, historic or cultural importance of the location.

6.29 Consequently, different types of receptors in a single location may have different levels of sensitivity. Alternatively, a single receptor may have different levels of sensitivity at a number of locations.

Photography

6.30 Photographs have a special role in describing landscape/townscape character and illustrating key views. In order for photographs to be representative and to create an image that is as similar as possible to that which is seen with the human eye, accepted practice is to use a lens with a focal length equivalent to 50 mm for a 35 mm Single Lens Reflex (SLR) camera, and a horizontal field of view of a little under 40 degrees. The camera used for the appraisal photography was a Canon EOS 5D iii digital SLR camera. Photographs were taken with a focal length of 50mm.

6.31 Landscape photography includes wide angle or panoramic views requiring a sequence of photographs to be taken across the view. Where this approach is taken, a series of overlapping photographs are digitally spliced together in Adobe Photoshop CS using a cylindrical projection to provide a panorama approximating to the normal field of view in a landscape context. Where necessary, the contrast and brightness of individual photographs is slightly manipulation in order to create a consistent panorama without visible joins. The viewpoints are located with their Ordnance Survey grid reference and height above Ordnance Datum.

Assessment and mitigation

6.32 Landscape/townscape and visual impact assessment requires a combination of objective analysis and subjective professional judgment. It follows a clearly defined methodology based on published guidance comprising a combination of desk studies and field surveys, with subsequent analysis. It involves analysis and evaluation of the baseline, including

landscape/townscape features, landscape/townscape character, and views available of the Site and the effects on them likely to arise from the proposed development. The methodology is based on published recommendations, best practice and guidance [8], [9]. In outline, the assessment involves:

- a site survey and inspection of publicly accessible viewpoints with views of the Site, including a photographic survey, as described above;
- a desk study to review landscape designations and planning policies for the landscape, and relevant studies of the landscape/townscape of the area;
- classification of the landscape or the study area into areas of distinct character, with a description of their distinguishing characteristics and qualities;
- an evaluation of the landscape/townscape of the Site and its context and setting, and their sensitivity, or ability to accommodate the changes associated with the proposed development;
- analysis of the sensitivity of the visual amenity of the public in the surrounding area, including that of local residents, based upon a viewpoint survey;
- the identification of potential landscape/townscape and visual effects, their magnitude and significance;
- consideration of mitigation and enhancement measures to avoid, reduce or remedy significant effects on the landscape/townscape or on views; and
- an assessment of impact significance with design and committed mitigation measures in place.

6.33 Criteria for degrees of value or sensitivity, magnitude of change, and significance of effects, are set out in the following sections.

Landscape/townscape value (sensitivity)

6.34 The degree of the likely landscape/townscape effects associated with the proposed development is determined by relating the ability of the landscape/townscape to accommodate the changes, referred to as sensitivity, and the magnitude of the changes to which they would be subjected. **Table 6.2** defines the categories of landscape/townscape sensitivity to change.

Level	Definition
Very high:	A landscape of international importance; A landscape particularly vulnerable to disturbance; No or little potential for substitution or replacement.
High:	A landscape of national importance; Many landscape elements sensitive to disturbance; Limited potential for substitution or replacement.

8 **Landscape Assessment Guidance,** Countryside Commission, 1993.

9 **Guidelines for Landscape and Visual Impact Assessment (2nd Edition),** The Landscape Institute and the Institute of Environmental Management & Assessment, E&FN Spon 2002

Level	Definition
Medium:	A landscape of regional importance; Some features sensitive to disturbance; Potential for substitution or replacement.
Low:	A landscape of Local importance; Few features sensitive to disturbance; Good potential for substitution or replacement.

Table 6.2: Landscape/townscape sensitivity

Visual Sensitivity

6.35 The sensitivity of views is affected by factors such as whether few or many viewers are affected and the importance of the proposed development in the overall view. The context of the viewpoint may also contribute to the ability to accommodate change, for example, a view from residential properties or from a valued landscape/townscape is regarded as less able to accommodate change, than a view from an industrial context. **Table 6.3** defines the categories of visual sensitivity.

Level	Definition
Very high:	A view from residential or community properties or experienced by many viewers; Daily, prolonged or sustained views available over a long period, or where the view of the landscape/townscape is an important attractant; A view from a valued landscape/townscape, or a nationally important recreation facility.
High:	A view from moderate numbers of residential or community properties or experienced by moderate numbers of viewers; Frequent open views available, or where the view of the landscape/townscape is an attractant; A view from a valued landscape/townscape, or a regionally important recreation facility.
Medium:	A view from small numbers of residential or community properties or experienced by small numbers of viewers; Occasional open views available, viewers are pursuing activities such as sports or outdoor work; A view from a landscape/townscape of moderate importance, or a locally important recreation facility
Low:	A view of low importance, available to few viewers or where the view of the landscape/townscape is not the reason for visiting; Glimpsed views; passing views available to travellers in vehicles; A view available to few viewers where the development is a relatively unimportant element in the view, and with good potential for mitigation of adverse effects.

Table 6.3: Visual sensitivity

Assessment criteria

6.36 The degree of the likely landscape/townscape and visual effects of the proposed development is determined by relating the sensitivity of the receptors, or ability of the landscape/townscape to accommodate the changes arising from the development proposals, and the changes in the landscape/townscape or view to which they will be subjected. The scale of magnitude of the changes is graded from great through considerable, medium or discernible, and localised or small.

6.37 The degree of effect, whether adverse or beneficial, is graded from substantial to negligible, as defined in **Table 6.4** and **Table 6.5.**

Significance	Definition
Major:	Considerable adverse change to the features, elements, character, or quality of a sensitive landscape/townscape, with limited scope for mitigation (or lesser change in very sensitive landscape/townscape); **or** Improvement to the landscape/townscape over a wide area sufficient to alter perceptions and upgrade overall landscape/townscape character.
Moderate:	Discernible adverse change to landscape/townscape character, features, or elements of medium-high sensitivity, but with scope for mitigation; **or** Perceptible improvements to landscape/townscape character.
Minor:	Localised or limited adverse change to the existing landscape/townscape character with considerable scope for mitigation; **or** Localised improvement to the existing landscape/townscape quality.
Negligible or None:	No perceived change to the existing landscape/townscape character and quality, or the change is difficult to discern.

Table 6.4: Effects on landscape/townscape

Significance	Definition
Major:	Major visual intrusion experienced from settlements or numbers of properties and/or from sensitive public viewpoints where the development would cause a large deterioration in the existing view with limited scope for mitigation (or a lesser intrusion in highly sensitive views); **or** An improvement in the view, sufficient to provide some benefits to visual amenity.
Moderate:	Visual intrusion on settlements or numbers of properties and/or from public viewpoints where the development would cause deterioration in the existing view, but with scope for mitigation; **or** A reduction in visual intrusion, or improvement in the view.
Minor:	Minor visual intrusion attributable to the development or a perceptible deterioration in the existing view, with scope for mitigation; **or** Localised reduction in visual intrusion, or noticeable improvement in the view.
Negligible:	The change in the view is imperceptible or difficult to discern.

Table 6.5: Effects on visual amenity

LEGISLATIVE AND PLANNING POLICY CONTEXT

Published strategies

6.38 The following published strategies are adopted Supplementary Planning Guidance which reinforce the policies of the adopted local plan, the Newport Unitary Development Plan.

6.39 The **River Usk Strategy** of July 2009 'attempts to highlight the current situation with the River, taking into account historical information and studies, and identify key recommendations for the many issues influencing the River's future.'

6.40 The Site is identified as an area proposed for residential development, in the area 'M4 to Town Bridge' along with the redevelopment of the school site to the north which has already occurred. Recommendations in the strategy of relevance to the Site and the proposed development are:

- Explore the potential for major regeneration opportunities in the Local Development Plan process along the east bank of the River Usk, within the vicinity of the proposed New M4 junction
- To comply with the Conservation (Natural Habitats &c) Regulations 1994 and carry out a Habitats Regulations Assessment to ensure that development does not have a detrimental impact upon the Special Area of Conservation or the special features for which it was designated
- To protect and enhance the visual identity and landscape continuity of the River Corridor. New developments should be examined in a holistic manner in terms of its associated landscape treatment and assist in the formation of a distinct and identifiable River Usk Character Area.
- Encourage proposals that celebrate the uniqueness of the river edge by making a contribution to the existing character.
- Support the review and production of new bylaws for the River Usk to facilitate the increased use of the river for recreational use.
- Where opportunities arise, seek to secure the construction of a continuation in the relevant cycle/walkway route
- Co-ordinate new stretches of the cycle/footpath network with activity generators, to encourage movement towards the Riverfront.

6.41 The **Newport 2020: Unlimited Vision Masterplan** was published in April 2004. The plan's vision is that 'Newport's future will connect with its sense of place, its independent identity, its culture, history and traditions. Newport will be recognised as a confident, thriving, resilient and dynamic city with which people are proud to be associated.'

6.42 The Site is identified as part of the 'Riverside Quarter', formerly the 'East Bank District'. The plan states that the 'Key priorities for continuing the transformation of the River Usk will be promoting activity and enhancing the quality of linkages with surrounding areas. Part of this activity will be generated by the redevelopment of riverside sites on the east bank of the Usk'.

Planning policies for landscape

6.43 Figure LA.02 shows the Site location and its immediate context, with the landscape designations applicable to the townscape and visual impact assessment. Planning policies of relevance to the Site are included within the Newport Unitary Development Plan and the emerging Newport Local Development Plan. Policies relevant to the townscape and visual impact assessment from each of these plans are outlined below.

Newport Unitary Development Plan 1996-2011

6.44 The introduction to the Newport Unitary Development Plan states that 'Newport has a considerable quantity of regeneration sites, and their redevelopment is a key aim of the plan'. The principal aims of the plan are defined as to:

- Move towards environmentally sustainable development involving: a) urban regeneration; b) conservation of the natural and built environment and the prudent use of natural resources and c) transport.
- Facilitate improvements to the economy and general living standards.
- Conserve and enhance the built and natural environment, and to counter decline in biodiversity.

6.45 Objectives of the plan which are relevant to the development of the Site include:

1. **Housing**: Ensuring that there is an adequate supply of land to meet the housing needs of the population.
4. **Transport**: The provision of sustainable transport infrastructure to:
   a) promote use of public transport, cycling, walking and other non-polluting transport;
   b) contribute towards the integrated transport strategy;
   c) provide appropriate transport modes to serve new development areas;
   d) enhance Newport's strategic position in the regional transport network.
5. **Environment**: Within both the urban and rural areas to:
   - conserve protected environments and other sensitive areas;
   - enhance poor or degraded environments.
6. **Environment**: Seek opportunities to create new habitats and improve areas of landscape.
9. **Urban Regeneration**: The promotion of regeneration opportunities in inner urban areas including Newport City Centre, Pillgwenlly and the Usk Riverfront.

Newport Local Development Plan

6.46 The Newport Local Development Plan will guide planning and development in Newport to 2026, replacing the existing Unitary Development Plan. The plan was formally been placed on deposit on Friday 13 April 2012 and has been through a minimum of six weeks of consultation. Key objectives in the Local Development Plan which relate to the development of the Site include:

- Objective 1: To ensure that all development makes the most efficient use of natural resources by seeking to locate development in the most sustainable locations, minimises the impact on the environment and makes a positive

contribution to local communities.

- Objective 2: To ensure that development and land uses in Newport make a positive contribution to helping to minimise the causes of climate change and to mitigating the impacts, by incorporating the principles of sustainable design, reducing the need to travel, providing safe and active travel routes, and managing the risks and consequences of flooding.
- Objective 4: To ensure that there is an adequate supply of land for housing in the most sustainable locations, and to ensure that the quantity, quality and variety of housing provision meets the needs of the population.
- Objective 5: To ensure that all development or use of land does not adversely affect, and seeks to preserve or enhance, the quality of the built environment
- Objective 6: To protect and enhance the quality of the natural environment, including protected and non-protected species and habitats, regardless of greenfield or brownfield status, and also including the protection of controlled waters.

BASELINE CONDITIONS

6.47 The features described below are located on Figure LA.01-1 to LA.03 inclusive (Appendices 6.1 to 6.3). Published landscape assessments are illustrated on Figure LA.03 (Appendix 6.3) and LA.04 (Appendix 6.4). Photographs illustrating many of the features described below are included on Figure LA.05 (Appendix 6.5) which include distant and near photographs.

Published landscape assessments and guidance

6.48 The published landscape assessment of relevance to the Site is the LANDMAP study for Newport. The findings of this study form the basis of the baseline for the landscape and visual impact assessment of the proposed development, supported by additional field surveys.

LANDMAP

6.49 Landscape Assessment, following the LANDMAP methodology, has been undertaken for Newport. The assessment uses the Countryside Council for Wales (CCW) / Wales Landscape Partnership Group approach which separates the defining aspects of the landscape into five categories, or aspects; visual & sensory, geological landscape, historic landscape, cultural landscape and landscape habitats. It considers the relationship that exists between people and places; how people have given meaning to places through time and how the physical landscape has shaped their actions, or how their actions have shaped the landscape.

6.50 The detailed descriptions for the most relevant aspect areas are summarised below. The findings of the LANDMAP studies have formed the basis of the landscape and visual appraisal which forms the baseline for the townscape and visual impact assessment. The detailed descriptions for the most relevant aspect areas are summarised below.

LANDMAP: Visual and Sensory

6.51 The Site forms a part of aspect area **NWPRTVS042: Usk Built Urban Corridor**. The area is described as having a 'dislocated urban character' with 'a mix of older Victorian and more recent commercial developments' along the corridor of the Usk River. The older buildings' have a feeling of neglect and redevelopment is under way creating the impression of an area in transition.' The overall aspect value is **Low**, due to the area being a 'Disrupted piece of town with industrial buildings and associated infrastructure and derelict sites which are detractors although being improved over time.'

6.52 Land covering the Usk River to the west of the Site is part of aspect area **NWPRTVS010: Lower River Usk**, which includes the 'Lower river corridor of the River Usk to Severn Estuary through the urban area of Newport including watercourse, adjacent river banks, flood embankments and riparian vegetation,' The river is described as an 'important natural, linear feature in the centre of Newport. wide and powerful and full of sediment. It has a modified, straightened course, tidal in nature with wide grey muddy banks, with stone and ''beaches'' on inside bends at lower levels exposed at low tide, indicating a large tidal range. The banks have walls and hard edges in places, mainly in the centre of Newport. The overall value of the aspect area is **Moderate**. The citation notes that 'Much development does not address the river or use it in a positive way....There is limited marginal reed-like vegetation in lower parts, where there is less intense development...[and] There is limited public access along the river.'

6.53 Land to the west of the Usk River is a part of aspect area **NWPRTVS048: Malpas** which is described as 'an old 20th Century suburb of Newport [which] straddles a broad ridge between the Malpas Brook to the West and the Pilltori Vale to the east rising to 82 m AOD... It is primarily residential estates with a linear commercial core along the busy main road... Graig wood and the adjacent open land is an important prominent feature on the highest point visible from the M4 and the Malpas Road... The fire station and adjacent industrial buildings are prominent from the M4 as are the buildings above Brynglas Tunnel... The character of the residential areas is highly suburban with no concession to the local vernacular'. The overall aspect rating of the area is **Low**.

6.54 Land to the east of the Site is part of aspect area **NWPRTVS057: Newport East**, which includes the 'Victorian development of terraces to the west give way to estates further north and east... Primarily residential with commercial and industrial areas with some education and recreational uses... The M4 and the eastern peripheral distributor road form boundaries and allow intermittent views into the area... There is significant landscape treatment adjacent to the latter road'. The overall value of the area is **Low**.

6.55 To the north of the Site the M4 is within aspect area **NWPRTVS012: M4 and A4232**, whose overall aspect value is **Low**.

6.56 The Usk River to the north of the M4 is aspect area **NWPRTVS011: River Usk**, where the river 'is in its lower reaches on a rural flat valley floor, excluding the urban area through Newport, and is wide and powerful, full of sediment... It has a sinuous course, tidal in nature with wide grey muddy banks, with stone and ''beaches'' on inside bends at lower levels exposed at low tide, indicating a large tidal range.' The overall value of the aspect area is **Moderate**.

6.57 Northeast of the river within 1km is part of the aspect area **NWPRTVS026: Usk Floodplain**, which consists of pastoral fields of medium-size through which the Usk meanders... The fields are enclosed by a hedges, discontinuous in places, and by fences... Sinuous reed-lined tributary watercourses and linear ditches are noticeable... Trees include both oak and willow and alder adjacent to the river but generally the area is fairly open'. The overall aspect value of the area is **Moderate**.

LANDMAP: Geological Landscape

6.58 The Site is part of aspect area **NWPRTGL026: Lower Usk**, which covers the lower part of the Usk Valley. The area is described as 'an active lowland river flood-plain system.' The overall value of the aspect area is **Moderate** as there are 'No notable sites/landforms recorded and [the] river system [is] constrained by flood banks.'

6.59 The River Usk to the south of the Site is part of aspect area **NWPRTGL052: Usk Estuary**, which includes 'the tidal channel and adjacent areas of coastal mudflat... Also includes very minor areas of marginal saltmarsh further upstream and constrained sections of the river as far upstream as central Newport city, near the castle... The tidal, estuarine channel of the Ebbw river is also included.' The overall value of the area is **Low**.

6.60 Land to the west of the Usk River is part of aspect area **NWPRTGL002: Newport (Pilgwenlly-Crindau),** an 'Intensively developed area of former coastal flat and flood plain occupying a ''promontory'' of land between the Usk and Ebbw (now heavily modified as dockyards)... Also includes the low area of central Newport on the west side of the Usk as far north as Crindau... Includes a bypassed former meander of the Ebbw and the developed lowest part of the Malpas Brook flood plain, close to its confluence with the Usk...' The overall aspect value is **Low**.

6.61 Further west, development on higher ground is part of aspect area **NWPRTGL001: Newport (Stow Hill)**, a 'Low double ridge with a general SW-NE orientation with a northern scarp formed by a sandstone unit in the Lower Old Red Sandstone (Devonian)...[the] Southern area [is] effectively a row of coalesced knolls.' The area is described as 'Largely developed and forms the hilly centre of Newport on the W side of the Usk'. The overall aspect value is **High**.

6.62 Higher ground to the northwest of the Site in the area of the M4 tunnel is aspect area **NWPRTGL007: Brynglas**, an 'Isolated low knoll of Lower Old Red Sandstone (Devonian) silty mudrocks rising above softer rocks to NW and alluvial areas to the East.' The overall aspect value is **High**.

6.63 The area to the east of the Site, east of Barnarndtown, is part of aspect area **NWPRTGL005: Newport (Beechwood)**. The overall aspect value of the area is **Low**.

LANDMAP: Historic Landscape

6.64 The northern part of the Site is part of aspect area **NWPRTHL025: Newport Urban East**. The area is described as 'A large urban landscape of the 19th and 20th centuries interspersed with areas of formal parkland.' Of relevance to the Site, the description also states that 'As part of the regeneration of Newport new modern housing estates are now

being built on brown field sites, which have been reclaimed from defunct industrial centres along the east bank of the River Usk'. The overall aspect value of the area is **Moderate**.

6.65 The southern part of the Site, including the proposed site access, is part of aspect area **NWPRTHL022: East Usk and Llanwern Industrial**. The area is described as 'A significant industrial landscape following the eastern bank of the River Usk from the coast in the south, northwards almost to the M4 corridor; eastward extending from the river to Greenmoor Arch this landscape has been imposed upon a large swathe of former reclaimed agricultural wetland.' The overall aspect rating of the area is **High**, as 'In spite of the fact that the dominant character of this landscape is undeniably industrial, represented by the modern Llanwern Steelworks and the Gwent Euro Park, this area is, nevertheless, of high value because of its demonstrable and significant potential for the survival of intact archaeological remains dating back to the prehistoric era.'

6.66 The area to the west of the Site covering the Usk River is aspect area **NWPRTHL048: River Usk**. The River has historic value as a 'tidal river landscape that has formed the main communication route, an intertidal super-highway, into Newport from the sea for hundreds of centuries. The Romans were known to have used this waterway to access their docks at Caerleon and penetrate further up the Usk Valley. But it is from the medieval period, when the town of Newport began to develop as a port (NHL032), that this landscape can be properly described as a busy communications corridor.' The overall value of the aspect area is **Outstanding** due to the river being 'an historically important tidal landscape and communications corridor for trade and commerce since the medieval period.'

6.67 Land to the west of the river is part of aspect area **NWPRT028: Newport Urban West**.

6.68 To the northwest of the Site aspect area **NWPRTHL044: Bryn Glas House** covers the grounds of the Grade II listed landscape and Victorian mansion. The overall value of the aspect area is **High**.

6.69 Aspect Area **NWPRTHL016: Caerleon**, covers the Usk River and Tributary to the north and west of the Site, and the river and its environs to the northeast of the Site, including the settlement at Caerleon. The area is described as 'An urban landscape of great antiquity, and archaeological potential, centred on the Roman fortress at Caerleon and also including its immediate environs'. The overall rating of the aspect area is **Outstanding** as a 'nationally important urban landscape of great antiquity, and enormous archaeological potential.'

6.70 To the north of the Site the M4 is within aspect area **NWPRTHL024: M4**. The overall aspect value is **Low**.

6.71 To the northeast of the Site and the M4 aspect area **NWPRTHL049: St Julians** in an 'urban landscape, one which originated with a small earl-medieval ecclesiastical centre and later medieval chapel and manor... A ribbon development of Victorian terracing was constructed along Caerleon Road, which has since been added to by 20th century terraced estate and later 20th century housing estates and a school'. The overall aspect value of the area is **Low**.

6.72 To the southwest of the Site, on the western bank of the river is aspect area **NWPRTHL023: Newport Historic Centre**, described as 'The historic urban core of Newport [which] owes its present appearance and architectural character to mid to late 19th century development...[This] has largely obscured evidence of the pre-19th century topography, with the exception of the castle, cathedral and an early 17th century merchant's house.' The overall aspect value of the area is **Moderate** due to the reorganisation of the road system in the 1970s which has 'significantly detracted from the coherence of the urban landscape along the riverfront.'

LANDMAP: Cultural Landscape

6.73 The entire site is part of aspect area **NWPRTCL025: City of Newport**. The overall rating of the aspect area is **Outstanding**, due to the 'the multi-dimensional cultural associations of the City'.

6.74 Aspect area **NWPRTCL007: Usk River** has an overall aspect value of **Outstanding** as 'The river has for at least two millennia been an economic and social communications route, and influenced the settlements of Usk and Caerleon. Then came the Norman borough, the shape of which is still discernible in the street patterns of the town. The river also influenced Newport's transition into becoming an economic powerhouse in the Industrial Revolution, being the focus for canals, tram-roads and railways which resulted in the creation of the docks.'

6.75 To the north of the M4, between the M4 and the river is aspect area **NWPRTCL026: Newport Hinterland**, which' embraces an eclectic mixture of cultural attributes, ranging from prehistory through Roman and Norman to historic and modern transport routes.' The overall aspect value is **Moderate**.

6.76 The M4 is part of aspect area NWPRTCL001: M4/M448 Motorways/ Newport Relief Road. The overall value is Outstanding.

6.77 To the east of the Site the area of the railway line is part of aspect area **NWPRTCL008: Newport,** Abergavenny**, Hereford Railway**. The overall value is **Outstanding**.

LANDMAP: Landscape Habitat

6.78 The Site is part of aspect area **NWPRTLH038**, which is unnamed. The area covers the built area of Newport to the east of the River Usk. The overall valuation is **Low** because the area is 'an urban area which is mainly residential housing... Several parks and woodland form larger green spaces... There is a network of domestic gardens and some streets have mature trees.'

6.79 The Usk River to the west is part of aspect area **NWPRTHL014:** (Unnamed) The overall aspect value is **Outstanding**.

6.80 Land to the west of the Usk River is part of aspect area **NWPRTLH039**:(Unnamed), described as 'a large industrial area adjacent to the River Usk... There is some green space in the north of the area which is also common land and which is mainly amenity grassland... There is an inter-tidal river which may support native species.' The overall value of the aspect area is **Low.**

6.81 To the north of the Site, to the west and north of the Usk River, are aspect areas **NWPRTLH10** and **NWPRTLH011** (both unnamed) 'area of gently undulating land is mainly pasture with occasional blocks of woodland on the hill tops. The overall value of these aspect areas is **Low**.

6.82 The western part of Newport is part of aspect area **NWPRTHL008**: (Unnamed). Described as 'An urban area which is mostly residential housing... Several parks and woodland form larger green spaces... There is a widespread network of domestic gardens and some streets have mature trees.' The overall value is **Low**.

LANDMAP Summary

6.83 A summary of the LANDMAP classification and evaluation for the aspect areas within which the Site is located, and for the adjacent aspect area is provided in **Table 6.6** and **Table 6.7**. Plans showing the extent and location of the relevant aspect areas are reproduced on **Figure LA.03 and LA.04** within **Appendix 1** of this report.

LANDMAP Aspect	Aspect area and classification	Evaluation
Visual & Sensory	**NWPRTVS042: Usk Built Urban Corridor -** Urban	**Low**
	NWPRTVS043: Amenity Land	**High**
	NWPRTVS057: Urban	**Low**
Geological Landscape	**NWPRTGL026: Lower Usk -** Active Lowland River flood plain system	**Moderate**
	NWPRTGL005: Other	**Low**
Historic Landscape	**NWPRTHL025: Newport Urban East -** Nucleated Settlement	**High**
	NWPRTHL022: East Usk and Llanwern Industrial - Processing/ Manufacturing	**High**
Cultural Landscape	**NWPRTCL025: City of Newport -** Urban	**Outstanding**
Landscape Habitat	**NWPRTLH038: (Unnamed) -** Residential/Green Space	**Low**

Table 6.6: LANDMAP Evaluation: Site

LANDMAP Aspect	Aspect areas within 1km and classification	Evaluation
Visual & Sensory	NWPRTVS010: Lower River Usk	High
	NWPRTVS048: Malplas	Low
	NWPRTVS057: Newport East	Low
	NWPRTVS012: M4& A4232	Low
	NWPRTVS011: River Usk	Moderate
	NWPRTVS026: Usk Floodplain	Moderate
Geological Landscape	NWPRTGL052: Usk Estuary	Low
	NWPRTGL002: Newport (Pilgwenlly-Crindau)	Low
	NWPRTGL001: Newport (Stow Hill)	High
	NWPRTGL007: Brynglas	High
	NWPRTGL005: Newport (Beechwood)	Low
Historic Landscape	NWPRTHL048: River Usk	Outstanding
	NWPRTHL028: Newport Urban West	High
	NWPRTHL044: Bryn Glas House	High
	NWPRTHL016: Caerleon	Outstanding
	NWPRTHL049: St Julians	Low
	NWPRTHL023: Newport Historic Centre	Moderate
Cultural Landscape	NWPRTCL007: Usk River	Outstanding
	NWPRTCL026: Newport Hinterland	Moderate
	NWPRTCL001: M4/M448 Motorways	Outstanding
	NWPRTCL008: Newport, Abergavenny, Hereford Railway	Outstanding
Landscape Habitat	NWPRTLH014: unnamed	Outstanding
	NWPRTLH039: unnamed	Low
	NWPRTLH011: unnamed	High

Table 6.7: LANDMAP Evaluation: Nearest adjacent aspect areas within 2.5km of the Site

Landscape/townscape appraisal

Topography

6.84 The Site is located adjacent to the River Usk and is relatively flat, at around 11m AOD, rising slightly towards the top of the riverbank. Beyond the valley of the River Usk land to the north rises towards Malpas and Caerleon, to the east towards Summerhill and to the west towards Barrack Hill and Clytha Park.

Vegetation pattern

6.85 Vegetation pattern within the landscape/townscape makes an important contribution to landscape/townscape character. The Site is bordered by the River Usk to the west, Glan Usk School and Glebelands Park to the north, the railway line and residential development to the east and a mix of residential and commercial development to the south. Vegetation forms a green corridor along the river and residential areas are broken up with occasional pockets of vegetation in parks, open space and surrounding allotments. There is little street vegetation in the area surrounding the Site because streets are fairly narrow and generally properties open out onto the street or have small garden frontages.

6.86 Along the Usk River to the south there are few areas of vegetation due to industrial uses dominating the area. In the central area of Newport around the Site there are developed areas planted with amenity vegetation, as well as some areas of marginal vegetation. Further north of the Site beyond the M4 over-bridge there are more natural areas of woodland, wetland and marginal vegetation. Immediately to the north of the Site there is native scrub along the top of the River Usk riverbank and a double avenue of mature Horse Chestnut trees which define the route of the public footpath along the river. The footpath continues up to and beyond the M4 underpass to the north in Glebelands Park, where there is an area of woodland along the river as well as amenity planting. Further amenity planting around the Newport indoor bowls centre and adjacent equipped play area to the north of the school also contributes to this green corridor along the river edge. Along the western bank of the River Usk opposite the Site an avenue of mature Poplar trees is located within a green corridor along the river.

6.87 Vegetation to the east and south of the Site is restricted to residential gardens and areas of public open space. There is a small park set within an urban square to the immediate southeast of the Site access on Courtney Street. The park has a boundary of mature trees and railings and it includes an equipped play area.

Public accessibility

6.88 A public footpath passes through the Site along the bank of the River Usk. This footpath runs from the southern site entrance at Courtney Street, north past the school towards an underpass of the M4, where it follows the curve of the river bank to the east before it meets the railway line. Further public access to the Site is available from the end of Charnwood Road via a railway underpass. This access is part of the cycle path along the River Usk and joins a new paved cycle path which skirts around the southern boundary of the school and joins the path along the river.

6.89 The long distance route of the Usk Valley Walk is accessible from Caerleon, approximately 2.5km to the northeast of the Site. A cycle route to the north of the Site along the Usk River is accessible form Pillmawr Road and connects to Caerleon. To the south of the Site, at the Site entrance at Collier Street/ Courtney Street, there is a small park with equipped play area. To the north of the school site is a recreation area with playing fields, an indoor bowling club and another equipped play area.

Visual appraisal

6.90 The visual appraisal and site visit identified a number of locations from where the Site is visible. A selection of representative views to illustrate the view available from a range of distances and for different receptors are identified below.

6.91 Potential views of the Site from the rural landscape to the north of the Site were considered during the landscape/townscape and visual appraisal. The landform of the area descends from the higher ground of Caerleon south towards the River Usk. Views from beyond Caerleon are therefore obscured by this higher ground. The school and neighbouring recreation ground provide separation between the Site and near views from the north.

6.92 Built development adjacent to the Site limits the potential for the Site being visible from the south. The railway line and surrounding vegetation provide screening of views from the majority of properties to the east of the Site. Views of the Site from the west will be possible from across the river in the Shaftesbury Park area. Higher ground to the west in Brynglas also affords views of the Site.

6.93 The three rows of terraced properties at the southern site entrance on Morgan Street will have views onto the Site. Planting proposed in this area as part of the development of the linear access along the River Usk will have a beneficial impact on the views of these properties. The industrial buildings to the north of these properties are screened by an existing hedge. A further block of industrial buildings to the north of these have buildings located on the Site boundary with unobstructed views onto the Site.

6.94 During the appraisal it was identified that views from the north, west and east should be the focus of the appraisal of visual amenity. The proposed development has the potential to effect visual amenity of residential properties and users of the public roads and footpaths in these locations.

Views from the north

6.95 **Distant views from Caerleon to the north** are limited by intervening vegetation, landform and housing. Within distant views from the north the Site is viewed in the context of the surrounding development of Newport and the mix of industrial and residential development along the River Usk. The M4 motorway crossing the River Usk to the north of the Site is a dominant feature in views, with movement of traffic catching the eye. Likewise, the railway line and movement of trains is also a visually prominent feature, along with the industrial scale features bridges crossing the River Usk and of pylons and cranes seen in the distance towards the mouth of the river. This is illustrated in the view from higher ground along Pillmawr Road (see **Figure LA05-1 Appraisal Photograph 01**). Views of the Site from the lower lying area along the northern bank of the Usk River are

not possible due to the relative elevation and intervening M4 motorway, buildings and vegetation screening views.

6.96 **Near views to the north** are available from elevated viewpoints such as the M4 over-bridge and the pedestrian and vehicle bridge crossing the railway line on Bank Street (see see **Figure LA05-1 Appraisal Photograph 02**). Other near views of the Site from the north are generally obscured by the school and intervening landform and vegetation. The Site from these viewpoints is viewed within the surrounding context of the residential areas of East Usk and the railway line.

Views from the west

6.97 **Distant views of the Site from the west** are available from residential properties with elevated views, such as those on Brynglas Avenue and Barrack Hill (see **Figure LA05-1 Appraisal Photograph 03**). Views from publicly accessible locations are limited from Brynglas Avenue. From these viewpoints the Site is framed by the green band of open space and vegetation along the Usk River in the foreground, the school to the north and industrial and residential development to the south. The proposed development would be seen as a new built element in an area that is currently open space.

6.98 **Near views are available from the western bank of the river** in Shaftesbury Park and Crindau. Near views from public land on this side of the river include views from the public footpath and cycleway through Shaftesbury Park (see **Figure LA05-2 Appraisal Photograph 04**). Other near views may be possible from residential and commercial properties in Crindau.

Views from the east

6.99 **Distant views from the east** are available from residential properties with elevated views in Summer Hill (see **Figure LA05-2 Appraisal Photograph 05**). Properties further to the east have their views obstructed by the landform and built development of Summerhill. Near views of the Site from the east are obscured by the railway line and surrounding vegetation. Within distant views from the east the Site is viewed in the context of the surrounding development of Newport on the distant hills, such as Malplas and Clytha Park and development on the valley floor with the mix of industrial and residential development along the River Usk. Larger scale civic buildings such as the Town Hall and bridges crossing the River Usk are also visible.

Landscape/townscape appraisal of the Site

6.100 The Site is currently an area of 'rough grassland and derelict industrial land' as described in Chapter 7: Ecology. Access to the Site would be from the junction of the existing Collier St and Courtenay Street, with the land adjacent to the existing public footpath to be developed for site access.

6.101 The southern site boundary is at the junction of Courtney Street and Collier Street. The urban area is East Usk, a mixed area of residential and commercial development. The River Usk, a Special Area of Conservation (SAC) and Site of Special Scientific Interest (SSSI), forms the Site's western boundary. The eastern boundary is formed by the Newport to

Hereford railway line, with the recently constructed Glan Usk Primary School on the northern boundary.

6.102 The northern part of the Site adjacent to the Primary School is an open area of amenity grassland which rises to form a low mound. To the south of this mound the ground level descends towards a drainage channel known as Lottery's Reen, which flows via a reen into the River Usk. The reen is well vegetated with reeds and areas of bramble. Land to the south is mainly long grass with ruderal species and areas of brambles, along with some areas of scrub and self seeded trees. Close to the railway line there are more mature deciduous trees which form a discontinuous buffer to the railway line. There are a few scattered trees along the public footpath to the south. Near the southern boundary of the main part of the Site there is an area of concrete which relates to a former building and its hard standing. Part of this area is currently used for car parking.

Designations

6.103 Designations located within the context of the Site are shown on **Figure LA.02**. There are no landscape designations within the Site. Immediately adjacent to the Site the River Usk is designated as a **Special Area of Conservation** (SAC) and a **Site of Special Scientific Interest** (SSSI). These areas are described in detail within Chapter 7: Ecology. The Site along with the adjacent residential area to the west, the commercial area to the south and the school to the north is excluded from the conservation area and the SSSI, and therefore is not recognised as having particular importance or character.

6.104 There are several **Sites of Importance for Nature Conservation** (SINC) within close proximity to the Site including:

- **Glebelands SINC**, a 'Mosaic of semi-improved neutral grassland, scrub and woodland, with records of Otters.' The closest point is 215m north of the Site.'
- **Crindau Pill SINC** 'A freshwater inlet to the west bank of the Usk, with records of Otter. Closest part of the SINC is 180m west of the Site area, on the other side of the Usk.'
- **Crindau Field SINC** 'Scrub habitat with records of Otters. Approximately 600m north-west of the study area at its closest point. '
- **Brynglas Wood SINC** 'Ancient Semi-natural Woodland. The closest point is 630m north-west of the Site, beyond the river Usk and A4042 dual carriageway. '
- **The Moorings SINC** 'Includes reed-bed habitat with Cetti's Warbler and Reed Warbler. This is located approximately 930m north-east of the study area at its closest point.'
- **Flooded Field Caerleon SINC '**Supports breeding Lapwing and Redshank. Located approximately 1.6km north-east of the study area. '

6.105 The closest **Registered Historic Park and Garden** to the Site is Bryn Glas House, approximately 0.8km northwest of the Site (refer **Figure LA.02**). The area is described by LANDMAP as 'reasonably intact example of a late Victorian mansion (now a local Community Centre) and associated landscape gardens'.

6.106 The closest **Scheduled Monument** to the Site is Newport Castle, 'The eastern front of a rectangular bailey...constructed on its present site between 1327 and 1386'. The castle is just under 1km southwest from the Site boundary. A concentration of listed buildings

around this area reflects the historic setting of the town centre. **Listed Buildings** within 2.5km of the Site boundary are shown on Figure **LA.02**.

6.107 Areas identified as ancient and semi natural woodland are shown on **Figure LA.02**. There are no areas within 1km of the Site boundary.

Character of the built and natural environment

6.108 The Site is located within walking distance of the Church Road area, with local amenities, shops, a supermarket and restaurants. The Site is a short distance from the city centre of Newport which lies approximately 1 km to the southwest, on the western bank of the River Usk. Newport city centre has grown considerably since the original medieval settlement and the part of the city on the eastern side of the river is 19th and 20th century in origin.

6.109 The LANDMAP survey for Newport states that 'Clarence Place, after the Newport Bridge, was sparsely settled in the 1830s but by 1850 had developed into a small settlement complete with toll house, which extended south along the river and east towards Barnardtown and Maindee....the suburbs to the East of the Newport Bridge represent a series of residential developments laid out from the mid 19th century through to the 1950s, [with] some elements being of moderate architectural and historical interest.'

6.110 During the townscape appraisal the folowing observations have been made in relation to the style, layout and form of the townscape:

- **Surrounding building use**: land use to the east of the Site beyond the railway line is predominantly residential. To the north and south of the Site, on the same side of the railway line, the area is mixed use, with a school and playing fields and allotments to the north. To the south there is a mix of residential dwellings, interspersed with and commercial development and scattered industrial buildings, whose scale is often at odds with the adjacent residential uses.
- **Building height and form**: The area surrounding the Site has a very mixed range of building forms and styles. Between the railway line and the River Usk is a mix of two storey terraced house interspersed with industrial and commercial buildings of varying scales, which detract from the residential character. Some residential properties have small front gardens, while other terraces open out immediately onto the street (see **Figure LA05-4 Appraisal Photograph 09** showing view from site looking towards Morgan Street and **Appraisal Photograph 10** looking down Collier Street). Further southeast of the Site along Corporation Road and Chepstow Road are larger three storey Victorian era properties.
- **Frontage/ enclosure**: Properties in the area have varying levels of enclosure from the street. Immediately south of the Site entrance on Collier Street houses open directly onto the pavement (see Appraisal Photograph 09). Properties along Morgan and Courtenay Street to the south have small, brick wall or railing defined front gardens, approximately 3-4m deep, often with shrub or tree planting. Properties to the east of the Site beyond the railway line in Caerleon Road to the east have small (approximately 3-4m deep) front gardens often defined by railings and also with occasional shrub planting.
- **Prevalent materials**: Most of the terraced residential properties are either pebble dashed or brick. Some properties are painted, and further variation is added with

windows being timber or aluminium and painted in light or dark colours. The larger industrial and commercial buildings display a range of different materials which are at odds with the residential properties.

- **Vegetation**: Significant areas of vegetation (including ancient and semi-natural woodlands) within the Site study area are shown on **Figure LA.02: Landscape Designations.** Other vegetation surrounding the Site includes vegetation which forms a green band along the riverside. Surrounding residential areas are broken up with occasional pockets of vegetation in parks or open space or surrounding allotments. There is little street vegetation in the area surrounding the Site as generally properties open out onto the street or have very small garden frontages. Vegetation along the railway corridor provides some screening between the Site and the railway line, and the residential properties to the east. This vegetation is primarily deciduous. To the north mature trees in the vicinity of the school, including a row of willows along the river path, add some maturity to the landscape setting.
- **Local recreation and open space**: There are two equipped play areas within the immediate vicinity of the Site; one to the south of the Site at the Courtenay Collier Street, entrance, and another to the north of Glan Usk Primary School adjacent to the indoor bowling club.

Sensitivity of receptors to change

6.111 A number of landscape/townscape receptors have been identified during the landscape/townscape appraisal. The ability of a landscape/townscape to accommodate change may be defined as its ability to accept the proposed development "without unacceptable detrimental effects on its character";[10] this is referred to as the sensitivity of the landscape/townscape. There are a number of factors that contribute to this ability:

- landscape/townscape designations reflecting the national/local value of the landscape/townscape;
- existing landuse;
- the pattern and scale of the landscape/townscape;
- the presence of features of historical or cultural importance; and
- rarity of the elements or character.

6.112 These factors are considered during the landscape/townscape appraisal and are used to determine the level of landscape/townscape sensitivity. **Table 2.2** provides examples of High, Medium and Low sensitivity, demonstrating how the contributing factors are interpreted.

6.113 Potentially sensitive landscape/townscape receptors identified during the landscape/townscape appraisal are:

- **Landscape character** as defined by the LANDMAP assessment for Newport;
- At a more local scale **Landscape/townscape character** as derived from the distinctive pattern of existing vegetation within the Site and its context;
- The context and setting of the River Usk; and

10 **Landscape Assessment Guidance**, Countryside Commission, 1993.

- **Landscape/townscape amenity**, as experienced by local residents and by people who use the public footpaths, cycleways and roads within the immediate vicinity of the Site.

ASSESSMENT OF POTENTIAL IMPACTS

Potential Sources of Impact

6.114 There are specific aspects of the proposed development which would potentially affect landscape/townscape and/or visual amenity. The main sources of effects on landscape/townscape or visual amenity would be:

During construction

- Site clearance consisting of vegetation clearance and soil stripping;
- construction activities associated with infrastructure works including the access point to the Site at the corner of Courtney Street and Collier Street;
- construction activities associated with infrastructure works within the main part of the Site; and
- site establishment, surface stripping and building activities during the construction of each section of the development.

Completed development

- Introduction of two to three storey buildings into publicly accessible views of the Site;
- operational features of the completed development such as vehicle movements and street lighting; and
- the impact of the proposed planting on landscape/townscape character and views.

MITIGATION MEASURES

6.115 The proposed development incorporates both mitigation and enhancement measures in the form of the proposed layout and landscape/townscape proposals. The landscape proposals for the Site have been prepared through an iterative design process and are an integral part of the masterplan proposals. The assessment of landscape and visual impacts is an assessment of residual impacts i.e. an assessment of the proposed development with all mitigation, enhancement measures and landscape proposals in place.

6.116 The principal form of mitigation is the extent of development, form and arrangement of the proposed buildings which align as far as practicable with the existing residential development in the area. This would help the development to be viewed as an extension of the existing residential development and give the development a similar urban grain to the adjacent residential area.

6.117 Along the River Usk care has been taken to ensure that the landscape proposals avoid disturbance of the river-bank/SAC habitats. Manipulation of landform between the footpath and the top of the riverbank allow the area to be maintained as open grassland

with areas of native scrub whilst discouraging walkers from entering these sensitive habitats. The planting proposals achieve a balance between maintaining separation between the proposed development and the Special Area of Conservation (SAC) along the River Usk whilst creating an attractive route for pedestrians.

6.118 The planting proposals along the river edge of the development help to integrate the development into its surroundings and filter views of the proposed built development from the west. Planting will help to break up the outline of the houses in views from the west. The proposals avoid the creation of continuous or dense screen planting that would cause shading of the retained grassland habitats. It aims to maintain views towards the river from the development. Informal groups of trees help to soften the appearance of the development from Shaftesbury Park and the west.

6.119 The proposed ecological enhancement of Lottery's Reen and the green space to the south maintains an attractive 'natural' space within the development. Wetland planting with areas of scrub compensates for the reduction in the length of the reen, but the approach also reflects the existing semi-natural habitats along the river.

6.120 The development of the riverside park with public footpath and cycleway along the River Usk provides an enhanced connection for pedestrians and cyclists in a north-south direction along the river. This would have a minor beneficial impact on landscape/townscape amenity, linking the residential area to the south with the Primary School and the parkland to the north. This linkage would also benefit future residents of the Site who would be able to access the existing equipped play areas to the north and south of the proposed development.

RESIDUAL IMPACT

Residual Impact: Visual amenity

6.121 The visual appraisal and site visit identified a number of locations from where the proposed development is visible. A selection of representative views to illustrate the view available from a range of distances and for different receptors are identified below.

Views from the north

6.122 A representative **distant view from the north** is illustrated in the view from higher ground along Pillmawr Road (see **Figure LA05-1 Appraisal Photograph 01**). The view is of **low sensitivity** due to the proportion of the Site visible in the view and the number of viewers experiencing similar views.

6.123 During construction the movement of equipment and construction activity would be perceptible where this encroaches into the visible portion of the Site. Construction activity would result in periods of increased visual prominence at the start of each phase of work when soil stripping and site establishment occurs. However the Site only occupies a small portion of the view, which would also be the case for other more elevated views from the north.

6.124 The view of the development following construction would have a small increase in the extent of settlement in the view. The impact of this would lessen over time as planting along the riverside matures, obscuring views of the development.

6.125 The scale of change resulting from the proposed development would be **none** during the construction; due to the distance from the viewpoint and views generally being obscured by vegetation. This magnitude of change in the view would be maintained for the Site during occupation of the proposed development. The proposed development would result in a ***negligible visual impact***. The proposed planting along the River Usk would complement the existing footpath and have a beneficial effect on the visual amenity of the development, as it matures it may become visible from the distant viewpoints to the north. Residual impacts of the development would be a small increase in the settlement in the view, also having a ***negligible*** impact.

6.126 **Near views to the north** are represented by the view from the M4 over-bridge and the pedestrian and vehicle bridge crossing the railway line on Bank Street (see see **Figure LA05-1 Appraisal Photograph 02**). The view is of **medium sensitivity** due to the proportion of the Site visible in the view and the number of viewers experiencing similar views.

6.127 During construction the movement of equipment and construction activity would be visible where views between the railway line and the river are possible. Construction activity would result in periods of increased visual prominence at the start of each phase of work when soil stripping and site establishment occurs.

6.128 The view of the development following construction would result in an increase in the extent of the view occupied by built development. The proposed houses would be two to three storeys in height, either a similar height to the surrounding residential development or slightly taller. The layout responds to the linear nature of the Site and reflects the adjacent urban area. Existing vegetation to the north of the Site including the avenue of willows along the river will screen views initially. The development of Lottery's Reen and the walkway along the riverside retains green open space within the Site, increases habitat and obscures views of the development.

6.129 The scale of change resulting from the proposed development would be **small** during construction, with vehicle movement and soil stripping activities increasing visual prominence. This magnitude of change would reduce to **small-negligible** once the houses have been constructed, as the Site would integrate with the adjacent residential areas to the east of the Site. During construction soil stripping and the movement of vehicles would result in a ***minor adverse*** visual effect. Once construction is completed, this would reduce to ***minor adverse-negligible*** as the Site appears as a continuation of the built area of Newport. Residual impacts of the development would be a small increase in the settlement in the view, also having a ***minor adverse***- ***negligible*** impact.

Views from the west

6.130 **Distant views of the Site from the west** are represented by the view from Barrack Hill (see **Figure LA05-1 Appraisal Photograph 03**). The Site is framed by the green band of open space and vegetation along the Usk River in the foreground, the school to the north and industrial and residential development to the south. The proposed development

would be seen as a new built element in an area that is currently open space. This viewpoint is of **medium sensitivity** due to the proportion of the Site occupying the view and the number of viewers experiencing similar views, including from residential properties.

6.131 The view of the development following construction would result in built development encroaching into an undeveloped part of the view. Variety in arrangement and form of the buildings within the Site would create visual interest in the view and reduce the apparent scale of development. The green space of Lottery's Reen extending through the Site will also help to reduce the scale of the development. Where possible the urban grain of the proposed development has been aligned with the existing terraces to the east of the railway line, helping to fit the development into the existing urban form to the east of the Site.

6.132 The scale of change resulting from the proposed development would be **small** during construction, with vehicle movement and soil stripping activities increasing visual prominence. This magnitude of change would reduce to **negligible** once the houses have been constructed, as the Site would integrate with the adjacent residential areas to the east and south of the Site. During construction soil stripping and the movement of vehicles would resulting in a ***minor adverse*** visual effect. Once construction is completed, and planting along the river and the reen establishes; this would reduce to ***minor adverse-negligible*** as the Site appears as a continuation of the built area of Newport. Residual impacts of the development would be a small increase in the extent of settlement in the view, also having a ***minor adverse***- ***negligible*** impact.

6.133 **Near views from the western bank of the river** are represented by the view from Shaftesbury Park and Crindau (see **Figure LA05-2 Appraisal Photograph 04**). The view has a **medium** level of visual sensitivity due to the proportion of the view occupied by the Site and the number of viewers experiencing similar views.

6.134 The scale of change resulting from the proposed development would be **medium** during construction, with vehicle movement and soil stripping activities increasing visual prominence in close range views. This magnitude of change would reduce to **small** once the houses have been constructed, as the Site would integrate with the adjacent residential areas to the east and south. During construction soil stripping and the movement of vehicles would result in a ***moderate adverse*** visual impact due to the removal of vegetation and construction activities in close proximity to the area creating increased visual prominence.

6.135 Once construction is completed, the visual impact would reduce as the Site would appear as an extension and continuation of the built up area of Newport. Residual impacts of the development would be appear as an extension and continuation of the built development of Newport. As the vegetation along the riverfront walkway matures, the development will become further integrated into the landscape/townscape, reducing the overall impact to ***minor adverse***. The enhancement of Lottery's Reen will have a beneficial impact at this scale and provide an area of green separation between the residential buildings.

Views from the east

6.136 **Distant views from the east** are represented by the view from Summer Hill (see **Figure LA05-2 Appraisal Photograph 05**). The view is of **low sensitivity** due to the proportion of the Site visible in the view and the number of viewers experiencing similar views.

6.137 During construction the movement of equipment and construction activity would be perceptible where this encroaches into the visible portion of the Site. Construction activity would result in periods of increased visual prominence at the start of each phase of work when soil stripping and site establishment occurs. However the Site only occupies a small portion in the view, which would also be the case for other more elevated views from the east.

6.138 The view of the development following construction would have a small increase in the extent of built development in the view. The scale of change resulting from the proposed development would be **small** during construction; due to the distance from the viewpoint and small area of visibility the development would occupy in the view. This magnitude of change in the view would be maintained for the Site during occupation of the proposed development. The proposed development would result in a ***minor adverse*** visual impact. Residual impacts of the development would be a small increase in the settlement in the view, also having a ***minor adverse*** impact.

Table 6.8: Summary of potential visual impact, mitigation measures and residual visual impacts

Potential Impact Area	Description of Impact		Description of Mitigation Measures	Description of Residual Impact	
	Description	Significance		Description	Significance
Distant views from the north: Views from Caerleon	Construction activity would result in periods of increased visual prominence at the start of each phase of work when soil stripping and site establishment occurs. Following construction there would be a small increase in the extent of settlement in the view	Negligible	Views are limited by intervening vegetation, landform and housing. Within distant views from the north the Site is viewed in the context of the surrounding development of Newport and the mix of industrial and residential development along the River Usk.	A small increase in the extent of settlement in the view . The impact of views would lessen over time as planting along the riverside matures, obscuring views of the development.	Negligible
Near views from the north: The M4 over-bridge and the pedestrian and vehicle bridge crossing the railway line on Bank Street	Construction activity would result in periods of increased visual prominence at the start of each phase of work when soil stripping and site establishment occurs. The view of the development following construction would result in an increase in the extent of the view occupied by built development	Minor adverse	The layout responds to the linear nature of the Site and reflects the adjacent urban area. Existing vegetation to the north of the Site including the avenue of willows along the river will screen views initially. The development of Lottery's Reen and the walkway along the riverside retains green open space within the Site, increases habitat and obscures views of the development.	A small increase in the extent of settlement in the view. The completed development would integrate with the adjacent residential areas to the east of the Site.	Minor adverse-negligible
Distant views from the west: Residential properties with elevated views, such as those on Brynglas Avenue and Barrack Hill	Construction activity would result in periods of increased visual prominence at the start of each phase of work when soil stripping and site establishment occurs. The view of the development following construction would result in built development encroaching into an undeveloped part of the view.	Minor adverse	Variety in arrangement and form of the buildings within the Site would create visual interest in the view and reduce the apparent scale of development. The green space of Lottery's Reen extending through the Site will also help to reduce the scale of the development. The urban grain of the proposed development has been aligned with the existing terraces to the east of the railway line, helping to fit the development into the existing urban form.	An area of built development encroaching into an undeveloped part of the view.	Minor adverse-negligible

Near views from the west: Views from western bank of the river in Shaftesbury Park and Crindau	During construction the removal of vegetation and construction activities in close proximity to the area will create increased visual prominence.	Moderate adverse	As the vegetation along the riverfront walkway matures, the development will become further integrated into the landscape/townscape, reducing the overall impact. The enhancement of Lottery's Reen will have a beneficial impact at this scale and provide an area of green separation between the residential buildings.	The Site would appear as an extension and continuation of the built development of Newport.	Minor adverse
Distant views from the east: Residential properties with elevated views in Summer Hill	Construction activity would result in periods of increased visual prominence at the start of each phase of work when soil stripping and site establishment occurs. The view of the development following construction would result in A small increase in the extent of built development in the view.	Minor adverse	Variety in arrangement and form of the buildings within the Site would create visual interest in the view and reduce the apparent scale of development.	A small increase in the extent of built development in the view	Minor adverse

Residual Impact: Impacts on the landscape/townscape

6.139 In considering the impact of the proposed development on the Site and its context the most sensitive features in the landscape/townscape are those which contribute to landscape/townscape character of the River Usk. There is an overlap between the perception of change to landscape/townscape character and visual amenity, but landscape/townscape character is derived from the combination and pattern of landscape/townscape elements. The effects of the proposed development on landscape/townscape character would arise from its relationship to these combinations and patterns. The following assessment is undertaken with reference to **Figure LA.03 and LA.04** which show the LANDMAP aspect areas.

6.140 The landscape/townscape effects assessed are those which result from change relating to the proposed development. The effects are those that remain after mitigation measures are incorporated into the proposals, defined as 'residual effects'. The sensitivity and impact of the proposed development on each of these receptors, as defined in section 3.7, is described in the following paragraphs. The potentially sensitive landscape/townscape receptors identified during the landscape/townscape appraisal and listed in paragraph 6.102 are:

- Landscape character as derived from the LANDMAP assessment for Newport;
- Local landscape/townscape character, derived from the distinctive pattern of existing vegetation within the Site and its context;
- The context and setting of the River Usk; and
- Landscape/townscape amenity, as experienced by local residents and by people who use the public footpaths, cycleways and roads within the immediate vicinity of the Site.

Landscape/townscape Character

6.141 With reference to the summary LANDMAP assessment in Table 3.1 , the overall sensitivity of the Site ranges from 'Low' to 'Moderate' for **geological landscape** and **landscape habitats** to 'High' for **historic landscape** and **visual and sensory**, with the **cultural landscape** aspect area evaluated as 'Outstanding'. The wider landscape aspect areas range from 'Low' to 'Outstanding'. Overall these aspects of landscape character combine to give a level of ***medium sensitivity***.

6.142 The overall magnitude of change when considering the development and the scale proposed is **small**. The Site is enclosed by existing development and the River Usk. The character of the Site is an area of open space surrounded by residential and commercial development. The area is described in the LANDMAP assessment as having a 'dislocated urban character'. The adjacent River Usk however, is described as 'an important natural, linear feature in the centre of Newport'.

6.143 The positive additions to the vegetation pattern of the Site as part of the proposed development will help to balance the negative effects associated with development encroachment into the undeveloped landscape. The Site is a relatively small component of the wider aspect areas it is situated within and is not a prominent feature in the wider area; it also does not contain any landscape elements of special significance.

6.144 The development aims to improve the relationship of the Site with the river. The current site has an abandoned and derelict character, which will be improved through planting and development of the public footpath and cycleway along the river adding to both the amenity

and habitat of the area, resulting in a beneficial impact. The retention and improvement of Lottery's Reen will also have a beneficial impact on the landscape/townscape character of the Site.

6.145 The proposed residential development would be consistent with the surrounding multi uses of the area including the school, railway line and existing commercial and residential development. The development allows the Site to become better integrated with the River Usk, proposes improvement to Lottery's Reen and will improve the amenity of recreational access; resulting in a ***minor beneficial*** impact on the landscape/townscape character of the area.

6.146 The formation of the access to the Site will not result in an adverse impact on landscape/townscape character because it utilises an existing access from Courtenay Street/Collier Street. The use of this access would not impact adversely on the street scene or lead to a significant change to the character or appearance of Collier and Courtenay Streets and could potentially be designed to be read as an extension of Collier Street.

Vegetation pattern

6.147 The character of the landscape/townscape is partly derived from the **pattern of existing vegetation** within the Site context, including the vegetation along the railway line and vegetation forming a green band along the River Usk. Therefore the degree of impact on the landscape/townscape resource of the area would relate in part to the impact on this pattern which is a receptor of ***medium sensitivity*****.**

6.148 During site clearance and demolition there would be disturbance and removal of existing vegetation across the entire site to allow for the development of the Site access and regrading of the Site to bring it above the relevant flood level. The overall magnitude of change is considered to be **small** because although the vegetation has 'local value for nature conservation'[11], its removal would only result in a short term minor adverse impact on the vegetation pattern of the Site. Planting undertaken as part of the development would have a ***negligible*** effect in the short term while it establishes.

6.149 The proposed planting within the Site around the local area of play, Lottery's Reen and new planting proposed along the public walkway next to the River Usk will help to create a more varied vegetation pattern when compared to the existing areas of scrub and grassland. Overall the effect on vegetation pattern will be ***minor beneficial*** in the long term due to the greater variety in the vegetation and an improvement in the relationship and connectivity between the landscape/townscape and the river.

The context and setting of the Usk River

6.150 The context and setting of the Usk River is a receptor of ***high sensitivity***. The proposed development would affect the quality and character of the immediate surroundings of the River Usk, changing it from an area of disused land to an amenity space associated with a residential development. However due to the small scale of development in the context of the landscape/townscape, fringed by existing residential and commercial/industrial development

11 **Land at Herbert Road Newport, Winter Ecology Survey,** Sturgess Ecology, Refer to Chapter 7

to the south and the school development to the north, the overall magnitude of change is considered to be **small,** being unlikely to undermine the separate identity and character of the River Usk.

6.151 The impact of the proposed development on the context and setting of the river is assessed as ***negligible-minor adverse*** when considering the loss of undeveloped land balanced against the improved relationship between the urban area and the river by developing the public footpath and the implementation of planting. Once planting within the development matures, the impact will reduce to ***negligible*** as the development further integrates into its surroundings and the adjacent developed areas.

Landscape/townscape amenity

6.152 The landscape/townscape amenity of residents within the Site context is a receptor of **medium** sensitivity. During construction of the proposed development and associated infrastructure there would be a period of increased disturbance during site establishment, soil stripping and the erection of the buildings within each phase of the development. Adverse impact would occur where the proposed development is a perceptible element in the setting of the property. This includes the existing residential properties in East Usk and potentially residential properties with elevated views to the west of the Site, including Brynglas and Barrack Hill. The overall magnitude of change within the setting of these properties ranges from **small** for properties in Brynglas and Barrack Hill which are largely separated from the Site by vegetation and existing development; to **medium** for those properties immediately adjacent to the Site at its southern entrance.

6.153 For closer properties there would be a **medium** magnitude of change, resulting in a short term ***moderate adverse*** impact on the landscape/townscape amenity of those properties in closest proximity to the Site. For properties in the wider context the impact would be **small,** as the Site is only a minor element in the wider landscape/townscape and development will be read in the context of the existing urban area of Newport. The impact on the landscape/townscape setting for these properties is ***negligible***.

6.154 In the longer term, towards the end of construction and during the occupation of the proposed development, the establishment of the planting along the public footpath and cycleway, planting around Lottery's Reen and other proposed site planting would help to integrate the built development into its landscape context. The impact on the landscape/townscape amenity of existing residents in the immediate area would reduce to ***minor adverse*** – ***negligible,*** and those further away to ***negligible.***

6.155 Recreation and enjoyment of publicly accessible places is inextricably linked to the landscape/townscape character of the wider area which is as a landscape/townscape receptor of **medium** sensitivity. The potential adverse impacts on the amenity of users of the public footpaths within the Site as a result of the proposed development would change during the construction period. During the construction of the infrastructure works there would be periods of increased disturbance. Users of the public footpaths near to the Site would be aware of the construction activity and the changes occurring to the landscape/townscape amenity of the route they are travelling or walking along.

6.156 Overall the magnitude of change on the landscape/townscape amenity of public footpaths in the area ranges from **low** (for those on the opposite bank of the river and the footpath to the

north of the Site, from which activity at the Site would be perceptible) to **medium** for the public footpath which passes through the Site would (see **Figure LA05-3 Appraisal Photograph 08** for views of the public footpath through the Site). This route would need to be closed while construction works are undertaken in close proximity to the route. Following construction the path will still be available for public use along the route following the river, but would have improved landscape/townscape amenity.

6.157 During the majority of the construction works the impact on the setting of the public footpaths in the surrounding area would be ***minor adverse*** during construction. The public footpaths to the west of the Site on the bank of the River Usk will experience a change in outlook, from an unbuilt landscape to a residential mixed use space. Initially this change will have a ***minor adverse*** impact on the landscape/townscape setting, but this will be reduced to ***negligible*** once mitigation planting is established to help integrate the proposed development into the landscape/townscape setting.

6.158 The public footpath which passes through the Site would have a ***moderate adverse*** impact on its landscape/townscape setting (see **Figure LA05-3** for views of the public footpath through the Site). This route would need to be closed/temporarily diverted while construction works are undertaken in close proximity to the route. Following construction the path will still be available for public use along the same route, but would have improved amenity due to the development of the riverfront area, creating a ***moderate beneficial*** impact on the setting of the path.

6.159 Vehicle travellers would perceive construction activities to a lesser extent than pedestrians. The landscape/townscape setting of the M4 over-bridge and A4042 slip road crossing the river to the north of the Site would change, with the Site changing from an open green space; appearing along with the avenue of willows to the west of the school as contiguous with the open space of Glebelands Park, to an extension of the built development in the area. The change in view at the Site would be a relatively small incidence whilst travelling past the Site on the M4 and A4042 as due to the speed of traffic viewers are less likely to be able to perceive changes in the landscape/townscape. During the majority of the construction works the impact on the setting of the M4 and A4042 would be ***minor adverse***. This would decrease to ***minor adverse – negligible*** as the Site is occupied and becomes part of the residential/ mixed use setting of the area.

Table 6.9: Summary of potential landscape/townscape impact, mitigation measures and residual impacts

Potential Impact Area	Description of Impact		Description of Mitigation Measures	Description of Residual Impact	
	Description	Significance		Description	Significance
Landscape/townscape Character	Introduction of built development into an area of open space	Negligible	The positive additions to the vegetation pattern of the Site as part of the proposed development will help to balance the negative effects associated with development encroachment into the undeveloped landscape.	The current site has an abandoned and derelict character, which will be improved through planting and development of the public footpath and cycleway along the river adding to both the amenity and habitat of the area, resulting in a beneficial impact.	Minor beneficial
Vegetation pattern	Disturbance and removal of existing vegetation across the entire site to allow for the development of the Site access and regrading of the Site to bring it above the relevant flood level.	Minor adverse	Proposed planting within the Site around the local area of play, Lottery's Reen and new planting proposed along the public walkway next to the River Usk	Greater variety in vegetation and an improvement in the relationship and connectivity between the landscape/townscape and the river	Minor beneficial
The context and setting of the Usk River	Change in the quality and character of the immediate surroundings of the River Usk	Negligible-minor adverse	Development of amenity space alongside the river	Improved relationship between the urban area and the river by developing the public footpath and the implementation of planting	Negligible
Landscape /townscape amenity: local residents	During construction of the proposed development and associated infrastructure there would be a period of increased disturbance during site establishment, soil stripping and the erection of the buildings within each phase of the development. Adverse impact would occur where the	Minor adverse-negligible	The establishment of the planting along the public footpath and cycleway, planting around Lottery's Reen and other proposed site planting would help to integrate the built development into its landscape context.	Development which is a development is a perceptible element in the setting of local residents	Minor adverse-negligible

	proposed development is a perceptible element in the setting of the property				
Landscape/townscape amenity: users of public footpaths	Footpath closure during construction; Following construction footpaths will experience a change in outlook, from an unbuilt landscape to a residential mixed use space	Moderate- Minor adverse	Mitigation planting to help integrate the proposed development into the landscape/townscape setting	Change in outlook, from an unbuilt landscape to a residential mixed use space	Negligible-moderate benefical
Landscape/townscape amenity: vehicle travellers	The Site changing from an open green space, to an extension of the built development in the area	Minor adverse-negligible	Design and layout of the scheme to integrate development with the surrounding built landscape	Change in outlook, from an unbuilt area to a residential mixed use space	Minor adverse-negligible

SUMMARY

6.160 The **townscape and visual appraisal** has considered the character of the townscape and visual amenity within the context of the Site located off Herbert Road, Newport. The proposed development would be consistent in scale to the existing residential properties in the area and would not appear out of character with adjacent land uses.

6.161 It is concluded that the Site is able to accommodate the scale of the development proposed without harm to the character of the townscape. The main reasons for this conclusion are, in summary:

- Whilst appearing in public views from a number of locations, the proposed development would be viewed within the context of the built development of Newport and would not be inconsistent with the surrounding character of the area.
- The appearance and scale of the proposed development would not appear incompatible with existing development in terms of massing, ridge height or proximity to adjacent buildings; and would be generally consistent with the building spacing of existing properties to the south of the Site in East Usk.
- The development allows the Site to become better integrated with the River Usk, proposes improvement to Lottery's Reen and will improve the amenity of recreational access; resulting in an overall ***minor beneficial*** impact on the landscape/townscape character of the area.
- Proposed planting will assist in integrating the development into views by supplementing existing vegetation patterns within and outside the Site boundary.
- Visual impacts are generally minor to moderate due to the scale of the changes proposed and the sensitivity of receptors. There are opportunities to mitigate visual impacts by screening or filtering views of the development with planting along the river, in the open space and within Lottery's Reen.
- Impacts on the amenity of nearby residential properties are ***negligible*** to ***minor adverse*** in the longer term as the Site will appear as part of the urban character of Newport, particularly once vegetation has established across the Site.
- The development of the Site will have an overall ***minor beneficial*** impact on the landscape/townscape character of the River Usk, improving habitat of Lottery's Reen and safeguarding the sensitive habitats along the River Usk.

LAND SOUTH OF GLAN USK PRIMARY SCHOOL, HERBERT ROAD NEWPORT

ENVIRONMENTAL STATEMENT

VOLUME 2
CHAPTER 7: ECOLOGY

7. ECOLOGY

INTRODUCTION

7.1 This chapter of the Environmental Statement (ES) concerns the potential ecological effects of the proposed residential development of land at Herbert Road, and has been prepared by Sturgess Ecology.

7.2 The purpose of this chapter is to describe the ecological conditions found within the site boundary, to evaluate the ecological features and to provide an indication of impacts/mitigation associated with the construction and operation of the proposed residential development.

7.3 The scope of the Ecological Impact Assessment (EcIA) has been developed based on:-

- Consideration of any ecological resources, focusing on those for which there is legal or planning policy in favour of protection or enhancement.
- Data on sites of national and county importance within 1 to 2km of the proposed development boundary.
- Data on notable flora and fauna; for example, legally protected, Local (Newport) and UK Biodiversity Action Plan, and other species of conservation concern within 500m to 1km of the proposed development boundary.
- Review of the proposed development layout and its effect on ecological resources.

7.4 The site is located in St Julians, Newport, and covers approximately 5 hectares. It lies immediately adjacent to the River Usk Special Area of Conservation (SAC) and Site of Special Scientific Interest (SSSI). The site contains a mix of habitats including rough grassland, scrub, ruderal vegetation and a reed-fringed ditch known as Lottery's Reen.

ASSESSMENT METHODOLOGY

7.5 Where an ecological feature (i.e. a habitat or species) is likely to be subject to an impact, both the value of the feature/resource and the likelihood of a significant effect occurring are considered. Where an effect is identified on a particular feature, it is evaluated as adverse or beneficial at the relevant geographical scale (local, district etc.).

7.6 The potential impacts of the proposed development during construction and operation on identified ecological receptors include:

- direct loss of habitats;
- isolation and fragmentation of habitats;
- changes in hydrology in terms of the rate/quality of surface run-off;
- degradation of habitats following changes in management;
- changes in artificial light levels; and
- increased disturbance from construction, traffic, people and dogs.

7.7 Potentially sensitive ecological receptors are identified through the collation of baseline data from surveys and existing records. Once the receptors are identified, information on their legal and policy, conservation and distribution status, plus any known trends, are considered to measure their value.

7.8 All ecological receptors are described (including conservation status, status on site, sensitivity, planning and legal protection etc) and assigned a value. The scale of value for ecological resources used in the present assessment is as follows:

- International;
- UK;
- National (Wales);
- Regional (South Wales);
- County (Gwent/ Monmouthshire: vice county 35);
- District (Newport);
- Local (East Usk); and
- Within immediate zone of influence or within the development site boundary

7.9 All resources valued at above a given threshold of value (in this case within the immediate zone of influence is the lowest level) are considered in terms of whether any effects are likely to be ecologically significant or not. Activities associated with development are likely to cause significant ecological effects, therefore it is necessary to identify associated changes and their implications in terms of scale, magnitude, duration, reversibility and timing for valued ecological resources.

7.10 For the purposes of this assessment, an ecologically significant effect is defined as an effect (adverse or beneficial) on the integrity of a defined site or ecosystem(s) and/or the conservation status of habitats or species within a given geographical area, including cumulative effects (based on IEEM 2006 guidance[1]). In this context, integrity is defined as the:-

> ***'Coherence of a site's ecological structure and function across its whole area that allows it to sustain the habitat, complex of habitats and/or levels of populations…'***

7.11 The term ecologically significant should not be confused with any other definitions of the term significant used elsewhere in this Environmental Statement. The ecological significance of an effect is considered descriptively in terms of its nature (for example, beneficial or adverse). The ecological value of the resource and the planning policy and legal context are described and used to determine the scale (see above) at which the effect is considered. Finally, the residual effect of the scheme including consideration of any additional mitigation measures is presented.

Methodology

7.12 The current assessment has been undertaken using best practice guidelines published by the Institute of Ecology and Environmental Management (IEEM). This guidance has been developed by the National Working Group on Ecological Impact Assessment convened

[1] IEEM (2006) Guidelines for Ecological Impact Assessment in the United Kingdom

under the auspices of IEEM. These guidelines have been subject to extensive formal consultation with amongst others, English Nature (Natural England from October 2006), the Environment Agency, the Institute of Environmental Management and Assessment (IEMA) and the Countryside Council for Wales (CCW). The final guidance was published in June 2006.

7.13 At present the 2006 IEEM guidelines for Ecological Impact Assessment (EcIA) represent best practice and their use as part of this Environmental Statement is considered appropriate.

7.14 It should be noted that the terms used to assign value to a given ecological feature and to assess the impact of the proposed development within the IEEM guidelines may differ from those used within other chapters of this Environmental Statement.

Consultation & Data search

7.15 Consultation with the local planning authority, Countryside Council for Wales and Environment Agency Wales (the latter two are now part of Natural Resources Wales (NRW)) identified the requirement for an Environmental Impact Assessment that should include consideration of the following:-

- Statutory Nature Conservation Sites (SAC, SPA, SSSIs etc);
- Non-statutory Nature Conservation Sites (SINCs);
- Legally Protected Species;
- UK and Local Biodiversity Action Plan Habitats and Species

7.16 The consultation responses received identified the importance of assessing the likely ecological impacts on the River Usk SAC and SSSI.

7.17 The South-East Wales Biological Records Centre (SEWBReC) was consulted to request any existing data held for the site and for a 500m buffer around it for protected and Biodiversity Action Plan priority species. The search area was widened by up to 1km for more mobile protected species such as birds and bats.

7.18 The County Ecologist for Newport City Council, Katie Godfrey, was contacted to request any ecological data relating to the site or its surroundings that she might be aware of, including details of any local authority Sites of Importance for Nature Conservation. Other consultees included the following:

- Environment Agency Biodiversity Team Leader (Stuart Craxford)
- Gwent Wildlife Trust (Sorrel Jones)
- Royal Society for the Protection of Birds
- Wildlife in Newport group (Roger James)
- Gwent County Recorder for Butterflies and larger moths (Martin Anthoney)
- Botanical Society of the British Isles, Joint County Recorder (Stephanie Tyler)
- Gwent County Recorder for Bryophytes (Sam Bosanquet)
- Gwent County Recorder for Mammals (Jan Kitchington)
- Gwent County Recorder for Birds/ Gwent Ornithological Society (Chris Jones)
- Gwent Bat Group (Ellen Kershaw)
- Gwent Badger Group (Steve Clark)

- Gwent Amphibian and Reptile Group (Melanie Dodd)

Habitat Survey

7.19 The habitat survey was undertaken on 8 November 2012 by Dr Peter Sturgess CEnv MIEEM. The weather conditions were warm and sunny. There had not been any significant frost since the summer, so it was still possible to identify the majority of plant species seen. The study area included the site itself, plus the adjacent bank of the River Usk. Observations of the other adjacent land were made from within the site, but these areas were not accessed. The survey method was based on the standard Phase I Habitat survey technique (JNCC 1990)[2] as amended by the Institute of Environmental Assessment (1995)[3]. All habitat types within the survey area were described and mapped and their potential to support rare, protected or otherwise notable species of flora and fauna was assessed. This included a ground-based evaluation of the potential of any built structures and larger trees to support roosting bats. Incidental observations of birds and other fauna were also recorded.

7.20 The survey also incorporated a search for non-native invasive species, including Japanese Knotweed (*Fallopia japonica*), which are included on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended). It is an offence to release or otherwise cause the spread of such species into the wild.

Stage 2 Surveys

7.21 The SEWBReC desk study and habitat survey of November 2012 provided an initial input of likely ecological constraints and recommendations to the project design process. It also informed a discussion with the Newport County Ecologist and CCW where the extent of further, targeted ecology survey work was agreed.

7.22 The surveys include the following:

- Botanical survey
- Invertebrate surveys (including moth trapping)
- Amphibian survey
- Reptile survey
- Breeding bird survey
- Otter survey
- Badger survey
- Water Vole survey
- Bat activity survey

7.23 Botanical observations have been made during November 2012, March, April, May, June, July, August and September 2013. These included updating of the habitat survey data where necessary.

[2] Joint Nature Conservation Committee (JNCC). 1990. Handbook for Phase I Habitat Survey. A technique for environmental audit. JNCC.
[3] Institute for Environmental Assessment. (1995). Guidelines for Baseline Ecological Assessment. E & FN Spon.

7.24 The desk study highlighted the potential presence of several species of uncommon invertebrates, and therefore a series of invertebrate surveys was undertaken. The target invertebrate groups were butterflies and moths, beetles and bees. Incidental observations were also made of prominent other invertebrates, such as grasshoppers and crickets. A range of sampling techniques was used to search habitats considered potentially suitable for uncommon species. Beetles and bees were subject to specialist sampling by the National Museum of Wales on two occasions (31 May and 16 July 2013). Moths were investigated by mercury-vapour light trapping on two occasions (10 June and 19 August 2013). A search was also made for the food-plant and larvae of the Small Ranunculus Moth (*Hecatera dysodea*). This uncommon moth which rarely comes to light is known to occur nearby, and feeds on Prickly Lettuce (*Lactuca serriola*).

7.25 An amphibian survey was undertaken between April and June 2013. The survey method involved examining the ditches by 2 day-time pond-netting surveys and 2 night-time torch surveys. Survey effort was focussed on Lottery's Reen and the small ditch to its south side. A Habitat Suitability Index assessment was completed, to assess the potential for presence of Great Crested Newts (*Triturus cristatus*).

7.26 A reptile survey was undertaken between March and June 2013. Survey effort was focussed in the relatively dry rough grassland and scrub areas, using a combination of artificial refugia and direct search methods. The survey involved a total of 7 visits during suitable weather conditions.

7.27 A breeding bird survey was carried out during the spring. The survey method involved a total of 5 morning survey visits spread between late March and early July 2013. Every bird seen or heard during each visit was recorded, together with any territorial behaviour such as calling, singing, nest-building or carrying food for young.

7.28 A survey for Otters (*Lutra lutra*) and Badgers (*Meles meles*) was undertaken on 25 February 2013. This involved a thorough search of the river-bank beside the Usk, the ditches and the dense scrub habitats within the site to search for signs of Otters and Badgers, and to evaluate the likelihood of their presence within the site. Checks for signs of Otters were also made during the course of the bird surveys beside the Usk and Lottery's Reen.

7.29 There is no evidence to suggest the presence of Water Vole (*Arvicola terrestris*), but checks were made for signs of this species along Lottery's Reen during the course of the Botanical surveys during spring and summer 2013.

7.30 Two dusk bat activity surveys were carried out on 30 April and 5 June 2013. The method involved two surveyors walking all of the main paths through the site, monitoring bat activity visually and by use of frequency division/ time expansion bat detectors. The bat calls were recorded for later sound analysis using Batsound software. No roost surveys were required because there are no large trees or built structures within the site offering potentially suitable habitat for bats to roost in.

LEGISLATIVE & PLANNING POLICY CONTEXT

7.31 For each of the valued ecological features identified (for example, a habitat or species), any relevant planning policy, legislative protection or other conservation interest (for example, the UK or Newport Biodiversity Action Plan - BAP) is described in the following paragraphs. The main legislative considerations are those contained within the Wildlife and Countryside Act 1981 (as amended), The Conservation of Habitats & Species Regulations 2010, the Countryside and Rights of Way Act 2000, and the Natural Environment and Rural Communities (NERC) Act 2006.

7.32 In terms of planning policy, a number of over-arching policies are of relevance not least of which are those described within Planning Policy Wales (PPW[4]), which sets out land use planning policies of the Welsh Government with Chapter 5 dealing with Conserving and Improving Natural Heritage and Coast. The advice contained within PPW is supplemented for some subjects by Technical Advice Notes (TANs), with TAN 5[5] addressing Nature Conservation.

7.33 TAN 5 identifies a number of key principles for the land use planning system:

- work to achieve nature conservation objectives through a partnership between local planning authorities, CCW, the Environment Agency, voluntary organisations, developers, landowners and other key stakeholders;
- integrate nature conservation into all planning decisions looking for development to deliver social, economic and environmental objectives together over time;
- ensure that the UK's international obligations for site, species and habitat protection are fully met in all planning decisions;
- look for development to provide a net benefit for biodiversity conservation with no significant loss of habitats or populations of species, locally or nationally.

7.34 In addition to the above, Newport City Council has published Supplementary Planning Guidance relating to Wildlife and Development[6]. This sets out the approach that is taken by the local authority with regard to the legislation and policies already outlined, providing direction on how biodiversity should be conserved and enhanced through the development control process. It contains guidance on the application and assessment process and ecological design measures to reduce the impact of developments on biodiversity.

Newport Unitary Development Plan 1996–2011 (Adopted May 2006)[7].

7.35 The UDP sets out the development strategy and spatial policy framework for the Newport area over a fifteen-year period to 2011. Although the plan period has lapsed, it is still the relevant development plan for this Environmental Statement. It is used by the Council to guide and control development, providing a basis for consistent and appropriate decision-making. Within the Plan, part of the land at Herbert Road is allocated under Policy H1 for

[4] Welsh Assembly Government (2012) Planning Policy Wales, 5th Edition

[5] Welsh Assembly Government (2009). Technical Advice Note 5 - Nature Conservation and Planning. National Assembly for Wales, Cardiff.

[6] Newport City Council. Wildlife and Development: Supplementary Planning Guidance. March 2010.

[7] Newport Unitary Development Plan 1996 – 2011 (Adopted May 2006)

new housing (153 units), while the strip immediately beside the River Usk is allocated under Policy CE33 as Environmental Space.

7.36 Within the adopted UDP, Part 2 sets out the policies that cover conservation and the environment across the whole plan area (i.e. Newport). This does not include specific policies relating to the land at Herbert Road, but Policies CE5 and CE6 relate to the River Usk SAC and SSSI, and Policy CE33 relates to the designated Environmental Space.

7.37 Policy CE5 of the UDP relates to International Sites, and applies to the River Usk SAC. It states that:

> ***In the case of development proposals which would affect a European site or a Ramsar site:***
> ***i) where there would be an adverse effect, the development will only be permitted if it is directly necessary for the beneficial management of the site, or if there are imperative reasons of over-riding public interest for the development and there is no alternative solution;***
> ***ii) where the site also hosts a priority natural habitat or a priority species, development will only be permitted if it is directly necessary for human health, public safety or is directly connected with the beneficial management of the site.***

7.38 Policy CE6 relates to National Sites, and applies to the River Usk SSSI. It states that:

> ***Development which would affect a nationally designated site will only be permitted where:***
> ***i) the proposal would not have an unacceptably adverse effect on the nature conservation interest of the site;***
> ***ii) the reasons for the development clearly outweigh the value of the site itself and its value in the network of such nature conservation sites, and it is possible to agree conditions for mitigation of harmful effects in consultation with the countryside council for Wales.***

7.39 Policy CE33 relates to Environmental Space, and applies to the land immediately adjacent to the River Usk. It states that:

> ***In and adjoining the urban and village areas, and in areas identified for comprehensive development, sites having existing importance for their visual qualities, as wildlife habitats or for recreational or amenity purposes, will be safeguarded as "environmental spaces". Development in these spaces will be permitted only where:***
> ***i) The existing or potential environmental qualities of the site will be improved or complemented;***
> ***ii) No site recognised by the council as having special nature conservation interest is adversely affected;***
> ***iii) There is not a loss, without appropriate replacement, of a recreational, open space, or amenity resource for the immediate locality unless it can be demonstrated that there is an excess of provision or facilities can be enhanced through development of a small part of the site.***

7.40 The policy framework summarized above has provided the context for the development proposals and the assessment of its environmental effects.

BASELINE CONDITIONS

7.41 As described earlier, the baseline conditions across the site and immediately adjoining areas were established by surveys and consultation. The findings of these are presented in Appendix 7. The key reference for assessing the value of the habitats is the Wildlife Sites Guidelines (South Wales Wildlife Sites Partnership, 2004)[8].

7.42 The distribution and extent of the habitats recorded is illustrated on the Phase I Habitat map and described by the accompanying target notes (Appendix 7.4). An overview description of the main habitat types and summaries of the various ecological surveys are provided in the following sections. Each of the ecological features is then assigned an ecological value based on consideration of status in planning policy, conservation status, distribution, rarity and potential value.

Designated sites

River Usk SAC and SSSI

7.43 The River Usk SAC lies adjacent to the proposed development site. The SAC is primarily designated for the following species listed on Annex II of the EC Habitats Directive:

- Sea lamprey (*Petromyzon marinus*)
- Brook lamprey (*Lampetra planeri*)
- River Lamprey (*Lampetra fluviatilis*)
- Twaite Shad (*Alosa fallax*)
- Atlantic salmon (*Salmo salar*)
- Bullhead (*Cottus gobio*)
- Otter (*Lutra lutra*)

7.44 Allis shad (*Alosa alosa*) is also an Annex II species present as a qualifying feature, but this is not a primary reason for site selection.

7.45 The Usk supports the Annex I habitat 'Water courses of plain to montane levels with Ranunculion fluitantis and Callitricho-Batrachion vegetation', due to the presence of Water-crowfoot plants, although this is not a primary reason for the site selection. The Watercrowfoot community is not present in the tidal section of the river adjacent to the site.

7.46 The River Usk and its fringing salt-marsh habitat adjacent to the site's western boundary are also protected through their SSSI designation as part of the River Usk (Lower Usk) (Abergavenny - Newport) SSSI. The SSSI citation describes the river as follows:

> ***"The River Usk comprises a large, linear ecosystem which acts as an important wildlife corridor, an essential migration route and key breeding area for many***

[8] South Wales Wildlife Sites Partnership (2004). Guidelines for the Selection of Wildlife Sites in South Wales.

nationally and internationally important species. The Usk is of special interest as a fine example of a river running over sandstones and for its associated plant and animal communities. Its character spans a wide range of types from an upland, base-poor stream to a large lowland river with extensive tidal reaches. Its overall diversity is a product of its underlying geology, soil type, adjacent land-use and fluvio-geomorphological regime.

The River Usk is one of the largest rivers in Wales. From its source to its confluence, the main channel is over 120 kilometres long, and drains a catchment of 1358 km^2. Rising at an altitude of 500 metres on Mynydd Ddu on the Carmarthenshire/Powys border, the Usk flows eastwards along the northern scarp of the Brecon Beacons, turning south below Abergavenny and meandering down through Monmouthshire to its confluence with the Severn Estuary below Newport."

7.47 The whole length of the Usk is protected as SAC, but the River Usk (Lower Usk) (Abergavenny - Newport) SSSI covers the lower and middle sections of the river, including the estuarine habitats adjacent to the Herbert Road site. The SSSI features associated with the saline habitats in Newport are summarised below (from the SSSI citation sheet):

- Large mesotrophic lowland river which has not been subject to significant modification by man, showing a clear downstream succession in plant communities.
- Several scarce higher plant species occur along the river's tidal reaches.
- Otters are present.
- Good range of breeding birds.
- Below Newbridge on Usk, the upper mud banks of the river are colonized by saltmarsh species such as Sea Aster (*Aster tripolium*), Saltmarsh-Grass (*Puccinellia* spp.) and Scurvygrass (*Cochlearia* spp.). Occasionally inundated grassland along the tidal reaches is dominated by Couch (*Elytrigia repens*) and supports regionally rare species including Bulbous Foxtail (*Alopecurus bulbosus*), Marsh Mallow (*Althaea officinalis*) and Marsh Helleborine (*Epipactis palustris*).
- The Usk has a wide range of migratory and non-migratory fish species. The River Lamprey, Twaite Shad, Allis Shad, Salmon and Sea Trout migrate from the Severn Estuary to spawn in the river. Large numbers of Eel (*Anguilla anguilla*) elvers also migrate up the river.

7.48 The banks of the River Usk immediately adjacent to the Herbert Road site boundary are formed by intertidal mud, and the upper fringe of this supports saltmarsh vegetation. The flora is patchy, with the lower parts tending to be dominated by stands of single species, including Common Reed (*Phragmites australis*), Sea Aster, Sea Club-rush (*Bolboschoenus maritimus*) and Salt-marsh Grass, while the upper parts support a grassy sward of tussocky Couch, Creeping Bent (*Agrostis stolonifera*) and Red Fescue (*Festuca rubra*), often with scattered Common Reed.

7.49 For the purposes of the ES, the highest level of designation is applicable to the river, and it is assessed as having <u>International</u> value for nature conservation.

Habitats

7.50 The site supports a broad range of habitats, most of which appear to have developed through natural succession on previously disturbed ground. They include grassland, scrub, ruderal vegetation and ditches. In some parts of the site patches of grassland and scrub habitats grade into one another forming a mosaic. Each of the main habitat types within and adjacent to the site is broadly described and evaluated below.

Wet ditch/reedbed

7.51 The wet ditch is dominated by species-poor Willow (*Salix* sp.) and Bramble (*Rubus fruticosus*) scrub, with very limited botanical diversity and the more open sections are dominated by Common Reed and a slightly wider range of marginal aquatic plants, locally extending several metres beyond the ditch banks. This vegetation is best classified as National Vegetation Classification (NVC) community S4 *Phragmites australis* swamp/ reed bed. A smaller strip of drier reeds is present in the north-east corner, but this is largely smothered by scrub. Reedbed is a priority habitat in the UKBAP and the Newport LBAP, and even relatively small stands of reeds are recognised of having value for wildlife. The extent and diversity of the reedbed and ditch habitat in this site is very limited, and the habitat quality poor due to the relatively shallow depth of water, the crowded, unmanaged nature of the reeds vegetation, large amounts of litter and disturbance by dogs and people; but it provides a suitable habitat for breeding birds, including Reed Warbler (*Acrocephalus scirpaceus*). This particular reed habitat appears to have a relatively low value for invertebrates and amphibians. In this case the ditch is assessed as having District value for nature conservation.

Grassland

7.52 Species-poor semi-improved neutral grassland habitat extends along the western side of the site, but it lacks any of the noteworthy elements of the nearby saltmarsh vegetation. There are a few small patches containing Meadow Barley (*Hordeum secalinum*), which is frequent in grassland within the Gwent Levels, but the grassland generally has a limited botanical diversity, and would best be classified as a species-poor example of the NVC MG1 *Arrhenatherum elatius* grassland. The grassland does not appear to have been managed by cutting or grazing for several years and is locally subject to encroachment by Bramble scrub and tall herbs. This is a widespread habitat that contains only common species of plants, and is subject to high levels of disturbance and nutrient inputs by dogs. Its main contribution to local biodiversity appears to be as a foraging area for House Sparrows. The grassland does not appear to meet the neutral grassland criteria set out in the Guidelines for the Selection of Wildlife Sites in South Wales.

7.53 Several areas of impeded drainage support relatively species-poor damp neutral grassland vegetation. This is best classified in the NVC as MG10b *Holcus lanatus – Juncus effusus* rush pasture *Juncus inflexus* sub-community, with local elements of MG11 *Festuca rubra – Agrostis stolonifera – Potentilla anserina* grassland. The damp grassland is mostly rather patchy, and much of it has been subject to recent disturbance. It forms gradual transitions with the adjoining semi-improved grassland, scrub and reed communities. A few plants of Saltmarsh Rush (*Juncus gerardii*) and Spiked Sedge (*Carex spicata*) are present in one small trampled area, but the habitat generally has a relatively low diversity sward and would not meet the selection criteria for marshy grasslands set out in the

Guidelines for the Selection of Wildlife Sites in South Wales. The damp grassland provides a foraging habitat for birds and bats and supports a moderate diversity of invertebrates.

7.54 Several patches of moderately diverse semi-improved neutral grassland are present at the margins of the post-industrial land, forming transitions with scrub, damp neutral grassland and ruderal habitats. These patches are fragmentary in character and include many species of ruderal plants, but they are probably closest to the NVC MG1 *Arrhenatherum elatius* grassland. This grassland is discussed in more detail below, where it is assessed as post-industrial land in combination with the ruderal habitats.

7.55 The short mown grassland immediately south of the new school is a species-poor stand of recently established amenity grassland. Its limited species diversity and habitat structure offer little value for wildlife.

7.56 The grassland habitat within the site has generally been assessed as having limited value for its flora, with the possible exception of the transitions with ruderal communities. However, it is likely to have value for common grassland fauna, and has been evaluated as having Local value for nature conservation. The amenity grassland, however, is evaluated as having Negligible ecological value for the purposes of this EcIA.

Ruderal vegetation

7.57 The post-industrial habitats within the site include a succession from bare ground to moderately diverse neutral grassland and scrub. The earliest stages of this succession comprise a sparse assemblage of ruderal plants growing amongst rubble. Areas that have developed for longer, especially towards the margins, generally have a more continuous and more diverse plant cover. In terms of the NVC, the flora is best described as a fragmentary OV22 *Poa annua - Taraxacum officinale* community, grading to a fragmentary (but moderately diverse) MG1 *Arrhenatherum elatius* grassland at the margins, with OV24 *Urtica dioica – Galium aparine* community, and OV26 *Epilobium hirsutum* community in the areas of taller herb vegetation.

7.58 The post-industrial area includes several species listed in the Wildlife Sites Guidelines as indicators of post-industrial land. One of the criteria for considering the site important in a county context is the presence of 20 or more indictors. In this case 21 indicators have been recorded in this area, but most of them are only present in very small quantity, some only represented by single specimens. The indicators observed are: Bristly Ox-tongue (*Picris echioides*), Colt's-foot (*Tussilago farfara*), Common Bird's-foot Trefoil (*Lotus corniculatus*), Common Figwort (*Scrophularia nodosa*), Common Knapweed (*Centaurea nigra*), Common Toadflax (*Linaria vulgaris*), False Fox-sedge (*Carex otrubae*), Glaucous Sedge (*Carex flacca*), Great Mullein (*Verbascum thapsus*), Hoary Ragwort (*Senecio erucifolius*), Lesser Burdock (*Arctium minus*), Meadow Vetchling (*Lathyrus pratensis*), Perforate St.John's-wort (*Hypericum perforatum*), Prickly Lettuce, Red Clover (*Trifolium pratensis*), Rough Hawkbit (*Leontodon hispidus*), Teasel (*Dipsacus fullonum*), Tufted Vetch (*Vicia cracca*), Wild Carrot (*Daucus carota*), Wild Parsnip (*Pastinaca sativa*) and Yellow Feather-moss (*Homalothecium lutescens*). The most prominent bryophytes recorded in this area are all common species, and there is no reason to suspect that any especially rare or notable species are present. The habitat is assessed as having Local value for nature conservation. The majority of the interest is limited to the more diverse grassy

margins, which support low numbers of Slow Worms and a moderate diversity of invertebrates, and provide a foraging habitat for birds.

Trees and scrub

7.59 The areas of dense scrub habitat are mostly dominated by Bramble. This mostly conforms to the NVC community W24 *Rubus fruticosus – Holcus lanatus* underscrub, but with some areas dominated by Silver Birch (*Betula pendula*) and Willows. This scrub generally has a very limited ground flora comprising a small number of common species. The only exceptions being a few patches of moderately diverse grassland and ruderal plants which are gradually becoming over-shadowed by willow. Several stands of the non-native invasive species Japanese Knotweed are present within the areas of dense scrub. A few plants of the invasive species Indian Balsam (*Impatiens glandulifera*) were observed in scrub on the north side of Lottery's Reen. A single plant seedling of the locally uncommon White Bryony (*Bryonia dioica*) was present in the same location. There are no hedgerows within the site.

7.60 The scattered scrub habitat mostly comprises small clumps of Bramble and individual saplings of Willow. The trees within the site are generally small and very sparse. The majority are isolated Horse Chestnut (*Aesculus hippocastanum*) trees that have been severely weakened by disease and salt-spray. These trees do not provide any effective cover for wildlife, although they may serve as perches for some birds. The largest trees on the site are two mature Willows at the site boundary near to the Sea Cadet centre. These have a covering of Ivy (*Hedera helix*) on their trunks, but offer insufficient cover or any cavities that might be used by roosting bats. The scattered scrub also includes a small quantity of the non-native invasive species Hollyberry Cotoneaster (*Cotoneaster bullatus*) and Virginea Creeper (*Parthenocissus quinquefolia*).

7.61 The trees and scrub have negligible value for their flora, but make a useful contribution to wildlife by adding structural diversity to the habitat, and providing food and cover for invertebrates, birds and Slow Worms. The habitat is assessed as having Local value for nature conservation.

Other habitats

7.62 Other habitats within the site include roads and paths, short sections of wall, and fences. These support a small number of common bryophytes and lichens but are generally unvegetated and were not considered to provide any cover or other benefit for wildlife. These hard surfaces are considered to be of Negligible ecological value.

Protected or Notable Species

Otter

7.63 Otters are known to use the whole length of the river Usk. The data search highlighted a record of an Otter near to the site's northern boundary in 1996, and Otter signs at the M4 bridge to the north and railway bridge to the south in 2000 and 2001. There was also an unconfirmed Otter sighting between the railway bridge and the southern end of the site

during 2007. A 2006 study of Otter habitat in urban Newport [9] assessed the river section adjacent to this site (between the M4 and the railway bridge) as follows:

> ***"Generally this area is of low value for otters. However, Crindau Pill and the scrub area south of St Julian's Recreation Ground are likely to be highly sensitive areas where Otters might be present."***

7.64 Otters are afforded full statutory protection in the UK under both domestic and European legislation. They are a qualifying feature of the River Usk SAC. They are also included within the UK BAP and Newport LBAP.

7.65 No evidence of Otters was observed during the recent site surveys (Appendix 7.12), and the limited areas of scrub and reed habitat within the site were all found to be regularly disturbed by dogs. The survey also found that the adjacent parts of the Usk SAC were regularly accessed by people and dogs, with no potential areas of secure cover near to the site that might be used by Otters for day-time resting sites. The nearest potential resting habitat for Otters is the scrubby margin of the Usk between the northern boundary and the M4 bridge, but this area is also very heavily disturbed by people and dogs. This northern area became less disturbed during the summer, when dense Japanese Knotweed and reeds formed a greater barrier to dogs and people, but occasional checks made during this period still found no signs of use by Otters.

7.66 The high levels of uncontrolled access by dogs within the Herbert Road site and the adjacent part of the SAC mean that the probability of the site being used by Otters is low. Otters would be expected to pass by the site from time to time but are unlikely to venture away from the river in this location. For the purposes of the assessment they are considered to be of International importance as a component the Usk SAC, but of Negligible importance within the site itself.

Badger

7.67 No evidence of Badgers was noted within the site during the Badger Survey of February 2013 (Appendix 7.12). Badgers are known to occur within suburban Newport, and a sett was found during a search of the wider area. Details of the sett have been provided to NRW, but are excluded from this Environmental Statement to protect the Badgers' precise location. The proposed development site is more than 500m from the nearest known sett and unlikely to form part of the territory of this particular Badger group. It is reasonable to conclude that Badgers are absent from the site, and they are not considered further within the current assessment.

Bats

7.68 There are no trees or structures within the proposed development site considered likely to be used by roosting bats. The bat activity surveys indicated that small numbers of Common Pipistrelle (*Pipistrellus pipistrellus*) and Soprano Pipistrelle (*P.pygmaeus*) bats forage over the site, with the more sheltered scrubby margins being the most favoured areas. The SEWBReC search confirmed the presence of these bats nearby, and several other bat species further away. For the purposes of the assessment the importance of

[9] Just Mammals (2006). Newport Urban Otter Habitat Survey. Report to Newport County Council.

the site for bats is evaluated as limited to within the application site boundary, for feeding habitat only.

Water Vole

7.69 No evidence of Water Voles was confirmed within the site during any of the surveys, and the only ditch offering potential habitat for this species is limited in extent, very poor in quality and isolated from any other potential Water Vole habitat. Water Voles have undergone a massive decline in the UK in recent decades, and there are no SEWBReC records for this species within 500m of the site. Water Voles do not often co-exist with high densities of Brown Rats (*Rattus norvegicus*), which are present on this site. They have been assessed as absent.

Amphibians

7.70 The only evidence of amphibians on the site is of Common Frog (*Rana temporaria*). This was a single clump of frogspawn that was observed in a water-filled wheel rut in damp grassland during March 2013. A Common Frog was also observed in the school pond beyond the site's northern boundary. The only record of an amphibian obtained during the desk study was a pre-1960s record of Smooth Newt (*Lissotriton vulgaris*), from the general vicinity of Langstone, to the east of the site. The damp grassland habitat would constitute good foraging habitat for amphibians. However, the ditch habitat is very poor potential breeding habitat for them, because the water is flowing, the water quality appears poor and the water level is subject to considerable variation. Overall, the value of the site for amphibians is considered to be limited to within the application site boundary.

7.71 A Habitat Suitability Index (HSI) assessment was undertaken to evaluate the likelihood of the ditch supporting Great Crested Newts. The HSI score was 0.35 which equates to the suitability for this species being very poor. The HSI tool is a method for assessing ponds, and a flowing ditch would be considered even less likely to support Great Crested Newts than a pond. It is concluded from the desk study, surveys and HSI, that Great Crested Newts are probably absent.

Reptiles

7.72 The desk study did not reveal any past records of reptiles. Surveys confirmed the presence of a small population of Slow Worms (*Anguis fragilis*), mainly in the western part of the site near to the railway line. Slow Worms may have recently colonised the area from the railway land following the removal of the former buildings. Their numbers would be expected to increase, but they would not be expected to build up a large population at this site due to the heavily compacted ground, local water-logging and likely high levels of predation by domestic cats. The importance of the site for reptiles is assessed as being within the application site boundary.

Birds

7.73 The scrubby habitats throughout the study area provide habitat for a variety of breeding birds. The habitats of greatest value to birds are associated with Lottery's Reen and its associated reed-bed vegetation, and the scrubby habitat near its southern side. Most of

the species observed during the surveys are common and widespread, but a few locally notable species were seen. The most significant bird species within the site is Reed Warbler which held 2 breeding territories in Lottery's Reen and another just outside the site boundary in reeds adjacent to the river Usk. The BAP species Bullfinch (*Pyrrhula pyrrhula*) was recorded in scrubby areas near the railway and in dense scrub to the west of the new primary school, and there were two Song Thrush (*Turdus philomelos*) territories in the scrubby habitat south of Lottery's Reen. Two other BAP species, Reed Bunting (*Emberiza schoeniclus*) and Linnet (*Carduelis cannabina*) were observed during the winter but not confirmed during the breeding season. Small numbers of Snipe (*Gallinago gallinago*) were observed feeding in damp, disturbed ground on several occasions during February and March 2013.

7.74 The saltmarsh and intertidal mud habitats adjacent to the site provide feeding habitat for small numbers of estuary birds. The most frequently observed were Redshank (*Tringa totanus*) and Mallard (*Anas platyrhynchos*). Waders and wildfowl species using these intertidal habitats are unlikely to use habitats within the site, even during high tides, due to the scrubby nature of the vegetation and the presence of dog-walkers. The River Usk is likely to be followed by some birds as a migration route, so the site could potentially have increased significance during spring and autumn. However, there was little sign of this being the case during the spring 2013 surveys.

7.75 The proposed development site does not meet the birds criteria set out in the Guidelines for the Selection of Wildlife Sites in South Wales, but is assessed as likely to be important for birds in a Local context, mainly due to the presence of the reed and scrub habitats. The River Usk, beyond the site boundary, is assessed as being importance to birds in a District context, due to its value to estuarine birds and birds passing by on migration.

Invertebrates

7.76 The invertebrate surveys did not confirm any species subject to special protection. Most of the species recorded are common and widespread, and typical of this type of brownfield habitat.

7.77 The National Museum of Wales specialists found only low numbers of bees, and no uncommon species. However, they did confirm a moderately diverse number of beetles, including several notable species.

- *Ceutorhynchus turbatus* has a localised distribution nationally, and is rare in Wales. Its larvae feed in fruits of Hoary Cress (*Lepidium draba*) in open areas.
- *Meligethes fulvipes* is a Notable species. Its larvae feed in the flowering parts of Charlock (*Sinapis arvensis*).
- *Meligethes rotundicollis* is a Notable species. Its larvae feed in the flowering parts of Charlock and Hedge Mustard (*Sisymbrium officinale*).
- *Stenus contumax* is a rare and little-known species of dry habitats and brownfield sites. It has not been recorded in Wales before.
- *Stenus geniculatus* has a localised distribution nationally, and is rare in Wales. It is a species of dry places and poor soils.
- *Coccinella quinquepunctata* is a rare species. It is probably not resident on site as its river shingle habitat is not present. It has been recorded from non-tidal parts of the River Usk.

7.78 With the exception of *Coccinella quinquepunctata*, which is not resident, the notable and rare beetle species are associated with dry habitats and some might be brownfield site specialists. The presence of these species does not make this a particularly significant site and their notable status is likely to be a reflection of under-recording generally. The museum specialists concluded that the bee and beetle fauna were of local interest, but were not of nature conservation significance in a county context and would not be a constraint to development.

7.79 A moderate diversity of moths was found during the moth trapping survey. They were mostly limited to common and widespread species which might be expected in ruderal habitats and scrub. The most significant species recorded was the Old Lady moth, which is considered localised within Newport.

7.80 The Small Ranunculus moth is a Red Data Book species which became extinct in Britain in the early part of 20th century but was rediscovered in Kent in 2002 and has subsequently recolonised parts of southern England and south-Wales. The species is extending its range rapidly, but it is still uncommon and considered a local priority for nature conservation in Newport. A single plant of its larval food-plant, Prickly Lettuce, was observed in the post-industrial part of the site. The plant was searched for caterpillars on 19th and 29th August and 9th September but none were seen (although the moth caterpillars had been reported from Prickly Lettuce on several brownfield sites nearby) and it is concluded that the Small Ranunculus was not present this season. The distribution of this species can change from year to year in response to where its food-plant appears. Therefore, a precautionary approach is taken in this case, assuming that it may be present in some years.

7.81 The observations of other insects, including butterflies, grasshoppers and crickets, correlated with the findings of the other invertebrate surveys. The species that were recorded were generally limited to common and widespread species. A total of 7 common species of grasshoppers and crickets were observed, which is one of the criteria for considering a site significant in a county context. One of the species is Long-winged Conehead cricket (*Concephalus discolor*) which is listed as being of county significance in the 2004 Wildlife Sites Guidance. However, this species has expanded its range considerably since the guidelines were written, and it is now a fairly frequent species in rough grassland habitat through much of south-east Wales.

7.82 Overall, a moderate invertebrate diversity was confirmed, although this was mostly limited to common and widespread species. Several notable species were recorded, and the site was considered to have potential to support the uncommon Small Ranunculus moth. Overall, the assemblage of invertebrates has been assessed as having District value for nature conservation, particularly because its location is locally significant in the context of urban Newport.

Plants

7.83 A moderate diversity of common species is present, including several indicator species used in the wildlife sites guidelines, and these have been considered under the habitats discussed above. Although there is a large number of species, many of them are only represented by small numbers of individuals, or even just single plants. The potential

exists for rare plants to occur sporadically in the transitional communities on the disturbed and post-industrial parts, where the flora can change from year to year. However, there is no indication to date that this ruderal community supports any particularly rare or protected species. The only species found during the surveys that are categorised as a 'Primary Species' in the wildlife sites guidelines are Dittander (*Lepidium latifolium*) which was observed beyond the northern boundary near to the M4 bridge, and Sweet Briar (*Rosa rubiginosa*) which was located beside Herbert Road just south of the southern boundary of the post-industrial land. Both of these plants were recorded outside the proposed development site. None of the plant species found within the site are of special nature conservation significance in their own right, so they are not considered any further as individual species. The assemblages of plant species are considered through the treatment of the various habitats for the environmental assessment.

Summary of valued ecological features

7.84 A summary of the ecological features described as part of the baseline and their value at a geographical scale are summarised in Table 7-1. Only those features identified at a value of 'within the site boundary' or above have been included and are considered further in this assessment. Amenity grassland and unvegetated hard-standing were considered of Negligible Value for the purpose of the assessment. Species that were searched for and considered likely to be absent, such as Badger and Water Vole, have been omitted from the table.

Table 7-1: Summary of valued Ecological Features

Resource/Feature	Value at geographical scale
Designated sites	
River Usk SAC	**International**
River Usk (Lower Usk) (Abergavenny - Newport) SSSI	**National** (but international value of SAC takes precedence, as the site boundary is the same.)
Habitats	
Wet ditch/ reedbed	**District**
Grassland	**Local**
Ruderal vegetation	**Local**
Trees and scrub	**Local**
Species	
Otter	**International** as part of SAC **Negligible** importance within the site itself
Bats	**Within Application Boundary**, feeding habitat only.
Amphibians	**Within Application Boundary**
Reptiles	**Within Application Boundary**
Birds	The adjacent part of the River Usk is valued as **District** importance for birds. The application site itself is of **Local** importance
Invertebrates	**District**

ASSESSMENT OF POTENTIAL IMPACTS

7.85 The following section considers the overall effect of the development on the ecological receptors, assessing the adverse effects that arise from construction and operation of the proposed development and any beneficial environmental effects of mitigation measures.

7.86 In considering the likelihood of a significant ecological impact on each of the valued ecological receptors, consideration has been given to factors such as whether the impact is likely to be beneficial or adverse, magnitude (size) of the impact, extent, duration, timing and frequency and reversibility. Where an impact is identified, the likelihood of occurrence is also indicated based on a four-point scale:-

- Certain/near-Certain: probability estimated at 95% chance or higher.
- Likely/ probable: probability estimated above 50% but below 95%.
- Unlikely: probability estimated above 5% but less than 50%.
- Extremely Unlikely: probability estimated at less than 5%.

7.87 Only the ecological features that are considered to be of value at or above 'within the application boundary' have been included in the ecological impact assessment. The predicted impact for each ecological feature has been assessed on the basis of the worst-case scenario. Although not all impacts are identified as being ecologically significant (that is the integrity of the feature may not be affected) there is still the possibility for beneficial or adverse effects on certain resources of value at a given geographical scale. In the case of any adverse effects, appropriate mitigation measures are considered.

7.88 The effects are considered based on the IEEM Guidelines (2006[10]) and for the purposes of this assessment, will be separated into short-term activities such as site clearance and construction and long term effects associated with an occupied residential development. Please note that the assessment of impacts presented in this section is in the absence of any mitigation measures, which are summarised in the Mitigation Measures section .

7.89 The proposed development layout has sought to reduce the potential for impacts on the features of highest ecological value, by trying to maximise the distance between the housing and the river Usk, retaining the existing ditch habitat and using the existing outfall to the river. However, in order to achieve the required minimum number of housing units for the scheme to be viable and to use the only feasible access into the site, there will inevitably be losses of the less valuable habitats.

Site Clearance and Construction

7.90 The following measures are considered as integral to this site clearance/construction stage of the scheme and the assessment of impacts is based on the assumption that they would be implemented:

- Vegetation clearance;
- Set up of contractors compounds and site security fencing;

[10] IEEM (2006) Guidelines for Ecological Impact Assessment in the United Kingdom

- Change in disturbance levels from increased presence of workforce and vehicles. At the same time there would be a reduction in numbers of members of the public and dogs;
- Localised/temporary changes in hydrological conditions;
- Changes in artificial lighting; and,
- Reprofiling of ground levels, including use of piling and import of fill material, to create stable ground conditions for housing foundations and laying of infrastructure.

7.91 The construction period is likely to be carried out as a series of phases, lasting approximately 36 months. The majority of the habitat loss during this period will be during the initial enabling works as the site is re-profiled and infrastructure installed. Construction impacts during the later stages will mainly be due to disturbance while the new houses are built.

Designated Sites

River Usk SAC/ SSSI

7.92 The development would not result in any direct loss of habitat within the SAC. There is a potential risk of mobilising water-borne pollutants when the existing ditch is cleaned out and reprofiled, but in practical terms there would be no significant change in water quality or quantity flowing to the SAC because all discharges would be required to remain within NRW consent limits. On this basis, site clearance and construction works would be unlikely to result in a significant ecological impact. However, there is potential for the presence of construction staff and machinery to increase levels of noise, especially when piling and excavations are taking place. In the absence of mitigation this has the potential to increase disturbance of Otters and migratory fish which are primary features of the SAC. Construction lighting also has the potential to affect Otters using the river. In the absence of mitigation, it is considered that these disturbance impacts are likely to result in an adverse impact in the short–term.

Habitats

Wet ditch/ reedbed

7.93 The reed-fringed ditch would require substantial dredging to remove the large volume of litter contained within it, and any contamination within the sediment. In the short term this would require the removal of most of the reed vegetation and scattered scrub beside it, which is certain to result in a significant adverse impact on this habitat. It is noted that the vegetation would be allowed to grow back, probably within 2 years, so the impact would be temporary.

7.94 It would be necessary to install a culvert to support the new access road, and this would result in a permanent loss of 12m of ditch. The existing 1m wide foot-bridge near the east side of the ditch would be removed, and the bank in this section would be restored to a vegetated condition, which would reduce the total loss of ditch to 11m. In the absence of mitigation, the loss of habitat is certain to have a permanent significant adverse impact.

Grassland

7.95 The proposed development would require the loss of all of the semi-improved neutral grassland within the post-industrial land, all of the damp grassland and over 95% of the tussocky species-poor semi-improved neutral grassland in the strip beside the river Usk. (A narrow fringe of low diversity grassland would remain beside the western boundary, but without mitigation there is a high probability that this would be subject to disturbance). This is certain to result in a significant adverse impact on grassland habitat.

Ruderal vegetation

7.96 The site clearance and construction phase would involve the loss of all of the tall ruderal and short ephemeral vegetation within the site. In the absence of mitigation, this would constitute a certain significant adverse impact on this habitat.

Trees and scrub

7.97 The site clearance phase would involve the removal of almost all of the areas of trees and scrub within the site, although a narrow margin is likely to remain beside the railway land along the eastern boundary. Without mitigation this is assessed as a certain significant adverse impact on this habitat.

Protected & Notable Species

Otter

7.98 Impacts on Otters have already been discussed for the SAC. As stated above, there is unlikely to be any significant adverse direct impact on Otters. However, without mitigation the temporary noise and disturbance effects associated with site clearance and construction would be likely to result in an adverse impact to Otters using the river in the short–term.

Bats

7.99 There are no suitable trees or structures suitable for roosting bats, so there would be no loss of bat roosts as a result of site clearance. Bat activity over the site would be expected to decline during the construction phase in response to a reduction in vegetation cover and lower numbers of flying insects. This is assessed as a probable significant adverse impact on feeding bats.

Amphibians

7.100 All cover and breeding habitat for amphibians would be removed during the site clearance phase. The site supports a small number of Common Frogs. The construction impact would be assessed as a certain adverse impact, but this would not be significant because it would only affect a small number of individuals of a common species.

Reptiles

7.101 The habitat used by reptiles would be entirely lost during the construction work, and in the absence of mitigation this would be a certain significant adverse impact on them. However, the scenario of an unmitigated impact would not actually arise. All native British reptiles are subject to protection under the Wildlife and Countryside Act, so reasonable measures would have to be taken to prevent the killing or injuring of any reptiles that are present.

Birds

7.102 Site clearance work would result in the loss of all areas of dense and scattered scrub and the taller reeds and grassland habitats. There would be no nesting habitat for birds through the duration of the construction period, and without mitigation this is assessed as a certain significant adverse impact. The nests of all wild birds, while they are being built or used, are protected under the Wildlife and Countryside Act 1981, so this so this legislation would have to be taken into account when the clearance takes place.

7.103 Birds using the river or upper salt-marsh habitats are already subject to a moderate degree of disturbance by people and dogs, and birds can readily become habituated to noise in adjacent habitats that does not affect them directly. Therefore birds using the river Usk as a feeding area or as a migration route are unlikely to experience any adverse impact due to the construction works. However, if pedestrians and their dogs divert around the west side of the construction site while the work is in progress, this would increase the disturbance of birds using this part of the river, and would result in a likely significant adverse impact on birds using the river.

Invertebrates

7.104 During site clearance all vegetated habitats would be removed, leaving no areas capable of supporting the current invertebrate populations. In the absence of mitigation there would be a certain significant adverse impact on invertebrates.

Operational Impacts

7.105 The operational stage assumes that all infrastructure works and construction of the residential units have been completed and new planting has been implemented. As with the consideration of construction impacts, the assessment in this section does not include for specific mitigation measures; these are described in the Mitigation Measures section which follows. The operational stage will take into consideration the following likely impacts:-

- Increased disturbance from people and traffic
- Increased disturbance from artificial lighting
- Changes in hydrology (run off rate/quality)

Designated Sites

River Usk SAC/ SSSI

7.106 The development lies outside the protected site boundary so there would not be any direct impacts on the SAC features or the salt-marsh or river habitats. There would be no ongoing operations likely to result in substantial noise or vibration, so the potential for indirect impacts on migratory fish would be limited to the possible effects of changes in water quality of any discharge to the river. The risk of polluted water entering the site from the proposed development is considered low, because the drainage design will be built to modern standards, with foul water and surface water from the new houses being collected separately. Foul water would enter the sewerage system prior to treatment and discharge from a waste water treatment works outside the SAC. Road, roof and other surface water drainage would be pass through oil interceptors or similar pollution control prior to entering Lottery's Reen and being discharged through the existing outfall. The residential area would not support large quantities of hazardous chemicals that might pose a threat to fish populations in the Usk. In the event of an accidental spillage of a pollutant within the site, the Usk is a large, tidal river at this point and a small volume of any contaminant is likely to be quickly diluted. There is therefore unlikely to be any significant adverse impact on fish.

7.107 There is potential for indirect disturbance impacts on Otters due to the increased numbers of people nearby, especially if this is accompanied by an increase in dog-walking beside the river. Similarly, street lighting has the potential to deter Otters from this part of the river if it is not shielded to prevent light-spill into the SAC. People and dogs currently cause considerable disturbance within the SAC, but if levels of activity and lighting were to increase during the operational phase it would be considered a likely significant adverse impact on Otters.

Habitats

Wet ditch/reedbed

7.108 The western part of Lottery's Reen would be reinstated as a wider ditch feature with reed vegetation along its banks. In the short and medium term the quality of the wetland vegetation would be expected to be higher than the existing situation due to the removal of the large volume of litter and increased width of reed habitat. However, this would be balanced against the isolation of the ditch from other vegetated habitats, an increase in local noise disturbance from houses and traffic, lighting and fresh accumulation of litter. The reprofiled ditch would receive surface water run-off from the site, so would be expected to experience a higher fluctuation in water levels than the existing situation, as well as receiving low concentrations of road-related silt, salt, metals and hydrocarbons. The reeds will provide an element of natural filtration that would reduce the concentrations of water-borne pollutants by absorption and siltation. Periodic maintenance would result in temporary disturbance and removal of reed cover, litter and sediment. The disturbance effects of maintenance are not considered negative because there would be a likely decline in water quality and biodiversity value in the long term if the reen were left unmanaged, as it would gradually become choked by scrub and silt. Overall, the long term effect on the

ditch, in the absence of mitigation, is assessed as probably adverse during the operational phase.

Grassland

7.109 The extent of semi-improved neutral grassland would be reduced to a narrow strip between the new road and the SAC boundary. In the absence of mitigation this would be likely to experience high levels of disturbance and would be of negligible value for biodiversity. The areas of mown amenity grassland in the gardens of the new houses would be less structurally diverse than the existing tussocky grassland, and would not be expected to support an equivalent range of plant or animal species. In the long term there would therefore be a certain significant adverse impact on this habitat.

Ruderal vegetation

7.110 The new site layout would leave no room for ruderal vegetation. A few weeds will inevitably develop in gardens and roadsides, but these would not be expected to support a similar diversity to the ruderal community that currently exists on the post-industrial land. Any areas of ruderal plants that do develop in the new development area would probably be periodically removed as weeds, or degrade through natural succession to low diversity grassland and scrub. In the absence of mitigation, the operational phase would have a certain significant adverse impact on this habitat.

Trees and scrub

7.111 None of the existing trees and scrub would be retained on site during the operational phase, but the new houses would have small gardens and there would be areas of tree and shrub planting that would go some way towards compensating for the loss. However, much of the new planting would primarily for amenity purposes and would be isolated from other habitats by housing and infrastructure, and without specific measures to maintain it in good condition for wildlife. The operational phase would therefore have a probable significant adverse impact on this habitat.

Protected & Notable Species

Otter

7.112 Impacts on Otters have already been discussed for the SAC. As stated above, there would be unlikely to be any significant direct adverse impact on Otters. However, without mitigation increased disturbance effects from people, dogs and lighting during the operational phase would be likely to have a significant adverse impact on Otters using the adjacent river.

Bats

7.113 The presence of gardens and the reinstatement of the reedy ditch will restore feeding habitat for bats to the site during the operational phase. This would be a reduced area when compared with the existing situation, but it would be more sheltered due to the presence of houses, which may favour its use by bats. Lighting may have a deterrent effect

on some species while favouring others. The presence of houses on the site would provide potential roost sites for bats, where there are currently none. However, without specific measures to encourage bats to roost in the buildings a benefit cannot be assured. Therefore, without mitigation measures the operational impact on bats is assessed as probably neutral.

Amphibians

7.114 The only potential amphibian breeding site during the operational phase of the proposed development would be the reinstated ditch. The new residential area would be a poor quality habitat for amphibian foraging due to the presence of roads (associated with traffic mortality and animals being trapped in drains) and a high proportion of unvegetated hard surfaces. Amphibians in residential areas are also at increased risk of predation by domestic cats. If amphibians are present during the operational phase, there would be a certain adverse impact on them. However, the size of any amphibian population would probably be very small and the impact would probably not be significant.

Reptiles

7.115 Without mitigation the proposed operational site layout would include no habitat that would be suitable for reptiles. The strip of vegetation along the western boundary would probably to be too disturbed for reptiles, while the south-facing slope beside the ditch would be too shaded by reeds, and subject to water level fluctuations, to be suitable for them. Reptiles would probably be absent during the operational phase, or only present as very low numbers of animals dispersing from adjacent land, so the impact on them is unlikely to be significant.

Birds

7.116 The operational site layout would include a mix of houses and gardens with patches of ornamental shrubs and garden planting. These habitats would inevitably be colonised by common species of birds. The reedy ditch would be re-established as potential habitat for reed-bed birds, and the width of the reed-covered area would be greater than the current width. However, even with the garden planting and reinstated ditch, the numbers and diversity of breeding birds on the site would be expected to be lower than the existing situation, and habitat for birds would be subject to increased levels of disturbance from people and traffic and increased predation by domestic cats. Without specific mitigation, the disturbance and predation effects would be assessed as a likely significant adverse impact on birds.

7.117 Birds using the river Usk as a feeding area or as a migration route would be expected to continue using it as they do at present. There is potential for an increase in disturbance of the upper banks by people and dogs, although this would probably be erratic rather than continuous disturbance. In the absence of mitigation this is assessed as a probable adverse impact on birds using this part of the river, although it is unlikely to be significant.

Invertebrates

7.118 The operational site would include some habitat for invertebrates, particularly in the new gardens and the reinstated reedbed. However, it would not be expected to support the

same numbers or diversity of invertebrates as the site currently supports. In the absence of mitigation the new habitats would be vulnerable to disturbance and successional processes. In the absence of mitigation during the operational phase, there would be a likely adverse impact on invertebrates. However, this is unlikely to be significant because no notable assemblages of invertebrates would be expected after the site has been developed.

MITIGATION MEASURES

Overview

7.119 In designing the type and extent of mitigation through the site clearance, construction and operation stages, consideration has been given to the scale of the works within the application boundary in line with the proposed site layout and the relative value of the ecological features. In this situation the scope for habitat enhancement within the site is limited by the space available. A high proportion of the mitigation therefore takes the form of habitat improvements on land beside the river Usk to the north of the site, to offset habitat losses within the development area. In designing the mitigation strategy, priority has been given to mitigating habitats and species of high nature conservation value, with greatest emphasis placed on protecting the features of the River Usk SAC.

7.120 The mitigation measures that would be incorporated into the scheme include the following key features:-

- The site layout and all works related to the construction would be outside the top of river-bank level, i.e. outside of the SAC/SSSI boundary.
- There would be no new outfall points to the river, and discharge of surface water would be limited to rates and water quality parameters defined by NRW. If any maintenance or modification of the outfall point is required (this would be within the SAC), construction would be restricted to the minimum possible working area, with no vehicle access, and using only hand-held equipment. NRW would be consulted to discuss any specific requirements for the work.
- Off-site habitat enhancement would be provided on the riverbank between the north of the site and the M4 bridge, to provide habitat enhancement within the SAC margins to off-set habitat losses within the development site. The primary off-site measure would be provision of three 30m sections of dog-proof weld-mesh fencing, to create undisturbed bays on the riverbank that could provide resting sites for Otters. Additional off-site habitat enhancement mitigation that would be provided in this section of river bank includes provision of an Otter holt, eradication of extensive Japanese Knotweed, and replanting gaps with native thorny trees and shrubs. The fencing would be installed during the initial enabling works phase of the construction period, outside of the bird nesting season.
- A buffer strip/ series of bunds would be constructed and retained between the new road and the top of the river bank. This would restrict access to the riverbank by people and dogs; provide shading from artificial lighting, reduce noise at river level, and prevent the possibility of diffuse run-off to the river during construction and in the long term.

- The buffer strip and bunds would be constructed as initial enabling works before the main construction period begins. Fencing would be provided around the buffer strip throughout the construction phase, to allow the vegetation to establish and to provide additional protection to the SAC.
- No construction works that would result in ground vibration affecting the river (e.g. boring/ piling) would take place between 1 March and 30 June, when Shad and Lamprey would be migrating past the site. If any such works are unavoidable at this time of year, they would be regulated so that migration can occur during this period.
- Fencing would be installed around the whole site at the start of the site clearance phase, to prevent accidental damage to the SAC during construction. At the same, the existing footpath would be diverted, to keep pedestrians and dogs away from the SAC boundary and the construction site.
- If trenches are required in any areas potentially accessible to Otters, these would not be left open overnight, or an escape route would be provided for them (e.g. plank of wood or sloping end of trench).
- Construction working within 10m of the top of the riverbank would be restricted to daylight hours.
- Construction lighting and operational street lighting would be directional; fitted with cowls to minimise light-spill over the river.
- External lighting on the new houses on the street adjacent to the river would have bulkhead fittings that would restrict the illumination to the area immediately around the doors. The lighting would be controlled by movement sensors, so that it cannot be left on permanently.
- Care would be taken to minimise risk of construction debris entering the river. Checks of the riverbank would be made at least weekly through the construction phase, and any construction debris found would be removed.
- Japanese Knotweed and any other Schedule 9 plants would be eradicated from all parts of the development site. A programme for treatment or removal of the plants would be agreed with the local authority prior to commencement of construction.
- Lottery's Reen would be retained, connecting to the Usk by its existing outfall. The new bridging point would be designed to achieve minimum loss of ditch length. The low-lying ground beside the ditch would be planted with reed to develop into reedbed habitat. The base of the low-lying area would include several additional ditches, so that there is an overall increase in the area of open water and marginal habitat. The reedbed area would be securely fenced to prevent disturbance during the operational phase.
- The off-site mitigation area, the SAC buffer strip, Lottery's Reen and the landscape planting would be subject to a 5-year management plan that would ensure that they establish favourably for biodiversity. The developer would be responsible for the maintenance of these areas.
- The buffer strip between the road and top of the river bank would vary in width between 3 and 15m. At its narrowest points it would comprise a bund topped by densely planted thorny shrubs. Wider areas would incorporate additional bunds to discourage access. The bunds would be approximately 1m tall and 2m wide, formed using soil from within the site. The soil would be free from contamination, well drained, with a high proportion of stones/ rubble, and suitable for a range of native plants. Any plants considered significant for nature

conservation in a county context would be transplanted to the bund (or if the habitat would not be suitable, to an appropriate location off-site, to be agreed with NCC). The buffer strip would be designed to provide a series of sunny, undisturbed slopes that would offer potential habitat for ruderal plants, reptiles and a range of invertebrates. An appropriate wild-flower seed mix would be sown on the buffer strip if there is insufficient diverse grassland habitat available from within the site.

- Prickly Lettuce would be encouraged to grow on the new bund beside the river, to ensure that the site is potentially suitable habitat for Small Ranunculus Moth (even if the moth does not occur on the site at present). Prickly Lettuce plants would be established on the buffer strip by seed or transplanting from a site nearby.
- Additional off-site mitigation would be undertaken on land within the Glebelands SINC to the north of the M4. Some of the areas which currently support species-poor grassland would be ploughed and seeded to encourage flower-rich and ruderal vegetation, to help off-set the impact on invertebrates.
- The retaining wall at the eastern site boundary would include crevices which can become colonised by plants and invertebrates. Ivy would be planted beside the retaining walls, to grow over the wall providing cover and flowers that would be beneficial for invertebrates.
- The planting scheme for the new residential area would include a high proportion of native tree species and shrub and flower species known to have value to invertebrates.
- Slow Worms would be translocated to suitable habitat off-site, subject to agreement with NCC. Potential receptor habitat is present in the Glebelands SINC, and this would be enhanced if necessary, by introducing raised areas of rubble that would provide suitable basking and overwintering sites. (NCC may be able to suggest other potential receptor sites, where introduction of reptiles would be beneficial to local biodiversity objectives.)
- Site clearance would be programmed during the winter (between November and February). No potential bird nesting sites would be affected during the bird nesting season (typically between late-March and the end of July).
- Nest-boxes would be provided in the design of the new buildings. These would include at least 10 Swift and 10 House Martin boxes on the eaves of several of the taller buildings near to the river, to introduce a new feature of local nature conservation value to the site. A further 10 nest boxes suitable for garden birds (such as House Sparrow, Blue Tit, Robin etc) would be sited on the houses at the eastern boundary, on the sides closest to the railway line.
- Bat boxes would be installed near the eaves of at least 10 of the taller buildings, to provide new roosting opportunities as a habitat enhancement. The boxes would be positioned near to the margins of the site, especially those beside the reed-bed and the scrub habitats associated with the railway line and eastern margin. The boxes would be of a maintenance free design, built into the wall or roof structure, carefully sited so they will not cause problems to occupants of the new houses.
- An appropriate site clearance methodology would be agreed with the local authority, to minimise potential harm to protected species (such as wild mammals, or reptiles). This is likely to involve hand-searching and sequential removal of cover by scrub clearance and strimming, before any ground reprofiling is undertaken using heavy machinery.

- A project management plan would be prepared by the contractor, with input from the project ecologist, landscape architect and engineers as required. It would include the practical measures that would be taken to manage potential environmental effects during construction, including ecology and a range of other aspects such as drainage, consents, noise, waste, etc. The environmental elements of the plan would be agreed with NCC and NRW prior to the commencement of site clearance. The construction site manager would have responsibility for implementing the management plan.

RESIDUAL IMPACTS

7.121 The impact assessment presented earlier in this section was on the basis that no mitigation, other than that integral to the development layout (e.g. no direct land-take from SAC, retention of outfall and Lottery's Reen, new planting of shrubs etc.), would be applied. The following sections address each of the valued ecological receptors and describe the further mitigation measures to be adopted through site clearance, construction and operation to minimise as far as practicable the effects of the scheme on valued ecological features.

7.122 For ease of reference, a table is presented at the end of this section (Table 7-5) that summarises the impacts of the scheme on each of the valued ecological receptors in the absence of and following mitigation (i.e. the residual impact).

7.123 The mitigation described within this section includes a combination of measures that retain and enhance key biodiversity features within the site and also some measures for off-site mitigation that would enhance biodiversity on the nearby riverbank. Delivery of the mitigation measures would be incorporated into a management plan, which would cover the first 5 years of the operational phase. The detail of the management plan could be controlled via planning conditions.

Designated Sites

River Usk SAC/ SSSI

7.124 The management plan will include measures to protect the protected area from physical damage, including accidental damage, during all stages of construction. It will also include measures to minimise indirect impacts to the SAC features by disturbance, noise, lighting and water pollution. The primary means of protecting the SAC will be by clear demarcation of a buffer strip and temporary fence between the construction site and the SAC boundary, and adoption of good site working practices by the contractor.

7.125 In addition to the buffer strip and construction fencing, the risk of disturbance to Otters during construction would be mitigated by diverting pedestrians and dogs away from the riverbank path through the construction phase and restricting construction works within 10m of the SAC boundary to day-light hours. If construction lighting is required, this would be fitted with suitable screens to prevent light-spill over the river. In the unlikely event that a trench would be dug in an area that is potentially accessible to Otters, it would not be left

open overnight, or would be provided with a means of escape, such as a plank or sloping end to the trench.

7.126 Possible construction impacts to the fisheries interests of the SAC would be mitigated by timing of certain works outside of the migration season for Shad and Lamprey. Any piling and boring would not take place between 1 March and 30 June, when these fish might be passing the site. If such works are unavoidable at this time of year, they would be regulated, rather than being allowed to operate continuously, so that migration can still occur during this period.

7.127 Each of the measures outlined above will reduce the risk of any direct or disturbance construction impacts on the SAC features. Taking them in combination, a significant adverse impact on fish or Otters within the SAC during the construction phase is considered unlikely, and the diversion of people and dogs away from the riverbank while the work is in progress would be a likely beneficial impact on Otters. Overall, the residual construction impact is assessed as neutral.

7.128 The buffer strip beside the SAC would be reinforced by creation of a steep-sided bund and several steep ridges along the top of the river-bank, to discourage access to the river by people and dogs, which currently contribute high levels of disturbance to this habitat. The bund would be planted with spiny shrubs. The presence of the bund would reduce light-spill over the river, as well as levels of sound from the road and residential area. In addition, it would help to protect the SAC from litter and any risk of diffuse pollution.

7.129 In addition to the enhanced buffer-strip beside the site, habitat improvement measures for Otters would also be provided off-site. Three sections of fencing and an Otter holt would be installed between the north of the development area and the M4 bridge, with additional planting of thorny shrubs for screening, to provide good resting sites for Otters in areas that currently have scrub cover, but are subject to regular disturbance by dogs and people. The habitat enhancement would also include control of a large area of Japanese Knotweed in the area between the north of the development area and the M4 bridge. The area cleared of Knotweed would be replanted with native thorny trees and shrubs that would increase the cover available for Otters. Protection of the area from dogs and conversion of Knotweed to native scrub habitat would also be beneficial for birds and other wildlife.

7.130 The initial implementation of the mitigation would result in temporary disruption while the bunds and fence are installed and the Knotweed treated. These would be carried out in a carefully controlled manner and completed in advance of the main construction works. The mitigation measures would result in an overall benefit to Otters in this part of the river bank. When the buffer strip and off-site fencing and planting are considered together, there would be an overall decrease in the potential for Otters to be disturbed by dogs and people, and this would be a likely beneficial impact to the SAC/ SSSI in the operational phase.

Habitats

Wet ditch/reedbed

7.131 In addition to the cleaning out and reinstatement of Lottery's Reen, the overall length of the wet ditch habitat would be increased by the provision of several short branches that would extend from the ditch into the retained low-lying area on its southern side. This would ensure that there is no overall loss of ditch length. The ditch profile would include a shelf on at least one side, to encourage the growth of marginal reeds and wetland plants, to improve its value as a habitat for wildlife. Reed would be planted and allowed to grow up around the ditch and to fill the adjacent low-lying area to provide a wider expense of reedbed habitat than the ditch currently supports. Native species scrub planting using would be carried out on the south-facing slope to the north of the reed-bed, to provide screening for the reeds and habitat for nesting birds. The whole reed-bed would be securely fenced to prevent access by dogs and people. Any ditch maintenance required within the first 5 years after construction would be timed to avoid the spring and summer, to avoid risk to nesting birds.

7.132 With these measures in place, the water quality and habitat quality of the ditch would be expected to be better than the existing situation. The loss of habitat attributable to the new culvert [equivalent to 11m] would be more than compensated for by the additional channels in the reedbed. The habitat quality improvements would mitigate the effects of changes to the surrounding habitat, and the widened reedbed would help to reduce any potentially harmful influences from the surface water drainage. Overall, the residual impact on the ditch is assessed as probably neutral, although there will inevitably be occasional short-term adverse impacts whenever ditch maintenance work is carried out.

Grassland

7.133 There would be a substantial reduction the in the area of grassland, and the mitigation would aim to reduce the severity of this loss by providing a strip of relatively diverse grassland, ruderal and scrub vegetation in the strip of habitat retained beside the River Usk. The grassland would be formed with a series of bunds to minimise access by people and dogs, and to provide a range of slopes and aspects to maximise the structural diversity and encourage a good mix of plants and invertebrates. The bunds would be formed from soil obtained from within the site, surfaced with material from the brown-field areas that currently support the most diverse flora. An appropriate wildflower grass seed mix would be sown at a low density to supplement the natural regeneration if necessary. The strip would be managed during the first 5 years following construction to ensure that it develops favourably for wildlife. The management would involve periodic litter clearance, and occasional vegetation cutting to maintain the mix of grassland and scrub communities.

7.134 Even with these measures in place, there would still be a loss of most of the grassland area and the residual impact on this habitat is assessed as a certain adverse impact. However, the mitigation would reduce the severity of the impact and ensure that grassland habitat of Local value is maintained in the buffer strip between the development and the SAC.

Ruderal vegetation

7.135 The buffer strip between the development and the SAC would include a mix of tall ruderal herbs as part of the vegetation. Using local soils from the brown-field part of the site would provide a suitable substratum for ruderal plants. The bunds would provide good conditions for ruderal plants because their steep sides will not readily become smothered by grasses and scrub. Attempts will be made to establish Prickly Lettuce on the bunds, either from seed or transplants, to provide a suitable foodplant for the Small Ranunculus moth. The mitigation would ensure that the most important elements of this vegetation are retained beside the river. The provision of additional flower-rich ruderal vegetation in areas of the Glebelands SINC to the north of the M4 would further offset the losses of this habitat on site. During the first 5 years, management would be undertaken to ensure that the ruderal habitat remains in good condition for biodiversity. The proposed mitigation on and off the site would maintain the functional integrity of the ruderal vegetation in the general area, so that the overall residual impact on this habitat is likely be neutral.

Trees and scrub

7.136 There would be no dense scrub within the housing area during the operational phase. However, the off-site provision of new dense off-site scrub-planting on the banks of the river Usk would provide compensation for this, by replacing areas currently supporting Japanese Knotweed with spiny native trees and shrubs. Patches of native species of thorny shrubs and occasional trees would also be planted in the buffer strip between the houses and SAC boundary.

7.137 The new landscape planting around the houses and gardens would include a high proportion of tree and shrub species that are known to be of value to wildlife. With the proposed mitigation in place, the residual impact on trees and shrubs is assessed as a probable adverse impact, but the severity of the impact would have been reduced.

Protected & Notable Species

Otter

7.138 The mitigation measures for Otters have been described under the heading of the SAC and are not repeated here. Their implementation would result in a likely beneficial residual impact for this species.

Bats

7.139 The presence of new buildings provides an opportunity to install new roost sites within the site, where there are none currently. A total of 10 bat boxes would be used, on buildings near to the vegetated site margins. The boxes would primarily cater for Common Pipistrelles, which are the bat species most likely to use this area. The bat boxes would be the Schwegler Bat Tube 1FR or Ibstock enclosed bat box type, or a similar specification that would be agreed by NRW/ NCC. The adoption of landscape planting designed to be beneficial for wildlife is also likely to be useful for bats. Taking these mitigation measures into account, the residual impact on bats is assessed as probably beneficial.

Amphibians

7.140 Survey work and desk study findings to date suggests that the site supports small numbers of common amphibian species. However, because there would be an impact on these few animals, an attempt would be made to rescue amphibians from the wet parts of the site prior to construction, and transfer them to the northern part of the Glebelands SINC (subject to agreement by NCC). The reedy ditch would be reinstated and a wider area of reedbed created beside it which would become available as foraging habitat for amphibians, but there would be a reduced area of terrestrial foraging habitat. With the mitigation work implemented, the residual impact from construction would be a likely adverse impact, but it would probably not be significant due to the small number of individuals affected.

Reptiles

7.141 Mitigation for the impact on reptiles would be required in proportion to the size of the reptile population. The reptile survey indicated this to be small population of Slow Worms. The approach that would be taken would involve rescuing the animals from the site in advance of site clearance, by using a combination of refugia and manual search methods. The Slow Worms would be released into suitable habitat in the northern part of the Glebelands SINC. The barrier strip between the edge of the development and the river Usk would provide potential habitat for reptiles in the long term. Taking the mitigation work into account, the construction phase would have a certain adverse residual impact on reptiles. However, the impact would not be significant because only a small number of animals would be affected. The proposed mitigation would reduce the severity of the impact and ensure that all legal requirements are met.

7.142 The presence of the housing is likely to contribute to increased disturbance of reptile habitats by dogs and cats, although these effects would probably not be significant as there are unlikely to be any reptiles in the developed area. Habitat connectivity in the wider area, along the banks of the Usk and the railway line, would not be affected. The habitat within the buffer strip would be subject to management to maintain its potential value for reptiles during the first 5 years after construction. With the mitigation work implemented, there would still be a probable adverse residual impact on reptiles during the operational phase, but this is unlikely to be significant.

Birds

7.143 Clearance of vegetation within the application boundary would be undertaken outside the bird breeding season which typically runs from March to August inclusive. The off-site scrub planting and protection that would be carried out to the north of the proposed development would increase the value of that habitat by expanding the area of scrub vegetation and reducing the amount of disturbance by people and dogs. This would help to off-set the reduction in the area of scrub within the site.

7.144 The buffer strip between the development and the river Usk would reduce the potential for disturbance of waders, wildfowl and other birds using the river and saltmarsh habitats. It would also provide a strip of grass, ruderals and scrub beside the top of the bank, which would be used by some bird species as foraging habitat. The retained and enhanced ditch and reedbed would also be available as habitat for birds. The new landscape planting

around the houses would provide foraging habitat for common species of garden birds, and its value would be elevated by including plant species known to be useful to wildlife.

7.145 A total of 30 nest boxes would be provided on the new houses, including 10 Swift boxes (Ibstock Swift Box, Schwegler Swift Box Type 25, or similar approved by NCC), 10 House Martin boxes (Schwegler House Martin Nest 9A, or similar approved by NCC), and 10 Sparrow/ Tit boxes (Schwegler Brick Box type 24, or similar approved by NCC). They would be installed below the eaves of buildings near to the site perimeter. There is no suitable nesting habitat for these species on the site at present due to the lack of buildings and large trees, and the provision of nest boxes for these birds would balance the loss of the nesting habitat that would be lost from the scrubby part of the site, even though they cater for different species. Overall, the residual construction impact on birds would be a probable significant adverse impact in the short term, reducing towards neutral as the mitigation and habitat enhancements are implemented and the new planting matures.

7.146 In the long term there would be a change in the type of birds using the site, and an inevitable increase in predation by cats and disturbance by people and traffic within the part of the site supporting housing. The potential for disturbance of the habitats beside the Usk would be reduced by the planting, bunds and fences. The risk to birds using the nest boxes would be negligible because they would be out of reach from cats and people. With the adoption of the mitigation measures, the residual impact of the development on birds is likely to be adverse, but not significant, during the operational phase.

Invertebrates

7.147 During the operational phase, habitat for invertebrates would be provided along the buffer strip between the development and the river Usk. This habitat would not be expected to support the same number and range of invertebrate species as currently occur on the site, but would be tailored to provide conditions likely to benefit the species of highest nature conservation value. The buffer strip would support a flower-rich mix of grassland, ruderal plants and scrub, with a series of south-facing ridges that would create ideal conditions for heat-loving insects, and burrowing bees and wasps. If Prickly Lettuce can be established in the buffer strip, the enhanced site would have the potential to support the Small Ranunculus Moth The provision of additional flower rich ruderal vegetation in areas of the Glebelands SINC to the north of the M4 would further offset the losses of invertebrate habitat on site.

7.148 In addition to the ruderal habitats, insects would be able to utilise the reprofiled Lottery's Reen, which would be cleaner than the existing situation and likely to support a more diverse aquatic invertebrate community than it does at present. The new landscape and garden planting would include a high proportion of trees, shrubs and flowers known to be of value to wildlife. This would include planting Ivy along the length of the proposed eastern retaining wall, where it would provide cover for overwintering insects and a source of nectar during the winter when few other species are flowering. Management would be provided during the first 5 years of the operational stage to ensure that the new and enhanced habitats develop favourably for invertebrates. With the mitigation measures in place, the residual impact on invertebrates would be a likely significant adverse impact, but the severity of the impact would have been reduced and the buffer strip beside the Usk would continue to be of at least Local nature conservation value for invertebrates.

7.149 The residual impact of the scheme is summarised in Table 7-2. This presents a breakdown of the potential impacts on each of the valued ecological resources during construction and operation, and after the implementation of mitigation measures.

7.150 The project design is constrained by a range of factors, including the site access and the minimum number of housing units for the scheme to be viable (and to fulfil the requirements of the UDP housing allocation). This has resulted in a large part of the site where mitigation options are unavoidably limited. The area available for vegetated habitat within the site is relatively small, so it would not been possible to put back more habitat than would be lost. The emphasis in mitigation has therefore endeavoured to improve the quality of the habitats that are provided as compensation. The approach to long term mitigation has concentrated on the SAC and the most important features within the site. Some features of relatively low value will inevitably be reduced in area (e.g. species-poor grassland) and in these cases the mitigation has aimed to provide an enhanced replacement habitat within a smaller area (e.g. the buffer-strip beside the SAC). Lottery's Reen would be enhanced by cleaning it up, providing a shelved profile and establishing a reedbed beside it. Additional ditch would be cut to compensate for the loss due to new culvert and ensure that there is an overall increase in ditch length. A key element of the mitigation strategy involves off-site habitat enhancement at the edge of the SAC. This will provide a significant benefit to this part of the SAC, which will more than compensate for the losses of lower-grade habitats that cannot be completely mitigated. Offsite habitat enhancements provided within the Glebelands SINC will create new ruderal habitat that will be of local value to invertebrates.

7.151 For protected and notable species, no significant long term adverse impacts have been predicted that would not be reduced by the adoption of mitigation measures. In several cases these measures would result in the residual effect being reduced so that the impact is no longer significant, and in the case of bats, the predicted impact would be beneficial.

Table 7-2: Summary of residual effects of the proposal together with mitigation measures

Ecological Feature & Value	Description of Impact before mitigation		Description of Mitigation Measures	Description of Residual Impact	
	Description	**Significance**		**Description**	**Significance**
River Usk SAC/ SSSI International value	No direct impact within SAC.	Significant impact unlikely.	Management Plan to be produced and agreed prior to any site clearance.	No direct impact within SAC. Potential for accidental and indirect effects minimised.	Probable neutral impact during construction. No significant impact at international level.
Construction Impacts	Potential for water quality pollution.	Significant impact unlikely, as all discharge would be regulated and use existing outfall.	Bund on buffer strip would prevent any diffuse pollution down the river-bank.	Potential pollution risk minimised.	Probable neutral impact during construction. No significant impact at international level.
	Potential for disturbance of Otters during construction.	Probable adverse impact in the short term.	EMP to set out good working practices, including fencing of construction area, restriction of working hours near to river and regulation of construction lighting. Establishment of buffer strip bund between construction site and river bank will reduce noise and light from site. Pedestrians and dogs would be diverted away from riverbank.	Potential disturbance impacts minimised and controlled.	Probable neutral/ beneficial impact at local level during construction. No significant impact at international level.
	Potential vibration disturbance of migratory fish during construction.	Possible adverse impact in the short term.	EMP to set out strict guidance on ground works, to prevent or regulate possible vibration impacts on fish.	Possible disturbance impacts reduced, and avoided at key times.	Probable neutral impact during construction. No significant impact at international level.

Ecological Feature & Value	Description of Impact before mitigation		Description of Mitigation Measures	Description of Residual Impact	
	Description	**Significance**		**Description**	**Significance**
River Usk SAC/ SSSI International value	No direct impact within SAC.	Significant impact unlikely.	Off-site habitat work in SAC north of site, including creation of three fenced bays and additional planting of dense scrub, and local control of Japanese Knotweed.	Habitat enhancement for Otters. Reduced numbers of people and dogs on river bank.	Significant beneficial impact likely at local level in the long term. No significant impact at international level.
Operational Impacts	Potential for disturbance of Otters by people, dogs, noise and lighting.	Likely significant adverse impact.	Ridges and bushes on buffer strip will reduce incidence of people and dogs accessing the river bank beside the site. Bunds and trees would also reduce noise and light reaching river. Street lighting and external lights on houses would be screened to avoid light-spill to river.	Potential disturbance impacts minimised and controlled. Numbers of people and dogs disturbing SAC would be lower than existing situation.	Significant beneficial impact at local level. Probably insignificant at international level.
	Potential vibration disturbance of migratory fish.	Probable neutral impact during operation.	No additional measures proposed.		Probable neutral impact during construction. No significant impact at international level.
	Potential for water quality pollution.	Significant impact unlikely, as all discharge would be regulated and use existing outfall.	Surface water would flow through reedbed prior to discharge, which would provide further screening of silt and pollutants.	Reedbed would provide additional regulation of quality and quantity of discharge.	Probable neutral impact during operation. No significant impact at international level.
Wet ditch/ reedbed District value	Permanent reduction of 11m ditch length due to new culvert.	Certain permanent significant adverse impact, even after minimising bridge width and removing footbridge.	Reeds would be encouraged to expand / planted into low-lying ground south of ditch, to form a wider reedbed. New branches from the ditch would be created to provide additional ditch length within the reedbed.	Expanded reedbed width and new ditch branches would compensate for permanent loss of ditch length.	Enhanced habitat will neutralise impacts in long term. No significant impact at district level.

Ecological Feature & Value	Description of Impact before mitigation		Description of Mitigation Measures	Description of Residual Impact	
	Description	**Significance**		**Description**	**Significance**
Construction impacts	Short term loss of habitat as ditch is dredged to remove silt and litter.	Certain temporary significant adverse impact due to removal of vegetation.	None proposed other than vegetation removal outside bird breeding season. Cleaning out ditch will provide a long term benefit by removing rubbish and any contaminants.	Temporary adverse impact, but not affecting bird nesting.	Temporary significant adverse impact, reducing to neutral as reeds and scrub establish.
Wet ditch/ reedbed District value **Operational impacts**	Habitat isolation and disturbance of ditch within new site layout. Occasional disruption during maintenance operations.	Probable significant adverse impact due to water quality and isolation effects.	Ditch would be reprofiled with shelved profile on at least one side. Scrub would be allowed to grow on the northern bank to provide cover for wildlife. Ditch and reedbed would be fenced to prevent access by people and dogs. Establishment maintenance work would take place outside bird nesting season.	Enhanced ditch profile, reedbed and provision of fencing and scrub will help to mitigate isolation and disturbance effects.	Probably neutral, with ditch remaining of District value.
Grassland Local value **Construction impacts**	Removal of all grassland habitat within site.	Certain significant adverse impact.	Vegetation removal outside bird breeding season. Most valuable grassland habitat, soil and plants would be translocated to new buffer strip between site and riverbank. If required supplementary wildflower seeding would be used to create flower-rich grassland in buffer strip.	Loss of existing habitat resource would be partially compensated for by creation of enhanced, but smaller, grassland area.	Probable significant adverse impact at Local level, but reduced in severity, and new grassland would be of Local value for nature conservation.
Grassland Local value **Operational impacts**	Grassland would be subject to trampling and disturbance, and nutrient enrichment by dogs.	Certain significant adverse impact, unlikely to maintain Local value in long term.	The bunds in the buffer strip would provide protection from trampling and disturbance and create conditions suitable for a diverse range of plants. Establishment maintenance would ensure that grassland habitat develops favourably for biodiversity.	Habitat would be protected and maintained.	Probable significant adverse impact but reduced in severity, and grassland would still be of Local value for nature conservation.

Ecological Feature & Value	Description of Impact before mitigation		Description of Mitigation Measures	Description of Residual Impact	
	Description	**Significance**		**Description**	**Significance**
Ruderal vegetation Local value **Construction impacts**	Removal of all ruderal habitat within site.	Certain significant adverse impact.	Vegetation removal outside bird breeding season. Most valuable parts of habitat, soil and plants would be translocated to new riverbank buffer strip. Any Prickly Lettuce plants would be transplanted to new buffer strip. New ruderal habitat would be provided off site in Glebelands SINC.	Loss of existing habitat resource would be compensated for by creation of enhanced, but smaller, ruderal area by Usk, and new ruderal patches within Glebelands SINC.	Temporary adverse impact at local level, but reducing to neutral as mitigation establishes.
Ruderal vegetation Local value **Operational impacts**	Ruderals would be subject to trampling and nutrient enrichment by dogs. Decline in value through natural succession to grassland and scrub in long term.	Certain significant adverse impact, unlikely to maintain Local value in medium term.	The bunds in the buffer strip would provide protection from access by dogs. The brown-field soil and steep sides to the bunds would provide good conditions for ruderal plants, and management during first 5 years would slow successional processes.	Habitat would be protected and maintained for first 5 years, but would still be subject to natural succession in the long term.	Probable adverse impact but not significant. Habitat will still change through natural succession in the long term.
Trees and scrub Local value **Construction impacts**	Removal of all trees and scrub within site.	Certain significant adverse impact.	Vegetation removal outside bird breeding season. New landscape planting would include a high proportion of trees and shrubs known to be of value for biodiversity. Offsite mitigation work and planting in buffer strip would use native spiny trees and shrubs.	Loss of habitat would be partially compensated for by new planting. Use of beneficial species would enhance habitat quality.	Probable significant adverse impact at local level, but reduced in severity, and new tree and scrub vegetation would still be of Local value.

Ecological Feature & Value	Description of Impact before mitigation		Description of Mitigation Measures	Description of Residual Impact	
	Description	**Significance**		**Description**	**Significance**
Trees and scrub Local value **Operational impacts**	Disturbance effects and lack of management, or inappropriate management leading to degradation of new landscape planting.	Probable significant adverse impact.	Offsite mitigation work and planting in buffer strip would use native spiny trees and shrubs. Bunds and fencing in these areas would reduce risk of disturbance. Establishment management would ensure new off-site / buffer-strip planting develops favourably for biodiversity.	New planting would develop favourably for biodiversity.	Probable neutral impact. Not significant at higher than site boundary level.
Otter (Discussed as SAC feature above)					
Bats Value within application boundary (foraging habitat) **Construction impacts**	Loss of feeding habitat after vegetation clearance.	Probable temporary significant adverse impact during construction. Neutral impact in longer term after new planting matures.	New planting would restore foraging habitat after construction, and would be designed to be beneficial for biodiversity. Installation of bat boxes would provide new roosting opportunities.	Temporary loss of feeding habitat would be unavoidable, but new planting would replace this, and new roosting sites would be beneficial.	Probably beneficial impact due to provision of bat roosts. Not significant at higher than site boundary level.
Bats Value within application boundary (foraging habitat only) **Operational impacts**	Disturbance by increased human presence, traffic and artificial light.	Adverse impact on light intolerant species, but unlikely to be significant. Impact probably neutral.	Design of street lighting to minimise light-spill over vegetated habitats and river-bank.	Potential for light pollution minimised.	Impact probably neutral during operation. Not significant at higher than site boundary level.

Ecological Feature & Value	Description of Impact before mitigation		Description of Mitigation Measures	Description of Residual Impact	
	Description	**Significance**		**Description**	**Significance**
Amphibians Value within application boundary **Construction impacts**	Loss of all potential cover and breeding habitat during site clearance.	Probable adverse impact on a small number of individuals of common species, but not significant.	Reinstated ditch and reedbed would be available as foraging habitat in long term.	Reinstated wetland would be available in long term, but there would be less terrestrial foraging habitat.	Adverse impact certain, but probably not significant at more than site boundary level due to small number of individuals.
Amphibians Value within application boundary **Operational impacts**	Residential area is poor quality habitat for amphibians. High risk of mortality by traffic, pets and in drains.	Adverse impact likely, but not significant given low numbers of amphibians likely to be present.	No specific measures proposed for amphibians, but they are likely to benefit from landscape planting which includes a high proportion of species known to have value for wildlife, and enhanced ditch/ reedbed habitat.	Slight reduction in severity of impact.	Adverse impact likely, but not significant at more than site boundary level given likely low numbers of amphibians.
Reptiles Value within application boundary **Construction impacts**	Loss of all potential reptile habitat during site clearance.	Certain adverse impact without mitigation, but unlikely to be significant due to low numbers.	Reptiles would be rescued prior to site clearance, using refugia and manual searches, and taken to safe habitat nearby. Enhanced grassland and scrub habitat would be provided on sunny bunds and sheltered grassland in the River Usk buffer strip.	Reptile population would be rescued. Enhanced habitat in river Usk buffer strip would provide partial compensation for loss of existing reptile habitat.	Certain adverse impact likely, but not significant due to low numbers of animals affected. Impact would reduce in medium term as new habitat matures.
Reptiles Value within application boundary **Operational impacts**	Poor quality reptile habitat in and adjacent to residential area. Increased disturbance and predation by pets.	Reptiles unlikely to be present in residential area so no impact likely. Adverse impacts on any reptiles in railway land and Usk buffer strip probably not significant.	No specific reptile mitigation proposed. River Usk buffer strip would be managed for first 5 years to ensure that it develops habitat suitable for reptiles.	Habitat connectivity to wider area would not be affected. Habitat in buffer strip would provide suitable condition for reptiles.	Probable adverse impact, but unlikely to be significant at more than site boundary level.

Ecological Feature & Value	Description of Impact before mitigation		Description of Mitigation Measures	Description of Residual Impact	
	Description	**Significance**		**Description**	**Significance**
Birds Local value **Construction impacts**	Temporary loss of all cover and breeding habitat within site.	Certain significant impact due to loss of habitat.	Vegetation clearance outside the breeding season. Off-site enhancement beside Usk; new scrub planting and fences to reduce disturbance of scrub and reeds. Reinstated and enhanced reedbed habitat. New landscape planting would provide additional habitat for birds.	Risk to nests would be avoided by timing of work. Temporary loss of breeding and feeding habitat would be compensated by new planting, habitat enhancements and nest boxes.	Certain significant adverse impact at local level in short term, but reducing towards Neutral impact as mitigation is implemented and planting matures.
(Birds using river Usk: District value) **Construction impacts**	Disturbance of birds using river Usk, by machinery, traffic, people and dogs.	Construction works unlikely to have a significant impact on birds using the river, but there would be a likely significant adverse impact if people and dogs are diverted closer to river.	Construction site would be fenced, and buffer strip would be provided to reduce disturbance. Pedestrians and dogs would not be permitted to walk along the top of the river-bank during construction phase.	Potential disturbing influences controlled.	Significant impact at District level unlikely.
Birds Local value **Operational impacts**	Disturbance by increased traffic people and dogs. Increased predation by cats.	Likely adverse impact due to disturbance effects and predation.	New landscape planting would include a high proportion of trees and shrubs beneficial to birds. Reedbed area would be fenced to prevent access by dogs. New bund and off-site fences would minimise disturbance of river Usk and bank habitats. Nest boxes would be positioned high up, out of reach from people and cats.	Potential effects of disturbance reduced but not eliminated.	Adverse impact likely, but unlikely to be significant at more than site boundary level.

Ecological Feature & Value	Description of Impact before mitigation		Description of Mitigation Measures	Description of Residual Impact	
	Description	**Significance**		**Description**	**Significance**
(Birds using river Usk: District value)	Disturbance by increased traffic, people and dogs.	No effect on birds on migration. Possible adverse impact on some species due to disturbance, but significant impact unlikely.	New bunds and off-site fences would minimise disturbance of river Usk and bank habitats.	Potential effects of disturbance reduced but not eliminated.	Adverse impact possible, but not significant at District level.
Invertebrates District value **Construction impacts**	Complete loss of habitat during site clearance.	Certain adverse significant impact due to loss of habitat.	Attempts would be made to establish Prickly Lettuce in the buffer strip to provide habitat for Small Ranunculus moth, and a flower-rich sward provided for Shrill Carder Bee. Enhanced habitat provided in river Usk buffer strip and reedbed. New ruderal habitat in Glebelands SINC north of M4. New planting would support high proportion of species known to be beneficial for invertebrates.	New habitat would be small in area but favour high invertebrate diversity, including notable species.	Certain significant adverse impact at local level, but reducing in severity in time, and Usk buffer strip would still be of Local value.
Invertebrates District value **Operational impacts**	Invertebrate habitat small in size and vulnerable to degradation by successional processes and disturbance.	Likely adverse impact, but only significant if uncommon invertebrates are present.	New and translocated invertebrate habitats provided as mitigation would be subject to 5 years of management to ensure that they establish suitable habitat for invertebrates.	New habitats would continue to support diverse invertebrate community, including uncommon species.	Impact probably neutral, buffer strip remaining of Local Value.

SUMMARY

7.152 The combination of desk study and field surveys have identified that a range of valued ecological features exist within and adjacent to the application site boundary. The most important of these features is the River Usk SAC and SSSI, which lies immediately adjacent to the site and supports Otters, migratory fish and saltmarsh habitat. No other statutory or local nature conservation designations exist within or adjacent to the application area. Valued habitat features within the site include a reed-fringed ditch, grassland, ruderal vegetation and trees and scrub. These support a moderately diverse flora, a variety of breeding birds and common amphibians and reptiles. They also support a diverse assemblage of invertebrates and provide foraging habitat for bats.

7.153 The ecological features (i.e. habitats and species) at the site were assigned a value at a geographical scale ranging from 'International' (the Usk SAC features), 'National' (the Usk SSSI features), and 'District' (the ditch and associated reeds, and the invertebrate community) through to 'Local' and 'Within the Application Site boundary' (grassland, ruderal vegetation, scrub, birds, reptiles and amphibians). The potential impact of the scheme on the ecological features has been assessed using best practice guidelines.

7.154 The design of the proposed development has endeavoured to protect the features of highest biodiversity value as a priority. To protect the SAC/SSSI, a barrier strip of grassland and scrub habitat would be constructed as a series of ridges beside the top of the river-bank, to discourage people and dogs from accessing the saltmarsh. Off-site mitigation would also be provided to the north of the proposed development, fencing off part of the river-bank to give additional protection for Otters, and constructing an Otter holt. The long term beneficial effects of the measures to protect the river would help to compensate for the losses of less valuable habitats within the site.

7.155 The habitat of highest value within the site is the reed-fringed ditch at Lottery's Reen, which is important at a District level. The ditch would be retained, but would be temporarily affected during the construction phase while it is cleaned out and reprofiled. It would be reinstated with an enhanced profile and a widened reedbed to its southern side. The loss of ditch length caused by a new culvert would be mitigated by provision of new ditch habitat within the widened reed-bed.

7.156 The other habitats within the site that would be lost to construction would be grassland, ruderal and scrub habitats of Local value for nature conservation. There would be a significant adverse impact on these habitats because they would be lost during construction. The losses would be reduced in severity as the new landscape planting matures, and by habitat enhancements that would be provided in the riverside buffer strip, but the long term impact on these Local value features would still be significant due to the overall reduction in vegetated area.

7.157 Adverse impacts on some protected and notable species are possible during construction, but with adoption of appropriate mitigation measures these are mostly assessed as not significant. Key mitigation measures include the methods and timing for vegetation clearance, enhancement of the ditch and river-bank strip, new landscape planting, provision of bat roost boxes and bird nest boxes, and translocation of reptiles to safe habitat nearby. In addition, parts of the Glebelands SINC to the north of the M4 would be converted from

species-poor grassland to flower-rich and ruderal vegetation, which would help off-set losses to the ruderal flora and invertebrate communities.

7.158 The combination of protection and enhancement of the SAC features and Lottery's Reen, and adoption of appropriate mitigation measures would retain the most highly valued ecological features. However, there will be an unavoidable loss of the less valuable habitats and species within the site, valued at a local or within site level, due to the need for provision of the residential units and associated infrastructure.

LAND SOUTH OF GLAN USK PRIMARY SCHOOL, HERBERT ROAD NEWPORT

ENVIRONMENTAL STATEMENT

VOLUME 2
CHAPTER 8: GROUND CONDITIONS

8. GROUND CONDITIONS

INTRODUCTION

8.1 This chapter of the Environmental Statement relates to the ground condition has been prepared by Terra Firma (Wales) Limited and is based on the Geotechnical and Geo-Environmental Report, the report is included in Appendix 8.1.

8.2 The purposed of this chapter is to undertake sufficient assessment to identify the nature and properties of the soils, underlying rock, ground water and gas within the development area and to assess the development impacts and the significance of these impacts on the environment. Appropriate mitigation measures are also proposed within this chapter to avoid and prevent the impacts identified.

8.3 The main objectives of the geo-environmental assessment were to:

- Identify the potential environmental liabilities at the site associated with any soil and groundwater contamination from past site uses.
- Provide a summary of the environmental conditions at the site, together with any necessary remediation works to render the site fit for its intended use.
- Provide recommendations with regard to any other geo-environmental aspects pertaining to the development such as radon and ground gas emissions

8.4 The main objectives of the geotechnical site investigation were to:

- Determine the type, strength and bearing characteristics of the shallow superficial deposits and underlying solid geology.
- Provide recommendations for a suitable and economic foundation/floor slab solution for the development.
- Provide recommendations with regard to any other geotechnical aspects pertaining to the development.

ASSESSMENT METHODOLOGY

8.5 The assessment of the site is carried out in successive stages to obtain details and the baseline conditions. The stages include the following:

- Preparation of a Desk Study
- Qualitative Geo-Environmental Risk Assessment
- Site Investigation
- Quantitative Human Health and Environmental Risk Assessment
- Geotechnical Assessment

The stages are detailed below and will be described in turn in the following section:

Preparation of a Desk Study

8.6 The Desk Study includes

- A walk over inspection of the site to obtain an accurate site description and to determine its current state. Any potential issues such as potential contamination sources or receptors to contamination are also identified.
- Review of Ordnance Survey historical plans of the site and surrounding area to determine the past use and occupation of the site. This includes identifying any past uses that may potentially have been a source of contamination.
- Identification of the anticipated ground conditions beneath the site including soil types, bedrock and likelihood of the presence and type of made ground by reference to geological maps and historical plans.
- Consideration of the hydrological and hydrogeological environment beneath and around the site including identification of current drainage, nearby water bodies, suspected groundwater flow regime and the aquifer properties of the underlying soils and bedrock.
- Procurement of a BR211 Radon Report from the British Geological Survey.
- Search on the Environment Agency online 'What's in Your Back Yard' database to obtain information including any known pollution incidents on or close to the site, the presence of any historical or active landfill sites within 250m of the site, risks from flooding, and whether the site situates within a groundwater source protection zone.

8.7 The Desk Study findings are summarised in the Baseline Conditions section of this Environmental Statement.

Qualitative Geo-environmental Risk Assessment

8.8 The Qualitative Geo-environmental Risk Assessment is completed using the information gathered through the desk study together with consideration of the end use of the site. The purpose of the Qualitative Geo-environmental Risk Assessment is to identify the potential sources of contamination, potential pathways by which contamination may travel and the potential human and environmental receptors of any identified contamination. The assessment also considers the risks from landfill, radon and ground gas to future site end users.

8.9 A qualitative risk based approach is adopted using the guidelines provided from DEFRA's Guidelines for Environmental Risk Assessment and Management. For the assessment of contamination there must be a potential source, a receptor and a pathway linking the two. The likelihood and consequence of this combination results in an overall risk. The definition of consequence, probability and the risk matrix identifying significance of impacts is outlined in Tables 8.1, 8.2 and 8.3 below.

Table 8.1: Classification of Consequence

Importance	Description
Very high	Short term (acute) risk to human health likely to result in significant harm Short term risk to controlled waters Catastrophic damage to buildings/structures Short term risk to an ecosystem or organism within the particular ecosystem
High	Chronic damage to human health (long term risk) Pollution of a sensitive water resource A significant change in an ecosystem or organism within the ecosystem
Medium	Pollution of non-sensitive water resources Significant damage to buildings/structures
Low	Harm (not necessarily significant) which may result in financial loss Non permanent health effects to humans (easily prevented by PPE for example) Easily repairable effects of structural (building) damage

Table 8.2: Classification of Probability

Importance	Description
Very high	There is a complete pollution linkage and an event appears very likely to occur in the short term and is inevitable in the long term Evidence of harm to the receptor
High	There is a complete pollution linkage which means that is it probable that an event will occur The event is not inevitable but possible in short term and likely in the long term
Medium	There is a complete pollution linkage and circumstances are possible under which an event could occur It is not certain that an event will occur in the long term, and it is less likely to occur in the short term
Low	There is a complete pollution linkage but circumstances are such that it is improbable that an event would occur even in the long term

Table 8.3: Significance of Potential Impact

Magnitude of Impact	**Importance of receptor/feature/resource**			
	Very high	High	Medium	Low
Major	*Major Risk*	*Moderate/major Risk*	*Moderate Risk*	*Moderate/minor Risk*
Moderate	*Moderate/major Risk*	*Moderate Risk*	*Moderate/minor Risk*	*Minor Risk*
Minor	*Moderate Risk*	*Moderate/minor Risk*	*Minor Risk*	*Minor/negligible Risk*
Negligible	*Moderate/minor Risk*	*Minor Risk*	*Minor/negligible Risk*	*Negligible Risk*

8.10 The overall description of high to negligible risks is identified in Table 8.3 described as follows:

- Major Risk: There is a high probability that severe harm could risk a receptor, or there is evidence that a receptor is being harmed. The risk if realised is likely to result in liability, and urgent investigation or remediation will be required.
- Moderate Risk: It is probable that harm will arise to a receptor. However it is relatively unlikely that such harm would be severe, or if harm does occur the harm is likely to be

relatively mild. Investigation will be required to determine the liability, and some remedial works may be required in the long term.

- Minor Risk: It is possible that harm may arise to a receptor, but it is likely that the harm would be mild.
- Negligible Risk: There is a very low risk of harm to the receptor. In the event of harm being realised the harm is not likely to be severe

8.11 The Qualitative Geo-Environmental Risk Assessment for the site is summarised in the Baseline Conditions section of this Environmental Statement.

Site Investigation

8.12 The desk study and risk assessments are used to design a site specific investigation to investigate the ground conditions and obtain the information required to perform a quantified human health and environmental risk assessment.

8.13 The geo-environmental aspect aims to gain soil and groundwater/surface water chemical data from across the site by widespread sampling and by targeted sampling of site soils at locations of known potential contamination sources. It also includes in-situ gas monitoring to assess the presence of any potentially harmful gases.

8.14 Geo-environmental investigation should be carried out in accordance with established procedures as set out in:

- BS 10175: 2001: 'Code of Practice for the investigation of potentially contaminated sites.'
- BS 5930: 1999: 'Code of Practice for Site Investigations'.
- Contaminated Land Exposure Assessments (CLEA) and Contaminated Land Reports published by DEFRA (Department for Environment, Food and Rural Affairs).
- CIRIA C665: 2007: Assessing risks posed by hazardous ground gases to buildings.

8.15 The findings of the Site Investigation are detailed in the Baseline Conditions section of this Environmental Statement.

Quantitative Human Health and Environmental Risk Assessment

8.16 The data gathered from the site investigation is collated and assessed against regulatory guidelines in order to determine whether the site or areas of the site are contaminated. This enables a Quantitative Human Health and Environmental Risk Assessments to be completed, identifying the potential impacts of the proposed development.

8.17 Soil analytical results are compared to Soil Guideline Values sourced from The Environment Agency Contaminated Land Exposure Assessment (CLEA) Guidelines. Where SGV values are not available reference is made to Generic Assessment Criteria provided by Land Quality Management Limited and the Chartered Institute of Environmental Health (CIEH). The guidelines reflect a residential end use scenario.

8.18 The groundwater/surface water chemical data is used to assess whether any contamination has had a detrimental impact on the aquatic environment.

8.19 Water analytical results are compared directly to generic thresholds provided by the UK Water Framework Directive (WFD), and to the BRE standard for sulphate. Where WFD guidelines are not available UK Drinking Water Directive (DWD) guidelines are used.

8.20 The results of the Quantitative Human Health and Environmental Risk Assessment will confirm the severity of contamination at the site and represent the potential impacts of the proposed development and these will be outlined in the Assessment of Potential Impacts section of this Environmental Statement.

8.21 The Mitigation Measures section of this Environmental Statement details the proposed mitigation and remedial measures required to protect against contamination identified as presenting a potential risk in the Quantitative Human Health and Environmental Risk Assessment.

Geotechnical Assessment

8.22 The ground conditions at the site and any contamination will be identified through the site investigation and Quantitative Human Health and Environmental Risk Assessment and included in the Assessment of Potential Impacts section. The assessment of the ground conditions will enable the most suitable foundation solution will be determined.

LEGISLATIVE AND PLANNING POLICY CONTEXT

8.23 Within the UK there are two areas of legislation in place to address contaminated land.

- The Planning Policy Wales (Edition 5, 2012)
- Part 2A of the Environmental Protection Act (1990)

Planning Policy Wales

8.24 The Planning Policy Framework ensures that through the planning process and application of planning conditions a site is only developed once it has been proved suitable for its new use taking account of ground conditions, pollution arising from previous uses and any proposals for mitigation including land remediation or impacts on the natural environment arising from that remediation; after remediation, as a minimum, land should not be capable of being determined as contaminated land under Part 2A of the Environmental Protection Act 1990.
Planning decisions need to take into account:

- The potential hazard that contamination presents to development itself, its occupants and the local environment
- The results of a specialist investigation and assessment by the developer to determine the contamination of the ground and to identify any remedial measures required to deal with any contamination.

8.25 Where significant contamination issues arise, the local planning authority will require evidence of a detailed investigation and risk assessment prior to the determination of the application to enable beneficial use of land. Where acceptable remedial measures can overcome such contamination, planning permission may be granted subject to conditions

specifying the necessary measures. If contamination cannot be overcome satisfactorily, the authority may refuse planning permission.

Part 2A of the Environmental Protection Act

8.26 On the 1st July 2001, the National Assembly for Wales enacted Section 57 of the Environment Act 1995, implementing Part 2A of the Environmental Protection Act 1990 (DEFRA). Part 2A provides a risk-based approach to the identification and remediation of land where contamination poses an unacceptable risk to human health or the environment.

8.27 Under Part 2A the statutory definition of 'contaminated land' is:

> ***" any land which appears to the local authority in whose area it is situated to be in such a condition, by reason of substances in, on or under the land, that—***
> ***(a) significant harm is being caused or there is a significant possibility of such harm being caused; or(b)pollution of controlled waters is being, or is likely to be, caused;"***

8.28 Where land has been identified as meeting the statutory definition as being contaminated Part 2A considers that such land, where it is reasonable and practical to do so, should be remediated to ensure that is suitable for its current use and no longer represents an unacceptable risk.

8.29 For land to be classified as 'Contaminated Land' there must be a 'pollutant linkage'. A pollutant linkage requires three essential elements:

- A CONTAMINANT (hazard) – a substance that is in, on or under the land and has the potential to cause harm or to cause pollution of controlled waters;
- A RECEPTOR (target) – something which could be adversely affected by a contaminant;
- A PATHWAY – a route or means which either allows the contaminant to cause significant harm to that receptor, or that there is a significant possibility of such harm being caused to the receptor, or that pollution of controlled waters is being or likely to be caused;

8.30 The term 'Risk' is widely used in different contexts and situations, but a prescriptive definition is given by the Guidelines for Environmental Risk Assessment and Management (DEFRA et al, 2000) 'Risk *is a combination of the probability, or frequency, of occurrence of a defined hazard and the magnitude of the consequences of the occurre*nce'. A 'Hazard' is defined as *'a property or situation that in particular circumstances could lead to harm'*.

BASELINE CONDITIONS

Site Walk Over Survey

8.31 Based on site visits made to site by Terra Firma (Wales) Limited during October and November 2012 the site was described as disused with dense vegetation covering the centre and much of the south of the site with an area in the north comprising undulated ground surfaced with grass. The south of the site at this time was covered by rough hardstanding. A cycle track passed from north to south along the west of the site and a

railway line ran along the east boundary of the site. Also noted was a drainage channel/reen passing from east to west at the north of the site, draining into the Usk, which is located to the immediate west of the site.

Desk Study

History

8.32 Historically the site remained as field land, occupied only by a few small buildings in the south of the site from between 1902 and 1920, until construction of a clothing factory in the south of the main portion of the site between 1937 and 1955. Later a rectangular building was erected in the northeast of the site, but between 1970 and 1993 the factory was demolished, although in 1993 tanks were noted to be present in the southeast of the site.

Geology

8.33 The 1:50,000 scale geological map of the area shows the site to be underlain by the St Maughan's Formation of the Devonian Period. These rocks comprise interbedded argillaceous rocks with subordinated sandstone. The solid geology is shown to be overlain by marine and estuarine alluvium. The historical use of the site is indicative of the likelihood for made ground to be present on site overlying the alluvial deposits.

Hydrology & Hydrogeology

8.34 Surface run-off is likely to naturally drain into the soil underlying the site and channel/reen crossing the site which orientates towards the River Usk. Shallow groundwater is also likely to flow to the river.

8.35 Groundwater flow through the bedrock is likely to be heavily influenced by fractures within the rock, topography and bedding planes.

8.36 The Environment Agency website illustrates the bedrock beneath the site to be a Secondary A aquifer. These aquifers are permeable layers capable of supporting water supplies at a local rather than strategic scale, and in some cases forming an important source of base flow to rivers. These are generally aquifers formerly classified as minor aquifers.

8.37 The superficial material overlying the east of the site has also been classified as a Secondary A aquifer. The west portion of the site, along the bank of the River Usk is not classified as it is considered unproductive strata.

Radon Gas

8.38 A British Geological Survey BRE211 Radon Report obtained for the site confirms that basic radon protection is required for any new development.

Environmental Information

8.39 The Environment Agency website 'what's in your back yard' database was searched for relevant information on the site and surrounding area.

8.40 There are no sites within a 1km radius of the site where pollution is regulated.

8.41 There are no industrial pollution scores within a 1km radius of the site where pollution is regulated.

8.42 There is one pollution incident within close proximity of the site. The incident took place in February 2004 approximately 250 metres south of the site. The incident caused a significant impact to land and involved 'specific waste materials'.

8.43 Two historical landfill facilities are located within influencing distance of the site; one of which encroaches into the far north of the site (Glebelands South) and one located 120 metres west of the site (Shaftsbury Park historic landfill).

8.44 Glebelands South is located at the far north of the site and beneath the school and playing fields to the north. The Environment Agency does not have any information in relation to the material disposed of, or the date that the facility was active.

8.45 Shaftsbury Park historic landfill is located approximately 120 metres west of the site. No information is provided regarding the date at which the landfill was active. Shaftsbury Park received industrial and household waste.

8.46 The Environment Agency database confirms that the site is at risk from flooding from rivers, sea and reservoirs. The site does however benefit from flood defences.

8.47 The site is not located within a groundwater protection zone.

Qualitative Environmental Risk Assessment

8.48 The findings of the desk study enable the identification of the potential receptors, the potential sources of contamination and gases and the potential pathways between source and receptors.

8.49 The potential receptors are taken to be:

- Construction workers
- Future site residents
- Future site visitors
- Adjacent sites
- Drainage Reen
- River Usk
- St Maughan's Group Bedrock (Secondary A Aquifer)
- Concrete used in construction

8.50 The potential sources of contamination and gases are taken to be:

- Based on the desk study information the potential sources of contamination identified on site were demolition rubble from former buildings on site, which may contain asbestos fibres or fragments of asbestos containing materials, and the former tanks noted in the southeast of the site on the 1993 historical plan.
- An historic landfill site also occupies the far north of the site.
- Peat or organic clay/silt may be found within the alluvium beneath the site, potentially the source of ground gas.
- Basic radon protection measures are required.

8.51 The potential pathways between source and receptors are taken to be:

- Dermal contact with soil and soil dust
- Ingestion of soil and soil dust
- Inhalation of soil dust
- Consumption of site grown vegetables/fruit
- Ingestion of groundwater
- Permeation of drinking water pipes
- Inhalation of ground gas
- Inhalation of radon gas
- Inhalation of landfill gas
- Run-off water
- Accidental spillage during construction
- Leaching of contamination
- Groundwater flow and migration
- Corrosion of concrete by contaminants in soil

Site Investigation

8.52 A site investigation was carried out between the 31st of October and the 8th of November 2012 comprising 19 trial pits (TP1 – TP19) and six cable percussive boreholes (BH1 – BH6) and three mini percussive boreholes (WS1 – WS3). Three in-situ soakaway tests were also undertaken during the site investigation.

8.53 The trial pits were excavated using a JCB 3CX excavator.

8.54 The cable percussive boreholes, 200mm in diameter were sunk using a conventional drilling rig. Within the boreholes Standard/Cone (SPT/CPT) Tests were carried out at close and regular intervals. All of the boreholes were terminated within in-situ hard strata after a minimum of 1 hours chiselling in each hole for a nominal penetration.

8.55 The mini percussive boreholes were sunk using a Terrier 2000 mini percussive drilling rig. The mini percussive boreholes were sunk within the vicinity of the historic landfill at the north of the site. The holes were sunk for the installation of gas monitoring wells to check the ground gas potential from the landfill.

8.56 The site investigation confirmed the following ground conditions on site:

Table 8.4: Ground Conditions

Depth(m)	Thickness(m)	Stratum
GL - 0.20/3.30	0.20/3.30	**MADE GROUND**
0.30 - 3.90/10.30	2.20/8.40	Soft grey and brown mottled **CLAY**
3.90/10.30 - 4.10/8.60	0.60/2.30	**PEAT**
4.10/8.60 - 5.90/9.70	0.00/1.80	**SAND & GRAVEL (intermittent)**
5.90/10.30 - 0.00/12.70	0.50/4.10	Firm becoming very stiff red brown gravelly **CLAY**
10.00/12.70 - >12.90	-	**MUDSTONE**

8.57 The basal Sand & Gravel layer was not encountered in BH1, BH2, BH4 and BH5.

8.58 Very loose red brown silty SAND and very soft red sandy SILT was encountered between 6.20m and 7.00m and 7.00m and 8.80m respectively.

8.59 Soft grey sandy SILT was encountered between 6.20m and 9.10m.

Soil and Water Laboratory Chemical Analysis

8.60 During the site investigation small disturbed soil samples were collected. The soil samples taken were despatched to the laboratories of Derwentside Environmental Testing Services Limited for laboratory chemical testing. The following soil chemical tests were undertaken:

Table 8.5: Summary of Soil Chemical Tests

Metals and Metalloids	In-Organics	Organics	Other
Lead Arsenic Mercury Chromium Copper Nickel Cadmium Zinc Selenium	Cyanide Sulphate	Phenols Polycyclic Aromatic Hydrocarbons Aromatic & Aliphatic Hydrocarbons Polychlorinated Biphenyls	pH (acidity) Organic matter Asbestos

8.61 Groundwater samples were also retrieved, on two occasions from all six boreholes, as well as water samples from upstream and down-stream of the drainage reen.

Table 8.6: Summary of Water Chemical Tests

Metals and Metalloids	In-Organics	Organics	Other
Lead Arsenic Mercury Chromium Copper Nickel Cadmium Zinc Selenium	Cyanide Sulphate Sulphide	Phenols Polycyclic Aromatic Hydrocarbons Aromatic & Aliphatic Hydrocarbons Polychlorinated Biphenyls	pH (acidity) Organic matter Conductivity Hardness Chemical Oxygen Demand Biological Oxygen Demand

Soil and Groundwater / Reen Water Test Results

8.62 A number of substances tested for were found to exceed their respective soil guideline values, as summarised in the following table:

Table 8.7: Summary of Soil Test Results

Hole and depth (m bgl)	Chemical	CLEA/CIEH Guideline (mg/kg)	Exceedence (mg/kg)
TP5 1.30m	Arsenic	32	40
TP2 0.90m	Cyanide	8	10
TP8 0.50m	Benzo(a)anthracene	3.1	13
	Benzo(a)pyrene	0.83	11
	Benzo(b)fluoranthene	5.6	9
	Chrysene	6	13
	Dibenzo(a,h)anthracene	0.76	1.6
	Indeno(1,2,3-c,d)pyrene	3.2	7.5
TP4 0.70m	Benzo(a)pyrene	0.83	0.90
TP6 0.60m	PCB	0.01	0.15
	2,3',4,4',5-Pentachlorobiphenyl	0.01	0.02
	2,2',4,4',5,5'Hexachlorobiphenyl	0.01	0.02
	2,2',3,4,4',5'Hexachlorobiphenyl	0.01	0.05
	2,2',3,4,4',5,5'Heptachlorobiphenyl	0.01	0.04
TP6 1.80m	Chrysotile – Loose Bundles	-	-
TP7 0.20m	Benzo(a)pyrene	0.83	1.90
	Chrysotile – Loose Bundles	-	-
TP9 1.00m	Benzo(a)pyrene	0.83	1.30
TP10 0.80m	Benzo(a)pyrene	0.83	1.50
TP13 0.60m	PCB	0.01	0.16
	2,4,4'-Trichlorobiphenyl	0.01	0.12
	2,2',5,5'-Tetrachlorobiphenyl	0.01	0.05

8.63 A number of substances tested for were found to exceed their respective threshold levels, as summarised in the following table:

Table 8.8: Summary of Water Results

Location	Chemical	WFD/DWD Threshold (mg/l	Exceedence (mg/l)
BH1 (08/01/2013)	Aliphatic C16-C21	0.01	0.11
	Aliphatic C21-C35	0.01	0.14
BH2 (08/01/2013)	Aliphatic C16-C21	0.01	0.037
	Aliphatic C21-C35	0.01	0.19
BH3 (08/01/2013)	Aliphatic C12-C16	0.01	0.017
	Aliphatic C16-C21	0.01	0.031
	Aliphatic C21-C35	0.01	0.42
	Aromatic C12-C16	0.01	0.014
BH6 (08/012013)	Aliphatic C16-C21	0.001	0.03
	Aliphatic C21-C35	0.001	0.011

Drainage Reen 1 (Upstream)	Fluoranthene	0.0001	0.00013
Drainage Reen 1 (Upstream)	Aliphatic C16 - C21	0.01	0.021
	Aliphatic C21 - C35	0.01	0.17
	Aromatic C10 - C12	0.01	0.018
	Aromatic C21 - C35	0.01	0.062

8.64 The petroleum hydrocarbons identified during the first groundwater monitoring round were attributed to contamination that occurred from the drilling process. Following purging of the boreholes on the second round of water sampling all hydrocarbons were below guideline values.

8.65 The hydrocarbons noted at the reen were identified up-steam but not down-stream and it was concluded that all of the determinants exiting the site and entering the River Usk from the reen were below threshold values.

Gas Monitoring

8.66 Nine gas monitoring wells were installed on site and a programme of gas monitoring for the presence of methane, carbon dioxide and oxygen has been undertaken.

8.67 The minimum recorded methane concentration was 0.1% and the minimum carbon dioxide concentration was 0%. The maximum recorded methane content was 58.9% and the highest carbon dioxide concentration recorded was 12.9%. A maximum flow rate of 0.4l/h was recorded.

8.68 In line with CIRIA Publication C665 (2007) these results were used to calculate a gas screening value of 0.23l/hr.

8.69 When compared to Table 8.5 of the CIRIA publication this gas screening value is interpreted as the site being at very low risk from ground gas/landfill gas, and the site is classified as being 'Characteristic Situation 2'. This classification is used to determine the mitigation measures required to protect future site users from gas.

ASSESSMENT OF POTENTIAL IMPACTS

Environmental Impacts

8.70 This section summarises the Quantitative Risk Assessment carried out for the site informed by the baseline conditions, which identifies the environmental impacts of the proposed development.

8.71 The impacts have been assessed in relation to two stages; the construction stage of the development and the future residential use of the site and are included in table below.

8.72 Table 8.9 details the contamination identified on site, the potential receptors of the contamination and the potential pathways by which the contamination may reach the receptors. It also provides the level of risk that each receptor type is deemed to be at from the contamination if no mitigation measures or remedial measures are applied during and upon development of the site.

Table 8.9: Potential Impacts During Construction Phase

Source	Potential Pathway	Potential Target	Risk Assessment
Contaminated soil	Ingestion of soil/dust Inhalation of soil dust Dermal contact with soil/dust	Construction workers	Arsenic, Cyanide, PCBs, Benzo(a)anthracene, Benzo(a)pyrene Benzo(b)fluoranthene, Chrysene, Dibenzo(a,h)anthracene, Indeno(1,2,3-c,d)pyrene **Moderate adverse to Major adverse Risk** Construction workers involved in excavation phase of development
Contaminated soil	Inhalation of asbestos fibres		Chrysotile fibres **Moderate adverse to Major adverse Risk** **at location of TP7** Construction workers involved in excavation phase of development
Contaminated soil	Inhalation of vapours		PCBs **Minor adverse Risk** Construction Workers operating in open air environment

Source	Potential Pathway	Potential Target	Risk Assessment
Reen water	Dermal Contact Ingestion		Petroleum Hydrocarbons, Fluoranthene **Negligible Risk** Levels very low and diluted within the drainage reen
Contaminated soil	Ingestion of soil dust Inhalation of soil dust Dermal contact with soil dust	Passers-by/ Neighbouring site users	Arsenic, Cyanide, PCBs, Benzo(a)anthracene, Benzo(a)pyrene Benzo(b)fluoranthene, Chrysene, Dibenzo(a,h)anthracene, Indeno(1,2,3-c,d)pyrene **Minor adverse Risk**
Made Ground	Inhalation of asbestos fibres		Chrysotile fibres **Minor adverse Risk**
Site construction materials/fuel etc	Accidental Spillage	Site Soils, Surface Waters, Groundwater, Drainage Reen, River Usk	**Minor adverse Risk**
Contaminated soil	Overland surface water flow	Surface waters	**No Risk**
Contaminated soil	Leaching of contaminants into groundwater beneath the site	Groundwater beneath the site St Maughan's Group Bedrock (Secondary A Aquifer)	**No Risk** Groundwater and reen water testing identified no site derived contaminants of concern
Contaminated soil Groundwater	Overland surface water flow Shallow groundwater flow	Drainage Reen River Usk	**No Risk** Groundwater and reen water testing identified no site derived contaminants of concern

Table 8.10: Potential Impacts Following Development

Source	Potential Pathway	Potential Target	Preliminary Risk Assessment
Contaminated soil	Ingestion of soil/dust Inhalation of soil dust Dermal contact with soil/dust Consumption of home grown vegetables/fruit	Site End Users (Residents and Visitors)	Arsenic, Cyanide, PCBs, Benzo(a)anthracene, Benzo(a)pyrene Benzo(b)fluoranthene, Chrysene, Dibenzo(a,h)anthracene, Indeno(1,2,3-c,d)pyrene

Source	Potential Pathway	Potential Target	Preliminary Risk Assessment
			Moderate adverse Risk
Contaminated soil	Inhalation of asbestos fibres		Chrysotile fibres **Moderate adverse to High adverse Risk** **at location of TP7**
Contaminated soil	Inhalation of vapours		PCBs **Moderate adverse Risk**
Contaminated soil	Organic contaminants have the potential to be absorbed into plastic water pipes which may be used for drinking water supply.	Site end users (Residents and Visitors)	Arsenic, Cyanide, PCBs, Benzo(a)anthracene, Benzo(a)pyrene Benzo(b)fluoranthene, Chrysene, Dibenzo(a,h)anthracene, Indeno(1,2,3-c,d)pyrene **Moderate adverse Risk**
Contaminated soil	Ingestion of soil dust Inhalation of soil dust Dermal contact with soil dust	Passers-by/ Neighbouring site users	Arsenic, Cyanide, PCBs, Benzo(a)anthracene, Benzo(a)pyrene Benzo(b)fluoranthene, Chrysene, Dibenzo(a,h)anthracene, Indeno(1,2,3-c,d)pyrene **Minor adverse Risk**
Made Ground	Inhalation of asbestos fibres		Chrysotile fibres **Minor adverse Risk**
Radon gas	Inhalation	Site end users (Residents and Visitors)	Basic radon protection measures will be required. **Moderate adverse Risk**
Landfill / Ground Gas	Inhalation		In-situ gas monitoring has identified high levels of methane and carbon dioxide **Minor adverse Risk**
Contaminated soil	Overland surface water flow	Surface waters	**No Risk**
Contaminated soil	Leaching of contaminants into groundwater beneath the site	Groundwater beneath the site St Maughan's Group Bedrock (Secondary A Aquifer)	**No Risk** Groundwater and reen water testing identified no site derived contaminants of concern
Contaminated soil Groundwater	Overland surface water flow Shallow groundwater flow	Drainage Reen River Usk	**No Risk** Groundwater and reen water testing identified no site derived contaminants of concern

Source	Potential Pathway	Potential Target	Preliminary Risk Assessment
Soil beneath the site	Direct contact with contaminants	Building materials	BRE Special Digest 1 lists the chemical agents that aggressively attack concrete as sulphates, sulphides, magnesium ions, ammonium ions, carbon dioxide, chloride ions and phenols. **Minor adverse risk**

Geotechnical Risk Assessment

8.73 Specific foundations designs are advised given the grounds conditions at the site. Because of the presence of soft clay bands beneath the site traditional shallow foundations are not recommended. Such foundations are likely to lead to high total and differential settlements.

8.74 A piled foundation is advised for the proposed residential properties.

8.75 The proposed development is to include the raising of the site by 1.0m to 2.0m as part of the flood prevention measures. Consolidation settlements of between 100 to 200mm have been estimated.

8.76 As the building foundations are to be piled this will result in differential settlements between the development infrastructure and the buildings of a similar order.

8.77 With raising of the site new slope faces will be created.

MITIGATION MEASURES

Environmental Mitigation Measures

8.78 The Potential Impact Assessment section has identified major, moderate and minor adverse potential risks to construction workers, future site users, passers-by to the site and building materials used to complete the development due to either the contaminated land or gas at the Site. Mitigation measures will be required to protect human health by severing the potential contamination source to receptor pathways during both the construction phase and once the development is completed.

Mitigation Measures During Construction Phase

8.79 During the construction phase, risks to construction workers should be mitigated by:

- COSHH Assessment and good standards of site hygiene, PPE etc.;
- Appropriate health and safety instructions being in place to cover the above;
- Dust suppression measures when necessary;
- Measures to limit contact with any contaminated groundwater;

8.80 It should be noted that the appointed contractor should provide Method Statements and Risk Assessments in place to deal with these matters. During the ground works, the contractor should comply with all current Health and Safety regulations. If during the development materials or abnormal ground conditions are encountered that are significantly different to those encountered in the investigation, the occurrence should be reported to the Engineer and appropriate action taken prior to continuing with the works.

8.81 All health and safety procedures should be adequate for protection of construction workers from asbestos containing soils when working in the vicinity of TP7.

8.82 In accordance with EC Regulation 1272/2008 and Environment Agency Guidance WM2 (v. 2.3/2011) soils and other materials destined for off-site disposal should be classified on the basis of their hazard phrases prior to disposal.

8.83 During the site works, the following mitigation measures should be applied:

- Measures to avoid accidental spillage of materials during earthmoving activities;
- Measures to control surface run off;
- Appropriate measures when stock piling material

8.84 It should be noted that the appointed contractor should provide Method Statements and Risk Assessments to deal with these matters.

8.85 Appropriate mitigation measures should be put in place such as site screening and dust suppression to prevent risks to neighbouring site users and passers-by from fugitive dust.

8.86 Based on analysis of site soils for pH and sulphate it is recommended that all buried concrete should conform to Design Class DS-1, ACEC Class AC-1, of BRE Digest 1:2005.

Mitigation Measures Upon Completion

8.87 The site should be capped to create a barrier between contaminated soils and site end users. Capping will be achieved by the intended up filling of the site by up to 2m required as part of a flood prevention scheme detailed further in Chapter 9 of this ES.

8.88 All imported materials for capping and other uses should be validated clean and suitable for use by laboratory chemical screening in accordance with 'Requirements for the Chemical Testing of Imported Materials for Various End Uses and Validation of Cover Systems' published by the Welsh Land Contamination Working Group.

8.89 All materials imported on to site should be accompanied by appropriate certification.

8.90 Prior to the placement of water supply pipes an assessment should be made, by the water provider, of soils along the route of the pipe with reference made to the material selection criteria quoted in the Water Regulations Advisory Scheme guidance Note No.9-04-03 (October 2002).

8.91 Basic radon protection measures should be incorporated into all new buildings on site.

8.92 Gas protection measures as follows should be installed in the new development:

- For a and 2000 g DPM/reinforced gas membrane and under-floor venting
- All joints and penetrations must be sealed with propriety gas resistant membrane and passively ventilated or positively pressurised under-floor sub-space.

8.93 The radon/gas barrier should also be effective as a barrier to PCB vapours.

8.94 If during the development materials are encountered that are significantly different to those encountered in the investigation, the occurrence should be reported to the Engineer and appropriate action taken prior to continuing with the works.

Geotechnical Mitigation Measures

8.95 Full geotechnical recommendations can be found in Terra Firma Geotechnical and Geo-Environmental Report (Section 8), as included in Appendix 8.1.

8.96 A piled foundation is advised for the proposed residential properties.

8.97 Floor slabs should be designed as suspended.

8.98 The proposed development is to include the raising of the site by 1.0m to 2.0m as part of the flood prevention measures. The materials used for the raising are to be inert mainly granular materials conforming to Type 6F2 or similar and should be compacted in layers to the Specification for Highway Works.

8.99 Consolidation settlement and differential settlement between development infrastructure and the buildings can be expected and the development should either be designed with flexible constructions and service entries into buildings or alternatively the fill should be placed prior to development and allowed to settle prior to construction.

8.100 Due to the need to raise site levels, retaining walls will be required and incorporated into the design of the split level houses.

8.101 The design and construction of the retaining walls and cut and fill should be in accordance with BS 6031: 1981 Code of Practise for Earthworks and other relevant guidance.

8.102 Any materials to be removed from site should be taken to an appropriately licensed tip.

8.103 Following adequate compaction of the imported fill, a California Bearing Ratio (CBR) Value of 5% is likely to be acceptable for design purposes. The local Highway Authority will require field in-situ CBR tests to be carried out at formation level of the roads to be adopted.

RESIDUAL IMPACTS

8.104 Tables 8.12 and 8.13 detail a summary of the residual human health and residual impacts following implementation of the recommended mitigation and remedial measures.

Table 8.12: Significance of Residual Impacts - Construction Phase

Potential Source	Potential Pathway	Potential Target	Preliminary Risk Assessment	Mitigation	Significance of Residual Impact
Contaminated soil	Ingestion of soil/dust Inhalation of soil dust Dermal contact with soil/dust	Construction Workers	Moderate adverse to Major adverse Risk	COSHH Assessment and good standards of site hygiene, PPE etc.; Appropriate health and safety instructions being in place to cover the above; Dust suppression measures when necessary;	Negligible
Contaminated soil	Inhalation of asbestos fibres		Moderate adverse to Major adverse Risk		
Contaminated soil	Inhalation of vapours		Minor adverse Risk		
Reen water	Dermal Contact Ingestion		Negligible Risk		
Contaminated soil	Ingestion of soil dust Inhalation of soil dust Dermal contact with soil dust	Neighbouring Site Users / Passers-by	Minor adverse Risk	Site Screening and Dust Suppression	Negligible
Made Ground	Inhalation of asbestos fibres		Minor adverse Risk		
Site construction materials/ fuel etc	Accidental Spillage	Site Soils, Surface Waters, Groundwater, Drainage Reen, River Usk	Minor adverse Risk	Measures to avoid accidental spillage of materials during earthmoving activities; Measures to control surface run off; Appropriate measures when stock piling material;	Negligible
Contaminated soil	Overland surface water flow	Surface waters	Minor adverse Risk		Negligible

Table 8.13: Significance of Residual Impacts - Following Development

Potential Source	Potential Pathway	Potential Target	Preliminary Risk Assessment	Mitigation	Significance of Residual Impact
Contaminated soil	Ingestion of soil/dust Inhalation of soil dust Dermal contact with soil/dust Consumption of home grown vegetables/fruit	Site End Users (Residents and Visitors)	Moderate adverse Risk	Capping of the site with 2m thickness of imported materials	Negligible
Contaminated soil	Inhalation of asbestos fibres		Moderate adverse to Major adverse Risk at location of TP7		Negligible
Radon gas	Inhalation	Site End Users (Residents and Visitors)	Moderate adverse Risk	Basic radon protection measures to be installed	Negligible
Landfill / Ground Gas	Inhalation	Site End Users (Residents and Visitors)	Moderate adverse Risk	Gas membrane and venting required	Negligible
Contaminated soil	Inhalation PCB of vapours	Site End Users (Residents and Visitors)	Moderate adverse Risk	Installation of vapour barrier in all new buildings	Negligible
Contaminated soil	Adsorption into drinking water supply	Site End Users (Residents and Visitors)	Moderate adverse Risk	'Guidance for the Selection of Water Supply Pipes to be Used in Brownfield Sites (Report 10/WM/03/21)' should be consulted	Negligible
Contaminated soil	Ingestion of soil dust Inhalation of soil dust Dermal contact with soil dust	Neighbouring Site Users / Passers-by	Minor adverse Risk	Site Screening and Dust Suppression	Negligible
Made Ground	Inhalation of asbestos fibres		Minor adverse Risk		

Potential Source	Potential Pathway	Potential Target	Preliminary Risk Assessment	Mitigation	Significance of Residual Impact
Contaminated soil	Overland surface flow	Surface waters	Minor adverse Risk	Capping of the site with 2m thickness of imported materials	No Risk
Contaminated soil	Leaching into groundwater Overland Groundwater flow	Drainage Reen River Usk St Maughan's Group Secondary A Aquifer	No Risk	N/A	No Risk
Soil beneath the site	Direct contact with contaminants	Building materials	Minor adverse Risk	Buried concrete should conform to Design Class DS-1, ACEC Class AC-1, of BRE Digest 1:2005.	Negligible

8.105 The table illustrates that with appropriate mitigation measures and remediation of the site upon development all human health and environmental risks are reduced to negligible levels.

SUMMARY

8.106 This chapter of the Environmental Statement, written by Terra Firma (Wales) Limited, is based upon a Geotechnical and Geo-Environmental Report, produced to support the planning application.

8.107 Through preparing a desk study and undertaking intrusive investigation of the site, including sampling and analysis of soil and groundwater, the baseline ground conditions of the site have been determined enabling a human health and environmental risk assessment to be completed and suitable geotechnical recommendations to be made.

8.108 The ground conditions beneath the site were confirmed to comprise in general made ground over soft clay and peat, over firm to stiff clay with intermittent sand and gravel lenses, over mudstone bedrock.

8.109 Laboratory chemical testing of site soils found contamination from arsenic, cyanide, asbestos, PCBs and polyaromatic hydrocarbons to be present. These substances were considered to present a potential risk to human health.

8.110 The groundwater beneath the site and reen water was confirmed to not be affected by site contamination.

8.111 During the construction phase, risks to construction workers from contaminated soils should be mitigated by:

- COSHH Assessment and good standards of site hygiene, PPE etc.;
- Appropriate health and safety instructions being in place to cover the above;
- Dust suppression measures when necessary;
- Measures to limit contact with any contaminated groundwater;

8.112 Due to a flood risk the site level is to be raised prior to development by up to 2.0m. This will act as a barrier between future site users and the contaminated soils eliminating the potential contamination pathways and risks to human health.

8.113 Due to the presence of soft clay bands beneath the site a piled foundation is advised for the proposed residential properties. For a 275mm square precast concrete pile driven to an appropriate set within the underlying gravels a safe working load of typically 500kN should be achieved. Based upon the site investigation data, pile lengths should vary between 12m and 15m beneath current ground levels. Following placement of the fill piles lengths will be increase to approximately 14 and 17m.

8.114 For the proposed site fill the materials used are to be inert mainly granular materials conforming to Type 6F2 or similar and should be compacted in layers to the Specification for Highway Works.

8.115 Earthworks should be supervised on a full time basis by a qualified geotechnical engineer in-situ. In-situ testing of the filling as it progresses should be carried out. These tests should include in-situ density testing and plate load tests.

8.116 Raising site levels will lead to consolidation settlement. As the building foundations are to be piled this will result in differential settlements between the development infrastructure and the buildings.

8.117 In order to accommodate this level of differential settlement the development should either be designed with flexible constructions and service entries into buildings or alternatively the fill should be placed prior to development and allowed to settle prior to construction. The settlement process can be speeded up by surcharging the site by 'over filling'. Should this be the desired option then appropriate instrumentation should be installed to determine when 90% consolidation has been achieved.

8.118 Alternatively, as the site is to be developed in phases, a less formal approach to that outlined above would be to fill areas of follow on phases during the first phase of works in order to allow at least some of the anticipated consolidation settlements to take place prior to development. Over a 12 month period such an approach is likely to reduce the consolidation settlement by as much as 50%.

8.119 Due to the need to raise site levels, retaining walls will be required and incorporated into the design of the split level houses. The design and construction of the retaining walls and cut and fill should be in accordance with BS 6031: 1981 Code of Practise for Earthworks and other relevant guidance.

8.120 For new roads and car parking areas, following adequate compaction of the imported fill, a California Bearing Ratio (CBR) Value of 5% is likely to be acceptable for design purposes. It should be noted that the local Highway Authority will require field in-situ CBR tests to be carried out at formation level of the roads to be adopted.

LAND SOUTH OF GLAN USK PRIMARY SCHOOL, HERBERT ROAD NEWPORT

ENVIRONMENTAL STATEMENT

VOLUME 2
CHAPTER 9: FLOOD RISK

9. FLOOD RISK

INTRODUCTION

9.1 This chapter presents the Flood Consequences Assessment associated with the proposed development. It has been prepared by Waterman Transport & Development Ltd (WTD).

9.2 This chapter sets out the hydrological regimes that currently exist and assesses the risk of flooding to the Site. The impact of the proposed development on flood risk to surrounding properties, the proposed flood mitigation measures and the residual risk/compliance with relevant planning policies are also assessed.

9.3 A comprehensive Flood Consequences Assessment (FCA) has been prepared by WTD, which is located in Appendix 9.7. The findings of the FCA are summarised in this chapter.

ASSESSMENT METHODOLOGY AND SIGNIFICANCE CRITERIA

Data Sources

9.4 The assessment of the Site is based on the data and information provided by Greenhill Construction and their appointed technical team, as presented in the description of the development (Chapter 4) and includes a detailed topographic survey of the existing Site and a proposed development layout.

9.5 The Soilscapes dataset, produced by the National Soil Resources Institute, at a 1:250000 scale, provides a simplified soils dataset covering England and Wales. This was examined in order to provide information relating to the hydrogeology of the Site.

9.6 Information pertaining to the Groundwater regime at the Site was obtained from Natural Resources Wales and their National Groundwater datasets which include Groundwater Source Protection Zones; Aquifer Maps- Superficial Deposits Designation; Aquifer Maps- Bedrock Designation; and Groundwater Vulnerability Zones.

9.7 The Welsh Government TAN15 Development Advice Map was assessed to establish the flood risk designation for the Herbert Road Site.

9.8 In order to establish the likely extent of the extreme floodplain the Natural Resources Wales Flood Map was obtained as part of a Request for Information, which is based on the 'Newport SFRM Modelling – Update of Newport Tidal Model v3.1 study'.

9.9 Extreme sea levels were also provided by NRW as part of the initial Request for Information. The peak level estimates were derived for England and Wales using a national tidal model calibrated to UK tidal gauge data. 95% confidence bounds for the calculated values were also derived using the confidence intervals for each node location. The baseline estimations are for the year 2008, so climate change is calculated relative to this year.

9.10 Climate change was applied to the baseline tide level estimations using the current guidance on sea level rise provided by DEFRA.

9.11 In order to provide a site-specific assessment of flood risk, the NRW hydrodynamic 1d/2d ESTRY-TUFLOW model for the River Usk was obtained and re-run for the appropriate scenarios.

9.12 Liaison with NRW agreed the potential mechanisms of flooding and confirmed the appropriate scenarios required to satisfy the criteria in TAN15.

9.13 A Site Walkover verified the topographical survey and confirmed that the hydraulic model was representing actual conditions appropriately.

9.14 A flow monitoring survey of the ordinary watercourse running through the Herbert Road Site was carried out Trueflow Surveys Ltd, with the aim of providing information regarding flow rates in the culverted watercourse.

9.15 The results of the flow monitoring survey were input into WinDES in order to derive peak flow hydrographs for selected return periods for this watercourse.

Consultation

9.16 Consultation has been undertaken with Natural Resources Wales (in terms of flood risk) and the Local Authority and Dwr Cymru Welsh Water (in terms of existing drainage arrangements at the site).

LEGISLATIVE & PLANNING POLICY FRAMEWORK

National Planning Policy

Planning Policy Wales (November 2012)

9.17 Planning Policy Wales' (2012) (PPW) is the overarching policy document that deals with planning matters in Wales. Chapter 4 of PPW confirms the Welsh Government's commitment to sustainable development. Chapter 12 of PPW deals with Infrastructure and paragraph 12.1.1 explains that adequate and efficient infrastructure is crucial for the economic, social and environmental sustainability of all parts of Wales.

9.18 Planning Policy Wales and its associated Technical Advice Note 15 (TAN 15) requires that consideration be given to the potential for flooding both to and from development of the Site. TAN 15: *Development and Flood Risk*, published in July 2004 by the Welsh Government, provides a framework for risks arising from all potential sources of flooding, as well as the potential for an adverse impact on third party flood risk as a result of the proposed development. The redevelopment of existing grass and woodland areas to form hard (impermeable) surfaces such as highways and buildings will cause an increase in surface water runoff rates and volumes unless appropriately mitigated.

9.19 The provision of drainage is fundamental to any development and in order to comply with general sustainability objectives the proposed type and level of drainage provision for any development must be sustainable.

Local Planning Policy

Newport Unitary Development Plan (UDP) (1996- 2011)

9.20 The Newport Unitary Development Plan (UDP) 1996 -2011 was formally adopted by Newport City Council in May 2006.

9.21 UDP Policy SP24 relates to flood risk and seeks to ensure that development does not result in an unacceptable risk of flooding, either on or off the site.

9.22 Policy SP27 sets out the requirement for Flood Consequence Assessments to be prepared to support planning applications where proposals are constrained by flood risk.

9.23 Policy U6 requires that development which could increase the risk of flooding due to additional surface water run-off includes appropriate and environmentally sympathetic mitigation measures.

Draft Newport Local Development Plan (LDP) (2011- 2026)

9.24 Reference to the draft Newport Local Development Plan (LDP) 2011 – 2026 (Deposit Plan, April 2012) indicates that the Herbert Road Site has been previously committed and is carried forward into the LDP.

9.25 The proposed Site is located within the 'Glebelands' site H(5), which is designated as a main source of housing land within the Newport Deposit Plan 2011-2026. It is detailed in the Deposit Plan that the Glebelands Site has 'existing commitments for residential development', to include 153 dwellings. The replacement primary school has now been constructed. This planning consent has been implemented by virtue of the construction of the primary school.

9.26 An extract from the Newport LDP is included as Appendix 9.1 herewith. This defines the proposed Site (H(1)) as 'Housing Commitment'.

BASELINE CONDITIONS

Baseline Surveys

9.27 Reference to the Welsh Government TAN 15 Development Advice Map (2009), which is included in Appendix 9.2 herewith, indicates that part of the Site is located within Zone C1. This risk designation suggests that the existing site is at risk from an extreme flood event, namely the 0.5% probability flood event (tidal). However the Zone C1 designation signifies this part of the Site as being served by significant infrastructure including defences. There are also some areas within the Site which lie within Zone A i.e. considered to be at little or no risk of fluvial or coastal/tidal flooding.

9.28 The Natural Resources Wales Flood Map, which is included in Appendix 9.3 herewith, also indicates that the southern part of the existing site is at risk of flooding in both 0.5% and 0.1% probability events. However, the affected area of the Site is shown to be located within an Area benefitting from defences.

9.29 A topographical survey of the Site indicates that the existing ground levels in the north east portion of the Site are at around 6.9m AOD and rise to the east to approx. 7.4m AOD.

9.30 The Site is located (at least in part) on a former industrial /domestic landfill site. This is reflected in the topography of the main part of the Site which varies between 7.0m AOD and 8.0m AOD. The ground running immediately adjacent to the River Usk along the western boundary of the Site is generally higher, with levels rising from 9.0m AOD in the north to approx. 10.0mAOD halfway along the Site, before dropping to 9.5m AOD at the southern extent.

9.31 The site walkover verified the topographical survey and considered the potential for further mechanisms of flooding.

9.32 There are no known records of flooding at the proposed development site.

Hydrogeology

9.33 Historically, the site was operated as a landfill between the 1930s and 1960s. Imported material is known to have raised this low lying part of Newport by about four metres.

9.34 The Soilscapes dataset, produced by the National Soil Resources Institute, is a 1:250000 scale simplified soils dataset covering England and Wales. This shows the Site as being located in an area where 'freely draining slightly acid loamy soils' dominate. An extract from the Soilscapes dataset is included in Appendix 9.4 herewith.

9.35 According to Natural Resource Wales data, the made ground at the Site is likely to be sufficiently permeable so as to allow the limited lateral and vertical migration of water to the underlying aquifer and offsite receptors. The underlying strata are both classified as Secondary A Aquifers which may be capable of supporting water supplies at a local rather than strategic scale.

9.36 NRW data confirms the Site is not located within a Groundwater Protection Zone. The Site is deemed to be a Minor Aquifer, according to the Groundwater Vulnerability Zones.

Hydrology

Fluvial Regime

9.37 The Site is located within the tidal reaches of the River Usk. This major watercourse rises in the mountains of Mid Wales and flows in a southerly direction through several major urban areas including Monmouth and the eastern valley towns to outfall into the Severn Estuary at Newport. To the north of Newport the River Usk meanders as it flows along the river valley of relatively flat gradient.

9.38 At Newport the natural geological features channel the river between the high ground occupied by Allt yr yn (near Newport Civic Centre) to the west of the river and Summerhill to the east. Downstream of this channel restriction the river again meanders across formerly estuarine mud flats to the Estuary. The former mud flats extend along the coast to Caldicot in the east.

Ordinary Watercourse

9.39 A small watercourse flows through the Herbert Road Site. An assessment of the catchment area of this ordinary watercourse indicates that it drains an area of circa 4.865 ha.

9.40 The catchment area is heavily urbanised and drains the residential area of St Julians to the east of the Herbert Road Site. The watercourse is culverted for a length of some 500m between St Julians Avenue and the Site, to which it enters via a culvert beneath the railway embankment.

9.41 The watercourse flows through the Herbert Road Site in open channel for a length of approx. 180m before discharging into the River Usk via a flapped pipe of 0.575m diameter. Along the open channel section, the watercourse is conveyed beneath the newly constructed pedestrian access route into the Glan Usk School Site via a circular culvert of 2m diameter.

9.42 It is assumed that the area to the north of the Site encompassing the 'Glebelands' and the new Glan Usk School site drains into this watercourse, although the exact location of the connection cannot be established.

9.43 In order to better understand the flow regime for the ordinary watercourse, a flow monitoring survey was carried out.

9.44 The flow data indicated that during dry weather the flow rate in the culvert is generally less than 5 l/s. In storm conditions the flow rates reached a maximum of 225 l/s.

Tidal Regime

9.45 The City of Newport is located in the upper part of the Severn Estuary. The coastal geomorphology of the Bristol Channel and Severn Estuary encourages the development of high tidal ranges. Tidal water is constricted as it propagates up the Estuary and as such, the tidal range is greater with distance up the Estuary.

9.46 In this case, the coastal fringe to the south and south east of Newport is potentially at risk from tidal flooding in the event of a high return period tide.

9.47 Flood defences in the Newport area vary in form and protection level but generally the defences on the west bank of the river are of a higher protection level than on the east.

9.48 The formal defences along the left bank of the River Usk end at the downstream boundary of the proposed Site, adjacent to Courtney Street. However, there is a raised embankment with a formed pathway on top that runs along the left bank of the River Usk from the southern extent of the proposed Site to beyond the M4 Motorway Bridge and Glebelands Park to the north. The crest level of this embankment is ~9.5mAOD at

the downstream extent. This rises to approx. 10.3mAOD for a short section before returning to levels of generally 9.3-9.5mAOD. The lowest section of the bank is located at the outfall of the small drainage ditch to the River Usk where ground levels are ~9.1m AOD.

Hydrological Calculations

9.49 The current NRW Flood Map in this area is derived from the Newport SFRM Modelling-Update of Newport Tidal Model Study v3.1, which is based on a hydrodynamic 1d/2d ESTRY-TUFLOW model completed in December 2011.

9.50 The modelling exercise assessed the flood risk from the River Usk and major tributaries, and included the major flood defences as well as the newly constructed East Bank defence along the River Usk.

9.51 The hydraulic modelling confirmed that the Site will remain unaffected by floodwaters during the extreme fluvial flood in the River Usk.

9.52 The model was also run for the defended and undefended tidal flood events as well as the defended scenario with climate change. QMED was applied to the fluvial inflows for all model runs.

9.53 Following consultation with NRW, it was agreed that they would supply the River Usk tidal model in order to inform the Site-specific FCA.

Peak Tide Level Estimation

9.54 The NRW model was supplied with the peak tide levels for the 0.5% APE and the 0.1% APE for the current-day scenario (2011).

9.55 There is increasing scientific evidence to suggest that the global climate is changing. It is therefore necessary to consider the potential impacts of Climate Change in terms of tidal flood risk. Global sea level is predicted to rise with the onset of Climate Change.

9.56 In this case, the Department for Environment, Food and Rural Affairs (DEFRA) has produced guidance regarding potential sea level rise. Table 1 provides a summary of the net sea level allowances in the vicinity of the proposed development site.

9.57 In 2011, DEFRA carried out a 'Technical Report Design sea levels' study which was designed to produce a nationally consistent set of extreme sea levels. These levels were derived using a tidal model calibrated to UK tidal gauge data, and produced estimates for the extreme tidal events for the baseline year (2008). In order to derive the 0.5% and 0.1% probability tidal levels for the year 2014 and 2064, the 2008 year levels have been extrapolated based on current DEFRA guidance for sea level rise. The tidal levels used to inform this FCA are summarised in Table 1.

Table 1: Regional Net Sea Level Rise Allowances:

Administrative Region	Net Sea Level Rise (mm/yr)			
	1990 to 2025	2025 to 2055	2055 to 2085	2085 to 2115
Wales	3.5	8.0	11.5	14.5

9.58 The extreme tide levels calculated for the FCA are included in Table 2 below.

Table 2: Peak Tide Level Estimates:

	0.5% APE, 2064	0.1% APE, 2014
Tide Level (m AOD)	8.83	8.76
Confidence Interval	+/-0.4m	+/-0.6m

Peak flow estimate for the Ordinary Watercourse

9.59 The data collected from the monitoring survey was used to estimate the return periods for the two storm events that occurred during the monitoring period.

9.60 Using the estimated return periods, and the relevant FEH catchment descriptors for the estimated catchment extent, peak flow estimates for the 1.0% and 0.1% annual probability storm events were calculated using Windes. An increase of 30% was then added to the peak flow estimates for the 1.0% annual probability storm events (to account for climate change).

9.61 Peak flow estimates were also generated to account for the contribution from the Glan Usk School Site. Connectivity between the open channel and the school development has been assumed in order to provide a conservative estimate of the watercourse's capacity. An assessment of OS data indicated that the Glan Usk School Site comprises an impermeable area of 1.85ha.

9.62 The peak flow estimates are detailed in Table 3 below.

Table 3: Peak Flow Estimates:

Peak flow estimates for the 1.0% probability storm + 30% / 0.1% probability storm		
	Summer	Winter
Ordinary Watercourse	0.90 / 1.17 cumecs	0.99 / 1.29 cumecs
Glan Usk School Site*	0.69 / 0.88 cumecs	0.56 / 0.72 cumecs
* The hydrographs for the 60min storm have been used so as to coincide with the peak baseflow		

Hydraulic Modelling of the River Usk

9.63 In order to investigate the flood mechanisms in more detail and assess the degree of tidal flooding to the proposed development, WTD obtained a copy of the NRW hydraulic model.

9.64 Advice was sought from NRW with regard to the scenarios required for assessing tidal flood risk for the proposed development. The NRW Flood Risk Analysis Team considered the development proposals in line with interim guidance relating to the application of the Upper Bound Confidence Limits to tidal scenarios. With specific reference to the NRW Data Request (Ref Q3_133, dated 14th Nov 2012) and the June 2013 FCA Report (Issue C), the scenarios recommended and subsequently modelled are:

- 0.5% probability event plus allowance for climate change (DESIGN EVENT)
- 0.1% probability event (present-day) (DESIGN EVENT)
- 0.5% probability event plus allowance for climate change plus Upper Confidence Limit (SENSITIVITY EVENT)

9.65 Based on these recommendations, the NRW model was re-run for the 0.5% APE event in 2064, and the 0.1% APE in 2014. This assumes a Lifetime of Development of 50 years in line with Newport City Council current advice. The appropriate values were added to the hydraulic model boundary to account for the anticipated sea-level rise.

9.66 The model outputs indicate that the Site is unaffected during the 0.5% probability tidal events in 2064 in the DEFENDED scenario. Peak water levels within the River Usk channel adjacent to the Site are circa 9.0m AOD. Scrutiny of the topographic survey data indicates that the raised embankment along the left bank of the River Usk at this location ranges between 10.38m AOD and 9.12m AOD.

9.67 The Site will not be affected during the 0.1% probability tidal event for the present-day (2014) in the DEFENDED scenario. The model output data indicates that the modelled peak water levels within the River Usk channel are very similar to that of the 0.5% APE (in 2064).

9.68 The results of the model can be seen in graphical form in Drawing No. CIV13980-C-SA-90-1001-A01 and Drawing No. CIV13980-C-SA-90-1002-A01, included in Appendix 9.5 herewith, which show the existing floodplain for the 0.5% (2064) and 0.1% (2014) probability events respectively.

Hydraulic Modelling of the Ordinary Watercourse

9.69 The model was based on the larger River Usk model, which was supplied to WTD to assess the flood risk from extreme tidal events in the adjacent River Usk. The model was trimmed to encompass the Herbert Road Site and the ordinary watercourse.

9.70 Modelling has shown that the floodwaters spill out of bank to locally affect the existing site, however the depth of this flood water is shallow in both a 1%+CC and a 0.1% probability flood event.

9.71 This modelling is summarised in the report entitled 'Hydrological Study of the on-site Ordinary Watercourse', which is included in Appendix 9.6 herewith.

ASSESSMENT OF POTENTIAL IMPACTS

Construction

9.72 Construction impacts are considered to occur as a consequence of the actual development (preliminary earthworks and construction operations) itself, and are all considered as being potentially adverse in nature. The following potentially significant impacts are typically associated with construction works and are considered relevant to this site.

- Site drainage;
- Surface water outfalls (existing and proposed);
- Delivery/storage of construction materials;
- Storage/handling of materials/oils/chemicals;
- Siltation;
- Concrete mixing; and
- Cross contamination of geological strata due to piling.

9.73 It is required that current site levels are raised to ensure that the risk of flooding is manageable for the lifetime of the development. Peak flood levels for the 0.1% probability tidal event in 2014 are not sufficient to affect the development Site; therefore, the raising of ground levels within the floodplain without mitigation is considered to have a **negligible** impact in respect of tidal flooding.

9.74 Floodwater from the Ordinary Watercourse is shown to spill out of bank onto the existing site. By raising the ground levels within the Site, floodwaters spilling out of the existing channel are prevented from flowing overland in a southerly direction. In this respect the raising of ground levels within the floodplain without mitigation could have a **minor adverse** impact in respect of fluvial flooding from the Ordinary Watercourse.

9.75 During construction, there is flood risk associated with the period during which construction works are being undertaken prior to completion of the proposed mitigation measures. Sudden rainfall events can mobilise silt and materials held within the site, and if not controlled these could be conveyed to the tidally influenced River Usk channel. Without mitigation could have a **minor adverse** impact.

9.76 The inappropriate siting of stockpiled material may have an adverse effect on the current hydrological regime by diverting flood water and/or surface water flow generated from rainfall events into previously unaffected third party property. Considering the limited flooding associated with the Ordinary Watercourse the potential impact of this would be **negligible**.

9.77 The proposed development will generate additional surface water flows from the increased impermeable areas. The resulting pressure on the downstream system could potentially cause flooding in extreme rainfall events. Notwithstanding this, the downstream system is tidally dominated, and therefore the impact of the construction phase of the proposed development (i.e. increased impermeable areas and therefore increased rate of runoff) on the existing hydrological regime, without mitigation, would be **negligible**.

9.78 The risk of groundwater flooding due to excavation below the water table could cause injury to site workers and delay works. In this case, the impact is deemed to be **minor adverse.**

Operation

9.79 There is potential for tidal and fluvial flooding to occur on the Site post construction unless appropriate mitigation measures are implemented.

9.80 The proposed development would result in increased impermeable areas, which in turn would result in higher levels of surface water run-off. The resulting increase in discharge could cause the downstream system to flood in extreme rainfall events.

9.81 Surface water generated from an extreme rainfall event, however, will enter the drainage system for the proposed development, details of which are provided in Chapter 10: Drainage. It is proposed to discharge surface water from the development into the ordinary watercourse. The ordinary watercourse outfalls into the tidally dominated River Usk; therefore, there will be a **negligible** impact on third party flooding in downstream properties.

9.82 The impact of raising ground levels within the proposed development site on the existing hydrological regime, without mitigation, would be **negligible / minor adverse** for tidal / fluvial flooding respectively.

9.83 The proposed access/egress arrangement is shown to be affected by floodwaters during the 0.5% probability event in 2064. However, it is proposed that an alternative existing pedestrian route will be available to the north of the Site which will provide dry access/egress. Therefore, the risk to residents is deemed to be **Negligible.**

MITIGATION MEASURES

9.84 This section provides a description of the proposed measures, which have been designed into the scheme to reduce/minimise adverse environmental effects.

9.85 The general philosophy of approach to the development has been to create proposals which are sympathetic to the site topography and environmental setting. Where specific further mitigation is desirable, such measures are described below.

Construction

9.86 Hydraulic modelling has shown that the Site will remain flood-free during the current-day (2014) extreme tidal events up to the 0.1% APE, as well as the 0.5% APE in 2064. Therefore, there is limited scope for tidal flooding during the construction phase.

9.87 A separate hydraulic modelling exercise has shown that the existing Site is at risk of minor flooding (during extreme flood events) from the ordinary watercourse that runs through the Site.

9.88 In order to accommodate the floodwater associated with the ordinary watercourse, it is proposed to retain an area of ground either side of the watercourse for both environmental benefits and flood storage. All proposed ground raising is outside this area.

9.89 Due to the tidal nature of the outfall of the ordinary watercourse into the River Usk and the large capacity of the river at this location, the unrestricted discharge of the proposed drainage system into ordinary watercourse will not affect downstream properties.

9.90 The agreed construction protocols will be included as part of the Construction Environment Management Plan, to be approved prior to commencement of the construction works.

9.91 Other measures will also be adopted to minimise the impacts of surface water discharges during the construction phase and these will include the following as a minimum:

- Where feasible, site-specific construction techniques will be adopted to ensure that no migration pathways are created to jeopardise groundwater quality. Where deeper foundations are required, proposed appropriate pilling techniques (i.e. non driven techniques) will be considered to minimise the associated risk;
- The use of appropriate measures as outlined in PPGs to prevent spillage of potentially polluting substances, including:
    - Appropriate storage and handling measures for all hydrocarbon fuels and lubricating oils, including the use of bunded storage areas or the use of double-skinned storage tanks;
    - The use of drip trays for static plant and designated refuelling areas for mobile plant;
    - The implementation of appropriate spillage contingency measures to mitigate the impact of such spillages on the surface water; and
    - Appropriate personnel awareness training of the potential environmental implications of all construction work on site.
- The prevention of silt-laden run-off and mud entering the surrounding surface water drains and watercourses by:
    - Timely site phasing and engineering, thus minimising un-surfaced and un-vegetated areas of the site to as small as practicably possible;
    - The provision of measures to intercept and treat such run-off prior to it leaving the site, including the use of peripheral cut-off ditches, settlement facilities, filtration and/or use of flocculants to effect the removal of water borne particulates; and
    - The provision of wheel-cleaning equipment for site plant to prevent the tracking of mud onto the public highway and therefore into the off-site surface water drainage systems.

Operation

9.92 The previous sections of this Chapter described the local flood regime and potential mechanisms of flooding.

9.93 The proposed layout and levels have been designed to ensure that the risk of flooding to the proposed development is acceptable for the lifetime of the development.

9.94 In order to comply with the threshold and maximum depth of flooding criteria in TAN 15 it is proposed to raise ground to form a development plateau set at 8.4m AOD, which will ensure that the development remains flood free during the 0.5% probability tidal event in 2064, with the Upper Confidence Interval applied to peak tide level estimates.

9.95 It is also proposed to raise the existing footpath along the western boundary of the Site to a minimum level of 9.5m AOD to ensure that floodwaters do not spill onto the development plateau in the 0.5% probability tidal event in 2064 (with the Upper Confidence Interval applied).

9.96 Natural Resources Wales has confirmed agreement with the principle of raising ground levels in this instance.

9.97 The proposed development has been shown to remain flood-free during all tidal design events/modelled scenarios for the present-day (2014) and the future (2064), thus raising site levels will have no adverse third-party impacts.

9.98 Surface water generated from an extreme rainfall event will enter the drainage system for the proposed development, details of which are provided in Chapter 10: Drainage. This will improve the existing situation by capturing surface water run-off and preventing potential overland flow affecting existing adjacent properties. It is proposed that the drainage system will discharge into the ordinary watercourse.

9.99 In order to accommodate the fluvial floodwater associated with the ordinary watercourse, the proposed development will retain an area of ground either side of the watercourse for both environmental benefits and flood storage. All proposed ground raising is outside this area.

9.100 Due to the tidal nature of the outfall of the ordinary watercourse into the River Usk and the large capacity of the river at this location, the unrestricted discharge of the proposed drainage system into ordinary watercourse will not affect downstream properties.

RESIDUAL IMPACTS ASSESSMENT

Construction

9.101 Modelling has shown that the Site will remain flood-free during all extreme tidal events up to the 0.1% APE for the present-day scenario. Therefore, the risk of increasing flooding to downstream properties during the construction phase of the development is deemed to be **Negligible**.

9.102 The retention of an area of unraised land adjacent to the ordinary watercourse will provide flood storage in the event that an extreme fluvial flood flow in the watercourse should coincide with a high tide (i.e. a Mean High Water Spring tide). It is noted that peak flood levels are raised locally within the Herbert Road Site, however,

due to the conservative nature of the hydrology used in the model, the restricted capacity of the upstream culvert and the elevated ground levels the other side of the railway it is considered that the increased water surface elevations at this location will have a **Negligible** impact on flood levels upstream.

9.103 The implementation of the construction phase protocols will temporarily enhance the management of surface water on the site and will significantly reduce the risk of off-site flooding caused by the discharge of surface and near surface waters emanating from the site. In this case, the residual impact is deemed to be **Negligible.**

9.104 With implementation of all mitigation measures the impact of the construction phase of the proposed development on the existing hydrological regime would be **Negligible**.

Operation

9.105 The method of impact assessment for the operational phase is similar to that for the construction phase.

9.106 It is proposed that the minimum ground floor slab levels applicable to the new development should be 8.4m AOD and that the embankment along the western boundary of the development is raised to 9.5m AOD, which ensures that the development plateau remains dry during the 0.5% probability tidal event (with Upper Confidence Interval applied) throughout the lifetime of the development, and is therefore compliant with TAN 15.

9.107 The elevated development plateaux will ensure that the proposed housing remains dry during a 0.1% probability fluvial event with a MHWS tidal event.

9.108 In this case, the risk of flooding to the occupants of the new development proposed on-site is considered to be low. In this case, the residual impact of flooding to the developed Site is deemed to be **Negligible**.

9.109 In terms of ecological impacts to the River Usk, there will be minimal disturbance of the current hydrological regime within the estuary. The resulting residual impact is deemed to be **Negligible.**

9.110 In terms of emergency access/egress during a large tidal event, it has been shown that the main vehicular access/egress route remains unaffected during the current day (2014) extreme flood events up to the 0.1% APE, as well as the 0.5% APE in 2064.

9.111 During the 0.5% APE in 2064 (with upper confidence level applied), the main access/egress route will not be compliant with TAN15 in terms of depth and velocity. However, an alternative pedestrian access/egress route is available at the northern part of the Site via the public footpath that runs along the western embankment and around the southern boundary of the Glan Usk School. A pedestrian underpass beneath the railway embankment provides pedestrians with access onto Charnwood Road.

9.112 The proposed Site itself will not be affected by the 0.5% probability tidal event in 2064. Therefore, the most appropriate course of action should the main access/egress be affected by floodwaters would be to remain on the Site until floodwaters on the surrounding land subsided.

9.113 The principal mechanism of flooding is an extreme tidal event in the River Usk Estuary. NRW can provide reliable tidal flood warnings as part of their Floodline Direct Service. Furthermore, a tidal event has a limited duration and floodwaters will recede once the peak of the tidal cycle has passed, thus allowing normal access/egress to resume.

9.114 Surface water generated from an extreme rainfall event will enter the drainage system for the proposed development, details of which are provided in Chapter 10: Drainage. This will improve the existing situation by capturing surface water run-off and preventing potential overland flow towards existing adjacent properties. It is proposed that the drainage system will discharge into the ordinary watercourse. In this respect, the residual impact will be **minor beneficial**.

9.115 In order to accommodate the fluvial floodwater associated with the ordinary watercourse, the proposed development will retain an area of ground either side of the watercourse for both environmental benefits and flood storage. All proposed ground raising is outside this area. In this respect, the residual impact will be **negligible**.

9.116 Due to the tidal nature of the outfall of the ordinary watercourse into the River Usk and the large capacity of the river at this location, the unrestricted discharge of the proposed drainage system into ordinary watercourse will have a **Negligible** impact on downstream properties.

Recommendations

Construction

9.117 The Construction Management Plan should include advice on the risk of flooding and the appropriate locations for the storage of construction materials, so as to avoid the diversion of potential surface water flow.

Operation

9.118 An Emergency Flood Plan should be compiled in order to identify the risk of flooding posed to the site and the appropriate course of action should the flooding of this area become a reality.

Summary and Conclusions

Baseline

9.119 The Natural Resource Wales Flood Map and the TAN 15 DAM's indicate that part of the Site is at risk of flooding.

9.120 The hydraulic analysis of potential mechanisms of flooding has established that the Site will not be affected by an extreme fluvial flood event in the River Usk.

9.121 Hydraulic modelling shows that an extreme fluvial event in the Ordinary Watercourse would cause shallow flooding to the currently low lying site.

9.122 Hydraulic modelling shows that an extreme tidal event in the River Usk Estuary will not affect the Site for the present-day scenario up to the 0.1% probability tidal event. Furthermore, the Site will remain dry during the 0.5% APE in 2064.

9.123 The existing Site will be affected by floodwaters during the 0.5% APE in 2064 when the Upper Confidence Interval is applied to the peak level estimates.

Development Options and Mitigation Measures

9.124 The proposed development has been shown to be unaffected by the 0.5% probability event (2064) and the 0.1% probability event (2014).

9.125 The existing Site is affected by the 0.5% probability tidal event (2064) when the Upper Confidence Interval is applied to the peak level estimate.

9.126 In order to ensure that the proposed Site remains dry during the 0.5% APE, even with the Upper Confidence Interval applied, it is proposed to raise Site levels to 8.4m AOD and improve the embankment along the western boundary of the Site to 9.5m AOD.

9.127 The proposed development site will require a new surface water drainage network. The proposed development will be drained via separate surface and foul water systems.

9.128 The safest option for emergency access/egress during the 0.5% probability tidal event in 2064 (with Upper Confidence Interval applied) is to remain on-Site until flood waters recede. An alternative pedestrian access/egress route is available at the northern boundary of the Site, which provides access to road infrastructure to the east.

9.129 Details pertaining to the proposed on-site drainage system are dealt with in the drainage chapter of this ES.

Likely Significant Effects

9.130 Table 8.3 below, contains a summary of the likely significant effects of the Proposed Development.

Table 8.3: Table of Significance –Flood Risk

Potential Effect	**Nature of Effect** (Permanent/ Temporary)	**Significance** (Major/ Moderate/ Minor) (Beneficial/ Adverse/ Negligible)	**Mitigation/ Enhancement Measures**	**Geographical Importance***							**Residual Effects** (Major/ Moderate/ Minor) (Beneficial/ Adverse/ Negligible)
				I	UK	W	R	C	D	L	
Construction											
Risk of groundwater flooding due to excavation beneath the groundwater table.	Temporary and potentially Permanent	Minor Adverse	Careful consideration in the design of drainage/sub-structures prior to the construction phase will be carried out such that deep excavations are minimised. De-watering system to be employed where necessary							L	Negligible
Accidental spillages of contaminants and increase in concentrations of pollutants such as suspended solids during earthworks and heavy plant movement during construction, affecting groundwater and quality of surface water (overland flow)	Temporary	Moderate Adverse	Introduction and enforcement of construction phase protocols to enhance surface water management and to mitigate the potential for accidental spillages, etc							L	Negligible
Current risk of flooding to off-site properties by overland flow from the site could be exacerbated by the increase in surface water runoff	Temporary	Negligible	Programme construction/completion of drainage works early in the construction programme. Contractor method statement to include temporary site drainage proposals and require approval prior to site start.							L	Negligible

Completed Development											
Risk of Tidal Flooding to the proposed Site and its main vehicular access	Permanent	Major Adverse	Proposals to create a raised development plateau within the Site, and improve the embankment along the western Site boundary to 9.5m AOD. Compilation and adoption of an Emergency Flood Plan to advise future occupants of the appropriate course of action during a flood event. Identification of an emergency access/egress route during a large tidal event							L	Negligible
Adverse effect on third party flood risk for tidal flooding due to the requirement to raise ground levels within the Site.	Permanent	Negligible	Ground-raising within this area will not increase the risk of flooding to third parties due to the tidal nature of the flood mechanism.							L	Negligible
Risk of Fluvial Flooding from the Ordinary Watercourse to the proposed Site	Permanent	Minor Adverse	Proposals to create a raised development plateau within the Site, which has been shown to be flood free during a 0.1% probability fluvial flood event							L	Negligible
Adverse effect on third party flood risk for fluvial flooding for the Ordinary Watercourse due to the requirement to raise ground levels within the Site.	Permanent	Minor Adverse	Proposals to create a raised development plateau within the Site include the retention of some of the existing/potential floodplain within the existing site for flood storage							L	Negligible
Increased surface water run-off from impermeable areas could (without mitigation) cause an increased flooding to downstream property.	Permanent	Negligible	Discharge into the tidally dominated waters of the Ordinary Watercourse and the River Usk							L	Negligible

*** Geographical Level of Importance**

I = International; UK = United Kingdom; W = W; R = Regional; C = County; D = District; L = Local

LAND SOUTH OF GLAN USK PRIMARY SCHOOL, HERBERT ROAD NEWPORT

ENVIRONMENTAL STATEMENT

VOLUME 2
CHAPTER 10: DRAINAGE

10. DRAINAGE

INTRODUCTION

10.1 This Chapter of the Environmental Statement (ES), written by Waterman Transport & Development Ltd (WTD), presents the Drainage assessment for the proposed development. It includes the relevant:

- assessment methodology and significant criteria;
- legislation and policy;
- baseline description;
- identification of potential impacts;
- assessment of the construction and operational phases of the project;
- design / mitigation measures and
- residual impact assessment and recommendations.

10.2 The existing brownfield site is to be developed for residential use and will be drained by separate new surface water and foul water drainage systems.

10.3 The Natural Resource Wales Flood Map and the TAN 15 Development Advice Map both indicate that part of the site is at risk of flooding. A Flood Consequences Assessment (FCA) has been prepared by WTD, which is submitted as a stand-alone document accompanying the planning application. The findings of the FCA are summarised in a separate Flood Risk chapter to this ES.

10.4 This Drainage chapter sets out the drainage regimes that currently exist, and comments on the future site drainage proposals as illustrated on the site drainage plan provided by Greenhill Construction.

ASSESSMENT METHODOLOGY AND SIGNIFICANCE CRITERIA

Assessment Methodology

10.5 This assessment is based on Drainage Plan no. SW49(ENG)520 and supporting comments on the drainage strategy, provided by Greenhill Construction. This plan is included herewith as Appendix 10.1. In order to carry out the assessment, further data have been obtained relating to:

- Dwr Cymru Welsh Water (DCWW) sewerage records;
- Ordnance Survey maps, topographical surveys, historical maps and Natural Resources Wales (NRW) floodplain and groundwater vulnerability maps.

10.6 The Soilscapes dataset, produced by the National Soil Resources Institute, at a 1:250000 scale, provides a simplified soils dataset covering England and Wales. This was examined in order to provide information relating to the hydrogeology of the Site.

10.7 A Site Walkover verified the topographical survey. and confirmed that the hydraulic model was representing actual conditions appropriately.

10.8 A flow monitoring survey of the ordinary watercourse running through the Herbert Road Site was carried out as part of the flood study, with the aim of providing information regarding flow rates in the culverted watercourse. Refer to the Flood Risk chapter of this ES for full details of the watercourse monitoring and conclusions.

10.9 TAN 15 requires that consideration be given for any potential for flooding to occur from surface water emanating from the developed site. TAN 15 requires that betterment is achieved through the redevelopment of such sites.

10.10 Surface water runoff was therefore investigated to determine the effect of the development on surface water resources and the potential risk of flooding elsewhere. Refer to the Flood Risk chapter of this ES for full details relating to flood risk.

Significance Criteria

10.11 The relative significance of potential and residual drainage issues is outlined in Table 10.1 below, based upon professional experience and judgement.

Significance Criteria	Description of Criteria
Major beneficial	Major permanent improvement in water quality leading to upward reclassification of water quality according to national criteria Major increase in capacity of foul drainage
Moderate beneficial	Moderate permanent improvement in water quality but not leading to upward reclassification of water quality according to national criteria Moderate increase in capacity of foul drainage
Minor beneficial	Minor temporary local scale improvement in water quality Minor increase in capacity of foul drainage
Negligible	No appreciable effect on humans or surface water resources Demand for foul drainage can be met within existing capacity
Minor adverse	Moderate temporary local scale reduction in surface water quality, reversible with time Minor increase in demand for foul drainage above capacity of services
Moderate adverse	Severe temporary reduction or minor permanent reduction in quality of the surface water resource that does not affect the classification of water quality according to national criteria Moderate increase in demand for foul drainage above capacity of services
Major adverse	Permanent reduction in the quality of the surface water resource that causes downward reclassification of water quality according to national criteria Major increase in demand for foul drainage above capacity of services

Table 10.1 Significance Criteria for Drainage Effects

LEGISLATIVE AND PLANNING POLICY FRAMEWORK

National Legislation

Water Framework Directive, 2000/60/EC

10.12 This Directive applies to all EU waterbodies and aims to ensure they are protected from harm, and that water quality improvements can be made. The Directive contains no specific flood risk management objectives but in general terms does place an onus on developers to protect and if possible enhance waterbodies close to developments.

Land Drainage Act, 1991

10.13 This Act sets out the responsibilities and powers of NRW, Internal Drainage Boards, LPAs and riparian land owners. Under the Act, NRW and the LPA have discretionary powers for management and maintenance of main rivers and ordinary watercourses respectively. However, the riparian owner, i.e. landowner through which the watercourse flows, who is ultimately responsible for its maintenance.

Water Resources Act, 1991

10.14 This Act relates to the control of the water environment. The main aspects relevant to development include land drainage, flood mitigation and pollution prevention. In particular:

- NRW consent is required for any works affecting, or within 16m of, any tidal defence structure;
- NRW consent is required for structures constructed across a 'main river' as defined by NRW maps;
- Land drainage consent is required for surface water discharge to a main river or tidal water .

Water Industry Act, 1991

10.15 This Act covers a wide range of provisions that the privatised Water Companies must follow. Under the Act, discharge of effluent to the public sewer can only take place with the agreement or consent of the sewerage undertaker (i.e. water company), in this case Dwr Cymru Welsh Water (DCWW).

Water Act 2003

10.16 This Act amends the WRA1991 and WIA 1991, bringing about a number of changes including streamlining arrangements for flood defence organisation and funding; changes to the types of abstraction licences; and places a duty on water companies to conserve water and prepare for drought.

Flood and Water Management Act, 2010

10.17 This Act removes the automatic right of connection to public sewers, and places the onus on the LPA to adopt Sustainable Drainage Systems. Secondary enacting legislation is not yet in place (currently anticipated to be enacted in late 2014). However, LPAs and water

companies currently consider the requirements of this Act when considering planning applications.

National Planning Policy

Planning Policy Wales – 5th Edition, 2012

10.18 Planning Policy Wales' (2012) (PPW) is the overarching policy document that deals with planning matters in Wales. Chapter 2 of PPW confirms WAG's commitment to sustainable development.

10.19 This is a general requirement to achieve sustainability through the development process. Chapter 12 of PPW deals with Infrastructure and Para 12.1.1 explains that adequate and efficient infrastructure is crucial for the economic, social and environmental sustainability of all parts of Wales. This again is a general objective which requires local interpretation to ensure compliance with the sustainability objectives.

10.20 Planning Policy Wales and its associated Technical Advice Note 15 requires that consideration be given to any potential for flooding from surface water emanating from the developed Site. The redevelopment of existing grass and woodland areas to form hard (impermeable) surfaces such as highways and buildings will cause an increase in surface water runoff rates and volumes.

10.21 The provision of Drainage is fundamental to any development and in order to comply with general sustainability objectives the proposed type and level of drainage provision for any development should be sustainable.

Local Planning Policy

Newport Unitary Development Plan (UDP) (1996- 2011) Adopted Plan (2006)

10.22 The Newport Unitary Development Plan (UDP) 1996 -2011 was formally adopted by Newport City Council in May 2006.

10.23 UDP Policy U4 states that SuDS should be incorporated into new developments wherever possible.

10.24 The quality and quantity of surface water and groundwater resources, including related nature conservation interests, are protected through Policy U5 Water Supply; development would not be permitted which has an unacceptable impact on these resources.

10.25 Policy U6 requires that development which could increase the risk of flooding due to additional surface water run-off includes appropriate and environmentally sympathetic mitigation measures.

10.26 Newport City Council has produced a Supplementary Planning Guidance document on Flood Risk and Sustainable Urban Drainage Systems. This provides further detail on the assessment required and possible mitigation measures to ensure that any proposed development will not be adversely affected by flooding or which will worsen flood risk to third parties or put lives at unacceptable risk.

Newport Local Development Plan (LDP) (2011- 2026)

10.27 Reference to the Newport Local Development Plan (LDP) 2011 – 2026 (Deposit Plan, April 2012) indicates that the Herbert Road Site has been previously committed and is carried forward into the LDP.

10.28 The proposed Site is located within the 'Glebelands' site H(5), which is designated as a main source of housing land within the Newport Deposit Plan 2011-2026. It is detailed in the Deposit Plan that the Glebelands Site has 'existing commitments for residential development', to include 153 dwellings. The replacement primary school has now been constructed. This planning consent has been implemented by virtue of the construction of the primary school.

10.29 An extract from the Newport LDP is included as Appendix 10.2 herewith. This defines the proposed Site (H(1)) as 'Housing Commitment'.

10.30 The Development accords with both national and local plan policies, as demonstrated in the following assessment.

BASELINE CONDITIONS

10.31 Reference to the Welsh Government's TAN 15 Development Advice Map (revised 2013), indicates that the Site is partly located within Zone C1. This risk designation suggests that the existing site is at risk from an extreme flood event, however the Zone C1 designation signifies this part of the Site as being served by significant infrastructure including defences. There are also some areas within the Site which lie within Zone A i.e. considered to be at little or no risk of fluvial or coastal/tidal flooding. Refer to the Flood Risk chapter of this ES for full details relating to flood risk

10.32 A topographical survey of the Site indicates that the existing ground levels in the north east portion of the Site are at around 6.9m AOD and rise to the east to approx. 7.4m AOD.

10.33 The Site is located in part on a former industrial /domestic landfill site. This is reflected in the topography of the main part of the Site which varies between 7.0m AOD and 8.0m AOD. The ground running immediately adjacent to the River Usk along the western boundary of the Site is generally higher, with levels rising from 9.0m AOD in the north to approx. 10.0mAOD halfway along the Site, before dropping to 9.5m AOD at the southern extent.

Hydrogeology

10.34 Historically, the site was operated as a landfill between the 1930s and 1960s. imported material is known to have raised this low lying part of Newport by about four metres.

10.35 The Soilscapes dataset, produced by the National Soil Resources Institute, is a 1:250000 scale simplified soils dataset covering England and Wales. This shows the Site as being located in an area where 'freely draining slightly acid loamy soils' dominate. An extract from the Soilscapes dataset is included in Appendix 10.3 herewith.

10.36 The narrow southern strip of development area has been elevated with man-made material to form a bund, with potential to improve the permeability of the soils here by importation of granular fill material.

10.37 According to Natural Resource Wales data, the made ground at the Site is likely to be sufficiently permeable so as to allow the limited lateral and vertical migration of water to the underlying aquifer and offsite receptors. The underlying strata are both classified as Secondary A Aquifers which may be capable of supporting water supplies at a local rather than strategic scale.

10.38 NRW data confirms the Site is not located within a Groundwater Protection Zone. The Site is deemed to be a Minor Aquifer, according to the Groundwater Vulnerability Zones.

Hydrology

Fluvial Regime

10.39 The Site is located within the tidal reaches of the River Usk. This major watercourse rises in the mountains of Mid Wales and flows in a southerly direction through several major urban areas including Monmouth and the eastern valley towns to outfall into the Severn Estuary at Newport. To the north of Newport the River Usk meanders as it flows along the river valley of relatively flat gradient.

10.40 At Newport the natural geological features channel the river between the high ground occupied by Allt yr yn (near Newport Civic Centre) to the west of the river and Summerhill to the east. Downstream of this channel restriction the river again meanders across formerly estuarine mud flats to the Estuary. The former mud flats extend along the coast to Caldicot in the east.

Ordinary Watercourse

10.41 A small watercourse flows through the Herbert Road Site. The catchment area is heavily urbanised and drains some of the residential area of St Julians to the east of the Herbert Road Site. The watercourse is culverted for a length of some 500m between St Julians Avenue and the Site, to which it enters via a culvert beneath the railway embankment.

10.42 The watercourse flows through the Herbert Road Site in open channel for a length of approx. 180m before discharging into the River Usk via a flapped pipe of approx. 0.575m diameter. Along the open channel section, the watercourse is conveyed beneath the newly constructed pedestrian access route into the Glan Usk School Site via a circular culvert of 2m diameter.

10.43 It is assumed that the area to the north of the Site encompassing the 'Glebelands' and the new Glan Usk School site drains into this watercourse, although the exact location of the connection cannot be established.

10.44 The River Usk is designated as a Site of Special Scientific Interest (SSSI) and a Special Area of Conservation (SAC).

10.45 In order to better understand the flow regime for the ordinary watercourse, a flow monitoring survey was carried out. The flow data indicated that during dry weather the flow rate in the culvert is generally less than 5 l/s. In storm conditions the flow rates

reached a maximum of 225 l/s. Refer to the Flood Risk chapter of this ES for full details of the watercourse monitoring and conclusions.

Sewer Flooding

10.46 Local residents have reported existing problems with sewer flooding in properties to the west of the railway line (including Orchard Street) during certain periods of rainfall. This is an existing problem for which it is understood DCWW have temporary alleviation measures in place which are activated when required.

Foul Water Drainage

10.47 There are currently no foul flows generated by the existing greenfield site, although DCWW public combined sewers are present within the development boundary, including a 2.1m trunk sewer crossing the northern part of the development area. A plan showing DCWW's existing sewer network within the vicinity of the site is included herewith in Appendix 10.4.

10.48 The existing sewers crossing the site convey flows from adjacent developed areas and contain no known incoming connections from on-site flow sources.

10.49 With regard to water quality, the preferred method of foul drainage disposal is a connection to the public sewerage network. DCWW will need to confirm capacity within the local sewer network and wastewater treatment works as part of their connection approval process prior to connection of flows.

ASSESSMENT OF POTENTIAL IMPACTS

Construction Phase

Surface Water Runoff

10.50 During the construction phase of the works and prior to the operation of the proposed site drainage, the status quo will prevail in areas of the site that are neither heavily tracked or paved over. In this respect, surface water runoff emanating from the existing site will continue to infiltrate to ground and shed naturally overland to the open watercourse within the site.

10.51 Construction works including earthworks and temporary site drainage would have the potential to give rise to changes in the surface water runoff regime during storms. In the absence of mitigation the risk of surface water flooding from overland sources could increase because discharge rates would not be controlled.

10.52 Stockpiled material in particular has the potential to divert surface water runoff towards third parties or otherwise adversely affect the existing regime.

10.53 Without mitigation the effects of construction activities on surface water runoff are considered to be **moderate adverse**.

Contamination of Surface Water and Groundwater

10.54 The construction process will generate an increase in the concentrations of some pollutants, in particular suspended solids, from the mobilisation of silts and sediments during earthworks and from the movement of heavy plant. Construction plant may also generate a diffuse pollution source of hydrocarbons and, to a lesser extent, heavy metals, which could leach into the sub-soil and find their way into the groundwater regime and subsequently the watercourse. The majority of these pollutants would be mobilised during surface water run-off and would enter the existing/partially completed proposed drainage system such that flows are mitigated.

10.55 In addition to the sources of diffuse pollution, there is also some risk of point source pollution of oils and hydrocarbons occurring from spillages or leaks, which could lead to a contamination of the surface water system and consequently the watercourse. The greatest risk of oil spillage occurs during vehicle re-fuelling.

10.56 Any potential piling activities in particular could introduce new pathways for any contaminants to migrate into the groundwater.

10.57 The risk of pollution of the downstream watercourse without the provision of suitable mitigation measures is considered to be **moderate adverse**.

Sewer Flooding

10.58 Several public combined sewers including a deep large bore tunnel sewer are present within the development area. Any blockage or malfunction of the existing sewers within the development area due to construction activity will potentially adversely affect neighbouring existing residents, unless appropriate mitigation measures are implemented.

10.59 It should be noted that the precise nature of the existing sewer problem affecting Orchard Street and the surrounding area is not known and as such it cannot be stated with any certainty that the proposed development will exacerbate this particular existing problem. Furthermore DCWW has not raised any existing sewer problems during discussions regarding proposed foul connection points for the new development.

10.60 Without appropriate mitigation the potential risk of damage to the sewers during the construction process is considered to be **moderate adverse**.

Operational Phase

Surface Water Runoff

10.61 Given that there will be an increase in impermeable surfaces as a result of the development proposals it is inevitable that there will be an increase in the rate and volume of surface water runoff.

10.62 The ordinary watercourse outfall to the River Usk is tidally dominated at this location. Due to the tidal nature of the outfall and the very large capacity of the Usk, the proposed unattenuated discharge of site surface water drainage to the ordinary watercourse will not affect downstream properties.

10.63 As such, the impact of the development (i.e. increased rate of runoff) on the existing hydrological regime is considered to be **negligible**.

10.64 Notwithstanding the above, an appropriately designed surface water drainage scheme with an appropriate disposal strategy and details will be required to mitigate against flooding of the sewers/drainage system.

10.65 The system will also need to be designed to cater for exceedance and emergency blockage scenarios. Exceedance occurs when agreed design rainfall parameters are exceeded, and is typically mitigated by the incorporation of appropriately routed overland flow-paths within the layout.

10.66 Overland flowpaths as part of the 3D modelling exercise will need careful consideration at detailed design stage in parallel with development of the drainage design to ensure that flooding due to blockages anywhere within the network can be safely conveyed away from and have minimal impact on the proposed development.

Water Quality

10.67 The operational phase will generate an increase in the concentrations of some pollutants. It is however unlikely that the development would generate any diffuse pollution sources, which could leach into the sub-soil and find their way into the groundwater regime and subsequently the watercourse.

10.68 There is some risk of point source pollution of oils and hydrocarbons occurring from spillages or leaks, particularly from the car parking areas, which could lead to a contamination of the surface water system and consequently the watercourse. The risk of pollution of the downstream watercourse without the provision of appropriate mitigation measures is considered to be **moderate adverse**.

Sewer Flooding

10.69 Any blockage or malfunction of the existing sewers within the development area will require unrestricted maintenance access in perpetuity to prevent potential problems for both new development residents and neighbouring existing residents when the site is developed.

10.70 It should be noted that the precise nature of the existing sewer problem affecting Orchard Street and the surrounding area is not known and as such it cannot be stated with any certainty that the proposed development will exacerbate this particular existing problem. Furthermore DCWW has not raised any existing sewer problems during discussions regarding proposed foul connection points for the new development.

10.71 Without appropriate mitigation, the risk of sewer flooding due to lack of maintenance access is considered **moderate adverse**.

Foul Water Drainage

10.72 The most sustainable method of disposal of foul water discharge from the proposed development is via the mains sewerage network.

10.73 Due to topographical constraints and the wish to avoid pumping, three points of connection to the existing sewer network are proposed:

i) a new manhole connection in the rear garden of plot 164/165 near the eastern site boundary
ii) connection to an existing manhole on the footpath in front of the adjacent primary school at the northern site boundary
iii) a new manhole connection in the proposed estate road along the western site boundary near block 229-234.

These connection points have been discussed and agreed in principle with DCWW.

10.74 Pre-application informal discussions have indicated there is capacity in DCWW's existing infrastructure to accommodate the proposed development. DCWW will need to confirm capacity within the local sewer network and wastewater treatment works as part of their connection approval process prior to connection of flows.

10.75 As such, it is considered that the development would give rise to a **negligible** effect in terms of foul drainage.

MITIGATION MEASURES

10.76 This section provides a description of the proposed mitigation measures which have been designed into the scheme to reduce / minimise adverse environmental effects.

10.77 The general philosophy of approach to the development of the site layout has been to create proposals which are sympathetic to the site topography and environmental setting.

10.78 The proposed site drainage plan is included herewith as Appendix 10.1. This plan shows the site layout and arrangements for future drainage provision.

10.79 The surface water drainage strategy comprises two distinct disposal methods.

10.80 The narrow strip forming the southern half of the development is an infiltration based design, with all impermeable areas such as roofs and footpaths draining to ground via soakaways or other forms of infiltration. The estate road and plot driveways in the southern strip are of permeable block paving construction.

10.81 The remainder of the development to the north is served by a proposed piped surface water drainage system with no inherent flow/source control, which collects all impermeable area runoff and discharges to the ordinary watercourse at three separate points. Discharge to the watercourse is unattenuated on the basis that downstream properties will not be affected due to the tidal nature of the watercourse outfall to the River Usk and the large capacity of the river at this location.

10.82 Notwithstanding the above, the watercourse is to be locally widened and reshaped as part of the development landscaping proposals to provide a wetland area. In addition to the enhanced ecological and amenity value afforded by this area, the additional flood storage provided will help to mitigate future flood risk in storm conditions.

Construction Phase

Surface Water Runoff

10.83 During the construction phase protocols would need to be put in place to ensure that any surface water runoff risk is not exacerbated. This would include the appropriate siting of stockpiled material to avoid the potential diversion of floodwaters and any subsequent exacerbation to third party flooding that may occur.

10.84 The contractor should be required to produce a method statement detailing any dewatering, temporary land drainage installations, and other contingencies deemed necessary to facilitate the necessary earthworks movement and terrace formation works.

10.85 Care should also be taken to avoid the release of construction materials into the drainage systems, as this material may have the potential to block the downstream system.

Contamination of Surface Water and Groundwater

10.86 A piling risk assessment will ensure that any piling would be conducted in a way that minimises introduction of pathways to the groundwater.

10.87 Groundwater quality should also be monitored during the works.

10.88 Construction protocols relating to the protection of water quality and surface water management in general would include inter alia the following:

- The provision of temporary storage areas and stilling basins;
- It is recommended that a temporary petrol interceptor be incorporated into the proposed system (downstream of proposed trafficked areas) as early as possible during the construction programme;
- Any trapped road gullies present on the existing on-site system will provide an initial stage of pollution protection and should be maintained during construction to ensure that collected sediments and pollutants are not re-mobilised; and
- Mitigation of point source pollution such as oil spillage or leakage will be achieved by provision of designated storage and refuelling areas, with storage areas provided with adequate bunding to prevent spillages.

Sewer Flooding

10.89 The surveyed line and level of the existing sewers within the development area should be made available to the contractor. Construction activities should be carefully planned with due consideration of the proximity of the surveyed drainage.

10.90 The developer has agreed with DCWW that a ‘no-build’ easement zone is not required directly over the large diameter tunnel sewer, subject to agreement of foundation details and construction methods. These details will need to be agreed prior to construction.

Operational Phase

Water Quality

10.91 The inherent filtration qualities of the permeable paving solution proposed for the southern strip of development will assist the breakdown and dilution of pollutants.

10.92 The use of trapped gullies and oil interception in the piped surface water system to the north will mitigate the pollution risk in this area.

10.93 In addition, a carefully designed wetland area into which the surface water discharges will have an inherent filtration function to assist the breakdown of contaminants.

Sewer Flooding

10.94 The layout has been designed to ensure maintenance access to the existing public sewers within the site, with the exception of the large bore tunnel sewer crossing the northern part of the development.

10.95 The developer has agreed with DCWW that a 'no-build' zone is not required directly over this particular asset, subject to agreement of foundation details and construction methods. These details will need to be agreed prior to construction.

RESIDUAL EFFECTS

10.96 This section provides a description of the residual impacts which will remain following implementation of the mitigation measures described in the previous section.

10.97 The residual impact is considered in order to identify a deterioration or improvement in the environmental impact.

Construction Phase

Surface Water Runoff

10.98 With the effective implementation of the controls described in the previous section, the residual impact of the construction phase of the proposed development on the existing hydrological regime is considered to be **negligible**.

Contamination of Surface Water and Groundwater

10.99 With mitigation in place as described in the previous section, the risks in relation to groundwater and surface water contamination would be considered **negligible**.

Sewer Flooding

10.100 With mitigation as described in the previous section, the risks in relation to the existing sewers would be considered **negligible**.

Operational Phase

Water Quality

10.101 With mitigation as described in the previous section, the risk of pollution of the downstream watercourse is considered to be **negligible**.

Sewer Flooding

10.102 With mitigation as described in the previous section, the risks in relation to the existing sewers would be considered **negligible**.

SUMMARY

10.103 The potential effects, mitigation measures and likely residual effects of construction and operational use of the development on drainage, are summarised in Table 10.2 below.

Table 10.2 Summary of Potential Effects, Mitigation and Residual Effects

Description of Effect	Potential Effect / Significance	Mitigation	Likely Residual Effect / Significance
Construction			
Surface Water runoff increase	**Moderate adverse significance**	Method statement for temporary works, appropriate siting of stockpiled material	**Negligible**
Surface Water contamination	**Moderate adverse significance**	Piling risk assessment, groundwater monitoring, designated storage and refuelling areas	**Negligible**
Sewer flooding	**Moderate adverse significance**	Method statement and details for foundation construction to be agreed with DCWW	**Negligible**
Operation			
Surface Water runoff increase	**Negligible**	None required	**Negligible**
Surface Water quality	**Moderate adverse significance**	Incorporation of permeable paving, trapped gullies, oil interception and a well designed wetland area.	**Negligible**
Sewer flooding	**Moderate adverse significance**	Agreed easement strips to ensure maintenance access. Method statement and details for foundation	**Negligible**

		construction to be agreed with DCWW	
Foul drainage	**Negligible**	None required	**Negligible**

LAND SOUTH OF GLAN USK PRIMARY SCHOOL, HERBERT ROAD NEWPORT

ENVIRONMENTAL STATEMENT

VOLUME 2
CHAPTER 11: TRAFFIC, TRANSPORT AND MOVEMENT

11. TRAFFIC, TRANSPORT AND MOVEMENT

INTRODUCTION

11.1 This chapter of the environmental statement investigates the local transport systems serving the proposed development site, including the highway network, public transport infrastructure, and pedestrian/cycle facilities. This section also identifies the impact of the proposed development on the surrounding highway network.

11.2 The proposed development comprises up to 250 residential dwellings (85% open market/15% affordable), together with a total of 351 car parking spaces on land to the west of Herbert Road, Newport.

ASSESSMENT METHODOLOGY

11.3 As stated earlier, the purpose of this chapter (of the Environmental Statement) is to; outline the development proposals, review the development proposals in relation to national and local planning policies; assess the impact of the proposed development on the surrounding transport network and identify any mitigation measures and residual impacts.

11.4 The scope of the Transport Assessment has been discussed and agreed with the Local Highway Authority as follows:

- Estimate vehicle trip generation using TRICS 2013 (a) trip generation data base;
- Assess the impact of the proposed development for the year of opening (2017) and 'year of opening + 5 years' (2022);
- Analyse the impact of the proposed development at the following junctions:
  - Clarence Place/East Usk Road/Church Road/Chepstow Road/Corporation Road signalised junction
  - Caerleon Road/Turner Street/Tesco priority junction
  - Turner Street/Trostrey Street priority junction
  - Turner Street under railway bridge (link).
- Review site accessibility; and,
- Assess on-site parking provision.

11.5 The methodology of the Traffic, Transport and Movement chapter is described below:

- **Legislative and Planning Policy** – A review of the development proposals in relation to national, regional and local planning policies has been undertaken and summarised;

- **Review of local road network** – A review of the local highway network has been undertaken, describing the highway network in the vicinity of the proposed development;

- **Traffic surveys** – Traffic surveys have been undertaken at the junctions identified during scoping with the local highway authority as detailed above;

- **Public transport review** – A desktop review of the public transport provision has been undertaken to establish the level of bus and rail provision to the development site;

- **Future traffic generation** – In order to assess the impact of the development proposals on the existing transport infrastructure, it is necessary to establish the person trips likely to be generated by the proposed development. This has been undertaken using the TRICS database, which is the national standard system of trip generation and analysis in the UK and Ireland, and is used as an integral and essential part of the Transport Assessment process. It is a database system which allows its users to establish potential levels of trip generation for a wide range of developments.

- **Impact of development** – Analysis of the impact of the development proposals has been undertaken on the surrounding highway network, and identifies any mitigation measures required to reduce the impact of development generated traffic, should these be required at the junctions identified above.

Significance criteria

11.6 The relative significance of potential and residual drainage issues is outlined in **Table 11.1** over the page, which is based upon professional experience and judgement.

Significance criteria	Description of criteria
Major beneficial	Reduction in traffic that would result in significant improvement in peak hour link/junction capacity
Moderate beneficial	Reduction in traffic that would result in improvement to peak hour link/junction capacity
Minor beneficial	Reduction in traffic that may result in improvement to peak hour link/junction capacity
Negligible	No discernible impact on peak hour capacity
Minor adverse	Increase in traffic that would not give rise to any link/junction capacity issues
Moderate adverse	Increase in traffic that could give rise to minor link/junction capacity issues
Major adverse	Increase in traffic that would give rise to link/junction capacity issues

Table 11.1 significance criteria for traffic/transport effects

LEGISLATIVE AND PLANNING POLICY FRAMEWORK

National planning policy

Wales Spatial Plan – People, Places, Futures

11.7 The Wales Spatial Plan – People, Places Future (WSP) – was originally adopted by the National Assembly for Wales in November 2004, and updated in 2008 to bring the WSP into line with One Wales: Connecting the Nation (see below).

11.8 The Plan has amongst its goals: 'Achieving sustainable accessibility. To balance the social, economic and environmental impacts of travel while enhancing accessibility and to tackle the challenge of benefiting from larger networked regions while reducing the negative impacts of travel'.

11.9 It states 'Citizens must be able to access job opportunities and public services – health, social services, education, etc – if equality of opportunity is to be successfully promoted in Wales'.

11.10 With regards to building communities, the Plan explains that a lack of good quality housing affects people's health, well-being and influences their long term life chances. There is a need to maintain a mix of tenure and size of housing to ensure balanced communities. In the context of responding to and mitigating the effects of climate change, the WSP supports changing behaviour and is in favour of 'greener' modes of travel such as car sharing, public transport, walking and cycling.

11.11 The general principles set out for new housing include the need for sites to be linked to public transport nodes, including walking and cycling networks.

Planning Policy Wales

11.12 Planning Policy Wales (PPW) sets out the land use planning policies of the Welsh Assembly Government. It is supplemented by a series of Technical Advice Notes (TANs). Procedural advice is given in circulars and policy clarification letters.

11.13 PPW provides a firm steer that new developments should be directed to existing urban areas where there is greatest potential for reducing the need to travel due to the co-location of houses, jobs, shops, services and public transport facilities. It aims to extend choice in transport and secure accessibility in a way which supports sustainable development and helps to tackle the causes of climate change by : encouraging a more effective and efficient transport system, with greater use of the more sustainable and healthy forms of travel, and minimising the need to travel.

11.14 PPW states that:

'Land use planning can help to achieve the Assembly Government's objectives for transport through:

- Reducing the need to travel, especially by private car, and locating development where there is good access by public transport, walking and cycling;
- Locating development near other related uses to encourage multi-purpose trips and reduce the length of journeys;
- Improving accessibility by walking, cycling and public transport;
- Ensuring that transport is accessible to all, taking into account the needs of disabled and other less mobile people;
- Promoting walking and cycling;
- Supporting the provision of high quality public transport;
- Supporting traffic management measures;
- Promoting sustainable travel options in rural areas;
- Supporting necessary infrastructure improvements; and,
- Ensuring that, as far as possible, transport infrastructure does not contribute to land take, urban sprawl or neighbourhood services.

11.15 With regards to promoting walking and cycling, PPW states that:

'***Walking should be promoted for shorter trips. The impact of policies and development on pedestrians should be considered. Planning authorities should promote specific measures to assist pedestrians including the provision of safe, convenient and well-signed routes.'***

11.16 PPW also states that:

'Cycling should also be encouraged for short trips and as a substitute for shorter car journeys or, as part of a longer journey when combined with public transport'.

11.17 In relation to parking, PPW states that:

'*Car parking provision is a major influence on the choice of means of transport and the pattern of development. Local authorities should ensure that new developments provide lower levels of parking than have generally been achieved in the past. Minimum parking standards are no longer appropriate*.'

One Wales: Connecting the Nation – The Wales Transport Strategy

11.18 National transport policy for Wales is specified within the Wales Transport Strategy, One Wales: Connecting the Nation, which is supplemented by a series of Technical Advice Notes (TANs).

11.19 This policy aims to maximise the consideration of access during the planning of new services and facilities, influence and alter travel patterns, promote sustainable travel and contribute to environmental improvements. The goal of One Wales: Connecting the Nation is to:

'Promote sustainable transport networks that safeguard the environment while strengthening our country's economic and social life. The transport strategy identifies a series of high-level outcomes and sets out the steps to their delivery. The One Wales programme is working to achieve a nation with access for all, where travelling between communities and accessing services, jobs and facilities in different parts of Wales is both easy and sustainable, and which support the growth of our economy.'

11.20 The Strategy aims to maximise the positive contribution that transport makes and promote healthy lifestyles, such as walking and cycling for short journeys. It prioritises actions that influence the number of trips, distance travelled and mode of travel chosen, such as ensuring that new developments take transport implications into account. A significant number of car trips could be replaced by making walking and cycling more attractive options and it focuses on travel behaviour.

Technical Advice Note (TAN) 18

11.21 TAN 18 describes how to integrate land use and transport planning, and explains how transport impacts should be assessed and mitigated.

11.22 It states that the location of new residential development has a significant influence on travel patterns as the majority of trips start or finish at home.

11.23 Development plans should identify residential sites that are accessible to jobs, shops, services and where public transport services have capacity to absorb the development. Plans should promote housing development at locations with good access by walking and cycling to schools and public transport stops, and by all modes to employment, services, shopping and leisure.

11.24 TAN 18 identifies thresholds at which a Transport Assessment should be produced in support of a planning application. Any housing development over 100 dwellings requires a Transport Assessment. This document is intended to consider the impact of a proposed development of up to a maximum of 250 units.

Newport City Council Unitary Development Plan

11.25 The UDP provides a policy framework that integrates and balances the social, economic and environmental issues in order to meet the needs of those living, working and visiting Newport.

11.26 The UDP is effectively time expired but will continue to be the statutory development plan until the new Local Development Plan (LDP) is adopted. As such it continues to provide the basis for the determination of all planning applications within the local authority.

11.27 The principle aims of the Plan are as follows:

- Move towards environmentally sustainable development involving:
  - urban regeneration,
  - conservation of the natural and built environment and the prudent use of natural resources,
- Facilitate improvements to the economy and general living standards.
- Conserve and enhance the built and natural environment, and to counter decline in biodiversity.

11.28 In relation to transport the UDPs' specific objectives are as follows:

- Adopting land allocation policies which reduce the need to travel.
- The provision of sustainable transport infrastructure:
  - promote use of public transport, cycling, walking and other non-polluting transport;
  - contribute towards the integrated transport strategy;
  - provide appropriate transport modes to serve new development areas;
  - enhance Newport's strategic position in the regional transport network.

Newport Local Development Plan (Deposit)

11.29 The emerging LDP (a Deposit Plan was published in March 2012) has a focus on regeneration which seeks to maximise the use of previously developed, brownfield land. Regeneration is seen as a key means of achieving sustainable development. The availability of a large amount of previously developed land provides the Council with confidence that a significant proportion of the 9,600 dwellings required by 2026, will be met by development on identified 'brownfield' land and windfall sites.

BASELINE CONDITIONS

Site location

11.30 The 5.1 hectare (12.7 acre) site is situated within the St Julian's area of Newport, and is located approximately 1.6km (1 mile) from Newport city centre.

11.31 The site itself is bounded to the north by Glan Usk Primary School and to the east by the Welsh Marches Railway Line. The southern boundary of the site abuts existing warehouse/ industrial premises, and the western boundary abuts the River Usk.

11.32 The location of the site is shown in Appendix 11.1.

Highway network

11.33 The highway network in vicinity of the site is also shown in Appendix 11.1.

11.34 The proposed site access is located at the intersection between Collier Street/Courtney Street, which form two sides of a square around a green amenity/play space). The other two sides of the square are formed by Crawford Street and Turner Street.

Collier Street

11.35 Collier street is a residential access road, with an approximate carriageway width of 7.6m, and footways on both sides of the carriageway (approximately 2m wide).

11.36 Traffic calming has been implemented along the road (in the form of speed cushions), and there are parking restrictions along the eastern side of the carriageway (double yellow lines).

11.37 The road is lit, and is subject to a 30mph speed limit.

Courtney Street

11.38 Courtney Street is a residential access road, with an approximate carriageway width of 8.5m, and a footway on the northern side of the carriageway (approximately 2m wide).

11.39 Traffic calming has been implemented along the road (in the form of speed cushions). There are no parking restrictions along the majority of the road, although there are parking restrictions on the approach to the junction with Crawford Street.

11.40 The road is lit, and is subject to a 30 mph speed limit.

Crawford Street

11.41 Crawford Street is a residential road (albeit with industrial premises fronting the southern end of the carriageway), with an approximate carriageway width of 7.2m, and footways on both sides of the carriageway.

11.42 Traffic calming has been implemented along the road (in the form of speed cushions), and there are parking restrictions along the western side of the carriageway (double yellow lines).

11.43 The road is lit and subject to a 30mph speed limit.

Turner Street

11.44 Turner Street links the development to the local transport network through a simple priority junction. The road is a uniform width of approximately 8.7m, narrowing to approximately 4.8m as it passes under the Welsh Marches Line. Through the narrowing, a priority system is in operation with priority for westbound traffic.

11.45 There is a height restriction under the railway bridge of 3.1m, and there is also a weight limit (7.5 tonne) along the road between 11pm and 7 am.

11.46 Within proximity of the junction with Caerleon Road the road is fronted by commercial premises and beyond the railway bridge, predominately by residential dwellings.

11.47 The road has pedestrian footways on both sides of the carriageway along its length, is lit and subject to a 30mph speed limit and is traffic-calmed along its length.

B4596 Caerleon Road

11.48 The B4596 Caerleon Road to the south east of the site, runs in a north east – south west direction connecting to the M4 in the north (providing access to the wider network) and the B4237 to the south west and the B4591 to the west.

11.49 The width of the road varies along its length within the study area. However, in proximity of the site the road is approximately 9m wide to the north east and 11.5 m wide to the south west.

11.50 The road has pedestrian footways on both sides of the carriageway, is lit and subject to a 30mph speed limit.

Base traffic flows

11.51 Fully classified turning counts have been undertaken at the following Junctions:

- Clarence Place/East Usk Road/Church Road/Chepstow Road/Corporation Road junction;

- Turner Street/Caerleon Road junction; and

- Turner Street/Trostrey Street junction.

11.52 The surveys were undertaken on Thursday 31 January 2013 (between 0730-0930 and1630-1830 hours). The peak hour traffic flows are summarised in Appendix 11.2, and the surveys are presented in full in Appendix 11.3.

Public Transport

11.53 The proposed development is reasonably well served by public transport, with a number of scheduled bus services connecting Newport with destinations such as Cardiff, Cwmbran, Pontypool and Monmouth (see Table 11.1 below for full details).

11.54 The site is also accessible by rail, with the nearest rail station, Newport Railway Station, located approximately 1.3km from the south west if the site access.

Bus services

11.55 There are existing bus stops on Caerleon Road – both north east bound and south west bound - within easy walking distance (i.e. 400m) of the site access facilitating movement within Newport and to neighbouring settlements.

11.56 Table 11.1 overleaf outlines the services that call at bus stops within the vicinity of the site.

Route No.	Origin/Destination	Frequency
2A	Newport-Gaer	0600-2300/Service every 40 minutes between 0700-2000 (Monday-Saturday)
2A	Newport-Gaer	1000-2200/Service every 2 hours (Sunday)
2C	Newport-Gaer	0630-2100/Service every 40 minutes between 0720-1800 (Monday-Saturday)
2C	Newport-Gaer	1100-2100/Service every 2 hours (Sunday)
3B	Newport – Malpas woodlands – Newport	0910-1745/Service every 10, 15, 40 & 45 past the hour (Monday-Saturday)
6	Newport – Always – Ringland	0525-2300/Hourly service between 0525-1825(Monday-Saturday)
6	Newport – Always – Ringland	One service at 2215 (Sunday)
8A	Newport – Maindee - Ringland	0440-2300/Service every 40 minutes between 0540-2300 (Monday-Saturday)
8A	Newport – Maindee – Ringland	0940-2230/Service every 40 minutes between 1220-2140 (Sunday)
8C	Newport – Maindee – Ringland	0520-2240/Service every 40 minutes (Monday-Saturday)
8C	Newport – Maindee – Ringland	0900-2200/Service every 20 and 40 past the hour and on the hour (Sunday)
10A	Newport – Christchurch	0850-1650/Service every 2 hours (Monday-Saturday)
10C	Newport – Christchurch	0950-1750/Service every 2 hours (Monday-Saturday)
11A	Newport – Allt-yr-yn – Brynglas	0711-2230/Service every 33minutes past from 0833-2133 (Monday-Saturday)
11C	Newport – Brynglas	0655-2200/Service every 11minutes past the hour (Monday-Saturday)
15	Newport – Cwmbran – Pontypool – Trevethin	06:45-18:15/Service every 15minutes (Monday-Friday)
15	Newport – Cwmbran – Pontypool – Trevethin	07:15-18:15/Service every 15minutes (Saturday)
16	Newport – Bettws - Newport	04:55-2300/Service every 20minutes between 07:15-18:15 (Monday-Saturday)
16	Newport – Bettws – Newport	09:00-22:00/Hourly service (Sunday)
17	Newport – Malpas Almond Drive	07:15-18:45/Service every 07:15-18:45 (Monday-Saturday)
18	Newport – Malpas Almond Drive	06:20-18:20/Service every 20 and 40 minutes past the hour (Monday-Saturday)
19	Newport – Malpas Court	06:00-23:00/Service every 20minutes between 07:30-19:50 (Monday-Saturday)
20	Newport – Spytty Retail Park – Newport	09:20-17:20/Hourly service (Monday-Saturday)
23	Newport – Cwmbran – Pontypool – Varteg Hill	07:40-22:10/Service every half hour between 08:00-18:00 (Monday-Saturday)
26A	Newport – St Julians	0720-2230/Service every 40minutes from 0720-1720 (Monday-Saturday)
26C	Newport – St Julians	0500-2300/Service every 40minutes from 0700-1740 (Monday-Saturday)
27	Newport – Caerleon trinity View	04:55-23:40/Service every 18 and 54 minutes past the hour between 07:18-17:54 (Monday-Saturday)
28	Newport – Caerleon Eastfield Road	07:06-22:00/Hourly service (Monday-Saturday)
28B	Newport – Caerleon Eastfield Road	07:30-17:30/Hourly service (Monday-Saturday)

Table 11.2 Existing scheduled bus services

42	Newport – Spytty Park	Service every 18 and 54 minutes past the hour between 07:18-17:54 (Monday-Saturday)
43	Newport – Nash College	05:35-22:30/Service every half hour (Monday-Saturday)
44	Newport – Nash College	07:30-17:30/Hourly service (Monday-Saturday)
60	Newport – Caerleon – Usk – Raglan – Monmouth	06:30-17:35/Hourly service between 10:05-16:05 (Monday-Saturday)
62	Newport – Caerwent – Sudbrook – Caldicot	06:50-18:15/Service every 2 hours between 10:05-16:05 (Monday-Saturday)
63	Newport – Whiston – Goldcliff – Wetlands Reserve – Newport	07:00-18:00/Service every 2 hours between 10:00-18:00 (Monday-Saturday)
73	Newport – Parc Seymour – Caerwent – Chepstow	05:55-17:40/Service every 40 minutes past the hour between 07:40-17:40 (Monday-Saturday)
X30	Newport – Cardiff Express	0700-1900/Service every 20minutes (Monday-Saturday)

Table 11.2(cont'd) Existing scheduled bus services

11.57 Local bus routes/stops are shown in Appendix 11.4.

Rail services

11.58 As outlined above, the closest rail station is Newport Railway Station. The station is located approximately 1.3km (<1 mile) south of the site, which is within the preferred maximum walk distance of 2km (for commuting purposes). The location of the station is identified in Figure 3.3.

11.59 The station is situated on the Great Western Mainline, The Valleys Lines and the Welsh Marches Line, with services to Cardiff Central (to the west), Hereford (to the north) and Bristol Parkway/Templemeads (to the East).

11.60 A rail network map is presented in Appendix 11.5.

Walking and cycling

11.61 As outlined above, the majority of roads within the vicinity of the site have footways on one or both sides of the carriageway, providing links between the site and the surrounding facilities.

11.62 The Chartered Institution of Highways and Transportation (IHT) guidelines 'Providing for journeys on foot' indicates that the desirable walking distance for commuting/school journeys is 500 metres, the acceptable walking distance is 1.0km and 2.0km is the preferred maximum.

11.63 Appendix 11.6 indicates the 500m, 1.0km and 2.0km isochrones from the centre of the proposed site. Local amenities within walking distance of the site include comparison and convenience goods retail, Primary School, places of worship and a Post Office.

Cycle routes

11.64 There are no formal cycle facilities within the immediate vicinity of the site. However, there are a number of routes to the west of the River Usk, that are within easy cycling distance of the site, including:

- National Cycle Route 47 (Celtic Trail East);National Cycle Route 49 (Monmouthshire and Brecon Canal – Newport); and,
- National Cycle Route 88 – providing a link to Caerleon.

These routes are shown in Appendix 11.7.

ASSESSMENT OF POTENTIAL IMPACTS

11.65 In order to assess the impact of the development proposals on the existing transport infrastructure, it is necessary to establish the person trips likely to be generated by the proposed development.

Trip generation

Residential dwellings – privately owned (85%)

11.66 The vehicle trip generation rates for the proposed residential dwellings have been obtained from the TRICS 2013(b) trip generation database. Sites were selected on the basis of the following selection criteria:

- Land use: residential – privately owned;
- Survey days: Monday – Friday;
- Number of units: 50 to 180 dwellings; and,
- Location of the development: UK, excluding Greater London, Northern Ireland and Republic of Ireland.
-

11.67 The TRICS outputs are set out in Appendix 11.8 and the peak periods are summarised in **Table 11.3** below. It should be noted that 85th percentile trip rates have been used to provide a robust assessment of the scheme.

Peak Period	**Trip rate**			**Vehicles**		
	Arrive	Depart	Total	Arrive	Depart	Total
Am peak	0.245	0.465	0.71	29	55	84
Pm peak	0.463	0.321	0.784	55	38	93

Table 11.3 Summary of trip rates/vehicular generation – housing privately owned

11.68 It can be seen from the table above that the open market housing element of the proposed development is likely to generated 84 vehicles two-way in the am peak period and 93 vehicles two-way in the pm peak period.

Residential dwellings – affordable housing (15%)

11.69 The vehicle trip generation rates for the proposed affordable housing element have been obtained from the TRICS 2013(b) trip generation database. Sites were selected on the basis of the following selection criteria:

- Land use: residential – houses for rent;
- Survey days: Monday – Friday;
- Number of units: 11 to 50 dwellings; and,
- Location of the development: UK, excluding Greater London, Northern Ireland and Republic of Ireland.

11.70 The TRICS outputs are set out in Appendix 11.9 and the peak periods are summarised in **Table 11.4** below. It should be noted that average trip rates have been used due to the lack of sufficient surveys within the TRICS database.

Peak Period	**Trip rate**			**Vehicles**		
	Arrive	Depart	Total	Arrive	Depart	Total
Am peak	0.124	0.242	0.366	3	5	8
Pm peak	0.304	0.165	0.469	6	4	10

Table 11.4 Summary of trip rates/vehicular generation – affordable housing

11.71 It can be seen from the table above that the proposed development is likely to generate 8 vehicles two-way in the am peak period and 10 vehicles two-way in the pm peak period.

Flats privately owned (85%)

11.72 The vehicle trip generation rates for open market flat element of the proposed development have been obtained from the TRICS 2013(b) trip generation database. Sites were selected on the basis of the following selection criteria:

- Land use: residential – flats – privately owned;
- Survey days: Monday – Friday;
- Number of units: 6 to 30 dwellings; and,

- Location of the development: UK, excluding Greater London, Northern Ireland and Republic of Ireland.

11.73 The TRICS outputs are set out in Appendix 11.10 and the peak periods are summarised in **Table 11.5** below. It should be noted that average trip rates have been used due to the lack of sufficient surveys within the TRICS database.

Peak Period	Trip rate			Vehicles		
	Arrive	Depart	Total	Arrive	Depart	Total
Am peak	0.098	0.318	0.416	9	28	37
Pm peak	0.275	0.167	0.442	24	15	39

Table 11.5 Summary of trip rates/vehicular generation – open market flats

11.74 It can be seen from the table above that the proposed development is likely to generate 37 vehicles two-way in the am peak period and 39 vehicles two-way in the pm peak period.

Flats – affordable (15%)

11.75 The vehicle trip generation rates for open market affordable flats element of the proposed development have been obtained from the TRICS 2013(b) trip generation database. Sites were selected on the basis of the following selection criteria:

- Land use: residential – flats - affordable;
- Survey days: Monday – Friday;
- Number of units: 6 to 30 dwellings; and,
- Location of the development: UK, excluding Greater London, Northern Ireland and Republic of Ireland.

11.76 The TRICS outputs are set out in Appendix 11.11 and the peak periods are summarised in **Table 11.6** below. It should be noted that average trip rates have been used due to the lack of sufficient surveys within the TRICS database.

Peak Period	Trip rate			Vehicles		
	Arrive	Depart	Total	Arrive	Depart	Total
Am peak	0.151	0.136	0.287	2	2	4
Pm peak	0.136	0.096	0.232	2	1	3

Table 11.6 Summary of trip rates/vehicular generation – affordable flats

11.77 It can be seen from the table above that the proposed development is likely to generated 4 vehicles two-way in the am peak period and 3 vehicles two-way in the pm peak period.

Total trip generation

11.78 Total trips generated by the private and sheltered housing are detailed in **Table 11.7** below.

Peak period	Vehicle Arrivals	Vehicle Departures	Total Vehicles
Am peak	43	90	133
Pm peak	87	58	145

Table 11.7 Total trips generated

11.79 It can be seen from the table above that the proposed development is likely to generate a total of 133 vehicles two-way in the am peak period and 145 vehicles two-way in the pm peak period.

Assignment and distribution of development traffic

11.80 Development traffic has been assigned to the local highway network on the basis of existing traffic movements throughout the study area. The distribution of development traffic is summarised in Appendix 11.12.

Future traffic flows

11.81 As set out previously, the impact of the development has been assessed for the opening year 2017 and future year 2022.

11.82 In order to obtain the base traffic flows (i.e. with no development traffic) in 2017 and 2022, the surveyed traffic flows (2013) have been factored using National Transport Model (NTM) growth factors.

11.83 The factors to be applied to the base (surveyed) flows are identified in **Table 11.8** below.

Period	NTMF growth factors	
	Weekday am	Weekday pm
2013 – 2017	1.0548	1.0528
2013 – 2022	1.1492	1.1423

Table 11.8 NTM growth factors

11.84 It should be noted that the above growth factors take account of committed development within the local area, as the factors are based on the most recent planning data contained in the Local Plan.

Future base traffic flows

11.85 The future base traffic flows (i.e. with no development) for all assessment periods have been obtained by factoring the surveyed flows (Appendix 11.2) using the factors set out in Table 11.7 above.

11.86 The 2017 and 2022 base flows are set out in Appendix 11.13 and 11.14 respectively.

Final future traffic flows

11.87 The final future traffic flows have been obtained by combining the residential development generated traffic flows (identified in Appendix 11.12) with the 2017 and 2022 future base traffic flows (identified in Appendix 11.13 and 11.14).

11.88 The final future flows in 2017 and 2022 are set out in the Appendix 11.15 and 11.6 respectively.

Construction traffic

11.89 It is considered that construction traffic will have an impact on the operation of the highway network within the study area, potentially increasing queues and delays during network peak periods. However, traffic generated during the construction stage will only have a moderate, short term, negative impact.

Junction capacity

Clarence Place/Church St/Chepstow Rd/Corporation Rd/East Usk Rd

11.90 The operation of the existing junction (see Appendix 11.17) has been assessed for each of the assessment periods, using the JCT program LINSIG v2. The results of the analysis are presented in full in Appendix 11.18, and summarised in **Table 11.9** below.

Approach arm	No development				With development			
	0800-0900		1700-1800		0800-0900		1700-1800	
	Deg sat	Max q	Deg sat	Max q	Deg sat	Max q	Deg sat	Max q
2013 – Base year								
East Usk Rd (L)	7.0	< 1	10.8	< 1				
East Usk Rd (A+L)	19.0	< 1	64.7	2				
Church Rd (A+L)	51.0	7	35.1	5				
Chepstow Rd (A+L)	58.2	7	74.9	9				
Corporation Rd (L)	57.3	4	74.8	6				
Corporation Rd (A)	1.9	< 1	5.3	< 1				
Clarence Pl (L+A)	59.5	9	76.2	14				
Clarence Pl (R)	39.7	7	48.3	9				
2017 – Opening year								
East Usk Rd (L)	7.6	< 1	11.3	< 1	7.6	< 1	11.3	< 1
East Usk Rd (A+L)	20.1	1	36.9	2	20.1	1	36.9	2
Church Rd (A+L)	53.8	8	36.8	5	59.6	9	39.2	6
Chepstow Rd (A+L)	61.4	8	78.9	10	64.0	8.1	83.3	10
Corporation Rd (L)	60.6	4	78.9	6	60.6	4.2	78.9	6
Corporation Rd (A)	1.9	< 1	5.7	< 1	1.9	< 1	5.7	< 1
Clarence Pl (L+A)	62.9	10	80.3	16	64.6	10	84.7	18
Clarence Pl (R)	41.8	7	50.8	10	41.8	7.4	50.8	10
2022 – Future year								
East Usk Rd (L)	8.1	< 1	12.4	< 1	8.1	< 1	12.4	< 1
East Usk Rd (A+L)	21.8	1	39.7	2	21.8	1	39.7	2
Church Rd (A+L)	58.6	9	40.1	6	64.5	10	42.3	6
Chepstow Rd (A+L)	66.8	9	85.6	11	69.7	9	90.4	13
Corporation Rd (L)	66.0	5	85.6	8	66.0	5	85.6	8
Corporation Rd (A)	2.3	< 1	6.0	< 1	6.0	< 1	6.0	< 1
Clarence Pl (L+A)	68.5	11	87.1	18	69.9	11	91.4	22
Clarence Pl (R)	45.5	9	55.1	11	45.5	9	55.1	11

Table 11.9 Clarence Place/Church St/Chepstow Rd/Corporation Rd/East Usk Rd signalised junction

11.91 It can be seen from the results of the analysis that the existing junction will operate at capacity with development, with a maximum degree of saturation of 91.4% and a mean max. queue of 22 pcus in the Pm peak period on the Clarence Place (left and ahead) approach to the junction.

11.92 It is anticipated that this volume of traffic will contribute to increased queues and delays at the existing junction, and it is therefore considered the development will have a major adverse impact on the operation of the junction.

Caerleon Rd/Church Rd/Turner St/Tesco

11.93 The operation of the existing junction (see Appendix 11.19) has been assessed for each of the assessment periods, using the TRL program PICADY/5.0. The results of the analysis are presented in full in Appendix 11.20, and summarised in **Table 11.10** below.

Approach arm	No development				With development			
	0800-0900		1700-1800		0800-0900		1700-1800	
	RFC	Max q	RFC	Max q	RFC	Max q	RFC	Max q
2013 – Base year								
Tesco Store	0.132	< 1	0.067	< 1				
Caerleon Rd (N)	0.134	< 1	0.128	< 1				
Turner St	0.441	< 1	0.430	< 1				
Caerleon Rd (S)	0.034	< 1	0.034	< 1				
2017 – Opening year								
Tesco Store	0.140	< 1	0.072	< 1	0.156	< 1	0.086	< 1
Caerleon Rd (N)	0.146	< 1	0.153	< 1	0.186	< 1	0.245	< 1
Turner St	0.474	< 1	0.620	2	0.718	2	0.796	4
Caerleon Rd (S)	0.038	< 1	0.051	< 1	0.039	< 1	0.054	< 1
2022– Future year								
Tesco Store	0.157	< 1	0.080	< 1	0.174	< 1	0.092	< 1
Caerleon Rd (N)	0.166	< 1	0.173	< 1	0.211	< 1	0.275	< 1
Turner St	0.538	1	0.707	2	0.793	3	0.895	6
Caerleon Rd (S)	0.042	< 1	0.057	< 1	0.046	< 1	0.060	< 1

Table 11.10 Caerleon Rd/Church Rd/Turner St/Tesco priority junction

11.94 It can be seen from the results of the analysis that the existing junction will operate at capacity with development, with a maximum RFC of 0.895 and a mean max. queue of 6pcus in the pm peak period on the Turner Street approach to the junction.

11.95 It is anticipated that this volume of traffic will contribute to increased queues and delays at the existing junction, and, therefore, the development will have a minor adverse vehicle movement, and the impact is therefore considered to have a major adverse impact on the operation of the junCtion.

Turner Street/Trostrey Street

11.96 The operation of the existing junction (see Appendix 11.21) has been assessed for each of the assessment periods, using the TRL program PICADY/5.0. The results of the analysis are presented in full in Appendix 11.22, and summarised in **Table 11.11** below.

Approach arm	No development				With development			
	0800-0900		1700-1800		0800-0900		1700-1800	
	RFC	Max q	RFC	Max q	RFC	Max q	RFC	Max q
2013 – Base year								
Trostrey St	0.044	< 1	0.020	< 1				
Tuner St (E)	0.013	< 1	0.007	< 1				
2017 – Opening year								
Trostrey St	0.044	< 1	0.022	< 1	0.046	< 1	0.022	< 1
Tuner St (E)	0.013	< 1	0.007	< 1	0.014	< 1	0.007	< 1
2022 – Future year								
Trostrey St	0.050	< 1	0.022	< 1	0.053	< 1	0.022	< 1
Tuner St (E)	0.015	< 1	0.008	< 1	0.016	< 1	0.009	< 1

Table 11.11 Turner Street/Trostrey Street priority junction

11.97 It can be seen from the results of the analysis that the existing junction has sufficient capacity to accommodate the proposed development, with a maximum RFC of 0.053 and a mean max. queue of less than one pcu in the am peak period on the Trostrey Street approach to the junction.

11.98 It is anticipated that this volume of traffic will contribute to increased queues and delays at the existing junction, and it is therefore considered the development will have a major adverse impact on the operation of the junction.

Turner Street (one-way priority working under railway bridge)

11.99 **Table 11.12** below compares the base traffic volumes (vehicles per minute) with base + development traffic volumes (vehicles per minute) through the one-way working.

Approach arm	Base traffic flows (vehs/min)		Base + development (vehs/min)	
	am	pm	am	pm
2013 – Base year				
Eastbound	1.58	1.53		
Westbound	0.62	1.52		
2017 – Opening year				
Eastbound	1.67	1.62	3.2	2.6
Westbound	0.65	1.6	1.35	3.1
2022 – Future year				
Eastbound	1.82	1.75	3.4	2.72
Westbound	0.7	1.73	1.42	3.2

Table 11.12 Increase in traffic flows along Turner Street

11.100 Based on the flows outlined in the table above, it is considered that the existing one-way shuttle working has sufficient capacity to accommodate the volume of traffic generated by the proposed development.

11.101 It is anticipated that this volume of traffic will contribute to increased queues and delays at the existing junction, and it is therefore considered the development will have a major adverse impact on the operation of the junction.

MITIGATION MEASURES

Modified access junction

11.102 As part of the re-development of the site, it is proposed to construct a new vehicular access to the site from Collier Street/Courtney Street, via a simple priority junction see Appendix 11.22)

Construction traffic

11.103 It is anticipated that a Construction Environmental Management Plan (CEMP) will be required. This document will indicate inter alia the construction phasing, hours of operation, the level of vehicle activities, and measures undertaken to prevent the spread of waste materials onto the highway. Submission of this document offers the opportunity for the impact on construction traffic on the surrounding highway network to be minimised.

11.104 The CEMP will control the impact of construction traffic on the surrounding highway network, and it is therefore anticipated that the residual impact will be negligible.

11.105 It is anticipated that construction traffic will use Herbert Road to access the development site, and no construction traffic will access the site via Collier Street.

Traffic generation

11.106 In order to reduce the impact of traffic generated by the development It is anticipated that a site-wide Travel Plan is required, which will seek to reduce the number of Single Occupancy Vehicle use and promote the use of more sustainable modes of transport including:

- Walking;
- Cycling;
- Public Transport; and,
- Car sharing.

11.107 However, for some journeys, the private car will be the most appropriate mode of travel. Therefore, following the implementation of a suitable Travel Plan, the proposed development will generate additional traffic movements on the local highway network, and it is therefore anticipated that the residual impact of the proposed development will be moderately adverse.

RESIDUAL IMPACTS

11.108 Overall, it is considered that with the introduction of the proposed mitigation measures, the impacts will be reduced at both construction and operational phases. No major adverse impacts will remain and it is therefore considered that the proposed development will not represent a significant effect on the environment from a traffic, transport and movement standpoint. The residual impact of the scheme is summarised in **Table 11.13** over the page.

Traffic, Transport & Movement Topic	Description of Impact		Description of Mitigation Measures	Description of Residual Impact	
	Description	Significance		Description	Significance
Construction traffic	It is considered that construction traffic will have an impact on the operation of the highway network within the study area, potentially increasing queues and delays during network peak periods.	Minor adverse	A Construction Environment Management Plan will be produced to reduce the impact of the construction phase(s) of the development proposals.		Negligible
Traffic generation	It is estimated that the proposed development could generate up to 133 vehicles (two-way) in the am peak and 145 (two-way) in the pm peak.	Moderate adverse	Implement a Travel Plan that will reduce the volume of single occupancy vehicles and encourage the use of more sustainable transport modes.	Traffic generated by the site will continue to increase queues and delays within the immediate highway network.	Minor adverse

Table 11.13 Summary of Residual Effects of the Proposed Development

LAND SOUTH OF GLAN USK PRIMARY SCHOOL, HERBERT ROAD NEWPORT

ENVIRONMENTAL STATEMENT

VOLUME 2
CHAPTER 12 : NOISE & VIBRATION

12. NOISE AND VIBRATION

INTRODUCTION

12.1 This Chapter considers the potential impacts of noise and vibration from the construction and subsequent operation of the proposed Development upon sensitive uses on and around the Site, and proposes mitigation measures, where appropriate. The assessment also considers the suitability of the Site in relation to the proposed residential uses.

12.2 The greatest potential for adverse impacts to arise is in relation to the construction activities, although these would be transitory and subject to routine forms of mitigation and control which are successfully applied to construction sites within the urban environment. The potential impacts of additional traffic movements that would be generated by the Development on existing receptors are also considered.

12.3 This Chapter provides details of the assessment methodology used to determine the likely significant noise and vibration impacts of the Development, and the local and national standards and guidelines applicable to noise and vibration. Baseline conditions on and around the Site are then described, which is followed by an assessment of the Development's predicted impacts. The significance of noise and vibration impacts is quantified and where necessary mitigation measures are proposed. The residual impacts following mitigation are then described. The Chapter was prepared by Waterman Energy, Environment & Design Ltd (Waterman EED).

12.4 Data relating to the noise and vibration assessment is contained within the following Technical Appendices:

- Appendix 12.1: Description of Noise and Vibration Units:
- Appendix 12.2: Noise and Vibration Survey and Assessment of Residential Amenity;
- Appendix 12.3: Construction Noise and Vibration Assessment; and
- Appendix 12.4: Road Traffic Noise Assessment.

ASSESSMENT METHODOLOGY

12.5 The assessment of potential noise and vibration impacts arising from the proposed Development was based on the following:

- Identifying potentially sensitive existing and future noise receptors on the Site and within the surrounding area;
- Establishing baseline noise and vibration conditions currently existing at the Site through noise and vibration surveys;
- Assessing likely noise and vibration levels generated during the construction stage of the Development;
- Assessing likely noise and vibration levels from the completed Development (with reference to current legislation and guidance, as detailed above);
- Formulating proposals for mitigation, where appropriate; and
- Assessing residual noise and vibration impacts.

Construction Methodology

Construction Noise Assessment Methodology

12.6 To assess the potential impacts of construction noise on existing Noise Sensitive Receptors (NSRs), 'The ABC Method' provided in BS 5228-1:2009 was used. Indicative construction noise levels were calculated on the basis of the outline construction information. Calculations were carried out in accordance with the methodology prescribed within BS 5228-1:2009 for each of the major stages of construction, accounting for the typical types of plant and activities expected within the identified major stages of work.

12.7 Full details of the predictions and assumptions of the construction noise assessment are contained within Appendix 12.3.

Construction Vibration Assessment Methodology

12.8 There are two aspects of vibration that need consideration:

- Impact on people or equipment within buildings;
- Impact on buildings.

12.9 There are currently no British Standards that provide a methodology for predicting levels of vibration from construction activities other than BS5228-2:2009, which relates to percussive or vibratory rolling and piling only. At this stage of the Development specific detail on activities that give rise to vibration are not known, although some form of piling may be required. The distance from vibratory piling activities that may give rise to complaints and cosmetic damage is presented as Table 12-1. This is only indicative and is dependent on ground conditions and state of operation for vibratory piling.

Table 12-1: Distance from Vibratory Piling when Cosmetic Damage & Complaints May Arise

Probability of exceedance of criteria at given distance	Distance at which vibration levels are predicted to drop to below 12.5 mm/s	Distance at which vibration levels are predicted to drop to below 1 mm/s
50%	-	20m
33%	-	40m
5%	10m	60m

12.10 Further to this, Table 12-2 presents the distance at which excavation activities and operation of heavy vehicles is likely to give rise to a just perceptible level of vibration. These have been obtained from historical field measurements undertaken by staff of Waterman. It is generally accepted that for the majority of people, vibration levels of 0.14 mm/s peak particle velocity (PPV) are just perceptible with complaints likely at 1 mm/s (PPV). Below 12.5 mm/s (PPV) the probability of cosmetic damage tends towards zero.

Table 12-2: Distance of Perceptible Vibration from Construction Activities

Construction Activity	Distance from Activity when Vibration may just be Perceptible (m)
Excavation	10-15
Heavy Vehicles	5-10

Completed Development

Assessment of Residential Amenity – Noise

12.11 Due to the nature of the proposed Development it is necessary to determine the suitability of the Site for residential use. The methodology of a residential suitability assessment relies on comparison of measured noise levels with the absolute levels set out in Technical Advice Note 1 'Noise' and summarised as Table 12-6. Hence the usual environmental impact assessment methodology of applying significance criteria to changes in noise or vibration levels would not be appropriate due to the lack of a baseline level against which to draw comparisons. As a result, the residential suitability assessment will be carried out solely on the basis of TAN 11 methodology and the guidance provided in BS 8233:1999 and the WHO 'Guidelines for Community Noise' which set out guideline internal and external noise limits which should be met by all residential dwellings. Monitored baseline noise levels have been used to generate contour plots across the Site using the software package CADNA-A. The monitored and predicted noise levels were used to assess the Site against the BS 8233:1999 and WHO Guidelines for Community Noise criteria.

12.12 Given the proximity of the site to a rail line, consideration was given to the potential impacts of existing sources of vibration upon the proposed Development in the relevant section below.

Assessment of Road Traffic Noise

12.13 The Institute of Environmental Management and Assessment's (IEMA) Guidance Notes No.1 'Guidelines for the Environmental Assessment of Road Traffic' recommends assessment of noise where traffic flows would increase by more than 30% (or the number of Heavy Goods Vehicles (HGVs) would increase by more than 30%), and where specifically sensitive areas experience traffic flow increases of 10% or more. The guidance indicates that projected changes in traffic of less than 10% create no discernible environmental impacts.

12.14 Changes in noise levels attributable to changes in road traffic flows and volumes resulting from the proposed Development were calculated using traffic data provided by the transport consultant for the project (see Appendix 12.4). Traffic flow data were provided for the 'with' and 'without' Development scenarios. The scenarios include traffic associated with cumulative schemes within the wider study area.

12.15 Basic Noise Levels (BNLs) were calculated for the road links covered by the Transport Assessment (TA) (see Appendix 12.4). The calculations used the 18-hour Annual Average Weekly Traffic (AAWT), HGV compositions and vehicle speeds for each road link.

12.16 The BNLs were calculated at positions 10m from the road using the guidance provided in the Calculation of Road Traffic Noise (CRTN). The potential impacts of changes in road traffic noise were evaluated by consideration of the estimated changes in $L_{A10,(18\ hour)}$ road traffic noise levels on the local highway network as a result of the operation of the proposed Development for the anticipated worst case year of operation of 2032.

Vibration Assessment Methodology

12.17 The proposed Development would not introduce new sources of vibration to the local area, with the exception of road traffic. Also, given the current levels of traffic within the vicinity of the Site, it is considered that the traffic generated by the Development would not give rise to a perceptible change in vibration at any receptor. Therefore, vibration impacts arising from the completed Development were not considered further. Consideration was given to the potential impacts of existing sources of vibration upon the proposed Development in the relevant section below.

Significance Criteria

Construction - Noise

12.18 As outlined above, to assess the potential impacts of construction noise on existing NSRs, 'The ABC Method' provided in BS 5228-1:2009 was used. This method defines category threshold values which are determined by the time of day and existing monitored ambient noise levels. The noise level generated by construction activities, corrected to take account of existing monitored ambient noise levels (the total noise level), is then compared with the 'threshold value'. If the total noise level exceeds the 'threshold value', a significant effect is deemed to occur.

12.19 The criteria in Table 12-3 were adopted to provide transparency in the definition of the significance of identified impacts. Full details of the BS 5228-1:2009 significance criteria are provided in Appendix 12.3.

Table 12-3: Construction Noise Significance Criteria

Effect Significance	Level above threshold value dB(A)	Definition
Negligible	< 0	The effect is not of concern.
Minor adverse	0.1 to 4.9	The effect is undesirable but of limited concern.
Moderate adverse	5.0 to 9.9	The effect gives rise to some concern but is likely to be tolerable depending on scale and duration.
Substantial adverse	> 10	The effect gives rise to serious concern and it should be considered unacceptable.

Construction Vibration

12.20 Determining the magnitude of significance of vibration impacts is complex due to the highly variable nature and duration of vibration impacts arising from construction work.

12.21 At this stage in the design process, insufficient detail is available of the methods and equipment to be used during the construction works. Therefore, a detailed assessment cannot be undertaken. Consequently, the significance of vibration impacts from construction work cannot be assessed quantitatively and were therefore determined using professional judgement based on the factors detailed in the assessment methodology above.

Site Suitability for Noise and Vibration Sensitive Development – completed development

12.22 Given that the assessment of residential amenity for future residents within the Development and future users of the B1 element of the development is not an impact assessment itself, it is not appropriate to attach significance criteria to it. Rather, the assessment of residential amenity has been assessed in line with current national and international guidance including TAN 11, BS 8233:1999 and WHO 'Guidelines for Community Noise'. This is a widely accepted approach.

12.23 The likelihood of adverse comment as a result of vibration for both residential and commercial premises has been assessed in accordance with BS 6472:2008. The measurement scale used for impulsive vibration is one that effectively accumulates the vibration energy received over the daytime or night-time period, the Vibration Dose Value (VDV). BS 6472:2008 criteria for evaluating the likelihood of adverse comment are set out in Table 12.3.

Road Traffic Noise

12.24 Where noise changes arising from the operation of the proposed Development are to be considered (e.g. noise arising from road traffic) the significance of any impacts was assessed in accordance with the significance criteria detailed in Table 12-4.

Table 12-4: Road Traffic Noise and Significance Criteria

Effect Significance	Change in noise levels dB(A)	Definition
Substantial beneficial	> -10	The effect provides a significant positive gain.
Moderate beneficial	-9.9 to -5.0	The effect provides some gain to the environment.
Minor beneficial	-4.9 to -3.0	The effect is of minor significance but has some environmental benefit.
Negligible	-2.9 to +2.9	The effect is likely to be imperceptible and is therefore not of concern.

Effect Significance	Change in noise levels dB(A)	Definition
Minor adverse	3.0 to 4.9	The effect is undesirable but of limited concern.
Moderate adverse	5.0 to 9.9	The effect gives rise to some concern but is likely to be tolerable depending on scale and duration.
Substantial adverse	> 10	The effect gives rise to serious concern and it should be considered unacceptable.

12.25 The criteria provided in Table 12-4 are derived by considering how changes in noise levels can be categorised by significance based on key benchmarks that relate to human perception of sound. For example, a change in noise levels of 3dB is generally considered to be the smallest change in noise which is perceptible and a 10dB change in noise represents a doubling or halving of the noise level.

Assessment of Industrial Noise- completed development

12.26 When assessing the potential impacts of industrial noise on proposed NSRs, the criteria presented in Table 12-5 was used. These criteria are based on the likelihood of complaints criteria as provided in BS 4142:1997.

Table 12-5: Industrial Significance Criteria

Difference in rating and background levels (dB(A))	Significance Criteria
<5	Negligible
5 – 7.5	Minor adverse
7.5 – 10	Moderate adverse
>10	Substantial adverse

Assumptions and Limitations

12.27 The following assumptions were made for the purposes of the assessment:

- Due to the lack of available details on the nature, type, number and location of construction plant the noise predictions are based on experience of plant used at schemes similar to the proposed and using the information provided in Chapter 6: Development Programme, and Construction.
- Only construction plant and activity at ground level was included in the assessment of airborne construction noise; and

12.28 It was assumed that no night-time works would be undertaken.

LEGISLATIVE AND PLANNING POLICY CONTEXT FRAMEWORK

Legislation

Control of Pollution Act, 1974

12.29 Part III of the Control of Pollution Act 1974 (CoPA) is specifically concerned with pollution. With regard to noise, it covers construction sites; noise in the street; noise abatement zones; codes of practice and Best Practicable Means (BPM).

National Planning Policy

Planning Guidance Technical Advice Note 11: Noise

12.30 Planning Guidance Technical Advice Note 11 (TAN 11) is the principal guidance adopted in Wales for assessing the impact of noise on and from proposed developments. For residential development, the guidance is presented in terms of four Noise Exposure Categories (NECs), ranging from NEC A, where noise need not normally be considered in determining planning applications to NEC D, where planning permission may need to be refused on noise grounds. The criteria relevant to the proposed development are presented in Table 12-6.

Table 12-6: TAN 11 Noise Exposure Categories

NEC	$L_{Aeq,T}$ dB (07:00–23:00)	$L_{Aeq,T}$ dB (23:00–07:00)	Advice
A	< 55	< 45	Noise need not be considered as a determining factor in granting planning permission, although the noise level at the high end of the category should not be regarded as a desirable level.
B	55 to 63	45 to 57	Noise should be taken into account when determining planning applications and, where appropriate, conditions imposed to ensure an adequate level of protection against noise.
C	63 to 72	57to 66	Planning permission should not normally be granted. Where it is considered that permission should be given, for example because there are no alternative quieter sites available, conditions should be imposed to ensure a commensurate level of protection against noise.
D	> 72	> 66	Planning permission should normally be refused.

Note: Sites where individual noise events during the night-time (23:00 to 07:00) regularly exceed 82dB L_{Amax} (S time weighting) several times in any hour should be treated as being in NEC C, regardless of the $L_{Aeq,\ 8\ hour}$ (except where the $L_{Aeq,\ 8\ hour}$ already puts the Site in NEC D).

12.31 With regard to commercial or industrial developments, TAN 11 advises that much of the development which is necessary for the creation of jobs and the construction and improvement of essential infrastructure would generate noise and that, whilst local authorities must ensure that development does not cause an unacceptable degree of disturbance, the planning system should not place unjustifiable obstacles in the way of such development.

Regional Planning Policy

The Gwent Structure Plan, 1996

12.32 The Gwent Structure Plan was adopted by the former Gwent County Council in 1996, and covers the five former districts of Blaenau Gwent, Islwyn, Newport, Monmouth and Torfaen.

12.33 The Local Development Plan (LDP) for Newport is currently in production and will be a more concise and evidence based set of development policies to replace the adopted Gwent Structure Plan. However until the LDP is adopted, the Gwent Structure Plan Remains in force.

12.34 Policy ENV4 states:

> ***"Development which creates atmospheric, water and / or noise pollution which will have an unacceptable effect on communities or the environment will not normally be permitted."***

Local Planning Policy

Newport Unitary Development Plan 1996-2011

12.35 The Newport Unitary Development Plan (UDP) was formally adopted on 16th May 2006. Policy SP25 of the UDP states:

> ***"Development will not be permitted which would have an unacceptable effect in terms of risk to health or safety, or which would be unacceptably harmful to or have an unacceptably adverse effect on communities or the environment by way of atmospheric, water, noise or other forms of pollution."***

Guidance

British Standard 8233 – Sound Insulation and Noise Reduction for Buildings, 1999

12.36 British Standard (BS) 8233:1999 is a Code of Practice providing guidelines for the control of noise in and around buildings. The guidelines recommend internal and external noise levels to provide both a 'good' and 'reasonable' acoustic environment for residential areas. Advice relating to acceptable noise levels within commercial and office buildings is also presented within this standard. The criteria relevant to the proposed Development are presented in Table 12-7 below.

Table 12-7: BS 8233:1999 Assessment Criteria

Property Type	Location	Limit Level	
		Reasonable	**Reasonable**
Residential	Living Rooms (07:00 to 23:00)	40dB $L_{Aeq,T}$	30dB $L_{Aeq,T}$
	Bedrooms (23:00 to 07:00)	35dB $L_{Aeq,T}$	30dB $L_{Aeq,T}$
		45dB L_{Amax}*	
Offices	Cellular	50dB $L_{Aeq,T}$	40 dB $L_{Aeq,T}$
	Open Plan	55dB $L_{Aeq,T}$	45dB $L_{Aeq,T}$
	Meeting Room / Executive Office	40dB $L_{Aeq,T}$	35dB $L_{Aeq,T}$

** It is recommended that this level is not exceeded more than 10 times a night*

World Health Organisation – Guidelines for Community Noise, 2000

12.37 The World Health Organisation (WHO) document provides guidance of a similar nature to BS 8233, although it places more emphasis on the potential health impacts associated with noise. Specifically, the document recommends internal and external noise levels that will provide an acoustic environment that is conducive to uninterrupted speech and sleep. Daytime noise limits aim to prevent the majority of the population being moderately or seriously annoyed by noise. Night-time noise limits are intended to ensure a good night's sleep. A summary of the WHO guideline values is presented as Table 12-8.

Table 12-8: WHO Assessment Criteria

Specific Environment	Critical health Impact(s) to those not sensitive to noise and not tolerant, or objective to a highly urbanised environment)	L_{Aeq} (dB)	Time Base (hours)	$L_{Amax,fast}$ (dB)
Outdoor living area	Serious annoyance, daytime and evening.	55	16	-
	Moderate annoyance, daytime and evening.	50	16	-
Dwelling, indoors	Speech intelligibility and moderate annoyance, daytime and evening.	35	16	
Inside bedrooms	Sleep disturbance, night time	30	8	45
Outside bedrooms	Sleep disturbance, window open (outdoor values)	45	8	60

British Standard 4142 – Method for Rating Industrial Noise Affecting Mixed Residential and Industrial Areas, 1997

12.38 BS 4142: 1997 is the appropriate guidance for assessing industrial, fixed installation and sources of industrial nature in commercial premises. The standard provides an objective method for rating the likelihood of complaints from nearby noise sensitive receptors.

12.39 The procedure for assessing the likelihood of complaints is to compare the measured or predicted noise level from the source in question, the 'specific noise level' immediately outside the noise sensitive building, with the background noise level. Where the noise contains a "*distinguishable discrete continuous note (whine, hiss, screech, hum) or if there are distinct impulses in the noise (bang, clicks, clatters or thumps), or if the noise is irregular enough to* attract *attention*" then a correction of +5 dB is added to the specific noise level to obtain the 'rating level'.

12.40 The likelihood of noise provoking complaints is assessed by subtracting the background noise level from the rating noise level. The likelihood of complaints is then assessed against the criteria provided in Table 12-9.

Table 12-9: Likelihood of Complaints (BS 4142) in Relation to Noise

Noise Level Difference dB(A)	Likelihood of Complaints
-10	Complaints unlikely
+5	Results are of marginal significance
+10	Positive indication that complaints are likely

British Standard 5228 - Code of Practice for Noise and Vibration Control on Construction and Open Sites, Part 1 and Part 2: 2009

12.41 BS 5228-1:2009 and BS 5228-2:2009 provides guidance on the assessment of noise and vibration impacts during the redevelopment of a site, including procedures for estimating noise levels from construction activities and vibration attributable to vibratory rolling and piling activities. The guidance does not define acceptable limits. However, it does provide potential methods for assessing the significance of noise and vibration impacts and should be defined on a site-specific basis. BS 5228 also provides guidance on minimising potential impacts through the use of mitigation and the adoption of Best Practicable Means (BPM).

British Standard 6472 - Guide to evaluation of human exposure to vibration in buildings, 2008

12.42 BS 6472:2008 sets out, for different classes of building (e.g. houses, offices, etc) for daytime and night-time, acceptable magnitudes of vibration. It also provides an interpretation for residential buildings of the probability of adverse comment for different levels of exposure to vibration. The assessment criteria relevant to the proposed Development are presented in Table 12-10 below.

Table 12-10: Criteria for Assessing the Impacts of Vibration on Human Response

Period	Low probability of adverse comment VDV ($m/s^{1.75}$)	Adverse comment possible VDV ($m/s^{1.75}$)	Adverse comment probable VDV ($m/s^{1.75}$)
Residential buildings (16 hour day)	0.2 to 0.4	0.4 to 0.8	0.8 to 1.6
Residential buildings (8 hour night)	0.1 to 0.2	0.2 to 0.4	0.4 to 0.8

BASELINE CONDITIONS

Noise and Vibration Sensitive Receptors

12.43 The area in which the Site resides comprises of residential and education facilities. These premises would be sensitive to noise and vibration during the main construction works.

12.44 The site also lies adjacent to the Crawford Trading Estate which contains a number of commercial uses, understood to be B1 and B8 class. It is not expected that B2 class use is contained within the Trading Estate given the proximity of existing residential dwellings. (B1 class use includes light industry appropriate in a residential area).

12.45 The closest sensitive receptors to the Site boundary are described in Table 12-11. Where a number of NSRs lie in proximity to each other, the nearest to the Site boundary has been chosen to represent the immediate area. The closest existing residential properties to the Site are located to the east on opposite side of the rail line on Charnwood Road, Filey Road, Orchard Street and Margaret Avenue. The nearest properties are approximately 30m from the boundary of the Development.

12.46 The site is bound by a rail line to the east and is located approximately 500m from the M4. It is considered that the predominant noise source at all locations would be rail noise and vehicular traffic on the surrounding road network.

Table 12-11: Noise and Vibration Sensitive Receptor Locations

Noise Sensitive Receptor	Type	Name	Approximate Distance from Site Boundary	Noise Sensitive Receptor
NSR A	Existing Residential Property	Charnwood Road / Filey Road	30m	NSR A
NSR B	Existing Residential Property	Orchard Street / Margaret Avenue	30m	NSR B
NSR C	School	Glan Usk Primary School	15m	NSR C

Baseline Noise Monitoring

12.47 Existing sources of noise at the Site principally comprise the following:

- Rail noise;
- Road traffic from the M4 and adjoining roads;
- Local road traffic;
- Plant and building services noise on adjacent buildings;
- Operational noise emanating from Crawford Trading Estate.

12.48 In order to determine the baseline noise climate around the Site baseline noise surveys were undertaken from the 21st and 22nd February 2013. Monitoring locations were selected to represent the proposed potentially sensitive receptors within the Development. The selected monitoring locations, survey methodology and results are discussed in Appendix 12.2. The monitored noise levels are summarised in Table 12.12 and Table 12.13.

Table 12-12: Long-term baseline noise measurements

Location	Monitoring Period	$L_{Aeq,T}$*	$L_{A10,T}$*	$L_{A90,T}$*+	L_{Amax}	
					Max#	90th Percentile
LT 1	Daytime (07:00–23:00)	51	51	40	86	73
	Night-time (23:00–07:00)	45	47	35	80	70

Notes:
* During the daytime, T is 16 hours. During the night-time, T is 8 hours.
# Maximum monitored noise level during survey period.
+ Minimum monitored noise level during survey period.

Table 12-13: Short-term baseline noise measurements

Location	Monitoring Period	$L_{Aeq,T}$*	$L_{A10,T}$*	$L_{A90,T}$*+	L_{Amax}	
					Max#	90th Percentile
ST1	Daytime (07:00–23:00)	56	59	49	90	75
ST2	Daytime (07:00–23:00)	53	54	49	70	64
ST3	Daytime (07:00–23:00)	55	57	51	74	65
ST4	Daytime (07:00–23:00)	58	60	49	82	77

12.49 During the daytime period monitored noise levels were found to be relatively constant across the site due to ambient noise emanating from constant traffic the M4 motorway bridge and localised noise from works to the south. Noise levels ranged ranging between 51 and 56dB $L_{Aeq,T}$ (see Table 12-12 and Table 12-13**Table 12-13**). The surveyor noted the dominant noise sources in the area of the proposed development to road traffic and rail noise.

12.50 The elevated short-term noise levels measured at ST1 were caused by noise emanating from steel fabricators in Crawford Trading Estate.

12.51 The elevated short-term noise levels measured at ST3 were caused by noise emanating from children playing at lunchtime in Glan Usk Primary School.

12.52 The elevated short-term snapshot noise levels measured at ST4 were caused by freight trains idling and pulling away at signals.

12.53 During the night-time period noise levels were typically lower (45dB $L_{Aeq,8hr}$) than those experienced during the daytime period as a result of reduced road traffic and rail noise during this period.

Baseline Vibration Monitoring

12.54 A subjective assessment of vibration levels was undertaken at each noise monitoring location, including additional positions along the eastern boundary with the rail line. The closest existing source of vibration to the site boundary is the existing railway line located some 20m from the nearest proposed residential dwelling.

12.55 The subjective assessment of vibration during the survey (including at the closest passing point of the rail head to the site boundary) did not reveal any perceptible levels of vibration along the eastern boundary during both passenger and freight train passes.

12.56 Additionally, vibration measurements were undertaken for a residential development approximately 400m south of the site that also lies adjacent to the rail line located on Turner Street (planning application number 11/0843). This site has been granted planning permission and is understood to be complete. The vibration measurements were undertaken at a distance of approximately 30m from the rail head and are detailed in Table 12-14.

12.57 **Table 12-14: Vibration Measurements and Corresponding Semantic Rating**

Monitoring Location		**Maximum Vibration Dose Value ($m/s^{1.75}$)**					
		x-axis		**y-axis**		**z-axis**	
		$VDV_{d,16hr}$ day	**$VDV_{d,8hr}$ night**	**$VDV_{d,16hr}$ day**	**$VDV_{d,8hr}$ night**	**$VDV_{b,16hr}$ day**	**$VDV_{b,8hr}$ night**
1	Measurement	0.020	0.018	0.030	0.026	0.033	0.029
	Semantic	Adverse Comment Not Expected	Adverse Comment Not Expected	Adverse Comment Not Expected	Adverse Comment Not Expected	Adverse Comment Not Expected	Adverse Comment Not Expected

12.58 The vibration survey indicates levels that are well below those that would result in a low probability of adverse comment and are significantly under the minimum Newport Council criteria of $0.26m/s^{-1.75}$. Given the similarities of the Turner Street site to the proposed development on Herbert Road, these measurements are deemed representative of the development.

ASSESSMENT OF POTENTIAL IMPACTS

Construction Phase

12.59 Disruption due to construction activities can be defined as a temporary nuisance and annoyance, and can occur at any time between the start of construction works and the commissioning of the new Development. Construction works have the potential to cause a range of noise and vibration impacts that can be divided into two main types:

- Noise and vibration from construction plant, including breakers, piling rigs, compressors and excavators; and
- Noise and vibration from road-going vehicles including haulage vehicles.

12.60 The detail of the construction programme may be subject to modification following appointment of Site contractors and start of work on Site. However, consideration was given to the types of plant and equipment that are likely to be used during the construction works based on the construction details provided by the applicant along with professional judgement and previous experience of schemes such as the proposed.

Construction Noise

12.61 The closest potentially sensitive receptors to the Site are identified in Table 12-11. The baseline levels for each receptor were taken from the most representative monitoring position from the noise surveys. Suitable threshold levels, above which significant adverse impacts may arise, were specified, based upon the monitored baseline noise levels and the guidance provided in BS 5228:2009.

12.62 A maximum worst case noise level over a one hour period was calculated, assuming that plant would be operating at the closest point to the nearest NSRs in the absence of mitigation. In practice, noise levels would tend to be lower owing to greater separation distances and screening impacts. They would also tend to reduce over a 12-hour working day owing to periods of plant inactivity.

12.63 Calculations were undertaken using the data and procedures set out in BS 5228:2009 for the noisiest construction phases, to derive indicative noise levels at selected NSRs. The highest noise levels tend to be associated with plant associated with earthmoving, concreting and road construction. During the fit-out, construction noise would be significantly lower. The calculations assume that plant would be operating at the closest point to the NSR, such as the construction Site boundary (hoarding location), and do not take into account any existing or proposed screening. The calculated worst case noise levels are presented in Appendix 12.3 and a summary of the significance criteria is presented in Table 12-15.

Table 12-15: Vibration Measurements and Corresponding Semantic Rating

Receptor (see Table Table 12-11)	Activity Effect		
	Piling	Earthmoving	Construction
A	Substantial adverse	Substantial adverse	Substantial adverse
B	Substantial adverse	Substantial adverse	Substantial adverse
C	Substantial adverse	Substantial adverse	Substantial adverse

12.64 The worst case predicted noise levels presented in Appendix 12.3 indicate that **temporary substantial adverse** impacts due to construction are predicted at the nearest sensitive receptors to the construction works. Given that some substantial adverse impacts are predicted mitigation measures would need to be considered. Potential mitigation measures are discussed in the relevant section below.

Construction Traffic

12.65 In addition to construction plant operating on the Site, there would be some movement of materials to and from the Site by road. A Construction Traffic Management Plan would be agreed to minimise the temporary and intermittent adverse impacts that construction traffic can cause. Peak levels of noise or vibration arising from construction vehicles should not be any greater than can presently arise from existing heavy duty vehicle movements on the existing roads, and would be less than those from the main construction works on the Site, such as piling operations. As such, it is considered that the potential noise impacts of construction traffic associated with the proposed Development would be **negligible**.

Construction Vibration

12.66 Vibration impacts during piling phases would have the potential to arise at premises adjacent to the Development (Glan Usk Primary School) where vibrating generating activities would be carried out within approximately 25m of the receptors identified in Table 12-11. However, given the temporary and local nature of these activities it is considered that they would have at worst **moderate adverse** impacts. Given that **moderate adverse** impacts have been predicted mitigation measures would be required. Potential mitigation measures are discussed in the relevant section below.

Completed Development

Assessment of Residential and Noise Sensitive Amenity

12.67 The Development includes a large number of residential units provided as a mix of house and apartment type dwellings. As noted previously, in order to determine the suitability of the Development for noise sensitive land uses, existing ambient noise levels have been assessed against the guidance provided in TAN11, BS 8233:1999, WHO Guidelines for Community Noise and Regional Guidance. The Assessment of Residential Amenity is provided in full as Appendix 12.2 and summarised in the following paragraphs. Consideration has also been given to the potential impacts of the existing Crawford Industrial Estate upon those residential dwellings closest to this area.

Assessment of Residential Amenity – Traffic Noise

12.68 The unmitigated monitored noise levels at locations LT1, ST1, ST2 and ST3 (see Table 12-12**Table 12-12** and Table 12-13), place the Site into NEC B at ground level. When a site falls into NEC B, TAN11 states:

> ***'Noise should be taken into account when determining planning applications and, where appropriate, conditions imposed to ensure an adequate level of protection against noise.'***

12.69 In addition to the above TAN11 states that if maximum noise levels through the night regularly exceed 82dB $L_{Amax,S}$ the site should be classified as NEC C unless it is already categorised as NEC D. The 82dB L_{Amax} criteria is not exceeded several times during the night. As such, the site classification should remain as described above.

12.70 In addition to the above, it is important to consider noise levels within proposed external amenity spaces. The current proposals include for gardens to the front and rear of properties.

12.71 When considering external living amenity spaces the WHO's 'Guidelines for Community Noise' recommends an external noise level of 55dB $L_{Aeq,T}$ to prevent the onset of community annoyance. In considering the application of the 55dB $L_{Aeq,T}$ criterion for outdoor living spaces, it is important to take account of the feasibility of achieving such a level. A review of National Physics Laboratory Report CMAM 16[1] reported the following:

> ***"Perhaps the main weakness of both WHO inspired documents is that they fail to consider the practicality of actually being able to achieve any of the stated guideline values...We know from the most recent survey of noise exposure carried out in England and Wales that around 56% of the population are exposed to daytime noise levels exceeding 55dB $L_{Aeq,T}$ and that around 65% are exposed to night-time noise levels exceeding 45dB $L_{Aeq,T}$ (as measured outside of the house in each case). The percentage exposed above the WHO guideline values could not be significantly reduced without drastic action to virtually eliminate road traffic noise and other forms of transportation noise (including public transport) from the vicinity of the houses. The social and economic consequences of such an action would be likely to be much greater than any environmental advantages of reducing the proportion of the population annoyed by noise. In addition there is no evidence that anything other than a small minority of the population exposed to such noise levels find them to be particularly onerous in the context of their daily lives."***

12.72 The monitored noise levels presented in Table 12.12 and Table 12.13have been input to a noise prediction model created in CADNA-A. Note that the model has not taken into account any localised screening effects from garden fences. The model has predicted the levels of noise incident on garden areas and is presented in Figure 3 and Figure 4 of Appendix 12.2.

12.73 Based on the prevailing noise climate across the site from dominant noise sources of road and rail, the CADNA-A noise model indicates that guideline external noise limit of 55dB $L_{Aeq,T}$ would not be exceeded within garden areas across the development. However, there may be the potential for short term exceedences of the 55dB $L_{Aeq,T}$ criteria to arise as a result of noise associated with the Glan Usk Primary School. Such exceedences would arise during break times only and as such, would be short term and unlikely to adversely impact upon residential amenity.

12.74 Nonetheless given that the majority of the site would fall into NEC B consideration would be required to potential mitigation and noise control measures. Mitigation measures are discussed in the relevant section of this Chapter.

Assessment of Residential Amenity – Industrial Noise

12.75 In addition to traffic consideration has been given to the potential impacts associated with the operation of the Crawford Industrial Estate. Noise measurements undertaken at ST1 were subject to sources emanating from the Crawford Trading Estate. Noise sources were identified as emanating from the rear of JS Payne Ltd Structural Architectural Steel and Stainless Steel Fabricators.

12.76 Noise sources predominantly included fork lift truck movements in the yard and grinding noises emanating from the building, which was noted to have access doors open during operations, presumably for ventilation purposes.

12.77 The potential impacts of the JS Payne Site upon the proposed Development have been assessed in line with the guidance provided in BS 4142:1997. The assessment results are presented as Table 12-16.

Table 12-16: BS 4142 Assessment Crawford Industrial Estate

Parameter	**Noise Level**	
$L_{Aeq,T}$ of source at receptor	57	dB(A)
Background Level ($L_{A90,T}$)	49	dB(A)
Acoustic Feature Correction?	Yes	+5dB(A)
Rating Level	62	dB(A)
Difference to Background $L_{A90,T}$	13	dB(A)

12.78 The assessment results presented as Table 12-16 indicate that in the absence of mitigation there would be the potential for noise levels generated within the JS Payne Site to fall at least 13dB above the background noise levels. However, it is considered that due to the temporary nature of yard noises from JS Payne Ltd, noise levels when averaged over a one hour period would be in the region of 3dB lower. This is given a typical 50% 'on-time' of yard noises during the day.

12.79 Further to the above NCC has requested that consideration be given to potential night-time noise levels associated with the JS Payne operations. The JS Payne site currently operated during the daytime period only which is unlikely to change. However, it is recognised that the use of the site is unrestricted and could potentially operate 24 hours a day.

12.80 In order to assess the potential impacts during the night-time period consideration has been given to predicted internal noise levels within bedrooms. The predicted noise levels have been assessed against the guideline noise level for the prevention of sleep disturbance of 45dB L_{Amax} as set out in the WHO 'Guidelines for Community Noise'.

12.81 Note should be taken here that the WHO document 'Guidelines for Community Noise' quotes the findings of Vallet & Vernet (1991) which is that:

> ***"For a good sleep, it is believed that indoor sound pressure levels should not exceed approximately 45 dB LAmax more than 10–15 times per night…"***

12.82 The closest sensitive receptors to the Crawford Industrial Estate would be apartments. The facades of the apartments would be designed to provide a minimum attenuation to noise of 35dB. With the proposed façade design mitigation measures in place a maximum internal noise level of 49dB L_{Amax} has been predicted. A noise level of this magnitude would be in excess of the WHO 'Guidelines for Community Noise'.

12.83 As such given that there would be the potential for exceedences of both internal and external noise limits to arise mitigation measures would be required. Potential mitigation measures are discussed in the relevant section of this Chapter.

Road Traffic Noise

12.84 The Development would have the potential to give rise to increased traffic on the surrounding road network and hence increased noise levels at existing noise-sensitive receptors.

12.85 Calculations of road traffic noise levels in terms of the BNL, detailed in Appendix 12.4, indicate that increases in road traffic noise levels on the principal roads surrounding the Development would be less than 3dB(A) on completion and occupation apart from Turner Street, where a 3.1dB increase is predicted. An increase in noise levels of this magnitude has the potential to give rise to minor adverse impacts on sensitive receptors within 10m of the carriageway edge on Turner Street. It is therefore considered that the significance of any impacts due to increases in traffic noise would be of **minor adverse** significance.

MITIGATION MEASURES

Construction Phase

12.86 Measures to control the construction noise and vibration impacts would be incorporated into Site-specific Environmental Management Plan (EMP). The content of the EMP would be finalised prior to the commencement of the works, through liaison with NCC, but is likely to include the following measures:

- Restricted working hours, normally between 08:00 to 18:00 hours weekdays and 08:00 to 13:00 hours Saturdays and no working on Bank Holidays;
- Adopting quiet periods during the day to enable the occupants of surrounding commercial premises to carry out their work normally.

- Noise and vibration monitoring on Site, where necessary, which would assist in controlling levels at sensitive receptors;
- Liaising with the occupants of adjacent commercial and residential properties potentially most affected by noise or vibration from on-site activities. The occupants would be informed of the nature of the works, proposed hours of work and anticipated duration prior to the commencement of activities. They would also be given contact details of a neighbour liaison manager who would be responsible for ensuring complaints and enquiries are dealt with fairly and expeditiously;
- Using screens around any static plant located adjacent to NSRs;
- Establishing noise Action Levels in consultation with the local authority, above which consideration would be given to the use of alternative techniques and/or other means of reducing noise;
- Establishing vibration Action Levels on the basis of guidance contained in BS 6472;
- Periodically monitoring noise and vibration levels around the perimeter of the Site;
- Reviewing construction techniques, especially in response to exceedances of the Action Level and/or complaints;
- Regularly liaising meetings or communications held between the contractors and NCC officers to advise of progress; and
- Implementing specific mitigation measures such as:
  - Using modern, well maintained plant and equipment;
  - Off-site prefabrication where appropriate;
  - Using non-vibratory or percussive piling techniques, to minimise noise and vibration; and
  - Switching-off plant and equipment when not in use.

12.87 In addition, Contractors would be required to use BPM throughout the duration of the Site works and are to register with the National Considerate Constructors Scheme.

Completed Development

Noise – Transportation Sources

12.88 Given that the proposed development falls into NEC B, consideration has been given to appropriate acoustic attenuation measures to provide a commensurate level of protection against noise for future occupants of the proposed Development.

12.89 BS 8233 suggests good and reasonable internal noise levels for various uses. The criteria relevant to the Development are presented in Table 2.

12.90 The amount of insulation provided by a building element is defined by the weighted sound reduction index (R_w). The R_w is commonly quoted with the spectrum adaption term C_{tr}. The spectrum adaption terms are added to the R_w and are used to take into account the characteristics of a particular noise spectrum. The term C_{tr} is used for low frequency noise, such as road traffic, low speed railway traffic, aircraft at large distances and factories which emit low frequency noise.

12.91 The façade of the proposed Development would be required to provide sufficient attenuation as to ensure that the guideline internal noise levels as provided in BS 8233 are met. Indicative calculations have been completed to indicate the level of attenuation which

the worst affected façade would be required to provide. It should be noted that the level of attenuation that the façade would be required to provide would decrease with increasing distance from the source.

Table 12-17: Indicative Required Façade Attenuation Levels

Representative Location	Period	Calculated external facade noise levels (dB(A))*	Internal target noise levels 'good' / 'reasonable' (dB(A))	Required overall façade sound insulation performance (dB $D_w + C_{tr}$)***	Typical glazing performance requirement (dB $R_w + C_{tr}$)****
Eastern Boundary	Daytime	57	30 / 40	27 / 17	25
	Night-time	51	30 / 35	21 / 16	
	Night-time L_{Amax}	70	45	25	
Southern Boundary**	Daytime	56	30 / 40	26 / 16	30
	Night-time	46	30 / 35	16 / 11	
	Night-time L_{Amax}	77	45	32	
Western Boundary	Daytime	56	30 / 40	26 / 16	24
	Night-time	50	30 / 35	20 / 15	
Northern Boundary	Daytime	58	30 / 40	28 / 18	26
	Night-time	52	30 / 35	22 / 17	

Notes:
* Noise levels include a +3dB façade correction.
** Noise levels include the assessment of JS Payne Ltd yard noise and the inclusion of 2.6m barrier.
*** Overall façade performance includes all elements including solid wall construction, glazing and ventilation openings
**** Glazing requirement applicable if equal to or less than 40% glazing to rooms. If a greater percentage of glazing is proposed to rooms, acoustic performance may have to increase.

12.92 With glazing in place that would meet the acoustic performance provided in Table 12-17 and with windows closed the 'good' standard presented in BS8233:1999 would be met. However, when windows are opened, the attenuation afforded by a window can drop to as low as 10dB. Consequently, it will be necessary to provide a form of passive or mechanical ventilation to negate the requirement for residents to open windows for ventilation purposes.

12.93 The Building Regulations on ventilation recommend that habitable rooms in dwellings have background ventilation. Trickle ventilators can provide this, and sound attenuating types are available. Where sound insulation requirements preclude opening windows for rapid ventilation and cooling, acoustic ventilation units incorporating fans are available for insertion in external walls; these can provide sound reduction comparable with domestic double glazing.

12.94 Where appropriate, the preferred choice of ventilation is through the use of natural ventilation openings, such as trickle vents, air bricks and passive ventilation systems. Such ventilators can be used to meet the requirements of the Building Regulations Approved Document F for background ventilation. The future occupants would then have the option of keeping windows closed for most of the time and opening windows for rapid ventilation and summer cooling.

12.95 The Building Research Establishment (BRE) has published an information paper on the acoustic performance of such passive ventilation systems. IP4/99:1999 '*Ventilators:*

Ventilation and Acoustic Effectiveness' details a study into the sound reduction performance of fourteen different window mounted trickle ventilators and seven different though wall passive ventilators. The measured sound reduction performance after taking into account flanking sound paths (i.e. sound paths that do not travel directly through the vent) and the effective area of the ventilator were 14-46 dB(A) for 'passive through wall ventilators'.

12.96 It can be seen from these figures that trickle vents or passive through wall ventilators are available that meet the requirements of the Building Regulations Approved Document F for background ventilation and also provide sound reduction performance that meets or exceeds that required from the glazing elements.

Noise – Crawford Industrial Estate

12.97 As previously discussed there would be the potential for both internal and external noise limits to be exceeded should the JS Payne site be operational 24 hours per day.

12.98 The layout of the scheme has been specifically designed in order to mitigate noise levels associated with the Crawford Industrial Estate. It is proposed to locate apartments in the area of the site which could potentially be affected by noise from this estate. Because apartments do not provide for private amenity space, the amenity of future occupiers is less likely to be prejudiced by industrial noise. Internal noise levels can be addressed through improvements to the building fabric.

12.99 Furthermore, the potential impact of noise from the industrial estate would be mitigated through a 2.6m acoustic fence which is proposed between the site boundary and the industrial estate. The proposed acoustic barrier would serve to reduce external noise levels by in the region of 11dB(A). Predicted noise levels with the barrier in place are presented at Table 12.18.

12.100 The proposed acoustic barrier would serve to reduce external noise levels by in the region of 11dB(A). Predicted noise levels with the barrier in place are presented as Table 12-18.

Table 12-18: Crawford Industrial Estate BS 4142 Assessment with 2.6m Acoustic Barrier

Parameter	**Noise Level**	
$L_{Aeq,T}$ of source at receptor	57	dB(A)
Screening Correction (2.6m acoustic barrier)	11	dB(A)
Background Level ($L_{A90,T}$)	49	dB(A)
Acoustic Feature Correction?	Yes	+5dB(A)
Rating Level	51	dB(A)
Difference to Background $L_{A90,T}$	2	dB(A)

12.101 The assessment results indicate that with the acoustic barrier in place there would be the potential for noise levels to fall approximately 2dB above the monitored background noise level. However, as previously discussed it is considered that due to the temporary nature of yard noises from JS Payne Ltd, noise levels when averaged over a one hour period would be in the region of 3dB lower. This is given a typical 50% 'on-time' of yard noises during the day.

12.102 With regards to the night-time noise levels the barrier would provide a 7dB reduction at first floor level. As such, allowing for 35dB(A) attenuation in noise through the façade of the residential dwellings a maximum internal noise level of 42dB L_{Amax} would arise within bedrooms. A noise level of this magnitude would fall below the 45dB L_{Amax} criteria above which the WHO states sleep disturbance may arise.

Vibration

12.103 Existing vibration levels on site have been predicted to fall below the level above which adverse comment would arise. Hence no further mitigation is required to control levels of vibration at proposed sensitive receptors.

Road Traffic Noise

12.104 Adverse impacts have been predicted due to potential increases in traffic from the operation of the development along one link, Turner Street. However these impacts are only deemed to be of minor adverse significance. Notwithstanding this point, if, as discussed in Chapter 11, a Travel Plan is implemented then this should reduce the impact on this link to negligible levels.

RESIDUAL IMPACTS

Construction

Construction Noise

12.105 Appropriate measures to mitigate and control noise from construction works are available and would be implemented in accordance with relevant planning conditions. As a consequence, it is envisaged that the construction works would proceed with the minimum disturbance to local residents and businesses. Nevertheless, some short term disturbance for sensitive receptors immediately adjacent to the Site is likely during the construction works, resulting in **temporary minor** to **moderate adverse** impacts at all existing receptors in the vicinity of the proposed Development.

12.106 A Construction Logistics plan, including a construction traffic routing plan, would be agreed to minimise the temporary and intermittent impacts that construction traffic can cause. It is therefore considered that there would be a **negligible** effect on nearby existing and proposed potentially NSRs as a result of construction traffic noise and vibration.

Construction Vibration

12.107 With regards to the potential impacts of construction-generated vibration on nearby existing and proposed potentially sensitive receptors, vibration limits would be set to ensure compliance with national standards and hence, minimise the risk of complaints or building damage. These limits would be controlled through the implementation of an EMP. Following the implementation of appropriate mitigation measures construction generated vibration would have a **temporary minor** to **moderate** effect on existing and proposed sensitive receptors.

Completed Development

Site Suitability for Noise and Vibration Sensitive Development

12.108 Appropriate measures to mitigate and control noise from existing sources, including road traffic, are available and would be implemented for the proposed Development. Measures would include the provision of appropriate acoustic glazing and ventilation systems. Following implementation of appropriate noise control measures it would be possible to achieve all internal guideline noise limits. As such, it is considered that a good level of residential amenity would be provided for future residents.

12.109 As negligible impacts have been predicted for existing levels of vibration on site, it is considered that no mitigation would be required. And residual impacts would remain as previously predicted.

Road Traffic Noise

12.110 With a Travel Plan implemented to minimise travel associated with the Development by car as far as possible the residual impacts are likely to remain of **negligible** significance for NSRs near all road links.

SUMMARY

12.111 A summary of potential impacts, mitigation measures and resulting residual impacts in relation to noise are summarised in Table 12.19.

Table 12-19: Summary of Potential Effects, Mitigation and Residual Effects

Issue	Potential Effect	Mitigation Measures	Residual Effect
Construction			
Construction Noise	**Temporary Substantial Adverse**	Use of EMP to minimise any potential adverse impacts including vibration monitoring	**Temporary Minor to Moderate Adverse**
Construction Traffic Noise	**Negligible**		**Negligible**
Vibration	**Temporary Moderate Adverse**		**Temporary Minor Adverse**
Completed Development			
Site Suitability for Noise and Vibration Sensitive Development	-	Implementation of appropriate façade design and ventilation strategy	-
Road Traffic Noise	**Mostly negligible, with Minor Adverse on Turner Street**	Implementation of a Travel Plan	**Negligible**

LAND SOUTH OF GLAN USK PRIMARY SCHOOL, HERBERT ROAD NEWPORT

ENVIRONMENTAL STATEMENT

VOLUME 2
CHAPTER 13 : AIR QUALITY

13. AIR QUALITY

INTRODUCTION

13.1 This Chapter of the Environmental Statement (ES), written by Waterman, assesses the likely significant effects of the Development on local air quality, particularly in relation to existing sensitive receptors surrounding the site. It assesses the likely effects from dust and road traffic exhaust emissions generated during the demolition and construction phase, together with road traffic exhaust emissions and plant emissions resulting from the Development, once completed and operational.

13.2 The policy context and methods used to assess the effects are described, together with the 'baseline' conditions that would be likely to exist in the area in the absence of the proposed Development. The potential effects of the Development are discussed, together with mitigation measures that have been developed to prevent, reduce or offset these effects. Finally, the likely significant residual effects that will arise with the mitigation measures in place are described.

ASSESSMENT METHODOLOGY

13.3 This air quality assessment has been undertaken using information from a variety of sources including:

- A review of Newport City Council's (NCC) air quality review and assessment documents in order to identify baseline conditions in the area;
- A review of the Development proposals and the Site's local area to identify sensitive receptor locations, both existing and proposed, that could be affected by changes in air quality that result from the construction and operation of the completed Development;
- Consultation with NCC's Environmental Health Department to agree the scope and methodology of the assessment;
- Traffic flow data from the project Transport Consultants (Asbri Transport), and a review of information presented in the Transport Assessment (TA) for the proposed Development;
- Air Quality modelling using the Design Manual for Roads and Bridges (DMRB) Air Quality Screening spreadsheet (Version 1.03c, dated July 2007) and NO_x to NO_2 Calculations, dated January 2010 spreadsheet to predict the effect on the annual mean NO_2 objective and the annual mean and daily mean PM_{10} objectives of the completed Development and potential air quality concentrations at the Site and its surroundings;
- A review of construction information, plant, activities and environmental management controls likely to be employed during the construction phase of the works;
- Comparison of the predicted levels with the UK air quality objectives and significance criteria; and
- Identification of mitigation measures, where appropriate.

Construction

13.4 Construction derived dust emission effects cannot be easily quantified. Therefore, a more qualitative approach has been employed to predict potential effects from these works. The emphasis of this approach lies in the minimisation of potential effects at source through appropriate environmental management controls relating to, at least, 'good practice' site management practices. In particular, this included:

- A description of the assumed construction activities and their potential to generate emissions; and
- Identification of good working practices and suitable mitigation measures in order to minimise the potential for dust emissions, and nuisance risk.

13.5 During the construction phase the potential for dust effects will be mitigated at source, through appropriate site management and control practices. Premises and occupants within 100m of a construction site are generally considered to be at most risk from dust nuisance.

13.6 The proximity of sensitive receptors and their orientation in relation to the prevailing wind, in addition to the scale and duration of construction activities, will have a bearing on potential nuisance effects. This has been taken into account in the assessment which is based largely on professional judgement.

Completed Development

13.7 An assessment of the air quality impacts of the proposal due to the effect of local traffic flows has been carried out by calculating the contribution of air pollution from road sources with and without the proposed development. This is combined with known background pollution concentrations and compared with relevant air quality criteria.

13.8 The DMRB screening model has been formulated by the Highways Agency to assess the air quality near roads. It is a procedure based on a tabulated input interface, which produces an estimate of concentrations at chosen receptor locations. The DMRB model requires information on vehicle flow, HGV mix, vehicle speed, and receptor-road distances. It contains a database of vehicular emissions factors for future years. DMRB includes the latest set of vehicle emissions factors approved by the National Assembly for Wales. This model is widely used in the UK for this type of assessment.

13.9 The assessment has been undertaken for the following:-

- 2011 - baseline conditions;
- 2014 – opening Year
- 2029 – design year

13.10 The design year exceeds the maximum year (2025) of the DMRB screening model. As such, the model has been set to 2025 for the design year assessment, but includes 2029 traffic flows.

13.11 The choice of these assessment years is in accordance with guidance provided within the Department for Transport's (DfT) Design Manual for Roads and Bridges (DMRB) Air Quality assessment guidance document HA 207/07.

Potentially Sensitive Receptors

13.12 The approach adopted by the Air Quality Strategy is to focus on areas where members of the public (in a non-workplace scenario), at locations close to ground level, are likely to be exposed over the averaging time of the objective in question, i.e. over 1-hour, 24-hour or annual periods, as appropriate. Objective exceedances principally relate to the NO_2 and PM_{10} annual means and daily mean PM_{10}, so that potentially sensitive locations relate mainly to residential properties where the public may be exposed for protracted periods.

13.13 A number of potentially sensitive receptor locations within the Site's surrounds were identified. Predicted changes in NO_2 and PM_{10} concentrations were quantified at these locations as part of the DMRB modelling study. These receptor locations include existing residential properties in the vicinity of the site. The locations, which have been agreed with Newport City Council, were selected on the basis of their proximity to the local road network where effects from traffic will potentially be the greatest.

13.14 The locations of all receptors are presented in Table 13.1 and in Appendix 13.1. Table 13.1 also identifies the links within 200m of each receptor which have been used in the assessment of the impact of emissions from the development. The selection and grouping of these links is in accordance with guidance provided within the DMRB HA 207/07 document.

Table 13-1: Selected Receptor Locations

Receptor Number	Location	Relevant Link	Distance from Link Centre to façade (m)
1	Shops opposite Tesco on Caerleon Road.	Caerleon Road North	20
		Tesco	37
		Turner Street West of Caerleon Rd Jct	23
		Turner Street East of Trostrey St Jct	52
		Trostrey Street	57
2	7 Trostrey Street.	Caerleon Road North	71
		Tesco	97
		Turner Street West of Caerleon Rd Jct	75
		Turner Street East of Trostrey St Jct	53
		Trostrey Street	13
3	1 Turner Street.	Turner Street East of Trostrey St Jct	23
		Trostrey Street	32
		Turner Street West of Caerleon Rd Jct	32
		Caerleon Road South	49
		Tesco	58
4	8a Caerleon Road.	Church Road	6

		Chepstow Road	102
5	"Kwik Fit" 60 Clarence Place.	East Usk Road	46
		Corporation Road	87
		Chepstow Road & Church Road (Av.)	36
		Clarence Place	23
6	Office block opposite "The Dodger" free house.	Chepstow Road	19
		Corporation Road	54
		Clarence Place	126
		East Usk Road	87
7	1 Corporation Road.	Chepstow Road	59
		Corporation Road	22
		Clarence Place	126
		East Usk Road	130
8	55 East Usk Road.	East Usk Road	21
		Corporation Road	157
		Chepstow Road & Church Road (Av.)	131
		Clarence Place	137
9	Monitoring site NCC11A at 169 Caerleon Road.	Caerleon Road North	10

13.15 Details of existing and future traffic flows on the local roads for the proposed development were extracted from the traffic data used in the TA. The Annual Average Daily Traffic (AADT) flows and the percentage of Heavy Goods Vehicles (HGV) (see Table 13.2) have been used for each of the scenarios (with and without development) for the baseline 2011, opening year 2014 & 2029 design year.

Table 13-2: 24 Hour AADT Flows and Percentage of HGV for 2011, 2014 and 2029

Road Name	Baseline (2011)		Without (2014)		With (2014)		Without (2029)		With (2029)	
	Flow	%HGVs	Flow	%HGVs	Flow	%HGVs	Flow	%HGVs	Flow	%HGVs
Caerleon Road North	7899	3	8124	3	8774	2	10161	3	10811	2
Tesco	801	0	824	0	918	0	1030	0	1125	0
Turner Street West of Caerleon Rd Jct	3424	1	3521	1	4977	1	4404	1	5860	1
Turner Street East of Trostrey St Jct	1459	2	1501	2	3179	1	1877	2	3555	1
Trostrey Street	251	6	258	6	258	6	322	6	322	6
Caerleon Road South	8401	3	8640	3	9573	2	10806	3	11739	2
Church Road	6637	2	6826	2	7760	2	8537	2	9471	2
Chepstow Road	7792	3	8014	3	8014	3	10023	3	10023	3
East Usk	868	2	893	2	893	2	1117	2	1117	2

Road										
Corporation Road	1616	3	1662	3	1662	3	2078	3	2078	3
Clarence Place	15732	3	16179	3	17113	3	20235	3	21169	3

13.16 As there is no detailed information about the speed data, existing speed limits for each link have been entered into the DMRB screening model. Where there is a difference in speed limit on links which combine the flows of two road sections, the lower of the two speed limits has been used to ensure a robust assessment of the air quality impact.

Background Concentrations

13.17 An indication of likely background pollutant levels of NO_2 and PM_{10} can be obtained from the Air Quality Archive. The National Environment and Technology Centre (NETCEN) have estimated background concentrations on a 1kmx1km grid basis for the UK. These provide background NO_2, PM_{10} and NO_X concentrations for each year up to 2030 and each Local Authority.

13.18 A summary of the estimated background PM_{10}, and NO_2 concentrations in the vicinity of the proposed development is shown in Table 13.3 below. These are the annual means of the estimated background concentrations for the most appropriate grid square location for the application site centred at NGR 331500, 188500.

13.19 Table 13.3 shows the background concentrations of NO_2, PM_{10} and NO_x based on the Newport's background monitoring site at location 331500,188500, which is the most relevant to the network under review.

Table 13-3: Average Background Concentrations in the Vicinity of the Site

Pollutant	2011	2014	2029
NO_2 (μg/m3)	28.98	26.80	19.97
PM_{10} (μg/m3)	16.15	15.44	14.34
NO_x (μg/m3)	46.95	42.15	29.48

13.20 These background concentrations have been used in this DMRB modelling assessment.

Model Verification

13.21 Model verification is the process of comparing monitored and modelled pollutant concentrations in order to give confidence in the accuracy of the modelling results. The model has been validated by comparing modelled annual mean NO_2 predictions with monitored values from NCT's own NO_2 diffusion tube located at 169 Caerleon Road (NCC11A). NCT's current Update and Screening Assessment (2012) identified that this monitoring site was located within the Air Quality Management Area (AQMA) on Caerleon Road. Further detail regarding the designation of this AQMA is provided later in this chapter.

Likely Significant Effects

Construction

13.22 The assessment of construction effects has been based on:

- Construction related traffic for the proposed Development in comparison to the total traffic on the surrounding road network; and
- A review of the sensitive uses in the area immediately surrounding the Site in relation to their distance and orientation.

13.23 The significance of effect has been concluded through professional judgement based on the following:

- The significance of the effect of construction traffic in Chapter 11: Transportation and Access;
- The baseline air quality conditions in the area surrounding the Site;
- The mitigation measures proposed; and
- Knowledge of how such mitigation measures are routinely and successfully applied to construction projects throughout the UK.

13.24 In addition to the above, the classification system provided in Table 13.4 was adopted, again based on professional judgement, for the assessment of potential adverse air quality effects arising from dust generated by construction activities associated with the proposed Development.

Table 13-4: Construction Significance Criteria

Effect Significance	Definition
Substantial adverse	Receptor is less than 10m from a major active construction site.
Moderate adverse	Receptor is within 100m of a major active construction site.
Minor adverse	Receptor is between 100m and 200m from a major active construction site or up to 100m from a minor active construction site, or construction compound.
Negligible	Receptor is over 100m from any minor construction site or over 200m from any major construction site.

13.25 The proximity of sensitive receptors and their orientation in relation to the prevailing wind, in addition to the scale and duration of construction activities, will have a bearing on potential nuisance effects.

Completed Development

13.26 The significance of any changes in local air quality that are predicted, based on background pollutant concentrations and predicted traffic flows, can be established through the consideration of the following factors:

- Geographical extent (local, district or regional);
- Duration (temporary or long term);
- Reversibility (reversible or permanent);
- Magnitude of pollution concentration changes;
- Exceedance of standards (e.g. Air Quality Objectives); and
- Changes in pollutant exposure.

13.27 The Environmental Protection UK Guidance 'Development Control: Planning for Air Quality (2010) Update' provides an approach to defining magnitude of changes and describing the air quality effects at specific receptors recommended by the Institute of Air Quality Management (IAQM).

13.28 Table 13.5 below presents the magnitude of change descriptors, based on the change in concentration predicted to be brought about by a scheme as a percentage of the assessment level (i.e. the UK Objective, Limit Value of Environmental Assessment Level). Tables 13.6 and 13.7 present the effect significance descriptors that take account of the magnitude of changes (both positive and negative) given in Table 13.5, and the concentration in relation to the air quality objective.

Table 13-5: Magnitude of Change Descriptor in Relation to Changes in Concentrations of NO_2 and PM_{10}

Magnitude of Change	Annual Mean NO_2/PM_{10}	Days PM_{10} > 50µg/m3
Large	Increase/decrease > 10% (>4 µg/m3)	Increase/decrease >4 days
Medium	Increase/decrease 5-10% (2-4 µg/m3)	Increase/decrease 2-4 days
Small	Increase/decrease 1-5% (0.4-2 µg/m3)	Increase/decrease 1-2 days
Imperceptible	Increase/decrease < 1% (<0.4 µg/m3)	Increase/decrease <1 days

Note: Percentage calculated as a change of the level of assessment

Table 13.6: Effect Significance Criteria for Annual Mean NO_2 and PM_{10}

Concentration in Relation to Standard	Small	Medium	Large
Decrease with Development			
Above objective **without** development (>40 µg/m3)	Minor beneficial	Moderate beneficial	Substantial beneficial
Just below **without** development (36-40 µg/m3)	Minor beneficial	Moderate beneficial	Moderate beneficial
Below objective **without** development (30-36 µg/m3)	Negligible	Minor beneficial	Minor beneficial
Well below objective **without** development (<30 µg/m3)	Negligible	Negligible	Minor beneficial

Increase with Development			
Above objective **with** development (>40 µg/m3)	Minor adverse	Moderate adverse	Substantial adverse
Just below **with** development (36-40 µg/m3)	Minor adverse	Moderate adverse	Moderate adverse
Below objective **with** development (30-36 µg/m3)	Negligible	Minor adverse	Minor adverse
Well below objective **with** development (<30 µg/m3)	Negligible	Negligible	Minor Adverse

Note: an imperceptible change would be described as 'negligible'

Table 13.7: Effect Significance Criteria for PM_{10} Daily Mean

Concentration in Relation to Standard	**Small**	**Medium**	**Large**
Decrease with Development			
Above objective **without** development (>35days)	Minor beneficial	Moderate beneficial	Substantial beneficial
Just below **without** development (32-35 days)	Minor beneficial	Moderate beneficial	Moderate beneficial
Below objective **without** development (26-32 days)	Negligible	Minor beneficial	Minor beneficial
Well below objective **without** development (<26 days)	Negligible	Negligible	Minor beneficial
Increase with Development			
Above objective **with** development (>35days)	Minor adverse	Moderate adverse	Substantial adverse
Just below **with** development (32-35 days)	Minor adverse	Moderate adverse	Moderate adverse
Below objective **with** development (26-32 days)	Negligible	Minor adverse	Minor adverse
Well below objective **with** development (<26 days)	Negligible	Negligible	Minor adverse

Note: an imperceptible change would be described as 'negligible'

LEGISLATIVE AND PLANNING POLICY CONTEXT

European Legislation

13.29 Air pollutants at high concentrations can give rise to adverse effects on the health of humans and ecosystems. European Union (EU) legislation on air quality forms the basis for national UK legislation and policy on air quality.

13.30 The European Union Framework Directive 2008/50/EC on ambient air quality assessment and management came into force in May 2008 and had to be implemented by Member States, including the UK, by June 2010. The Directive aims to protect human health and the environment by avoiding, reducing or preventing harmful concentrations of air pollutants

National Legislation

Air Quality Standards Regulations

13.31 The Air Quality Standards Regulations 2010 implement limit values prescribed by the Directive 2008/50/EC. The limit values are legally binding and the Secretary of State, on behalf of the UK Government, is responsible for their implementation.

The UK Air Quality Strategy

13.32 In a parallel process, the Environment Act 1995 required the preparation of a national air quality strategy setting health–based air quality objectives for specified pollutants and outlining measures to be taken by Local Planning Authorities (LPAs) in relation to meeting these (the Local Air Quality Management (LAQM) system).

13.33 The UK Air Quality Strategy (AQS), adopted in 1997, was subsequently reviewed and revised in 2000 as the Air Quality Strategy for England, Scotland, Wales and Northern Ireland. An amendment to the Strategy was published in 2003.

13.34 The current UK AQS was published in July 2007 and updates the original strategy to set out new objectives for local authorities in undertaking their local air quality management duties. The 2007 UK AQS introduces a national level policy framework for exposure reduction for fine particulates. Objectives in the current UK AQS are in some cases more onerous than the limit values set out within the relevant EU Directives and the Air Quality Standards Regulations 2010. In addition, objectives have been established for a wider range of pollutants.

13.35 The limit values and objectives of air pollutants relevant to this assessment are summarised in Table 13.8.

Table 13-8: National Air Quality Strategy Objectives for the Purposes of Local Air Quality Management

Pollutant	Standard		Objective Date
	Concentrations	Measured as	
Benzene	16.25µg/m3	Running Annual mean	31/12/2003
	5µg/m3	Annual mean	31/12/2010
1,3 Butadiene	2.2µg/m3	Running annual mean	31/12/2003
Carbon monoxide (CO)	10 µg/m3	Maximum daily running 8–hour mean	31/12/2003
Nitrogen dioxide (NO_2)	200µg/m3	1 hour mean not to be exceeded more than 18 times per year	31/12/2005
	40µg/m3	Annual mean	31/12/2005
Particulate Matter (PM_{10})	50µg/m3	24–hour mean not to be exceeded more than 35 times per year	31/12/2004
	40µg/m3	Annual mean	31/12/2004
Particulate Matter ($PM_{2.5}$)	Target of 15% reduction in concentrations at urban background locations	Annual mean	Between 2010 and 2020
	Variable target of up to 20% reduction in concentrations at urban background locations*	Annual mean	Between 2010 and 2020
	25 µg/m3	Annual mean	01/01/2020

*Note: * Aim to not exceed 18 µg/m^3 by 2020*

13.36 There are currently no statutory UK standards in relation to deposited dust and its propensity to cause nuisance. A deposition rate of 200mg/m^2/day (averaged over a month) is sometimes used as a threshold value for potentially significant nuisance effects.

Local Authority Responsibility

13.37 Part IV of the Environment Act 1995 provides a system of Local Air Quality Management (LAQM) under which local authorities are required to review and assess the future quality of the air within their administrative boundaries by way of a staged process. In the event that this process suggests that any of the Air Quality Strategy Objectives will not be met by the target dates, the local authority must consider the declaration of an Air Quality Management Area (AQMA) and the subsequent preparation of an Air Quality Action Plan to improve the air quality in that area in pursuit of the Objectives.

National Planning Policy

Welsh Government, Planning Policy Wales: Edition 5, November 2012

13.38 Planning Policy Wales (PPW) sets out the land use planning policies of Welsh Government. In regards to air quality, PPW states:

> ***"The potential for pollution affecting the use of land will be a material consideration in deciding whether to grant planning permission. Material considerations in determining applications for potentially polluting development are likely to include:***
>
> - ***location, taking into account such considerations as the reasons for selecting the chosen site itself;***
> - ***impact on health and amenity;***
> - ***the risk and impact of potential pollution from the development, insofar as this might have an effect on the use of other land and the surrounding environment (the environmental regulatory regime may well have an interest in these issues, particularly if the development would impact on an Air Quality Management Area or a SAC);***
> - ***prevention of nuisance;***
> - ***impact on the road and other transport networks, and in particular on traffic generation; and***
> - ***the need, where relevant, and feasibility of restoring the land (and water resources) to standards sufficient for an appropriate after use. (Powers under the Pollution Prevention and Control Act 1999 require an operator to return a site to a satisfactory state on surrender of an Integrated Pollution Prevention and Control Permit).***"

Welsh Assembly Government (now Welsh Government), People, Places, Futures: The Wales Spatial Plan, 2008 Update

13.39 The Wales Spatial Plan (WSP) was originally adopted in 2004 and provides a framework for development and investment in the region over the next 20 years. An update report was produced in 2008. Whilst there are no specific policies relating to air quality, the WSP 2008 Update notes that ***"Spatial Plan Area Groups can take a number of actions which will help us all tackle climate change, but also promote a healthy and enjoyable environment in which to live and work, including by:…improving air quality, for example through an integrated approach to traffic management".***

Environmental Protection UK: Planning for Air Quality, 2010

13.40 The Environmental Protection UK's (EPUK) Development Control: Planning for Air Quality (Update 2010) document advises that ***"In arriving at a decision about a specific proposed development the local planning authority is required to achieve a balance between economic, social and environmental considerations."***

13.41 Based on the EPUK document, as above, consideration should be given to the wider air quality benefits from the opening of the Development.

13.42 The document also includes criteria and thresholds for air quality assessments. This element of the guidance is discussed later in this chapter.

Local Planning Policy

Newport Unitary Development Plan – 1996 to 2011 (Adopted in May 2006)

13.43 NCC are in the process of producing a Local Development Plan (LDP), which, once completed will replace the existing Unitary Development Plan (UDP), however, until the LDP is completed, the UDP will continue to provide the current development guidance for Newport

13.44 The LDP includes a number of objectives for development in the city. The most pertinent objective in terms of air quality is outlined in paragraph 2.16 of the document which states that:

> ***To ensure that necessary development does not adversely affect the natural environment, including open space, landscape, air quality (Waterman's emphasis), water quality and quantity, and habitats and species of acknowledged importance, and that it does not compromise enjoyment of these features.***

Newport Local Development Plan – 2011 to 2026 Revised Deposit Plan (Published June 2013)

13.45 A Revised Deposit of the LDP has already been published in June 2013, which contains a number of policies that relate to air quality. These include policy GP7 which provides specific guidance on development proposals

13.46 Policy GP7 states that

> ***"Development will not be permitted which would cause or result in unacceptable harm to health because of land contamination, dust (Waterman's emphasis), instability or subsidence, air (Waterman's emphasis), heat, noise or light pollution, flooding, water pollution, or any other identified risk to environment, local amenity or public health and safety."***

BASELINE CONDITIONS

Newport Review and Assessment Process

13.47 NCC has declared a number of AQMA within Newport. These AQMAs are identified as follows:

- Caerleon Road
- Glasllwch
- High St, Caerleon
- Malpas Road
- Royal Oak Hill
- Shaftesbury / Crindau
- St Julians

- Malpas Road
- Chepstow Road

13.48 The closest AQMA to the development is on Caerleon Road approximately 300m southeast of the site boundary. The AQMA is located on the lower part of Caerleon Road, just north of the signal junction with Durham Road / Duckpool Road.

13.49 This air quality assessment also assesses the impact of the development on roads within the Chepstow Road AQMA. This AQMA incorporates the roads of Caerleon Road west of the junction with Church Road, Clarence place to the east of the river bridge, and Chepstow Road up until the junction with Eveswell Street.

Local Monitoring

13.50 NCC's has various monitoring sites within the Caerleon Road and Chepstow Road. Table 13.9 below summarises the monitoring results of the sites within / adjacent to the network modelled by this air quality assessment. These figures have been extracted from NCC latest Air Quality Update and Screening Assessment (2012).

Table 13-9: NO_2 ($\mu g/m^3$) Diffusion Tube Monitoring in the Vicinity of the Site

Diffusion Tube	Location	AQMA	2009	2010	2011
NCC11A	169 Caerleon Road	Caerleon Road	41.8	34.7	37.9
NCC28B	155 Caerleon Road	Caerleon Road	-	35.8	40.5
NCC50	9 Caerleon Road	Chepstow Road	36.98	39.1	45.5
NCC24B	21 Caerleon Road	Chepstow Road	40.16	38.8	44.4

13.51 It is noted that, whilst in some locations the recent monitoring results slightly exceed the annual mean objective, Air quality is predicted to improve over time as improved vehicle emission control technologies and EU legislative requirements have an increased effect. Therefore, local pollutant concentrations are expected to decrease over time and by the time the Development is complete and operational.

13.52 As discussed previously in this chapter the model has been verified using the most recent data (2011) from the monitoring site at 169 Caerleon Road (NCC11A). The use of this site for verification was agreed in advance with NCC. Whilst alternative tube data was also available at 155 Caerleon Road (NCC28B), also located within the Caerleon Road AQMA, the data capture for the latest year was only 91.7%. Thus, on the basis that the tube at 169 Caerleon Road had 100% data capture, this site was used to verify the model as it was considered that this would provide a more accurate measure of the air quality in this locality.

13.53 As discussed later in this report the base model results also correlate well with the recently monitored values at 9 Caerleon Road and 21 Caerleon Road.

ASSESSMENT OF POTENTIAL IMPACTS

Construction

13.54 Given the size of Development, it is considered to be a major construction site.

13.55 The construction works in relation to the Development are likely to affect local air quality conditions, as follows:

- Dust generated from construction activities, including stockpiles of excavated material and exposed excavations;
- Emissions from construction plant, e.g. piling rigs, compressors, excavators, concrete mixers and generators; and
- Emissions from vehicles (e.g. lorries, cars and vans) associated with the construction of the Development and removal of waste materials, accessing and leaving the sites of the relevant applications on the local road network.

13.56 The National Air Quality Objectives seek to control the health implications of fine particulate matter, which is derived largely from combustion sources such as motor vehicle engines. In the case of particles released from ground excavation works and construction, the majority of these tend to be larger particles, which generally settle out close to the works and may cause annoyance due to their soiling capability. In this respect, there are no formal standards or criteria for adverse effects caused by deposited particulate matter.

13.57 Dust from construction activities within the urban environment generally does not arise at distances beyond approximately 200m from the works (in the absence of mitigation). The majority of any deposition that could give rise to significant soiling tends to occur within 50 to 100m. Receptors that are downwind of a construction site are at more risk of dust effects than those that are upwind. The occupiers of residential properties tend to be more sensitive to dust than occupiers of commercial properties.

13.58 The boundary of Usk School is located immediately north of the development, however, the actual school buildings are 15m from the site boundary. Thus, based on the significance criteria in Table 13.4, there is the potential for **moderate adverse** impact on this receptor without mitigation.

13.59 There are a number of industrial units to the south of the development, with the closest units located adjacent to the site boundary. It is noted that industrial uses are generally one of the least sensitive land uses to the impact of dust. Notwithstanding this point there is the potential for **substantial adverse** impact on these receptors without mitigation.

13.60 There are also a number of residential units located to the south of the development, with the closest units located adjacent to the site boundary. There is the potential for a **substantial adverse** impact on these receptors without mitigation.

13.61 Whilst there are other land uses, located approximately 30m east of the site. It is likely that the vegetation to the east of the site along the railway line will provide a sufficient boundary to prevent a significant amount of construction dust from reaching these properties. Notwithstanding this point there is the potential for **minor adverse** impact on these receptors, from fine dust particles, without mitigation.

Completed Development

Operational Traffic

13.62 Details of the model verification are provided in Appendix 13.2. The model has been calibrated based on the NCT monitoring site NCC11A (169 Caerleon Road). Furthermore, as discussed in Appendix 13.2, the calibrated base model results also correlate well with the most recent monitoring results at 9 and 21 Caerleon Road.

13.63 The results of the DMRB Screening modelling of operational traffic are presented in Table 13.10.

Table 13-10: Results of the DMRB modelling at sensitive receptors

	NO_2 Annual Mean (µg/m3)	**PM_{10} Annual Mean (µg/m3)**	**PM_{10} - Number of Days >50µg/m3**
Receptor 1: Shops opposite Tesco on Caerleon Road.			
2011 Existing	38.4	18.67	1.97
2014 Without Development	35.69	17.70	1.18
2014 With Development	37.14	18.16	1.53
2014 Change	**4.06%**	**2.58%**	**0.35**
2029 Without Development	28.6	16.99	0.74
2029 With Development	29.64	17.40	0.98
2029 Change	**3.64%**	**2.45%**	**0.25**
Receptor 2: 7 Trostrey Street			
2011 Existing	32.43	17.02	0.75
2014 Without Development	29.92	16.22	0.39
2014 With Development	30.67	16.43	0.47
2014 Change	**2.51%**	**1.33%**	**0.08**
2029 Without Development	22.22	15.25	0.15
2029 With Development	22.81	15.45	0.18
2029 Change	**2.66%**	**1.30%**	**0.03**
Receptor 3: 1 Turner Street			

2011 Existing	35.41	17.85	1.29
2014 Without Development	33.02	16.99	0.74
2014 With Development	34.61	17.49	1.03
2014 Change	**4.82%**	**2.94%**	**0.30**
2029 Without Development	25.3	16.12	0.35
2029 With Development	26.9	16.61	0.55
2029 Change	**6.32%**	**3.05%**	**0.19**
Receptor 4: 8a Caerleon Road			
2011 Existing	37.27	18.34	1.68
2014 Without Development	34.59	17.40	0.98
2014 With Development	35.51	17.64	1.14
2014 Change	**2.66%**	**1.38%**	**0.16**
2029 Without Development	27.17	16.62	0.55
2029 With Development	27.97	16.84	0.66
2029 Change	**2.94%**	**1.35%**	**0.11**
Receptor 5: "Kwik Fit" 60 Clarence Place.			
2011 Existing	44.6	20.33	3.81
2014 Without Development	41.67	19.12	2.41
2014 With Development	42.1	19.24	2.53
2014 Change	**1.03%**	**0.61%**	**0.12**
2029 Without Development	33.1	18.18	1.55
2029 With Development	33.46	18.28	1.63
2029 Change	**1.09%**	**0.55%**	**0.08**
Receptor 6: Office block opposite "The Dodger" free house.			
2011 Existing	37.52	18.30	1.64
2014 Without Development	34.73	17.34	0.94
2014 With Development	34.75	17.34	0.94
2014 Change	**0.06%**	**0.03%**	**0.00**
2029 Without Development	27.07	16.49	0.49
2029 With Development	27.09	16.49	0.49
2029 Change	**0.07%**	**0.02%**	**0.00**

Receptor 7: 1 Corporation Road.			
2011 Existing	33.96	17.37	0.96
2014 Without Development	31.32	16.52	0.50
2014 With Development	31.35	16.52	0.51
2014 Change	**0.10%**	**0.03%**	**0.00**
2029 Without Development	23.46	15.54	0.20
2029 With Development	23.48	15.55	0.20
2029 Change	**0.09%**	**0.02%**	**0.00**
Receptor 8: 55 East Usk Road.			
2011 Existing	30.95	16.63	0.56
2014 Without Development	28.5	15.87	0.27
2014 With Development	28.54	15.87	0.28
2014 Change	**0.14%**	**0.06%**	**0.00**
2029 Without Development	20.48	14.81	0.12
2029 With Development	20.51	14.82	0.12
2029 Change	**0.15%**	**0.06%**	**0.00**
Receptor 9: Monitoring site NCC11A at 169 Caerleon Road.			
2011 Existing	37.89	18.39	1.72
2014 Without Development	34.81	17.40	0.98
2014 With Development	35.35	17.55	1.07
2014 Change	**1.55%**	**0.86%**	**0.10**
2029 Without Development	27.32	16.60	0.54
2029 With Development	27.79	16.74	0.61
2029 Change	**1.72%**	**0.84%**	**0.06**

13.64 Table 13.10 indicates that for 2011 and 2014, exceedances are predicted in relation to the annual mean NO_2 at receptor 5. However, it can be seen that by 2029 these levels are predicted to drop below the 40µg/m3 annual mean threshold. Furthermore, whilst air quality is forecast to worsen slightly in 2014 and 2029 as a result of the development, the NO_2 levels are still forecast to be less than that modelled for the base.

13.65 There are no other exceedances of NO_2 predicted at any other receptor for any other scenario. In addition all modelled concentrations of PM_{10} are shown to be within required limits for all receptors in all scenarios.

13.66 According to the magnitude of change criteria in Table 13.6, the results in Table 13.10 indicate that 'small' changes in NO_2 concentrations are predicted as a result of the Development at receptors 1-5 and 9 in 2014. The changes at other receptors are forecast to be imperceptible.

13.67 In 2029 there are forecast to be small changes in NO_2 concentrations at receptors 1,2,4,5 and 9. A medium change is also forecast at receptor 3. The changes at other receptors are forecast to be imperceptible.

13.68 Small changes are also forecast in PM_{10} annual mean concentrations at receptors 1 to 4 in both 2014 and 2029. The changes at other receptors are forecast to be imperceptible.

13.69 All of the forecast PM_{10} daily mean changes are imperceptible.

13.70 Table 13.11 below summarises the significance of the effects on NO_2 and PM_{10} for the modelled receptors in accordance with the significance criteria described in Table 13.6 and 13.7.

Table 13-11: Summary of the Significance of Potential Effects

No.	Receptor Location	NO_2 Annual Mean	PM_{10} Annual Mean	Days PM_{10}
1	Shops opposite Tesco on Caerleon Road.	Minor Adverse(2014)/Negligible(2029)	Negligible	Negligible
2	7 Trostrey Street.	Negligible	Negligible	Negligible
3	1 Turner Street.	Negligible	Negligible	Negligible
4	8a Caerleon Road.	Negligible	Negligible	Negligible
5	"Kwik Fit" 60 Clarence Place.	Minor Adverse(2014)/Negligible(2029)	Negligible	Negligible
6	Office block opposite"The Dogger" free house.	Negligible	Negligible	Negligible
7	1 Corporation Road.	Negligible	Negligible	Negligible
8	55 East Usk Road.	Negligible	Negligible	Negligible
9	Monitoring site NCC11A at 169 Caerleon Road.	Negligible	Negligible	Negligible

13.71 Table 13.11 shows that a **minor adverse** impact in terms of NO_2 annual mean concentrations is forecast at receptor 1 and 5 in 2014 but not in 2019 when the impact is forecast to be **negligible**. There a **negligible** impact for the remaining forecasts of NO_2.

13.72 There is forecast to only be **negligible** impacts in terms of PM_{10} concentrations.

MITIGATION MEASURES

Construction

13.73 A range of environmental management controls will be developed with reference to the Building Research Establishment guidance 'Controlling Particles, Vapour and Noise from Construction Sites' published in 2003. These will be detailed in an Environmental Management Plan (EMP) with the objective to prevent the release of dust entering the atmosphere and/or being deposited on nearby receptors. Such measures, which will be adopted and secured through planning obligations and/or appropriate planning conditions, will include:

- Routine dust monitoring at sensitive residential locations, particularly those close to the construction site boundary, with the results and effectiveness of controls reviewed at regular meetings;
- Damping down surfaces during dry weather;
- Erection of appropriate hoarding and/or fencing to reduce dust dispersion and restrict public access;
- Sheeting of buildings, chutes, skips and vehicles removing demolition wastes;
- Building elevations which front public boundaries or are immediately adjacent to adjoining properties will be fully scaffolded and completely enclosed by sheeting to provide a dust and safety shield during the demolition process;
- Appropriate handling and storage of materials, especially stockpiled materials;
- Restriction of drop heights onto lorries and other equipment;
- Use of 'deconstruction' demolition techniques, where appropriate;
- Use of a wheel wash, limiting of vehicle speeds to 5 mph, avoidance of unnecessary idling of engines and routing of Site traffic as far from residential and commercial properties as possible;
- Fitting all equipment (e.g. for cutting, grinding, crushing) with dust control measures such as water sprays wherever possible;
- Use of gas powered generators rather than diesel if possible (these are also quieter) and ensuring that all plant and vehicles are well maintained so that exhaust emissions do not breach statutory emission limits;
- No fires will be allowed on the construction site; and
- Ensuring that a road sweeper is available to clean mud and other debris from hardstanding roads and footpaths.

13.74 Specific attention will be made to any demolition and construction activities that will inevitably take place close to the boundaries of the construction site and thus in close proximity to existing sensitive properties.

13.75 Such measures are routinely and successfully applied to construction projects throughout the UK, and are proven to reduce significantly the potential adverse nuisance dust impacts associated with the various stages of demolition and construction work.

Completed Development

13.76 The DMRB modelling is predicting, at maximum, only **minor adverse** impact from the proposed development on the existing ambient air quality. Furthermore, this impact only occurs on two links during 2014 and by 2019 this impact is forecast to be negligible. Notwithstanding this point, if, as discussed in chapter 11, a Travel Plan is implemented then this should reduce the impact on this link to negligible levels during 2014

RESIDUAL EFFECTS

Construction

13.77 The effects of plant operating on the construction site should be **negligible** in the context of local background concentrations or existing adjacent road traffic emissions.

13.78 The effects of construction vehicles entering and leaving the Site should be **negligible**.

13.79 Following the employment of appropriate environmental management controls as described above, the effects of the demolition and construction works upon local air quality will be significantly reduced to a **minor adverse** impact to the worse affected properties, namely Usk School and the residential and industrial units adjacent to the site boundary, and **negligible** impact for all other nearby receptors.

Completed Development

13.80 If a travel plan is implemented it is predicted that the development will result in **negligible** residual effects on local air quality at all receptors.

Cumulative Impact

13.81 The likely adverse effects associated with the proposed development should also be considered with the cumulative effects of other schemes in the locality. As long as each development ensures compliance with the national and local policies, the cumulative effect will be no worse than the impacts of the individual schemes.

SUMMARY

13.82 An assessment of the effect of the Development on local air quality arising from the construction and operational phases was undertaken. The construction effects of the Development will be related to dust and exhaust emissions from construction vehicles and plant. The effects of the completed Development are likely to include emissions from traffic associated with the Development. A summary of the potential effects, mitigation measures and residual effects are presented in Table 13.12.

Table 13-12: Table of Significance – Air Quality Assessment

Potential Effect	Nature of Effect (Permanent/ Temporary)	Significance (Major/ Moderate/ Minor) (Beneficial/ Adverse/ Negligible)	Mitigation/ Enhancement Measures	Geographical Importance*							Residual Effects (Major/ Moderate/ Minor) (Beneficial/ Adverse/ Negligible)
				I	UK	W	R	C	D	L	
Construction											
Dust emissions from demolition and construction activities	Temporary	**Minor adverse** to **Substantial adverse** for existing surrounding properties	Routine environmental management control measures to prevent and control dust, as part of EMP							L	**Negligible** to **minor adverse** for existing surrounding properties
Emissions from construction vehicles	Temporary	**Negligible**	Routine environmental management control measures							L	**Negligible**
Completed Development											
Emissions from traffic associated with the completed Development	Permanent	**Negligible to Minor Adverse** in terms of NO_2 concentrations and **Negligible** in terms of PM_{10} concentrations	Possible Implementation of Travel Plan							L	**Negligible** in terms of NO_2 concentrations and **Negligible** in terms of PM_{10} concentrations
Cumulative Effects											
It has been assessed that there are no other schemes in the local area which would add to the cumulative effect.	Permanent	**Negligible**									**Negligible**

*** Geographical Level of Importance**

I = International; UK = United Kingdom; W = W; R = Regional; C = County; D = District; L = Local

LAND SOUTH OF GLAN USK PRIMARY SCHOOL, HERBERT ROAD NEWPORT

ENVIRONMENTAL STATEMENT

VOLUME 2
CHAPTER 14: SOCIO-ECONOMIC CONTEXT

14. SOCIO ECONOMIC CONTEXT

INTRODUCTION

14.1 It is possible that the development will have an impact on existing residents living in the direct area of influence as well as businesses and services, who will undergo certain changes to current ways of life. As such, this chapter of the Written Statement assesses the potential socio-economic and community impact of the Herbert Road development. It considers the national and development plan policy context, outlines the baseline conditions, identifies the impacts, and recommends mitigation measures.

ASSESSMENT METHODOLOGY

14.2 The socio-economic study begins by identifying the policy context – both national and local policies – in order to consider how the proposed residential development integrates with relevant socio-economic policies and objectives. The socio-economic baseline conditions and impacts are identified taking into account the definition of the impact area and a range of community stakeholders. Impacts are estimated according to a categorisation of significance which is detailed further below. The impact measurement takes into account whether there are mitigation measures which can enhance the benefits and addressed the negative aspects. The mitigation measures follow the impact which is, in turn, followed by an assessment of residual impacts.

Definition of Impact Area

14.3 Impacts are defined for the development site, the direct area of influence, and the wider area of influence, as follows:-

- The development site – The Herbert Road application site
- The direct area of influence – The ward of St. Julian's; and
- The wider area of influence – the wider catchment area of Newport.

14.4 For the purpose of this study, Newport is defined in terms of census data areas within the Newport City Council authority.

Socio-Economic Topics

14.5 The following list of topics was used as a guide for assessing the baseline conditions and impacts:-

- Land use;
- Population and demographic movement;
- Economic environment;
- Social services and support services;
- Retail;
- Recreation and tourism;
- Community organisations;
- Potential for adverse reaction.

14.6 Secondary data was reviewed, a site visit made, and some informal and more formal interviews (based on the list above) were held with people familiar to the project and local services.

Community Stakeholders

14.7 To identify community impacts, a range of community stakeholders were considered. Stakeholders are people, groups and organisations who will be affected by the project or who will affect the project. For the purpose of analysis, community stakeholders are divided into four categories which are presented in the following table.

Table 14-1: Categories of community stakeholders

Project Proponents Greenhill Construction	Site Service Providers Waste Management Service Public transportation service providers
Neighbours Existing residents of Collier Street, Turner Street and Courtney Street Existing residents of Morgan Street Existing occupiers of Herbert Road Industrial Estate Staff, pupils and visitors of Glan Usk Primary School Persons with mooring rights along the River Usk off the application site	Site Users Future residents Recreational users of footpath network Person accessing Glan Usk Primary School

14.8 Project proponents are the developers and promoters of the project. For this scheme Greenhill Construction will build the whole development and market 242 units. Site service providers are the services who will play an essential role in the successful implementation of the project and include waste management, public transport providers etc. Neighbours are the groups of people living and working alongside the Herbert Road site. Users are the general public who will access the site.

14.9 The range of community stakeholders is considered in the description of baseline conditions, the identification of impacts, the recommendation of mitigation measures and also the assessment of residual impacts.

Impact Measurement

14.10 Impacts are identified as adverse, beneficial or neutral. To measure the impacts, factors of permanence, reversibility, and of well-being are used. Permanency refers to the duration of the impact's effect. Reversibility refers to the recovery once the source of impact has ceased. Well-being refers to the financial, physical and emotional well-being, daily routines, and changes in the way people live.

14.11 To measure the impacts, a scale of significance was used as follows:-

Negligible

- Inability to define the significance of the impact as beneficial or adverse;

Moderate

- The impact is short term;
- The impact requires more than one year to return to baseline and some little intervention is required;
- The impact affects the work or play of a group of people.

Major

- The impact effect lasts longer than the lifetime of the project and is effectively permanent;
- The impact requires significant intervention to return to normal;
- The impact affects the work or play of a large number of people.

LEGISLATIVE AND PLANNING POLICY CONTEXT

14.12 This section identifies the socio-economic policy context in which the proposed development will be made. Various policies are relevant and were reviewed to understand how the Herbert Road development integrates with national and local socio-economic strategies and objectives. Relevant policies that are discussed in the following paragraphs include National Planning Policy, the Wales Spatial Plan, the National Economic Strategy and the development plan for the area, namely the Adopted Newport City Council Unitary Development Plan.

National Planning Policy

Planning Policy Wales (5th Edition, December 2012)

14.13 The planning system regulates the development and use of land in the public interest and guidance as to how this should be carried out in Wales is contained in Planning Policy Wales (PPW). PPW states that the system should reconcile the needs of development and conservation, securing economy, efficiency and amenity in the use of the land, and protecting natural resources and the historic environment, thereby contributing to sustainable development.

14.14 PPW states that the planning system must provide for an adequate and continuous supply of land, available and suitable for development to meet society's needs. It must do this in a way that is consistent with overall sustainability principles and objectives which reflects the Wales Spatial Plan and which takes account of the detailed policies on the different topic areas set out in this document.

14.15 PPW also states that the planning system must provide for homes, infrastructure, investment and jobs in a way which is consistent with sustainability principles. It must help in the process of balancing and integrating these objectives in order to meet current development needs while safeguarding those of the future.

Wales Spatial Plan (2008)

14.16 'People, Places, Future: The Wales Spatial Plan' was updated in 2008. It sets out a strategic framework to guide development across Wales, and its core theme focuses around promoting sustainable development. The Wales Spatial Plan (WSP) is structured according to five guiding themes:-

- Building sustainable communities;
- Promoting a sustainable economy;
- Valuing our environment;
- Achieving sustainable accessibility; and
- Respecting distinctiveness.

14.17 The WSP sets out for different areas of Wales. Newport is located in South East Wales which is, for the purposes of the WSP, the Capital Region. The WSP vision for the Capital Region is as follows:-

> ***'An innovative skilled area offering a high quality of life – international, yet distinctively Welsh. It will compete internationally by increasing its global visibility through stronger links between the Valleys and the coast and with the UK and the rest of Europe, helping to spread prosperity within the area and benefiting other parts of Wales'***

14.18 Three areas of the Capital Region have been identified, each requiring alternative approaches. Newport is identified within the 'Capital Region' which has 14 key settlements which are independently validated as having a critical role to play in the success of the Capital Region.

14.19 Newport is located in the 'City Coastal Zone' which includes the two main cities of Cardiff and Newport as well as smaller distinct communities offering high quality of life located in rural, coastal locations.

14.20 The City Coastal Zone is recognised as providing a superb environment in which to live and pressure to provide more housing and employment should be directed to fit in compatibly with conservation of the landscape, environment and community strength of this area. Substantial growth of housing here should also be compatible with the health of the housing markets in the Heads of the Valleys and Connections Corridor.

14.21 The WSP identifies Newport as playing a key role in employment and having high capacity public transport links to connect the city to other key settlements across the Capital Region. It is considered key settlements, including Newport, will have more affordable and attractive housing, a better range of local services and a variety of retail and leisure facilities.

Wales: A Vibrant Economy – the Strategic Framework for Economic Development

14.22 This Strategy follows the agenda set out in the previous economic development strategy 'Winning Wales' produced in 2002. It presents the strategic framework for achieving the vision of a vibrant Welsh economy delivering strong and sustainable economic growth by providing opportunities for all.

14.23 The priorities identified in pursuit of this vision are as follows:-

- Supporting job creation and helping individuals to tackle barriers to participation in the world of work;
- Investing to regenerate communities and stimulate economic growth across Wales; and
- Helping businesses to grow and to increase value-added per job and earnings.

Regional and Local Planning Policy

14.24 The Development Plan for the purposes of Section 38(6) of the Planning and Compulsory Purchase Act 2004 comprises the Adopted Newport City Council Unitary Development Plan 1996-2011.

Adopted Newport City Council Unitary Development Plan

14.25 The Council resolved to adopt the Plan on 16th May 2006 and it has, therefore, formally replaced the previous Gwent Structure Plan 1991-2006, Usk Riverfront Local Plan and South East Newport Local Plan which formerly comprised the Development Plan for the area.

14.26 The policy SP17 encourages urban regeneration and states:

'Proposals will be favoured which assist the regeneration of the urban area, and in particular their potential contribution to:
i. the vitality, viability and quality of environment of the city centre;
ii. the provision of residential and business opportunities within the urban area;
iii. the re-use of vacant, underused or derelict land.'

14.27 Policy CE30 relates to regeneration and specifically encourages the development of the Usk Riverfront and the re-use of vacant and derelict land and reads as follows:

Urban regeneration schemes will be encouraged, particularly those which will result in:
i. The protection and enhancement of the built and natural environment, townscape qualities and the condition and appearance of buildings, especially in the Usk riverfront corridor, Pillgwenlly, other older inner areas, the city centre, district centres and major route corridors;
ii. Re-use of vacant and derelict land and buildings provided that the design policies of this plan are met;
iii. A reduction in the adverse effects of road traffic.

14.28 The application site has a previous consent (outline planning permission: 00/0768) which granted planning permission for a replacement primary school, all weather pitch and soft and hard play areas and residential development. Detailed planning was granted under Reserved Matters application 03/1531. The school has been developed and is in operation as Glan Usk Primary School. The residential element of the permission has not been implemented to date but remain extant.

14.29 The site immediately adjacent to the south of the application site is allocated in the Unitary Development Plan under policy H1 for 50 dwellings. This site was previously allocated in the Usk Riverfront Local Plan as I(3) and was considered a transition area where it was

envisaged relocation of the existing industrial and the site reallocated as a housing site. It is considered this site, along with the application site, represents an opportunity to redevelop vacant and under-used industrial sites whilst improving the environment of the Riverside area. The development of the application site will be planned to provide access to the site to the south this will enable development of that site to seamlessly interlink with the application site to enable a holistic development.

14.30 Policy SP11 relates to planning obligations and requires benefits for the community are sought, where relevant, necessary and directly related in scale and kind to the proposed development. Such benefits may be sought in respect of the following:

I. Education
II. Community and Leisure Facilities
III. Land for Employment/Retail Purposes
IV. Affordable Housing
V. Public Transport
VI. Highways
VII. Landscaping
VIII. Layout/Design Measures to offset Impact on the Environment
IX. Open Space Provision
X. Habitat Creation

14.31 Affordable housing provision is discussed in policy H5 which requires housing development on a substantial scale should contain a mix of house types and tenures capable of meeting local needs. For residential developments of 25 units or more in urban area 30% affordable housing requirement is typically requested.

BASELINE CONDITIONS

14.32 So as to inform the baseline conditions, data was also collected on a range of socio-economic topics (please refer to earlier Assessment Methodology section at paragraph 14.5). Socio-economic analysis of the baseline conditions is presented for the three areas of influence; the development site, the direct area of influence and the wider area of influence.

14.33 Baseline conditions for the development site include location, land use, access to site and the adjacent residential neighbourhood. The baseline conditions for the direct area of influence encompass the population profile, the economic and employment profile, social services and infrastructure, retail, recreation & tourism, community organisations and the potential for adverse reaction. The wider area of influence concentrates on the catchment area of the Newport City Council administrative authority.

The Development Site

Location

14.34 The Site is located approximately 1km to the north east of Newport city centre. The site is fairly flat and measures approximately 3.9 hectares. It comprises a narrow strip of land, which comprises scrub land and a tarmac surfaced walkway which leads along the eastern bank of the River Usk which connects Collier Street to the wider site to the north. The northern part of the site is a larger expanse of land which is roughly rectangular in shape

and comprises a mix of rough grassland and derelict industrial land with scrub, ditches and areas of recently disturbed ground.

14.35 The site is located in the ward of St. Julian's which is approximately 1km from Newport to the south-west, approximately 9km from Cwmbran to the north and approximately 22km east of Cardiff.

Land Use

14.36 The site is currently under the control of Newport City Council. It is brownfield in nature and part of the site was previously accommodated by a factory, which has now been demolished. The site is currently vacant, without any built structures. A reen bisects the wider northern area of the site east to west and is culverted towards the west of the site before it outfalls into the River Usk.

14.37 The site made up part of the wider site that gained planning permission for Glan Usk Primary School and residential development, planning application number 00/0078. It was identified during this application that the land was contaminated and remediation measures were required. As part of the development of Glan Usk Primary School a portion of the application site, immediately south of the School, has been remediated and is now grassed. The ground conditions of the Site have been assessed as part of this ES and the findings are included in chapter 8.

14.38 Despite the previous industrial use and the industrial use to the south of the application site the wider surrounding land use is predominately residential interspersed with typical mixed uses such as communities and facilities and retail units. The immediate uses, that bound the application site, vary. To the north the newly developed Glan Usk Primary School is located, to the west the River Usk and to the east the Newport to Hereford railway line. Further afield is primarily in residential use.

Access to the Site

14.39 The site is proposed to be accessed via Collier Street which would represent the only vehicular access into the site. This access leads onto a tarmac surface that leads from the access point to the wider site area to the north and provides access to Glan Usk Primary School. There is a secondary access point off Herbert Road but the legal status of this access point is currently not established and, therefore, will not be included as part of the development proposal.

14.40 Collier Street links to Corelli Street, Turner Street and Courtney Street. Turner Street to the south provides access on to Caerleon Road (B4596) which links to the Clarence Place junction which leads to Corporation Road to the south-east and the Old Green Interchange which leads to different areas of the city centre to the west and south and Cwmbran to the north.

14.41 Pedestrian access to the application site can be achieved from the Glebelands Park to the north via a footpath that lies along the edge of the River Usk and links to the site access at Collier Street.

14.42 The development site has a right of way leading along it at the top of the river bank; however, it is under-used in its current location and the general public use the tarmac

footpath that was developed when Glan Usk Primary School was developed which lies in parallel to the official right of way. As part of the development a footpath in a similar location to the existing used footpath will be development, adjacent to the legal right of way. It will be of high quality, 3 metres wider and enable access to all users and retain an acceptable access to the application site to mirror the existing situation access to the application site.

The Surrounding Neighbourhood

14.43 The surrounding neighbourhood is a mixed use area including, amongst other things, residential uses and industrial uses.

14.44 The area immediately to the south of the application site is in industrial use with a number of industrial units and associated yards. These are generally poor quality units and aesthetically unpleasing, however, generally well-occupied by local small businesses and serve an important local purpose. Access to the industrial estate is quite poor and undesirable given it is via established residential areas. Part of the industrial estate immediately south of the application site has been allocated in the UDP and the emerging LDP for housing.

14.45 South of the industrial land and to the east of the application site is predominantly residential, characterised largely by terraced dwellings. The dwellings to the east are the least well related to the application site and separated from the application site by the railway line.

14.46 Interspersed amongst the residential uses are local community facilities for example the Sea Cadets Hall off Morgan Street, Tesco Express along Caerleon Road and allotments to the north off Bank Street.

14.47 Adjacent to the north of the application site is the recently developed Glan Usk Primary School. Glan Usk Primary School was granted planning permission in 2000 under planning permission 00/0768 for *'replacement primary school, all weather pitch, soft and hard play areas and residential development'*. The School has been developed, however, the residential element has not commenced to date but since the permission has been partially implemented it remains extant.

14.48 Beyond Glan Usk Primary School is Glebelands Park. Glebelands Park has playing fields, children's play area and a large expanse of open green spaces and is easily accessible from St. Julian's via the application site or via Bank Street. The slip road of junction 25a stretches over the Glebelands Park.

14.49 The west of the application site is immediately adjacent to the banks of the River Usk. On the western banks of the River Usk, opposite the application site, is Crindau Pill which has a mix of industrial, retail, residential and recreational uses. This area, although close in proximity, is physically separated from the application site and does not have a particularly intimate relationship with the application site.

The Direct Area of Influence: St. Julian's

Population Profile

14.50 According to 2011 Census data, the ward of St. Julian's has a population of 7,066 and the Newport authority has a population of 146,100. Newport's population is youthful with 19% of the population aged 15 or below, the greatest proposed of any local authority in Wales. The most common household composition is a married couple with 2 or more dependent children- which explains why Newport's population is so youthful. Only 16% of Newport's population is aged 65 or over and this is significantly lower than the Welsh average.

14.51 Newport City Council has commissioned background studies that have produced detailed population forecasting as part of the evidence base in support of the Local Development Plan. Such details forecast the population of Newport to grow by approximately 9,130 people between 2011 and 2016 (an average of 610 people per annum)[1]. For the purposes of this baseline assessment, it is this figure which is considered to represent the more accurate population statistic.

Economic and Employment Profile

14.52 St. Julian's is a small ward that owes it being to the expansion and development of Newport City Centre; therefore, the historical economic and employment profile of Newport will be considered for the purposes of this review.

14.53 Newport outgrew Caerleon, an early Roman town established north of Newport along the River Usk. The town grew significantly in the 19th century when the port became the focus for coal exports from the eastern South Wales valleys. In the late 19th and early 20th century Newport experienced a boom encouraged by the opening of Alexandra Docks in 1875 and Alexandra South Dock in 1892. The population of the town expanded rapidly and the town became a county borough in 1891.

14.54 The export of coal reduced from the 1850s due to the rise of the Port of Cardiff. Despite the decline in the importance of the docks, Newport remained key for manufacturing and engineering and international trade was healthy. An example of this was the opening of the Lysaght's Orb Works in 1901 employing approximately 3,000 staff.

14.55 The urban area of Newport continued to expand across the River Usk which necessitated the need for an additional crossing of the River Usk which triggered the construction of the Newport Transporter Bridge in 1906. Further extensions to the south dock took place in 1907 and 1914. By the 1930s, even before the Great Depression, the docks were in decline and unemployment was high, although not as severe as the unemployment rates in the South Wales Valleys towns.

14.56 Post-war Newport saw renewed prosperity with St. Woolos Cathedral attaining full cathedral status in 1949 and the opening of the Llanwern steelworks in 1962. The development of local sections of the M4 and the opening of the Severn Bridge in 1966 made Newport the best connected place in Wales.

[1] Assessment of Housing Requirements, Nathaniel, Lichfield & Partners, February 2013

14.57 A decline in employment at Llanwern occurred in the 1980s but, in parallel to this, the town acquired a range of public sector employers and technology companies.

14.58 In modern times, Newport is the largest urban area within the previous county of Gwent and was granted city status in 2002. The local economy was boosted in 2010 when the Ryder Cup was held at the Celtic Manor Resort. In 2004 the Riverfront Theatre and Arts Centre opened and in 2011 the University of Wales, Newport Campus was relocated to the city centre from the previous Allt Yr Yn campus.

14.59 A large employment loss was suffered in 2009 when the Novelis Factory closed resulting in a loss of 440 jobs when it closed. In the height of production the factory employed over 8,000 employees.

14.60 In recent years there has been a decline in city centre shopping offer and, therefore, employment marked by the recent opening of the out of town centre at Spytty Road. A catalyst for the decline of the city centre was the economic depression and development of the out of town Retail Park at Spytty Road.

14.61 At present, there are a number of existing large employers including the Royal Gwent Hospital, Newport City Council and Lloyds TSB. Admiral, an insurance company, is currently constructing a new city centre office complex. A large percentage of residents of St. Julian's currently do not travel further than the urban area of Newport (i.e. over 5km) to their place of employment and, therefore, remain in the authority for employment.

14.62 42% of local residents of St. Julian's travel out of the urban area of Newport to their place of employment (i.e. further that 5km), this is not to say they do not remain within the authority although it is inevitable that a percentage of Newport's inhabitants do travel out of Newport for employment.

14.63 Employment Statistics from the Welsh Government in May 2010 indicates that Newport East, where the application site is located, have an employment rate of 69.7% which is higher than South East Wales (67.9%) but lower than the Welsh average of 70.7%.

14.64 The main sectors employing people in the local area of Newport East are routine and manual at 33.6%, followed by non-classifiable at 25.8% then managerial and professional at 22.2% and intermediate at 14.1.%. 4.3% of the population in Newport East have never worked or are long-term unemployed.

14.65 The average weekly wage in Newport East is £498 (as recorded in 2006-2008 by the Welsh Government) which was higher than the South Wales East and Welsh average. It is noted this period of time suffered significant economic change therefore likely to not be reflective of the current situation.

Social Services and Support Services

14.66 The measure of deprivation for areas in Wales is the Welsh Index of Multiple Deprivation 2008 (WIMD). The WIMD does not provide deprivation ranks for constituencies, i.e. Newport as a whole, but looks at small areas, called Lower Super Output Areas (LSOAs) and, therefore, we can look more closely at the St. Julian's area and closer social statistics to the application site.

14.67 In Newport East there are 51 LSOAs and of these 5 were in the most deprived 10% in Wales. In relation to Wales to as a whole, this means that a typical proportion of areas in Newport East are among the 10% most deprived and overall, around half of areas fall in the more deprived half of Wales.

14.68 St. Julian's area (St. Julian's 2 for the purposes WIMD) is between 381 to 570 on the Welsh Index which is an average score with the most deprived areas ranking between 0 to 190 on the index.

Health provision

14.69 Newport has a large hospital, The Royal Gwent that serves the authority, and the surrounding authorities which do not have an in-county hospital. The Royal Gwent Hospital is located along Cardiff Road approximately 3km away from the site to the south-west.

14.70 There is a number of local health services in St. Julian's including doctor's surgery, dental surgery and a pharmacy in close proximity which are noted below:-

- St. Julian's Medical Centre, Stafford Road
- Richmond Clinic, Caerleon Road
- St. Julian's Dental Surgery, Caerleon Road
- Caerleon Road Dental Surgery, Caerleon Road
- Boots Pharmacy, Caerleon Road
- Davies Martin Chemists, Caerleon Road
- Mayberry Clinic, Caerleon Road
- Brian Langley Opticians, Caerleon Road

Education

14.71 St. Julian's benefits from a Comprehensive School located along Heather Road, St. Julian's School. It has approximately 1618 pupils on the role and has a capacity of 1483, therefore is currently oversubscribed. St. Julian's School has a sixth form for further education.

14.72 The closest primary school is Glan Usk which has a capacity of 630 with 597 on roll. St. Julian's Primary School is also in local vicinity and has a capacity of 630 with 505 on roll. As discussed the primary schools in the local area are currently undersubscribed.

14.73 The relevant church schools are St. Josephs Roman Catholic Primary School along Fairoak Avenue and St. Josephs Roman Catholic High School in Duffryn.

14.74 The catchment Welsh school is Ysgol Gyfun Gwynllyw which is located in the neighbouring authority Torfaen.

14.75 For clarity the local schools and their addresses are listed below:

- St. Julian's School, Heather Road
- Glan Usk Primary School, Tonyrefail Primary School, Martins Crescent
- St. Julian's Primary, Beaufort Road

14.76 In addition, the area benefits from two nurseries; Archway Court, Caerleon Road and Mini Me day nursery, Church Road.

14.77 The further education service in the authority is provided by Coleg Gwent. Coleg Gwent has a number of establishments throughout the old authority of Gwent. There is a campus in Newport, the City of Newport Campus, located along Nash Road. Coleg Gwent provides number of further education courses including A Levels and vocational courses.

14.78 Newport has a university campus on the edge of the city centre along the riverfront which forms part of the wider University of South Wales. The University of South Wales was formed by the merger of University of Glamorgan and the University of Wales, Newport. The Newport campus offers a multitude of degree level courses.

Housing

14.79 Newport is one of the most densely population areas of Wales. The most common household type in Newport at the time of the 2011 census was married couple household with 2 or more dependent children.

14.80 Of the 2010 data from the Welsh Government 74% of Newport East live in privately owned properties, 14.5% are in Local Authority managed accommodation and 4.2% housing associations and 4.6% are in private rented.

14.81 In the immediate area to the application site (area Newport 007b as classified by the Office of National Statistics) of the approximately 720 dwellings 170 are owner outright, 255 mortgaged, 55 rented, 11 rented from Local Authority and 209 private rented. This indicates there are a large number of owner-occupied and private tenants and limited numbers of affordable housing in the area.

14.82 There are numerous housing associations active within Newport with properties across the authority. Aelwyd Housing Association, Elim Housing, Hafod Housing, Linc Cymru Housing association, Charter Housing, Melin Homes, Newport Housing Trust, Fairlake Living and Newport City Homes are all active in the area.

14.83 The Newport City Council published report entitled 'A Local Housing Strategy Update' indicated that the recent economic depression hit the Newport housing market significantly with a large number of mortgages in the city being sub-prime in the boom resulting in the highest number of repossessions in Wales since January 2010.

14.84 Due to the above and the increasing house prices there has been a greater demand for affordable housing and Newport has delivered an impressive record of affordable housing with over 750 new units provided since 2001.

Retail: Caerleon Road District Centre

14.85 The nearest retail offer is located at the district centre along Caerleon Road, approximately less than 400 metres away from the application site. This centre is a vibrant local centre with a wide range of retail outlets amongst other local services (such as dentist, opticians etc.). This is a centre is easily accessible and the retail offer is predominantly on same side of the road (north-west of the road) therefore pedestrians can navigate the centre safely. Parking provision at Caerleon Road is limited.

Below is a list of retail offer at Caerleon Road:

o Indian Restaurant	o Barclays Bank
o Ladbrokes Betting Shop	o G.T. Barbers
o Chiropodists	o Leo's Fish Bar
o Edwards & Sons Butchers	o Post Office Greggs
o Fire Design Studio	o Lite Bites
o Boots Pharmacy	o Caerleon News (Newsagent)
o Candy Shop	o Harry Wheeler & Sons (Greengrocer)
o Launderette	o The Wine Shop
o Tenovus (Charity Shop)	o The Co-operative
o Johnsons (Dry Cleaners)	o Abundance of Petals (Florist)
o Macey Sports	o Alonzi Fish and Chips

(This list is not exhaustive)

Retail: Clarence Place District Centre

14.86 There is also a district centre at Clarence Place. This is slightly further away from the application site than Caerleon Road, approximately 650 metres away to the south. Clarence Place is located on a large junction and the retail offer is spread along both sides of the road and, therefore, less easily navigated than Caerleon Road. Nevertheless, the centre has a healthy retail offer including national and local retailers. Parking is available within a multi storey car park for a minimal charge. On-street parking is also available on the nearby residential streets.

Below is a list of retail offer at Clarence Place:

o Call Net (Internet Café)	o Chez Giovanni (Italian Restaurant)
o Shaz Mani (Hair dressers and Beauticians)	o Golden Tandoori (Indian Takeaway)
o Bella Bella Dance Studios	o Kwik Fit
o Lifestyle Express (Convenience Shop)	o Iceland
o City Pizza	o Rossini's Brasseria
o The Riverside	o Best Kebabs
o Escort (Learner Driver)	o Tattoo Studio

Retail: Newport City Centre

14.87 The city centre is approximately 1.1km away from the application site to the south-west. The city centre has declined in term of its retail offer and vibrancy in recent years largely attributable to the development of out of town retail parks such as Spytty Road Retail Park, discussed later.

14.88 Despite the decline in the city centre it does still offer a number of retail units including national retailers Wilkinson's, Peacocks, Body Shop, Boots, New Look and Primark. The city has a number of local, independent stores and charity shops.

14.89 The city has an over provision of car parking, given the decline popularity. Parking within the city centre incurs a cost but incentives, such as two hours free parking during the day time, are currently in place.

Retail: Spytty Road Retail Park

14.90 Newport has a number of out of town retail parks throughout the authority but in terms of popularity and recent growth Spytty Road is the most significant. It has attracted a high level of national retailer interest with companies such as H and M, River Island, Asda, New Look, Boots, Gap, Marks and Spencer, Costa Coffee, Claire's Accessories, Clarkes and Tesco.

14.91 Spytty Road Retail Park has a high level of free parking provision although at busy times this parking provision is fully utilised.

Recreation and Tourism

14.92 Newport has a number of leisure, recreation and tourism facilities throughout the authority.

14.93 Newport Centre is located on the edge of the city centre adjacent to the A4042. It has a large range of facilities accommodating a large swimming pool with slides and a wave machine, a gym, sports hall and café. Newport Centre also holds a number of music events and popular acts such as Manic Street Preachers perform there. Parking is available at Emlyn Street car park and the Kingsway multi-storey car park. Parking is also available in car parks along the river front.

14.94 Newport has Wales' Official National Velodrome which was home to the Team GB and Paralympic Team GB as they prepared for the Olympic and Paralympic games in London 2012. The Velodrome is located in Newport International Sports Village which has a number of facilities including a gym, swimming pool, tennis centre, 3G pitch, running track and café. Free parking is available in the associated car park.

14.95 Newport also has a leisure centre in Bettws which has, amongst other things, an astro turf pitch, multi-use games area, gym, swimming pool and café. Bettws Leisure Centre has its own car park which is free.

14.96 There is a large tourism offer in the attractive historic centre of Caerleon where a number of historic remains are in-situ. Caerleon has a National Roman Legion Museum which graphically portrays the daily life of the garrison. Caerleon also has an Amphitheatre and barrack which is currently the only Roman barracks block visible in Europe. Caerleon also has the Fortress Baths which is an imaginatively designed leisure centre depicting the history of the area. Caerleon tourist information centre is located along the High Street.

14.97 The city centre also has a rich history. The Transporter Bridge is one of only six still operational transporter bridges left in the world. The bridge is open to the public and the admission fee is small.

14.98 Newport is also home to Tredegar House with is one of the best examples of a 17th century Charles II mansion in Britain and is set in a 90 acre park. The house has been taken over the National Trust and is open for the public to visit. There are various events such as walks that take place on special occasions such as Halloween and Christmas.

14.99 The Riverfront Theatre has also recently opened which has a number of music performances, shows, and events throughout the year. It has an art gallery and café. It is

located along the riverfront and links to the newly constructed riverfront walkway that lines the River Usk.

14.100 Newport has numerous sports grounds including Rodney Parade, near the city centre and Newport County AFC grounds location off the Southern Distributor Road.

14.101 Newport is well served by a number of parks, green spaces and recreational area across the whole authority. The best related to the site are:

- Glebelands Park
- Shaftsbury Park
- Brecon Park

14.102 Other parks within the authority include:

- Beechwood Park
- Belle Vue Park
- Lysaght Park
- Lliswerry Pond
- Coronation Park
- Crindau Park
- Tredegar Park Sports Grounds
- Woodland Park

14.103 Newport also has a Wetland Reserve which is a wildlife reserve on the edge of the city. It run by the Royal Society for the Protection of Birds (RSPB) and has a visitor centre, a café, shop and children's play area.

14.104 Newport is also home to the luxury 5 star resort, the Celtic Manor Hotel, which has a number of restaurants, the spa, a gym, a golf course and tree tops obstacle course. The Celtic Manor also hosted the golf Ryder Cup in 2010 which publicised Newport on an international platform.

14.105 Other recreational offers in the Newport include Llanwern Golf Course and Peterstone Lakes Golf Club.

Community Organisations

14.106 St. Julian's has a healthy community with some community organisations to serve the local residents of the ward and further community organisations that serve the authority as a whole. The local councillors for the St. Julian's ward are:

- Rhys Hutchings
- Emma Garland
- Ed Townsend

14.107 The role of the local councillors is to represent the local residents within their jurisdiction and voice residents' interests to ensure the harmonious running of the council.

14.108 St. Julian's has limited local community facilities in the immediate vicinity. In the local area the following two centres are location which provides extensive local community classes and services:

St. Julian's Community Learning and Library Centre

14.109 This centre has a number of facilities including a library, reading club, computer facilities and refreshment facilities.

The Beaufort Centre

14.110 This centre has a number of local classes including:

- Art and Craft Classes
- Beauty Courses
- Art Classes
- Exercise Classes
- Healthy Eating Seminars
- Cheerleading Classes Line Dancing
- Kung Fu
- Boxing
- Movie Night
- Parent and Toddler Classes
- Dance and drama Classes
- Baby Classes
- Youth Cooking

14.111 There are a number of places of worship across Newport but the best related to the application site are:

- Newport Gateway Church, Rockfield Street
- St. Julian's Methodist Church, St. Julian's Avenue
- Christadelphian Hall, Caerleon Road
- Duckpool Road Baptist Church, Duckpool Road
- Church of Christ, Riverside

14.112 St. Julian's has a healthy sporting community with the following clubs:

- St. Julian's Rugby Club
- St. Julian's Football Club

14.113 Other community organisations available in Newport include classes and workshops held at the Riverfront Theatre including dance classes, open mic nights and fayres.

14.114 There are a number of youth organisations in Newport including the Urban Circle Productions located along Upper Dock Street which is a non-profit youth organisation supporting young people in performing arts and music.

14.115 There are a number of sports organisations through Newport including football, rugby, golf, tennis and squash clubs which, albeit are not located in St. Julian's, are easily accessible from the application site.

Police Presence

14.116 There are 5 PCSO's in the St. Julian's area. They attend open mornings and afternoons whereby the general public can meet the PCSO's and discuss issues and concerns in the area. The current priorities of the police in the St. Julian's area are tackling anti-social behaviour at the following trouble spots - Old Barn Estate, Glebelands and Caerleon Road.

Potential for Adverse Reaction

14.117 At the time of writing, no known community groups (or, more specifically, 'pressure groups' directly related to the development) are known to have been set in up in the St. Julian's area or Newport area as a forum for objection or discussion about the proposed development. As such, this is not considered in any further detail as part of the chapter assessment.

The Wider Area of Influence

14.118 The jurisdictional area of Newport City Council covers an area of the South Wales Valleys stretching from the Monmouthshire to the east, Torfaen to the north and the outskirts of Cardiff to the west. South of Newport is the Severn Estuary. Generally, it predominantly comprises of urban area to the centre with some semi-urban and rural hinterland at the outer edges of the authority.

14.119 Newport forms the southern gateway between Wales and England and is the economic motor for the south-east Wales region, covering a geographical area of over 73.5 square miles. Newport City Council authority has a population of approximately 141,305, as of 2010. The area has 20 electoral wards, of which 10 are Communities First Areas. The authority has 14 Community and Town Councils. Strategic highway links with the wider region are provided by the M4, A4042, and A48. A range of bus and rail services provides public transportation links across the region.

14.120 According to the Census data (2011), of the 61,172 households in Newport, 11,557 are detached, 18,900 are semi-detached, 20,265 are terraced, and 10,111 are flat, maisonette or an apartment. According to 'Local Housing Market Assessment - Baseline Report 2013-2018' published by Newport city Council there is a shortfall of 592 affordable housing units per year the County Borough. The Census data (2011) in relation to general health states that 15,515 of Newport residents' suffer with limiting long-term illness.

14.121 According to the census data (2011) 73.6% of Newport residents are economically active, which is higher than the national average of 72.8%. The employment structure in the authority according to the Census Data (2011) is primarily professional (15.2%), elementary occupations (13.7%) and administrative and secretarial (12.5%). Other less prominent employment sectors are caring, leisure and other service occupations (9.6%) and managers, directors and senior officials (9.3%).

ASSESSMENT OF POTENTIAL IMPACTS

14.122 Impacts are identified taking into account all phases of the project, including the planning phase, the construction phase and the operations phase. Unlike most other impacts identified in the Environmental Impact Assessment, and through this written statement, social impacts actually begin the day the project is proposed.

Impact on Land Use

14.123 The predominance of derelict, vacant industrial land will be replaced by built form, surrounded by hardstanding and landscaping. This will represent a change in land use from vacant employment land to residential use. The right of way that leads through the site will be retained and its route will become enhanced through the redevelopment of the application site by improvements to its maintenance and natural surveillance and safety. Equally, areas identified of important ecological value will also be retained and, moreover, managed as part of this scheme to enhance the ecological value of these areas. In conclusion, it is considered that the impact on land use is moderate adverse.

Impact on Access

14.124 The primary access for the residential development will remain via a connection off Collier Street to the south of the site. The existing access will require redesign and improvements to ensure it is capable of supporting the proposed development. The pedestrian access leading to the Glebelands will also be enhanced through the development. The design of the buildings and surrounding access layout will ensure that access for all is provided, for example providing level access to all dwellings and adequate footpaths. This will ensure residents of all mobility can use the proposed development. The application site is largely unsuitable as recreational land and will not result in to the large scale loss of public accessible land. The already accessible public areas i.e. the footpath leading to Glan Usk School and the Glebelands Park, will be retained and enhanced as part of the development. The public right of way that crosses the site and the existing access point to the south will be improved which will serve towards increasing awareness of this route for recreational users. As mentioned in earlier in this chapter, the safety of this route will also improve through increase natural surveillance.
In conclusion, it is considered that the impact on access is minor adverse.

Impact on Neighbouring Residents

14.125 There is likely to be an element of mixed reaction amongst residents of St. Julian's as a whole and more specifically those residents with properties that are in close proximity to the site. It is possible that some residents will be unhappy with perceived changes to their amenity and visual aspects, and some will be unhappy with increased traffic generation at both construction and operational phases. On the other hand, the site is currently unattractive and does not utilise its riverfront position. The proposed scheme will develop a high quality housing scheme and complementary landscaping scheme to take advantage of the river side location and improve the overall visual amenity of the application site. The development will also increase residential population which will have direct benefits for local businesses, and will create some employment opportunities during the construction phase. Moreover, the presence of additional built form and associated population will

increase the level of natural surveillance on the streetscene, riverfront and existing right of way this improving local safety.
On balance, it is considered that the impact on neighbouring residents is moderate beneficial.

Impact on Population Change

14.126 There will be a direct increase in the population of St. Julian's as a result of the construction of the number of residential units proposed at the Herbert Road site. The actual population increase can only be recorded once the units are built and occupied. However, if one it is to use the crude level of household size that is prevalent in the general Newport area (2.39), and then this could result in a population increase of in the region of 578 persons.

14.127 Nevertheless, it should be noted that the application site has already been identified as being able to accommodate a housing development scheme in both the extant planning permission for 153 units and the housing allocation is the UDP and emerging LDP. The Deposit Local Development Plan provides 4 yearly population estimates for Newport up to 2026 including the likely household size. In doing so, four different scenarios are presented, which are replicated in Table 14-3 below.

Table 14.3

Population and Household Projections				
	2011	**2016**	**2021**	**2026**
Total Population	141,600	143,900	148,800	153,900
Households	61,600	64,000	67,100	70,000
Average Household Size	2.27	2.22	2.19	2.16

14.128 As such, it is considered that although the population of Newport will increase as a result of the proposed development. This increase is predicted by forecasting and also by the Local Authority and therefore has been catered for in the emerging LDP. In light of this, the impact of the proposed development on population change is considered to be neglible.

Impact on Economic Base

14.129 The project is likely to broaden the economic base by providing employment opportunities associated with the construction phase of the proposed development, which is temporary. It is also likely that some existing businesses in the St. Julian's area will gain additional patronage from these new residents. Also, if construction materials and services are sourced locally, existing manufacturing and industrial businesses will be reinforced. Overall, it is considered that the proposed development will have a moderate beneficial impact on the economic base.

Impact on Employment Base

Construction Phase Employment

14.130 The Herbert Road development is likely to create a number of jobs at construction stage. In a statement to the House of Commons by the Secretary of State for Communities and Local Government (28th March 2011), it was stated that the Government estimates that 'every new house supports 4 jobs in house building and 2 more in related industries'. To

this end, it is estimated that the Herbert Road development will create 968 jobs in the house building industry together with 484 jobs in other related industries. However, it should be stressed that contracts will range in duration in the course of the construction phase. In conclusion, it is considered that the impact on construction stage employment is major beneficial.

Operation Phase Employment

14.131 The application is to be submitted in full format and does not include any industrial or employment related uses and, therefore, will not result in long-term employment opportunities on site. Nevertheless, part of the site (15%) will remain in perpetuity under the control of an affordable housing provider who will manage and maintain the properties. This will provide employment opportunities within the affordable housing provider. There are also likely to be other employment opportunities at the site related to maintenance and security. As such, it is possible to say that the proposed development will lead to the creation of permanent employment opportunities. Therefore, it is considered that the impact on the operational phase employment is moderate beneficial.

Impact on Social and Support Services

14.132 Regarding healthcare provision, the additional population will put pressure on the existing infrastructure. Whereas there is no evidence that doctors and dental surgeries are at capacity, it is fair to assume that the population increase from the proposed development is not significant enough to create significant strains on service delivery.

14.133 The additional residential population is likely to include a notable amount of children due to the number of family housing units proposed at the application site, who will require the support of the existing educational network. Newport benefits from a network of schools to cover all levels. The additional school age population generated by the development will have an impact insofar as there being greater demand for places in certain establishments, which may bring about capacity issues especially in Secondary education since St. Julian's Comprehensive is already over capacity as mentioned in paragraph 14.68 – 14.75. The oversubscription of the secondary school could be exacerbated by the addition of the Herbert Road development population. Primary school in the local area, however, is currently undersubscribed.

14.134 The baseline conditions assessment has shown that the majority of the households in Newport are owner-occupied properties. The number of such stock which is privately-rented is also quite high. The 'Local Housing Market Assessment- Baseline Report 2013-2018' published by Newport City Council indicates the greatest need in St. Julian's is for affordable 1 bedroom dwellings and larger properties. The proposed development will provide 15% affordable units and will seek to provide dwellings that address housing need as far as possible.

14.135 Despite the benefits of additional natural surveillance as a result of the greater population in the local area together with the facing built form, the Herbert Road development will impact on the need for an expansion in the coverage of the local policing presence, together with other emergency services.

14.136 Occupation of the proposed residential units will result in increases in the amount of rubbish and recycling, which will necessitate additional Council resources and vehicle route

extensions. It is also possible that additional landfill space will be needed to cater for that waste that cannot be recycled. In conclusion, it is considered that the impact on social services is moderate adverse.

Impact on Community Facilities and Groups

14.137 The local community services are not particularly well located to the development site; therefore, it is not predicted these will be immediately impacted upon by the development. It is likely, however, that there will be a slight increase the usage of the available resources as a result of the development which is considered to benefit the local community since the classes and facilities are likely to incur a fee and the increase usage will have a positive impact on the economy of the centre which is likely to benefit the available facilities.

14.138 It is not possible to accurately predict exactly how many residents will wish to patronise any of the places of worship in the St. Julian's area. However, it is fair to say that there will be some persons who will wish to join/attend such places of worship, which will have a beneficial impact on such places, many of whom are struggling to maintain existing congregations. Regarding other community groups and organisations, it is considered that the additional population will have nothing other than a positive impact in terms of providing the potential for additional membership. A similar positive impact is likely to be felt by current sports organisations operating in the local area.

14.139 Overall, it is considered that the additional population created by the Herbert Road residential development will have a positive impact through increased patronage and potential membership. Therefore, it is concluded that the impact on community facilities and groups will be moderate beneficial.

Impact on Newport

14.140 The Herbert Road development will take place within the jurisdictional area of Newport City Council, which will remain unaltered as a result of the proposal. The authority will continue to comprise of a mixture of urban, semi-urban and rural hinterland.

14.141 It is likely that the overall population of the authority will increase slightly as a result of the development of 248 units at the Herbert Road site. The mix of dwellings proposed by the development is unlikely to materially alter the proportions of dwelling type prevalent in Newport. The incorporation of affordable housing within the proposed development will positively contribute towards the identified shortfall within the authority. It is hoped that the provision of new and high quality housing will continue to the standard of living within St. Julian's, although in reality the percentages of people with limiting long-term illness and separately those with no academic qualifications are in reality beyond the influence of this development, and thereby unlikely to change.

14.142 Regarding the economic impact on the authority, apart from the short term impact as a result of construction stage employment, it is unlikely that the proposed development will materially impact on the percentage of persons which are economically active. As such, the prevailing employment structure of Newport will continue as is. In conclusion, it is considered that the impact on the wider area of Newport is likely to be negligible.

MITIGATION MEASURES

Improving Accessibility

14.143 Residents should be encouraged, wherever possible, to walk or cycle when making trips from their home to the wider St. Julian's community. For instance, design elements should consider secure bicycle parking. The existing Right of Way at the site will be retained and enhanced along its length such that it allows for better connections to the adjacent school, the Glebelands Park and Bank Street. There is also an easily accessible link to the retail centre along Caerleon Road via the Courtney Street access and Turner Street.

14.144 Residents should also be encouraged to make the best use of public transport resources to make trips to further afield than merely St. Julian's and Newport City Centre. There is a bus stop located under 350 metres away along Caerleon Road which has regular bus links to the surrounding area including Newport City Centre. Newport city Centre has a bus station which provides links across Wales and further afield including London and Manchester.

Improving Impact on Quality of Life

14.145 As of September 2010, it is necessary for all proposed housing developments to adhere to the environmental and sustainability standards that are set down in the Code for Sustainable Homes. The proposed development will meet the specific requirements of Level 3+ of this Code, and also to investigate any way in which further improvements can be made.

14.146 It is also recommended that in addition to the private amenity space provision for each dwelling, that the proposed development provides for areas of communal open space and/or retain existing areas of ecological significance, so as to enhance the recreational offering for residents of Newport. This offer will include the retained and enhanced public right of way along the riverside which also provides improved access to the Glebelands Park.

Improving Impact on Neighbouring Residents

14.147 The submission of the proposal in full planning format and the layout has been carefully devised to ensure it has no adverse impact on neighbouring residents. The most sensitive neighbouring properties are the residents along Morgan and Courtney Street where they neighbour the narrowest section of the site to the south. To ensure this relationship is acceptable and does not adversely impact on these residents the proposed properties along this part of the site are flats with limited windows on the rear elevation towards the existing neighbours. This prevents any adverse overlooking or negative impact on the privacy of the existing residents. These dwellings are set in as far as possible to ensure the proposed flats are not overbearing or affect the amenity of existing neighbours.

14.148 The central area of the site is not related to existing properties by virtue of its physical separation of the railway line and therefore will not directly impact upon them. The outlook from some of the dwelling to the east of the railway will improve once the development is built and landscaping complete in comparison with the existing vacant,

wasteland appearance of the site. It is not considered the views from the dwellings along Charnwood Road and Filey Road, located to north eastern corner of the site, will be affected despite these dwellings currently adjacent to a grassed area of the Site. These dwellings are 'side on' to the railway therefore not prominent outlooks are facing towards the Site.

14.149 The northern portion of the site is adjacent to Glan Usk School and the dwellings in this location have been designed to specifically avoid adverse impact on the school and those visiting the school. The site is set away from the school by a grassed area and footpath which achieves a distance of between approximately 19 metres to approximately 40 metres which is considered wholly acceptable. The dwellings located adjacent to the northern boundary of the site are set back by a road achieved a further clearance than those distances mentioned above. To further mitigate against any perceived adverse impact on Glan Usk School the most well related dwellings to the school are orientated away thus preventing direct views towards the school with the majority of dwellings side on.

14.150 The proposed layout has been designed to ensure the River Usk location is enhanced and the public footpath proposed along the Riverside is well overlooked, active and a welcoming environment which will benefit the neighbouring residents and improve the recreational offer of the site and access to adjoining facilities, for example the Glebelands Park.

14.151 On an individual or householder basis, special efforts have been made to inform local resident and consult about project. Two public consultation events took place on the 4th and 7th December in Glan Usk School to inform local residents of the plans to redevelop the site and the associated layout proposed. Local Residents were also invited to provide comments in regards to the layout which were considered by the applicant.

Improving Impact on Local Economy

14.152 Significant efforts will be made to encourage local sourcing of materials and services for use in construction. Likewise, the developer intends to make use of their existing local skilled and unskilled workers in the construction phase whilst also outsourcing for workers when required. These opportunities will be advertised in local media to ensure the local communities are aware of the employment possibilities associated with the scheme. There is potentially an opportunity for the development of unskilled workers through on-site training to upgrade or ensure skill levels to improve employability of workers of the construction phase.

Improving Impact on Social and Support Service Provision

14.153 In order to reduce the burden on local health, refuse, education and emergency service provision, it is recommended that discussions are held with the relevant officers of Newport City Council and other stakeholders in order to fully appreciate the impact and understand the requirements and cost involved to alleviate additional pressures.

14.154 With particular regard to education, discussions with Newport City Council Education Officers have confirmed that, at the time of writing, there is capacity in local primary schools that could accommodate the proposed development. There is not, however, capacity in the local Secondary Schools and, therefore, this scheme could increase pressure

the demand for places in the local Secondary Schools. The applicant would enter into a Section 106 agreement in order to financially contribute towards increasing the capacity of local secondary schools to provide spaces to accommodate the proposed development. The exact amount of financial contributions will be decided upon submission of the planning application.

14.155 In order to address the shortage of larger properties and 1 bed properties the proposed development will incorporate a mix of dwelling units of varying sizes and styles including 95 five person three bedroom houses and 12 one bedroom flats. Moreover, the amount of affordable units available to the community will be improved by the offering of 15% of the total dwellings (242 units) as affordable units. Further details of the tenure mix of these 140 units will be discussed further with Housing Officers once the application is submitted.

14.156 Measures to limit refuse production and encourage recycling will also be considered. Coordination of recycling activities with waste management services, as well as involving local community representatives in these arrangements would seek to improve trash management.

RESIDUAL IMPACTS

14.157 Following consideration of the potential impacts of the development on socio-economic and community interests during the construction and operation phases, and also the implementation of described mitigation measures, the residual impact of the scheme is summarised in Table 14-4.

14.158 Table 14-4 demonstrates that the proposed development is unlikely to result in any significant impacts to socio-economic impacts and community interests. The mitigation measures proposed would allow for the removal, or at least the lessening of impacts such that they cannot be considered as significant.

Table 14-4: Summary of residual effects of the proposal together with mitigation measures

Potential Impact Area	Description of Impact		Description of Mitigation Measures	Description of Residual Impact	
	Description	Significance		Description	Significance
Land use (construction and operational phases)	Loss of derelict/vacant land. Impact on Rights of Way network.	Moderate adverse	Rights of Way network to be retained and enhanced. Replaced with high quality housing scheme	Loss of derelict/vacant land.	Negligible
Impact on access (construction and operational phases)	Potential temporary disruption to Right of Way during construction Temporary construction traffic along Herbert Road No large loss of publicly accessible land. Retention and enhancement of Public Rights of Way network as part of final scheme.	Minor adverse	Improvement to Right of Way Network including widening of the footpath, increasing overlooking and maintaining link to Glebelands Park to the north. Improved access to the site via Courtney Street Formal footpaths through site	Improved accessibility to the site, within the site and to the wider area including Glebelands, Glan Usk School and Bank Street.	Major Beneficial
Impact on neighbouring residents (construction and access phases)	Expected mixed reactions from adjacent residents over construction impacts and loss of outlook/view Long term improvement in views to local residents	Minor adverse	Continued public consultation Retention of ecological area Adoption of a Construction Environmental Management Plan to manage construction phase High quality housing layout including landscaping which takes account of existing neighbours including residents of Morgan Street, Courtney Street and Glan Usk School.	Reduced adverse reactions from local residents. Recognition of scheme benefits	Moderate beneficial
Impact on population change (operational phase)	Increase in permanent population as predicted by Council forecasting	Negligible	None	Increase in permanent population as predicted by Council forecasting.	Negligible

Impact on economic base (construction and operational phases)	Provide employment opportunities Additional patronage for existing business in local area	Moderate beneficial	Potentially source materials locally 1,452 employment opportunities throughout the construction will be generated Use of local workforce and advertise new employment opportunities through construction phase locally	Increased skills and experience of construction personnel Affordable housing will aid employment opportunities in affordable housing association sector Ongoing maintenance and security employment opportunities will be available in perpetuity	Major beneficial
Impact on social services (operational phase)	Significant pressures on Secondary School capacities as a result of additional child population. Additional pressures on Council refuse services Provision of housing which is locally needed including affordable units Increase in refuse and recycling requiring additional services by Council	Moderate adverse	Off-site contributions for education provision agreed with Council. Provision of 15% of affordable housing within the development. Additional council tax monies directed to emergency service provision and refuse	No school capacity issues remain. Increased proportions of affordable housing within. Provision of units to meet housing need in area	Moderate beneficial
Impact on community facilities and groups	Increased use of public library Increased paying patronage of leisure centre and other facilities. Increased interest in community facilities	Moderate beneficial	None	Increased use of public library. Increased paying patronage of leisure centre and other facilities. Increased interest in	Moderate beneficial

				community facilities.	
Impact on Newport	The authority will continue to comprise of a mixture of urban, semi-urban and rural hinterland The population will increase slightly The mix of dwellings proposed will not materially change the dwelling type prevalent in Newport	Negligible	None	The authority will continue to comprise of a mixture of urban, semi-urban and rural hinterland The population will increase slightly The mix of dwellings proposed will not materially change the dwelling type prevalent in Newport	Negligible

SUMMARY

14.159 This chapter has assessed the potential socio-economic and community impacts of the Herbert Road development. It has considered that the planning policy context, outlined the baseline conditions, identified the potential impacts, recommended mitigation and an assessment of residual impacts.

14.160 The project is in line with national and local socio-economic policies and objectives. The application site is placed in a socio-economic environment where employment opportunities are welcomed. Almost all the identified impacts are positive. A range of mitigation measures are presented aimed at ensuring that the development is integrated into the community.

LAND SOUTH OF GLAN USK PRIMARY SCHOOL, HERBERT ROAD NEWPORT

ENVIRONMENTAL STATEMENT

VOLUME 2
CHAPTER 15: SUMMARY AND CONCLUSIONS

15. SUMMARY AND CONCLUSIONS

15.1 This Environmental Statement (ES) has been prepared on behalf of Greenhill Construction Ltd. in support of a full planning application submitted to Newport City Council in respect of a proposed residential development and other associated works. The planning application description is as follows:

'Development of 248no. dwellings and associated works at land south of Glan Usk Primary School, Herbert Road'

15.2 A screening opinion was requested from Newport City Council on the 19th October 2013 to ascertain whether the proposed development of the application site (hereafter the Site) was considered to be an Environmental Impact Assessment (EIA) development.

15.3 On the 26th November 2013 Newport City Council provided an opinion that the proposed scheme did constitute EIA development. Newport City Council, with consultation with the statutory consultees, identified key issues which should be included within the ES.

15.4 The key issues identified which are the subject of this Environmental Impact Assessment are as follows:-

- Ground Conditions;
- Access and Highways
- Landscape and Visual Impact;
- Ecology and Nature Conservation;
- Flood Risk;
- Drainage;
- Noise;
- Socio-economic; and
- Air Quality

15.5 The assessment described in this Environmental Statement (ES) relates to the design of the scheme as it stands in December 2013. The ES is published in three volumes:-

- Volume 1: Non-Technical Summary
- Volume 2: Written Statement; and
- Volume 3: Appendices to Written Statement

15.6 The Environmental Impact Assessment was managed by Asbri Planning Ltd. with guidance from an expert consultant team.

THE EIA PROCESS

15.7 In the UK, EIA's have been undertaken for certain major developments since the implementation of the European Council Directive on Environmental Assessment in 1985. The requirements of the Directive are implemented into UK legislation through the Environmental Impact Assessment (England and Wales) Regulations 1999, as amended in 2000. The main stages of the ES are:

- Description of the project/development;
- Complete detailed baseline surveys;

- Identification of potential environmental impacts;
- Prediction of impacts;
- Evaluation and assessment of significance;
- Identification of mitigation measures and modifications to the design;
- Identification of residual impacts and cumulative impacts; and
- Presentation of results of the EIA in the ES (up to 16 week decision period).

15.8 The EIA has been undertaken, and the ES prepared, taking into account UK Environmental Legislation and guidance, including the published 'Environmental Impact Assessment: A Guide to Good Practice and Procedures' and The Institute of Environmental Management and Assessment (IEMA) 'Guidelines for Environmental Impact Assessment (2004)'.

15.9 The residual significance of impacts is assessed taking into account mitigation, i.e. the assessment applies to the residual impacts. A residual impact is any impact that would remain following the implementation of proposed mitigation measures.

15.10 Using these criteria, the significance of the impacts arising from the proposed development have been categorised (where appropriate) throughout the ES using a seven point scale, as follows:-

- Insignificant;
- Minor (adverse or beneficial);
- Moderate (adverse or beneficial); and
- Major (adverse or beneficial).

15.11 The above criterion was not appropriate to assess the significance of impacts of all issues assessed in the ES. Where this criterion is not suitable a significance of impact criteria appropriate to the particular topic has been applied and this has been identified to the reader.

15.12 Impacts are assessed for all phases of the development. Construction impacts are considered to be temporary, short term impacts which occur during the construction phase only. Permanent impacts are those long terms effects which would occur as a result of the proposed development once it is in operation.

SITE CONTEXT

15.13 The Site measures 5.83 hectares and is a brownfield site, previously in industrial use.

15.14 The Site is an irregular shape comprising of three distinct land parcels. To the north of the Site are two larger land parcels which are accessed via the third land parcel which is a narrow strip of land that lies between the river bank and the adjacent industrial units and residential dwellings along Courtney Street and Morgan Street. The Site has a right of way along the western edge of the site, adjacent to the river Usk.

15.15 The Site does not have any ecological designations. It does, however, lie adjacent to the river Usk which is a Special Area of Conservation (SAC) and a Site of Special Scientific Interest (SSSI). The Site does not have any landscape designations but the river Usk front is considered to be an important vista.

15.16 The site is bounded to the north by the Glan Usk Primary School, a new constructed school with associated play grounds to the north and beyond is the Glebelands Park.

15.17 The eastern boundary lies immediately adjacent to the Newport to Hereford railway line separated by a tree planted buffer. Beyond the railway line the land use is predominantly in residential use and interspersed with typical mixed uses, for example, community halls, shops and places of worship.

15.18 The River Usk is immediately adjacent to the western boundary and although there is no formal demarcation between the site and the river Usk, the top of the river banks are clearly defined. As mentioned above, the river Usk is a SAC and SSSI.

15.19 The south of site is bounded by industrial units and associated yards and the residential streets of Morgan Street, Courtney Street and Collier Street.

15.20 The main access to the site is gained via an access point located at the convergence of the north of Collier Street and north-west of Courtney Street. A pedestrian only access to the site is available to the north via the Glebelands Park which is access via Bank Street.

PROJECT DESCRIPTION

15.21 The development comprises a full planning application for the construction of 248no. dwellings and associated works at land south of Glan Usk School, Herbert Road, Newport.

15.22 The vision for the application site is to develop a well-integrated residential development that responds to its riverside location, promotes national and local planning policy aims whilst providing an attractive place to live for future occupiers with particular regard given to the enhancement of the existing public right of way and ecological features to benefit existing and future local residents.

15.23 The proposals comprise a mix of houses and apartments blocks within two, three and four storey units. All of the proposed houses are two storeys in height and this represent the majority of the units, a total of 140 units. The apartment are contained within 11 blocks between three and four storeys, with a total of 108 apartments proposed.

15.24 The existing right of way located across the Site will be retained and enhanced as part of this proposal. The enhancements include the formalising the right of way by surfacing it, widening it to 3 metres and lighting it will appropriate street lighting. This will provide an attractive riverside walkway and link the site to the Glebelands Park to the north and the residential streets to the south including the local area of play (LAP) located centrally to Turner street, Collier Street and Courtney Street.

ASSESSMENT METHODOLOGY AND IMPACT ASSESSMENT

15.25 The determination of the significance of the impacts arising from the proposed development is a key stage in the EIA process. It is this judgement that is crucial to informing the decision-making process. However, defining what is significant is not a simple task. The following criteria have been used (where appropriate to the issue being

addressed) in the EIA to inform the assessment of the significance of an impact:-

- Type of impact (adverse/beneficial);
- Extent and magnitude of impact;
- Duration of impact (short term/long term);
- Sensitivity of receptor;
- Comparison with legal requirements, policies and standards;
- Comparison with applicable environmental thresholds; and
- Effectiveness of mitigation.

15.26 It should be noted that the residual significance of impacts is assessed taking into account mitigation, i.e. the assessment applies to the residual impacts. A residual impact is any impact that would remain following the implementation of proposed mitigation measures.

Impact Assessment

15.27 Potential impacts identified as a result of the development can be split into two distinct categories: those leading from the construction and those from the subsequent occupation of the development.

15.28 Mitigation measures are proposed to avoid, reduce, compensate, remediate or even enhance potential impacts. The assessment outlines mitigation measures to ensure that the local environment is adequately protected from adverse impacts during the construction and operational phases of the proposed development.

15.29 The following sub-sections summarise the impact assessment that has been undertaken for each of the key issues as summarised under paragraph 1.4.

LANDSCAPE AND VISUAL IMPACT

15.30 The townscape and visual appraisal has considered the character of the townscape and visual amenity within the context of the Site. It is considered the proposed development would be consistent in scale to the existing residential properties in the area and would not appear out of character with adjacent land uses. The site is able to accommodate the scale of the development proposed without harm to the character of the townscape. The main reasons for this conclusion are outlined in the following paragraphs.

15.31 The Site appears in public views from a number of locations, the proposed development would be viewed within the context of the built development of Newport and would not be inconsistent with the surrounding character of the area.

15.32 The appearance and scale of the proposed development would not appear incompatible with existing development in terms of massing, ridge height or proximity to adjacent buildings; and would be generally consistent with the building spacing of existing properties to the south of the site in East Usk.

15.33 The development allows the site to become better integrated with the River Usk, proposes improvement to Lottery's Reen and will improve the amenity of recreational access. This results in a beneficial impact on the landscape and townscape character of the area.

15.34 The proposed landscaping scheme will assist in integrating the development into views by supplementing existing vegetation patterns within and outside the site boundary.

15.35 Visual impacts have generally been assessed to be low since the scale of the changes resulting from the proposed development are not considered to have an adverse impact on the most relevant vantage points in the local area. Despite this there are opportunities to mitigate visual impacts by screening or filtering views of the development with planting along the river and within and around Lottery's Reen.

15.36 There is a considered to be a slight impact on the amenity of nearby residential properties but once the site establishes itself as part of the urban character of Newport, particularly once vegetation has established across the site this impact is considered to reduce and the permanent impact is considered to be acceptable.

15.37 Overall the development of the site will not have an adverse impact on the landscape and townscape of the area and will have a beneficial impact on the character of the River Usk, Lottery's Reen whilst also safeguarding the sensitive habitats along the River Usk.

ECOLOGY AND NATURE CONSERVATION

15.38 The ecological conditions of the site were assessed, a valuation of the ecological features provided and an indication of impacts/mitigation associated with the construction and operation of the proposed residential development.

15.39 The assessment indicated that the most important of ecological features associated with the Site in the River Usk SAC and SSSI, which lies immediately adjacent to the site and supports Otters, migratory fish and saltmarsh habitat.

15.40 Valued habitat features within the site include Lottery's reen, grassland, ruderal vegetation and trees and scrub. These support a moderately diverse flora, a variety of breeding birds and common amphibians and reptiles. They also support invertebrates and provide foraging habitat for bats.

15.41 During the construction phase habitats within the site would be lost including grassland, ruderal and scrub habitats of local value for nature conservation which would have a significant adverse impact on these habitats because they would be lost during construction. These losses would be reduced in severity as the new landscape planting as part of the final development matures.

15.42 Adverse impacts on some protected and notable species are possible during construction, but with adoption of appropriate mitigation measures these are mostly assessed as not significant. Key mitigation measures include the methods and timing for vegetation clearance, enhancement of the ditch and river-bank strip, new landscape planting, provision of bat roost boxes and bird nest boxes, and translocation of reptiles to safe habitat nearby. In addition, parts of the Glebelands Site of Importance for Nature Conservation (SINC) to the north of the M4 would be converted from species-poor grassland to flower-rich and

ruderal vegetation, which would help off-set losses to the ruderal flora and invertebrate communities.

15.43 The design of the proposed development has endeavoured to protect the features of highest biodiversity value as a priority to ensure they are enhanced and retained once the development is completed. To protect the SAC/SSSI, a barrier strip of grassland and scrub habitat would be constructed as a series of ridges beside the top of the river-bank, to discourage people and dogs from accessing the saltmarsh on the banks of the river Usk. Off-site mitigation would also be provided to the north of the proposed development, fencing off part of the river-bank to give additional protection for Otters, and constructing an Otter holt. The long term beneficial effects of the measures to protect the river would help to compensate for the losses of less valuable habitats within the site.

15.44 The habitat of highest value within the site is the reed-fringed ditch at Lottery's Reen. The ditch would be retained, but would be temporarily affected during the construction phase while it is cleaned out and reprofiled. It would be reinstated with an enhanced profile and a widened reedbed to its southern side once the development is completed. The loss of ditch length caused by a new culvert would be mitigated by provision of new ditch habitat within the widened reed-bed.

15.45 The combination of protection and enhancement of the SAC features and Lottery's Reen, and adoption of appropriate mitigation measures would retain the most highly valued ecological features. However, there will be an unavoidable loss of the less valuable habitats and species within the site, valued at a local or within site level, due to the need for provision of the residential units and associated infrastructure.

GROUND CONDITIONS

15.46 An assessment of the ground conditions indicates the likely significant effects of the proposed development on the ground conditions of the development site. A Site Investigation Report has been prepared to enable an appraisal and the site has been subject to a comprehensive contamination assessment, with risk being assessed in accordance with current best practice standards.

15.47 The assessment has indicated that there is a risk to the environment including human health from contaminated soils and gas at the Site during both the construction phase and operational phase should no mitigation measures be implemented.

15.48 Mitigation measures recommended during the construction phase include good working practices are recommended in order to ensure that no contamination risk to construction works, passers-by, neighbouring site users and surface watercourses occurs. This includes good health and safety practices, dust suppression and site screening. It is considered the risk following the successful implementation of these measures is low.

15.49 To ensure the development, once completed does not pose a risk to end users or the environment, it is proposed to cap the site with 2 metres of imported materials, gas protection measures incorporated into all new buildings and inclusion of a radon/gas barrier. These mitigation measures will eliminate the risk to the environment and site end users.

15.50 The nature of the development will require a change to the features of the site, with the current proposals intending for some cut and fill earthworks and retaining structures. The site investigation identified that piled foundations is suitable for the dwellings and that the floor slabs should be designed as suspended.

15.51 The completed development does not include any end site uses which could cause potential significant harm to the groundwater environment and there would be no additional risk to the groundwater from the proposed development.

15.52 Chapter 8 concludes that the impact of the development on the ground conditions is negligible and the development of the Site poses a negligible risk to site end users.

FLOOD RISK

15.53 Part of the Site is located within Zone C1 which suggests that the existing site is at risk from flooding however has significant infrastructure including flood defences. There are also some areas within the Site which lie within Zone A i.e. considered to be at little or no risk of fluvial or coastal/tidal flooding.

15.54 The site has an ordinary watercourse located across it, Lottery's reen, which provides drainage to approximately 4.865 hectares of the local area eventually draining to the river Usk.

15.55 The impact on flood risk during the construction phase is temporary and attributed to:

- the risk of groundwater flooding following excavation beneath the groundwater table; and
- risk of flooding to off-site properties by overland flow from the Site.

15.56 To mitigate against this an area of ground either side of Lottery's reen will be retained for flood storage, this will not be raised during the construction. It is not considered the construction phase would pose a risk to increased flooding to the Site or local area with the recommended mitigation measures in place. Impacts of flooding will further be mitigated though agreed construction protocols included within the Construction Environmental Management Plan that will be prepared for the Site.

15.57 The flood risk of the site once developed has been assessed against the existing flood information and predicted flood risk for the future.

15.58 It is predicted the site including the access could be vulnerable from tidal flooding in the future and to protect the future dwellings the development plateau will be raised to 8.4 metres AOD and the embankment along the western cite boundary will be improved. There will also be an emergency flood plan to advise future occupants of the appropriate course of action during a flood event. The raising of the Site will have a negligible impact on the third party tidal flooding.

15.59 There is potential risk the raising of the Site could have an adverse impact on fluvial flooding of Lottery's Reen on third parties. Some of the floodplain however will be retained, i.e. not all of the site will be raised, therefore, the impact on third parties is likely to be negligible. The reen will be enlarged to provide storage to the flood waters in these events thus having a negligible impact on flood risk to third parties.

15.60 The retention of some of the floodplain together with enlargement of Lottery's reen is considered to be adequate mitigation against flooding and will not exacerbate risk of third party flooding.

15.61 The completed development will have larger areas of impermeable areas which will increase the level of surface water being discharged into the river Usk on third party flooding downstream. This is considered to have an overall negligible impact since the surface water will be discharged into tidally dominated waters.

15.62 It is concluded the completed development with have a negligible impact on flood risk at the site and surrounding area.

DRAINAGE

15.63 The drainage regime at the site was investigated and a drainage strategy has been devised to indicate the most suitable method of draining the site through the construction phase and once the development is completed.

15.64 During construction the status quo of surface water drainage will prevail by continuing to infiltrate to the ground and shed naturally over land to Lottery's reen. To avoid any adverse impact on the existing drainage regime stockpiled materials should be appropriately sited, blockages prevented and an Environmental Construction Management Plan put into place. These measures will ensure the construction phase will have little, if any, impact on the surface water to negligible.

15.65 The site currently does not have any foul drainage thus this is not a relevant consideration during the construction phase other than to ensure that development work would not impact on the existing sewer crossing the Site.

15.66 There are two disposal techniques in relation to surface water once the development is completed.

15.67 The narrow strip forming the southern half of the development is an infiltration based design, with all impermeable areas such as roofs and footpaths draining to ground via soakaways or other forms of infiltration. The estate road and plot driveways in the southern strip are of permeable block paving construction.

15.68 The remainder of the development to the north is served by a proposed piped surface water drainage system with no inherent flow/source control, which collects all impermeable area runoff and discharges to the ordinary watercourse at three separate points. Discharge to the watercourse is unattenuated on the basis that downstream properties will not be affected due to the tidal nature of the watercourse outfall to the River Usk and the large capacity of the river at this location.

15.69 Notwithstanding the above, the watercourse is to be locally widened and reshaped as part of the development landscaping proposals to provide a wetland area. In addition to the enhanced ecological and amenity value afforded by this area, the additional flood storage provided will help to mitigate future flood risk in storm conditions.

15.70 Once the development is completed foul drainage from the residential dwellings will be disposed of via the main sewers. Three points of connection have been agreed in principle with Dwr Cymru Welsh Water (DCWW). DCWW will need to confirm capacity within the local sewer network and wastewater treatment works as part of their connection approval process prior to connection of flows. DCWW will only allow connection to the main sewer if there is capacity, if there is an issue with capacity the developer will be required to fund upgrading works that are necessary to ensure there is no adverse impact on the foul drainage network.

15.71 In terms of sewer drainage the existing efficiency of the sewer is unknown and DCWW have not highlighted any problems with the existing sewer. To avoid the proposed development impacting on the existing sewer operations mitigation is proposed during the construction phase to avoid any blockages. Once the development has been completed an easement will be retained over the sewer to ensure access for maintenance.

15.72 The drainage strategy for the proposed development will not negatively impact on the existing drainage network and with have neutral on the environment.

TRAFFIC, TRANSPORT AND MOVEMENT

15.73 The purpose of chapter 11 is to assess the likely travel characteristics of the proposed development, identify the impact of this travel on the surrounding transport network, and identify any measures required to mitigate the impact of the proposed development. The scope of the assessment was agreed with Newport City Council Highways Department to ensure the assessment was appropriate and also indicated what junctions in the local area required assessment.

15.74 The development will generate a total 133 two way vehicle movements in the morning peak and 145 two way vehicle movements in the evening peak. Capacity analysis of junctions within the locality has been undertaken. The analysis has indicated that there will be increased traffic at all the junctions once the development is completed and mitigation would be required to reduce this impact. The implementation of a Travel Plan to promote the use of more sustainable modes of transport including walking, cycling, public transport, and car sharing is considered to reduce the impact of the development to an acceptable level.

15.75 The proposed development proposes a total of 348 parking spaces. A sustainability assessment in relation to the site was carried out in accordance with the Newport City Council Parking Standards 2012' which indicated a reduction in parking provision was acceptable at the Site. The level of parking provided has agreed with Newport City Council Highways Department and is considered acceptable given the highly sustainable location of the Site. It is proposed to provide 2 parking spaces per three bedroom unit and 1 space for one or two bedroom units.

15.76 The development once completed will have an improved vehicle and pedestrian access on to Collier Street/Courtney Street via a simple priority junction, with pedestrian facilities. Additional pedestrian links are proposed to the north of the Site which provide a connection between the Site and the St Julian's area of Newport.

NOISE AND VIBRATION

15.77 The potential impacts of noise and vibration from the construction and subsequent operation of the proposed Development upon sensitive uses on and around the Site has been assessed together with an assessment of the suitability of the Site in relation to the proposed residential uses.

15.78 Noise and vibration from the construction phase of the development would have a temporary adverse impact upon the sensitive receptors within the locality including existing residents and Glan Usk School. It is considered the use of Construction Environmental Management Plan to minimize potential adverse impacts including restricted working hours, quiet periods through day and using screen around any static plant machinery.

15.79 The site was assessed in terms of its suitability for the end use for residential properties. It was considered the potential noise levels from adjacent industrial estate would result in areas of the site exposed to unacceptable noise levels however these could be reduced to an acceptable level with the erection if a 2.6 metre façade to the effected boundaries. The incorporation of appropriate ventilation to dwellings to avoid the opening of windows is also suggested.

15.80 The noise generated by the increased traffic of the completed development is considered to be mostly negligible across the Site with a minor adverse impact on the dwellings at Turner Street. The implementation of a Travel Plan to encourage the reduction in travel by the private care will reduce this impact to negligible.

AIR QUALITY

15.81 This assessment focuses on the impact of the proposed development on air quality and pays particular regard to existing sensitive receptors and future residents following occupation of the development. It considers the impacts of potential emissions from construction activities and the impact of the road traffic associated with the completed development.

15.82 The Site was identified as being located within the Air Quality Management Area on Caerleon Road therefore it is essential the development does not adversely impact on the air quality of this area.

15.83 During the construction phase it was recognised that dust emissions from demolition and construction activities and emissions from construction vehicles could have a negative impact on the air quality of the area for a temporary period of time. This can be successfully reduced to an acceptable level if routine management control measures to prevent and control dust and the implementation of a Construction Environmental Management Plan are implemented. This is considered satisfactory in reducing the impact on air quality to an acceptable level.

15.84 Once the development is completed the source of the risk to air quality is emissions from the traffic generation associated with development however this risk is small even without mitigation. Mitigation measures in the form of a Travel Plan to encourage the reduction of private car trips will reduce this risk even further.

SOCIO ECONOMIC

15.85 It is possible that the development will have an impact on existing residents living in the local area as well as businesses and services. The potential socio-economic and community impact of the Herbert Road development has been assessed in Chapter 14.

15.86 The land use will be permanently changed however this is not considered negative since the land is currently vacant, derelict land and will be replaced with a high quality housing scheme. Furthermore, the existing right of way across the site will be retained and enhanced for local residents to continue to use. The existing right of way will be markedly improved through the new development by its formation and added natural surveillance.

15.87 During the construction phase the development is considered to have a beneficial impact on the local economy by creating approximately 1,452 employment opportunities, using locally sourced materials whilst also helping increase the skills sets of the workers employed.

15.88 It is acknowledged there will be an impact on local residents during the construction phase which will include the change in outlook from adjacent dwellings and the temporary nuisance to these dwellings of living in close proximity to a construction site. The impact of this on local residents can be reduced through ongoing consultation between the developer and the local community. Other measures that will be adopted to reduce the impact of the development on the local community include retention of ecological areas, adoption of a Construction Environmental Management Plan and the end use of the site as a high quality residential scheme.

15.89 The scheme once completed and occupied will place additional pressure on social services including schools, refuse services and recreational facilities. The developer will be required to enter a Section 106 agreement which legally obliges them to pay contributions towards local services to reduce increased pressure and improve these services. The improvement of capacity and facilities of local facility funded through Section 106 agreement is a positive impact on the local community.

15.90 The future occupants of the completed development will marginally increase the local population numbers this is not considered to such an extent that it would have an adverse impact on the community or change the demographics of the area. The future occupiers of the development are likely to support the local economy by increasing patronage to local businesses and increasing memberships to sport clubs and community groups.

15.91 The completed development and associated construction phase will have positive impact on the local economy and the St. Julian's area.

CUMULATIVE IMPACTS

15.92 Regulation 2(1) of the Town and Country Planning (EIA) Regulations 1999 (as amended) emphasises the need for the consideration of cumulative effects at a project level. Cumulative impacts relate to 'other' projects and plans and not different aspects of the proposal. However, best practice guidelines recommend that an EIA should assess the effects of the development cumulatively with other development only when there are likely to be significant effects.

15.93 The scoping response received from the Local Planning Authority has not advised that any cumulative impact assessment will be necessary. As such, no assessment is included as part of this Environmental Impact Assessment.

CONCLUSION

15.94 Overall, it is considered that any adverse impacts of the proposed development, identified in the process of Environmental Impact Assessment, can be mitigated against during the construction and operational phases as far as practically possible to reduce the impact to an acceptable level. It is, therefore, concluded that the proposed scheme will have a negligible impact on the wider environment. As such, it is considered that the proposed development is acceptable and, assuming other material considerations dictate otherwise, should be considered favourably by the Local Planning Authority.