Urban Splash (South West) Limited

ENVIRONMENTAL STATEMENT FOR THE DEVELOPMENT OF EAST WHARF WATCHET

with a mixed use development
comprising residential, commercial,
marine and boat workshop storage and office,
community uses and associated access,
parking and public realm improvements

D2 Planning Ref: 29/06

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iii) Landscape & Visual Assessment	ADAS
iv) Archaeological Assessment	Exeter Archaeology
v) Flood Risk Assessment Water Quality Data Drainage Strategy Water Resources & Ground Conditions Geology Report	Buro Happold
vi) Noise Impact Assessment	Sandy Brown Associates
vii)Ecological Appraisal	Waterman CPM
viii)Economic Impact Assessment	Roger Tym & Partners

Preface

This Environmental Statement has been prepared in the context of and comprises and accompanies a detailed application for planning permission made to West Somerset Council for the development of East Wharf, Watchet. The proposal is for a mixed use development. The environmental effects of the proposed development are addressed in this Statement.

The Environmental Statement has been prepared by a team of specialist consultants on behalf of the applicants, Urban Splash (South West) Limited. Its purpose is to describe and assess the likely environmental effects of the proposed development and to set out appropriate steps to ensure that any adverse consequences are addressed and means taken to mitigate them and where possible to enhance the environment.

In deciding on the matters to be dealt with in this Statement the starting point was the indication given in Schedule 4 of the Town and Country Planning (Environmental Impact Assessment) Regulations (England and Wales) Regulation 1999. Specific issues for study within the general guidance were identified in the original brief produced by West Somerset Council in June 2005 and reaffirmed by West Somerset Council during a series of meetings.

A series of plans outlining the specific proposals for the development of the site have been prepared. The Environmental Statement has been prepared in the context of these plans.

1 INTRODUCTION

1.1 A detailed planning application has been submitted to West Somerset Council by Urban Splash (South West) Limited. It relates to the proposed re-development of East Wharf Watchet with a mixed use development. The location of the site and the boundary of the application are shown on the submitted plans which accompany the application. This Environmental Statement is concerned with the environmental impact of these development proposals.

The Structure of this Statement

1.2 This document is divided into separate chapters which addresses those topics identified in Paragraph 3 of part 1 of Schedule 4 of the Town and Country Planning (Environmental Impact Assessment) (England & Wales) Regulations 1999 which are relevant to these development proposals. In some instances Technical Papers supplement the information contained within the chapters.

1.3 The contents of the Environmental Statement (ES) are derived from a Scoping Report prepared by the Council as part of the marketing of the site. This identified the main scope of the environmental effects related to archaeology (the site lies within an area of high archaeological potential), ground stability, marine protection, transport, landscape and the local community. A copy of the Scoping Report is attached as Appendix 1.

1.4 The assessment carried out in each chapter is in a consistent format and approach. An introduction is given to each topic, followed by an analysis of the existing or baseline situation. The methodology for undertaking the assessment is described and then the impact of the development is assessed. Following on from identifying the impact, mitigation measures are proposed. A monitoring programme where necessary is then set out. Before conclusions are presented there is a discussion of the robustness of the analysis carried out and of the alternative 'does nothing' development scenario of the East Wharf (see paragraph 1.35 and 1.36 at the end of this Chapter). This common approach to each topic and chapter in the ES has been derived from EIA regulation and from Good Practice guides to the preparations of EIAs.

1.5 In order to introduce and set the context for each topic-based treatment presented in this statement, this chapter describes the development which is proposed at the site and Chapter 3 describes the range and significance of the environmental effects which may arise. Overall the proposals are to create through the development of the site a high quality and integrated mixed use development. New houses, modern business accommodation, community and supporting facilities will be incorporated in an integrated way following modern design principles.

1.6 The final Chapter of the ES brings together the main findings of the EIA by summarising the main environmental impacts positive and negative which have been identified and draws attention to the specific measures which are proposed to reduce or remedy any adverse effects.

Site Context

1.7 Watchet is situated on the Somerset Coastline of the Bristol Channel. The harbour comprises a water area surrounded by high masonry block walls and piers and a narrow entrance. The Harbour has a long history as a regional trading post dating back to medieval times. Commercial activities continued until general cargo operations ceased in 1993. Dredging subsequently ceased in 1996. Since that time there was no further investment in the harbour area until the completion of the harbour works and marina in July 2001. The marina comprises an impounded water area in the eastern half of the harbour with pontoons and berths for around 200 boats.

1.8 The proposed East Wharf Development site is located on the eastern bank of Watchet Marina and is approximately 1.4 hectares in size. It is bounded to the north by the waters of the Bristol Channel, to the west by the waters of the Marina, and to the south-east by the West Somerset Railway. The site lies within the Watchet Conservation Area. An Ordnance Survey (OS) benchmark is located on the wall of the existing library building, which is at the south-west end of the site, and gives an elevation of +10.06m OD. The site is generally level, but the adjacent ground slopes steeply upwards to the east and south-east.

1.9 The site is currently covered with hardstanding which is used for boat storage/maintenance and casual car parking as shown in Figure 1—2 and Figure 1—3. A warehouse is located approximately in the centre of the site and is showing signs of disrepair. Other buildings located within the site include a small sub-station, bunded waste oil disposal point, and the Watchet Harbour Office, all located towards the south of the East Wharf. The waste oil disposal point and Harbour Office are shown in Figure 1—4 and Figure 1—5. The site is accessed via Harbour Road which runs from the south-west and enters the site between the library and Harbour office.

Figure 1-2 Hardstanding and Warehouse

Figure 1—3 Boat Storage Area

Figure 1—4 Waste Oil Disposal Point

Figure 1—5 Harbour Offices

1.10 The existing harbour walls are approximately 7.5m above the sea bed. The façade of the harbour walls generally comprises concrete and masonry. A 38m long section of wall has been repaired and faced with steel sheet piles. Anecdotal evidence indicates the original stone wall collapsed during the Great Storm of 1920.

1.11 Watchet Marina is fed via Watchet Harbour located immediately to the west of the Marina, which in turn is fed by the Bristol Channel. A tidal gate is located to the north-west of the Marina. This allows water levels to be maintained within the Marina during low tide. During higher tides the gate is submerged to allow water to pass over the top, as shown in Figure 1—6. Pontoons and berths are available within the Marina for up to approximately 250 boats. A floating fuelling station is located within the Marina close to the tidal gate.

Figure 1—6 Watchet Marina Tidal Gates

Figure 1—7 Blue Anchor to Lilstock SSSI

1.12 Mud flats are exposed within Watchet Harbour and the adjacent Bristol Channel during low tides. The coastline that runs between Blue Anchor Bay and Lilstock (to the west and east of the site respectively) is designated as a Site of Special Scientific Interest (SSSI) with respect to geological conservation. The SSSI, shown in Figure 1—7, is also known to be used by wintering waders and wildfowl.

1.13 The site is currently impermeable with no soft landscape areas. The majority of hardstanding surrounding the Marina, including the proposed East Wharf development site, currently drains into the Marina over the harbour walls with no prior treatment. Part of the area to the north of the warehouse drains into gullies, but it is likely that these too drain directly into the Marina.

1.14 There is a pay and display car park to the south of the site along the eastern verge of Harbour Road (Harbour Road car park), as well as one of the opposite side of Harbour Road, known as Swain Street car park. Watchet Boat Museum is located at the southern end of Harbour Road.

The Development Proposals

Mixed Use Development

1.15 The proposed development by Urban Splash at East Wharf comprises a mixed use development which is a requirement of Policy WAT/1 of the adopted Local Plan and the Development Brief adopted by West Somerset Council in June 2005. The proposed development meets the requirements of both Policy WAT/1 and the Development Brief, which describes the desired development for East Wharf.

Development Characteristics

Background

1.16 The proposals for the site have been prepared since 2005 and the key details for the design process are set out below:

Public Consultation	December 2005
Public Consultation	February 2006
Progress Report	March 2006
Progress Report	July 2006
Presentation to Donaldson's	August 2006
Interim Review	September 2006
Presentation to Planning Authority	January 2007
South West Design Review	January 2007
Planning Application	March 2007
Presentation to Stakeholders	March 2007
Public Consultation	March 2007
Application Withdrawn	June 2007
Presentation to Planning Authority	July 2007
Presentation to Stakeholders	August 2007
Planning Application	August 2007
Application Withdrawn	November 2007

1.17 The proposals have been the subject of close consultation between Urban Splash, their design team and key stakeholders through Working Groups and design sessions including pre-application meetings with the following:

West Somerset Council
The Marina Operator
Watchet Boat Owners Association
English Heritage
South West Regional Development Agency
Somerset County Council (Head of Conservation & Transportation)

Watchet Tourist Information Centre
Quay West Radio
Watchet Boat Museum
Watchet Town Council
South West Museum Libraries and Archive
South West Design Review Panel
Environment Agency

Development Characteristics

1.18 The proposed uses and design philosophy is outlined in detail in the Design and Access Statement. The uses can be summarised as follows:

- A mix of 1 and 2 bedroom apartments (86 in total of 51 No 1 bedroom and 35 No.2 bedroom).
- A flexible commercial space that can accommodate a bistro with all day use, a function room and meeting space available for public use, Town Council offices and Tourist Information Centre.
- New reception and offices as well as new Marina facilities (WCs, showers laundry) and a secure boat yard to the Marina operator and possibly of associated retail opportunities such as Yacht Broker and or Chandlery.
- Flexible retail and leisure space for a mix of different retailers and operators of cafes/restaurant.
- Offices/studios for Quay West Radio;
- Car Parking for residents and occupiers;
- New public conveniences.

1.19 The key features of the proposals for East Wharf are:

- Boat Building: A stunning 6 storey building with a boat-like prow that creates a focal point architecturally and also for the uses proposed at the end of East Wharf. The boat is the landmark building which will be visible on the approach to Watchet, as well as from Harbour Road, the town, the sea and from key long views.
- Wharf Building: 3 storey building that brings street level activity and interest to the entire length of the East Wharf harbour frontage

- Rear Wharf Building: 5 storey buildings incorporating 2 storeys of car parking which combine with the Boat and Wharf Buildings to define a small sheltered plaza surrounded by active frontages
- Discrete secure parking and service access to the rear of the buildings
- Belvedere Building: A single storey building with ramped access to a viewing terrace which creates an additional focal point at the key corner of Harbour Road; East Wharf and The Esplanade. Its low height compared to the two storey buildings it replaces, opens up views of the marina from the railway line and from the historic Goviers Lane.
- The removal of these buildings also creates another view from the Harbour back up to High Bank Cottages
- A fixed boat lift crane on East Quay which will remove the conflict with pedestrians and the existing mobile boat crane operations
- Increase in public realm, allowing full public access and use of the East Quay frontage with the Marina.

Layout strategy

1.20 At the junction with the Esplanade the new Belvedere Building provides a fantastic viewing opportunity to the marina, a place to sit and watch marina life, the railway, admire the view and watch the sunset. It also provides new public toilets, making management simpler and increasing security due to the increased public activity in the surrounding areas. With regard to views from the railway it should be recognised that although the view is obstructed by the Wharf buildings, the view at the Belvedere Building location has actually been increased as the existing two-storey buildings are to be demolished, revealing a more lively, activity focused view of the harbour itself.

1.21 At the south end of the site the Wharf Buildings accommodate the Marina offices, space for a chandlery or yacht brokerage, with further space for shops or a café.

1.22 The Boat Building creates a frontage to the public plaza connecting the commercial and cultural facilities. At the lower level there is a reception and

space for council offices and a tourist information office, beyond which is space for a bistro.

1.23 Parking is neatly tucked away below the rear Wharf building out of view of the public, with controlled access.

1.24 The upper levels are dedicated to the residents and the units are organised off the public plaza that gives access to the central core and step access to the upper level landscaped terrace separating the front and rear wharf blocks.

Public and visitor facilities

Public conveniences

1.25 New public toilets will be located discretely under the Belvedere building, easily accessible to all. This gives West Somerset Council the opportunity to demolish the existing public toilets in the Swain Street/Harbour Road car park which in turn could lead to a reconfiguration of the car park, creating more spaces.

Visitor car parking

1.26 Currently West Somerset Council have designated 35 spaces in the Harbour Road car park for marina users. Harbour Road and the adjacent Swain Street municipal car park provide parking adjacent to East Wharf and will be unchanged but as mentioned there is an opportunity for West Somerset Council to revamp this area as part of a separate phase of works.

Marina facilities

1.27 Urban Splash are proposing a significant investment in the Marina facilities. These will provide much better on-shore Marina facilities and attract future leisure focused business, enabling the Marina to grow. The Marina operator has previously agreed with the design principles of the development subject to agreement of the financial arrangement.

1.28 The intention is to enable full operation of the Marina throughout the construction phase. At the appropriate time we will enter into detailed discussions with the Marina operator as to this matter. A Construction Phase

Management Plan will be produced which will cover all relevant construction issues.

1.29 Urban Splash are seriously considering a suggestion by West Somerset Railway to bring construction materials via the railway line.

Boat Yard

1.30 The boat yard is located between the cliff and the proposed buildings. The access is via lockable gates to the northern side and a sliding electronic gate shared with car parking and service vehicles to the southern side. The access allows for boats up to 45 feet through both access points. Storage provides space for up to 18 boats of average size (approx 30 or 40 feet) as is currently provided. From Urban Splash's research it appears that the average size of boats catered for at other marina's in the region ranges between 33 and 38 feet (10m to 12m).

- Storage will be secure and compounded with a lockable access gate – with an option for a magnetic lock and tag entry system
- There is provision for boats up to 15 metres (45ft)
- The boat yard will be easily accessible for articulated boat transport vehicles which must be able to safely turn and reverse into the yard when the yard is full
- A small workshop/storage area has also been proposed to the rear of the Boat Building directly adjacent to the boat yard area.

Crane

1.31 The current mobile crane is to be replaced by a fixed crane and is to be located on the East Pier. Key features are:

- 360 degree static crane proposed
- The area around the crane will also be used as a Boat wash down/anti-fouling area
- Water and electricity will be provided for pressure washers, etc and drainage too.

- Members of the public will be excluded from the crane area during working periods by appropriate signage and fencing, but East Pier will be accessible at all times.

Boat Yard Auxiliary Facilities

1.32 The Belvedere Building will include:

- Bin compound for storing 4 commercial sized bins, palettes for waste batteries, waste oil facilities and hazardous waste container
- Area for bulk diesel bunker accessible for delivery vehicles and in safe secure location
- In addition a trolley area is provided to the north of the Belvedere building

Marina Support Facilities

1.33 The existing Marina offices and facilities are being demolished, relocated and integrated within the main development. The Harbourmaster's office will allow a full view of the Marina and views to the Bristol Channel could be provided by CCTV. The changing facilities, showers and toilet facilities will all be provided to follow the guidelines from the Yacht Harbour Association (Code of Practice for the Design, Construction and Operation of Coastal and Inland Marinas and Yacht Harbours 2007). Additional facilities for diesel and waste oil storage will be located in the Belvedere Building.

- Facilities will be grouped together
- Facilities will comply with THYA regulations (See Table 1 below)
- Facilities will be secure, and will only be accessible to Marina users – possible key card access
- Office will have good visibility over Marina
- Office designed to allow expansion into commercial space for a chandlery and possible brokerage sharing a common entrance if required. There is scope to expand the chandlery and brokerage into adjacent retail shell.
- Pontoon access point close to the office
- Bottled gas store is near to office – located in the Belvedere Building and a minimum of 5 metres away from building (to comply with requirements of Calor)

Community Facilities

Town Council Offices & Tourist Information Centre.

1.34 The tourist information and council offices are located in the Boat building entrance and facing the plaza. A multi-purpose, 250 person meeting room is also located in the Boat Building, available for community use. It is envisaged that this space will be operated by the commercial operator of the bistro and provide this facility as part of their agreement to the organisations within the building. Otherwise it will be available for hire.

Commercial Units

1.35 The space is flexible and there is potential for shops, a bistro and potentially suitable light industrial use, the latter located to the rear of the Boat building. The spaces could also be used for cultural use. The commercial units are designed to be flexible, allowing occupiers to expand their businesses within the development as and when needed and enable the space to respond to changing market conditions, providing the best chance of long term sustainable usage.

Residential Provision and Amenities

1.36 Under the proposals there are 86 apartments comprising a mix of 1 and 2 bedroom apartments (51 one bedroom apartments and 35 two bedroom apartments). The apartments are constructed in different buildings to give varying forms and external spaces. The buildings vary between 3 and 6 storeys. External spaces are defined by the buildings and provide a rich mix of spaces that bring interest and activity to the East Wharf frontage and private residential spaces to the centre of the development.

1.37 The proposals have been developed following meetings with the West Somerset Council Planning Department on 21 September 2006 and 25 January 2007 and the Town Council representatives on 27 September 2006 with Public Consultation taking place in December 2005, February 2006 and March 2007.

Residential Parking

1.38 The apartments will have parking spaces secured from the public. The parking is all located on two levels below the rear Wharf building and accessed at the southern end of the site through a secure electronic gate. Access will be controlled via key pad or key fob technology.

1.39 Parking is operated on a licence basis. All residents will have the right to licence a space on a non-allocated basis. Parking for residents is not a 1:1 ratio and parking standards for commercial uses are not considered appropriate. In Urban Splash's experience, car parks are never fully utilised and peak demand for parking is usually 15% less than planning standards require and the system of licensing, the right to park means that adequate parking is provided within the scheme.

1.40 The Public Realm proposals will build on the recent improvements being undertaken on the Esplanade and the Design and Access statement sets out the approach to opening up the East Wharf harbour frontage to the public and provide the ability to promenade and experience the waterside around the old part to its full potential. This is something which it has not been possible to do for some time.

Construction Phase

Phasing:

1.41 It is envisaged that the development will be completed in a number of potential phases:

- Secure site
- Demolish boat shed and clear site
- A start will be made at the northern end of the site and build towards the site entrance at Harbour Road
- Decant harbour offices into new accommodation
- Demolish Marina facilities, construct Belvedere Building (including substation) and make adjustments to proposed boat workshop, car park and boat store.

- Commission new substation and connect.
- Decommission existing substation and remove from site.
- Complete works.

1.42 These will be developed as the detailed design progresses and in consultation with the relevant Contractors. A Construction Phase Management Plan will be put in place to ensure as far as possible that the Marina operations are not unreasonably disrupted.

Demolition

1.43 The materials arising from demolition will be recycled, if possible either on site or off site. If the materials are hazardous they will be removed by licensed contractors and disposed of safely. Any contractor will abide by an agreed waste management strategy following the latest guidance eg WRAP.

Main Development

1.44 It is anticipated that the units will be constructed of a combination of piles and raft foundations and pads and rafts depending on the ground conditions. These will be taken down to the existing mudstone. The superstructure being considered is to construct the upper levels off of a reinforced concrete braced frame podium. There is then potential to construct the upper floors off this with prefabricated load bearing timber panels. Shear walls will be required to provide stability and these will be accommodated within the apartment walls and car park layout. The cladding materials will be a mixture of timber, render, metal cladding and glazing depending upon elevation and use (see drawings for more details).

Drainage

1.45 Foul drainage will be connected to the existing foul sewage system. The surface water is proposed to discharge into the harbour after passing through the relevant interceptors depending upon location.

Duration of the Development

1.46 It is anticipated that the development will take up to 21 months to complete from a start on site.

Alternative Scenarios

1.47 The Scoping Report to the ES requires that reference is made to alternative forms of developing the site. The plans submitted with the planning application have been designed following many meetings with the applicant's specialist consultants, key stakeholders and the Local Planning Authority. The layout, form and scale of the development have followed the constraints of the site and its surroundings identified by the consultants and the brief for the site. In this way the fundamental approach to the mitigation of the impacts have been undertaken at the design stage, a philosophy of avoiding adverse effects rather than rectifying their impact, as a more sustainable approach to planning a major development scheme. In accordance with advice, alternative forms of development are discussed in the ES within the Conclusions as it is considered the most appropriate place to consider whether the submitted plans are in fact the most appropriate form of development.

1.48 ES Regulations require regard to be had to the 'do nothing' scenario. For this site, there is only one. The site is owned by West Somerset Council and an agreement has been entered into with Urban Splash for its development. Urban Splash is committed to the development of the site. Theoretically the site could remain undeveloped and left in its present state. In the ES this is therefore the 'do nothing' scenario and this has been assessed for each topic in the Chapters of this ES. However in reality this scenario is very unlikely to occur given the intentions of the landowners and Urban Splash as well as the site's designation in the adopted Local Plan.

2 PLANNING FRAMEWORK

2.1 The site lies within West Somerset District within the County of Somerset. The proposed development must be assessed against the provision of the Statutory Development Plan. National and Regional Planning Policy Guidance must also be considered.

National and Regional Policy Context

Policy	Key Objectives	Application Proposals
PPS1 Delivery Sustainable Development	Sustainable Development Mixed Use Design	Previously Developed Site with measures to reduce car usage. Mixed Use Objective of high quality design
PPS3 Housing	Housing for all needs. Development of previously developed land favoured layout to reduce car usage. Density greater than 30dw/ha sought	Range of residential units provided. Site is previously developed. Reduction in car usage sought through design Density is dw/ha.
PPG4 Industrial & Commercial Development of small firms	Mix of uses recognised as appropriate.	Mix use development planned.
PPS4 Planning for Sustainable Economic Development.	Ensure that the planning system facilities economic development.	Proposals will assist in enhancing economic and employment potential in Watchet.
PPS6 Planning for Town Centres	Appropriate level of retail provision sought. Mixed use development sought.	Appropriate level of local retail provided. No impact on town centre. Mixed-use development.
PPG15 Planning and the Historic Environment	Seek to ensure that proposals preserve and enhance the character and appearance of the Conservation Area with South Lakeland Historic Court Decision.	Proposals will preserve and enhance the character and appearance of the Conservation Area.
PPG16 Archaeology and Historic Environment	Approach to be taken with regards to archaeology set out	Application follows appropriate measures.
PPS23 Planning and Pollution Control	Demonstrates the relationship between planning law and pollution control legislation.	All construction activities on site will be undertaken in line with best practice measures in accordance with pollution control measures.

	Reuse of previously developed land.	Site is previously developed land and will be remediated in line with current best practice.
PPG24 Planning and Noise	Recommended exposure levels for residential development with respect to traffic and other noise set out.	Detailed assessment in ES has resulted in mitigation measures to ensure that properties are not subject to unacceptably high levels of noise.
PPS25 Development and Flood Risk	Sequential approach to development. Take account of climate change. Exceptions test to development on land liable to flood.	Detailed assessment in ES has resulted in appropriate mitigation being incorporated.
Planning for Sustainable Development Towards Better Practice	Maximum amount of housing within urban area. Mixed-use development sought.	Site is previously developed. Mixed-use development proposed.
By Design	High Quality of Design sought in development.	Proposals seek to incorporate high quality design. Outline in Design and Access Statement.
RPG10 Regional Guidance for the South West	Promote sustainable development. Maximise use of previously developed land. High quality urban design. Coastal towns to be focal point for development.	Mixed Use Development promoted in a previously development site. High quality design within a Coastal town and development of appropriate scale.
RSS for the South West (draft) Panels report and recommendations following Examination	Promotes sustainable development. Maximises use of previously developed land. Appropriate level of development within Market Towns and Small Towns	Mixed-use development on previously developed land. Site lies within a small town and development is of an appropriate scale.

2.2 The policies of the adopted Somerset and Exmoor National Park Joint Structure Plan and West Somerset District Local Plan comprise the Statutory Development Plan. The relevant policies of the adopted Somerset and Exmoor National Park Joint Structure Plan are set out below and the proposals assessed against them.

Policy STR1 Sustainability Development	High Quality Design, reflecting local distinctiveness. Priority to previously developed land. Enable access for people with disabilities. Develop a pattern of land use to minimise need to travel.	Proposals provide a high quality design. Reuse of previously developed land. Development supports local inclusions Mixed use development in a sustainable location.
Policy STR2 Development in Rural Centre and Villages	Development in rural Centres should help sustain and enhance their rate and be consumarate with their size and accessibility and be appropriate to that character and physical identity.	Proposals are of an appropriate size and scale for Watchet and are appropriate to its character and identity.
Policy 1 Water Conservation	Biodiversity of the County should be maintained and enhanced.	No adverse impact.
Policy 8 Outstanding Heritage Settlement	Special Character of the Outstanding Heritage Settlements should be respected	Proposals will preserve and enhance the character and appearance of the settlement.
Policy 9 The Built Historic Environment	Character of Conservation Areas should be preserved or enhanced.	As Policy 8. Proposals will preserve and enhance the charater and appearance of the Conservation Area.
Policy 11 Areas of High Archaeological Potential	Development should take account of identified Areas of High Archaeological Potential and necessary protection should be afforded to them.	Proposals take account of archaeological issues. No adverse impact.
Policy 14 Archaeological Strategies	Development should ensure that where appropriate the protection of archaeological remains is undertaken.	As Policy 11
Policy 15 Coastal Development	Development along the Coast should take place within towns, Rural Centres and Village. New coastal development should minimise the risk of flooding, erosion and landslip.	Proposals are within Watchet. Proposals minimise the risk of flooding erosion and landslip.

Policy 16 Provision of land for Industrial, warehouse and business development	Provision is made for 10ha in the District. Provision should be made within mixed use development where appropriate.	Mixed use development proposed including employment. This will assist the District meet its employment land provision.
Policy 17 Mixed Use Development	Industrial, commercial and business activities which are major generators of traffic should be part of a mixed use development and should be provided in a town centre location or in centres which are highly accessibly by means of transport other than the car.	Mixed use development proposed in close proximity to the town centre.
Policy 18 Location of land for industrial, warehousing and business development	When considering the location of land for employment consideration should be given to the following: Activities which are environmentally compatible can be located within or adjacent such existing or proposed use.	Employment provision within the development highly appropriate next to the Marina.
Policy 19 Employment and Community Provision in Rural Areas	Provision should be made for development which creates or enhances local employment shopping or community facilities.	Proposals provide both employment and community facilities with limited retail.
Policy 20 The Retail Framework	Retail development should be well related to settlements. The overall scale of retail facilities in or adjacent to any particular settlement should be consumerate with the strategic scale of that settlement.	Mixed use development. A small element of retail is proposed which is commensurate with the scale of Watchet and will not be detrimental to the town centre.
Policy 21 Town Centre Uses	The functional centres of Towns and Rural Centres will be the primary focal points of new facilities particularly for shopping, leisure, entertainment etc. In identifying sites for such developments a sequential	Limited retail provision as part of a mixed use scheme. No adverse impact on the town centre.

	approach that respects the sustainable development principles of this plan should investigate opportunities in the following order: 1. In town centres 2. On edge of town centre location 3. In local centres and only then 4. In new locations within or well related to the settlements concerned that are accessible by a choice of means of transport.	
Policy 22 Tourism Development in Settlement	Provision should be made for development of tourist attractions and accommodation in settlements or defined Tourism Development Areas. New development which would generate substantial transport movements should be accessible by public transport.	Tourist Information Officer to be provided within the proposed development. New boat museum and café facilities provided to enhance tourist attraction at Watchet. Improved public recreation.
Policy 33 Provision for Housing	Provision is made for about 2,400 dwellings in West Somerset District	Residential will assist in meeting the Districts housing provision.
Policy 35 Affordable Housing	Provision will be made for securing housing to meet the needs of those without the means to buy or rent on the open market. It should meet an identifiable local need and be available and affordable to successive occupiers	No affordable housing provided. Provision of other community facilities.
Policy 39 Transport and Development	Proposals should have regard to: * The management of demand for transport * Achieving a shift in transport modes to alternatives to the private car wherever possible * The need for	Proposals are appropriate in terms of highway network. Improved bus facilities provided. Location highly accessible for walking or cycling to town centre.

	improvement to transport infrastructure.	
Policy 42 Walking	Facilities for pedestrians should be improved by monitoring and extending the footpath network particularly between residential areas, shops, community facilities, workplaces and schools and by ensuring that improvement to the highway provide for safe use.	Public Recreation in the area will be improved as a result of the proposals. Improved linkages between the site and the town centre.
Policy 43 Access of People with disabilities	Facilities for people who are mobility impaired should be improved by maintaining and extending the network of suitable footpaths etc and by facilitating ease of access to other transport infrastructure and new development.	Public Recreation in the area will be improved as a result of the proposals. Improved linkages between the site and the town centre.
Policy 44 Cycleway	Urban and longer distance facilities for cyclists should be improved by maintaining and extending the cycle network. Improvement to the highway shall promote for safe use by cyclists.	Public Recreation in the area will be improved as a result of the proposals. Improved linkages between the site and the town centre.
Policy 45 Bus	Facilities for buses should be improved. These should include measure to give priority to buses and to introduce park and ride systems where these are the most sustainable option.	Improved bus facilities provided as part of the proposals.
Policy 48 Access and Parking	Developments which generate significant transport movements should be located where provision may be made for access by walking, cycling and public transport. The level of parking provision in settlement should reflect these functions, the potential for use of	Development can be accommodated within the highway network without any adverse impact. Sufficient car parking provision provided to meet the needs of the development.

	alternatives to the private car and the need to prevent harmful competitive provision of parking. The level of car parking associated with new development should: * Take account of potential for access and provide for alternatives to the private car and than * Should be no more than necessary to allow the development to proceed	
Policy 49 Transport Requirements for new Development	Proposals should be compatible with existing infrastructure or if not improvements should be made to enable it to proceed. In particular it should: * Provide access for pedestrian, people with disabilities, cyclists and public transport. * Provide safe access.	Proposals will not place undue pressure on existing infrastructure. Improved facilities provided and pedestrian, cyclists, public transport and people with disabilities.

2.3 Turning to the adopted Local Plan relevant policies are as follows:

Policy SP/1	Settlement Classification Rural Settlement	Development appropriate on scale for rural Watchet
Policy LC/3	Landscape Conservation Coastal Zone	No adverse impact on landscape character.
Policy PO/1	Community Facilities and Planning Obligations	Proposals will provide a range and mix of community facilities e.g. boat museum, tourist information office, accommodation etc.
Policy T/14	Developer Funding and Transport Infrastructure	Proposals will contribute toward improvement where they meet the requirement of Circular 5/05
Policy TW1	Protected trees	No trees will be lost
Policy NC/3	Enhancement and recreation of habitats.	Proposals can assist to enhance habitats
Policy NC/4	Protect legally protected species.	Proposals will not affect legally protected species.

Policy NC/5	Biodiversity	Proposals will enhance biodiversity.
Policy H4	Affordable Housing	No affordable housing provided due to: i) Costs associated with the development ii) the other planning objectives that must be given priority namely the regeneration of East Wharf, improvements to the public recreation, provision of a range of community facilities including public art.
Policy E7	Retention of Employment	Employment provision provided as part of the above.

2.4 Finally Policy WAT/1 specifically identifies the development of the site with a mixed use development (employment/housing) with associated community related uses subject to a number of criteria.

2.5 The proposals comply with the principle of the policy and they meet with the criteria as follows:

i) Enhance the character and appearance of the Watchet Conservation Area and Coastal Zone with the redevelopment of this key site which is currently a 'dead end' no go area, with a high quality mixed use development. The site has a strong heritage with various industrial uses throughout its history. The East Wharf proposals reflect this history whilst linking it to the present day. This is the approach which was endorsed by the South West Design Review Panel who stated:

"The benefits of it (the scheme) going ahead would be substantial in townscape terms. It would enliven the harbour and replace a bleak and under used site with a major architectural event. The architectural language is distinctive and interesting and the scheme would enrich the town's

visual appeal. In planning terms we believe it would enhance the Conservation Area …"

ii) Adequate access, servicing and parking as provided. (see Transportation Assessment)

iii) Compatible with other land uses in the area.

2.6 In view of the above the proposals are compatible with the policies in the Statutory Development Plan and meet national and regional planning policy objectives.

2.7 Finally the site and Watchet is subject to an Urban Design Framework which was prepared in May 2005 by Landscape Design Associates following extensive consultation with the local community. The Framework was adopted by the District Council and its key objectives are set out below:

Objectives

Design	
Good quality locally distinctive building which reflects its former industrial past	High quality urban design principles underpin the development.
Mixed-Use, comprising: Residential Employment Community Uses Commercial Use External Spaces	A range of residential, employment and community uses are provided with improved public realm
Retention of Marina Crane	Mobile crane replaced with more suitable static crane and operated
Scale 3 /4 storey	Scale 3-6 storeys

2.8 The application proposals are consistent with the objectives and requirements of the Urban Design Framework.

2.9 Furthermore with regards to sustainability issues the development of the East Wharf site is considered to be fully consistent with sustainability development principles.

2.10 The Table (page 27) shows that the site in its current, vacant state exhibits limited evidence of sustainability. This, however, is due to the extent that

'doing nothing' on the site can bring about sustainable development objectives. In other words, leaving the site to become derelict could be seen to achieve some goals in sustainability as there would be no change in the current situation. Conversely, with the proposed redevelopment of the site, some of the topics in the Table comment that there could be some negative aspects with respect to sustainability. In these instances, appropriate mitigation is needed; in some cases, for example the increased demand for resources in building the development, a 'wholly sustainable' solution may be unachievable, and mitigation can only reduce their impacts. However, the Table also shows that in other cases the development of the site would offer gains in sustainability over that which would exist if the development did not go ahead.

2.11 Therefore, the development of the site would result in positive and negative changes in sustainable development indicators. However, the development is considered, overall, to be sustainable. This is because, firstly, the Table indicates a greater number of post-development positive indicators. Secondly, the potential negative post-development effects can largely be minimised through mitigation measures. And finally, as discussed in Chapter 1 of the ES, with the current landowners and the allocation of the site in the Local Plan for a mixed use development, there is little prospect of the 'do nothing' situation occurring. Therefore, the negative feature identified for the current use in the Table will not continue.

2.12 In summary, the development of the site is considered to be of sustainable development principles. The application demonstrates the following indicators of sustainable development.

- The proposal is for the redevelopment of a previously developed site within an urban area which at present represents a visual detractor to the Conservation Area.
- A mixed use development is proposed with residential, employment, commercial and community uses within walking distance of the town centre and local public transport.
- Improved footpaths and cycleway would be provided

- Contamination on the site will be remediated to approved standards.
- Consultation methods have and will continue to seek to reduce environmental impact and nuisance.
- Existing landscape interest will be retained and enhanced.
- New buildings will be built to modern, energy efficient standards with a minimum 10% of the energy demand being met through on site renewable energy.

Table : Commentary on Sustainability

Topic	Present uses		Proposed development	
	Positive features	Negative features	Positive features	Negative features
Human related issues	• Vacant nature of site means no drain on local social or economic infrastructure.	• Closed nature of site means barred to walking and cycling in area. • Employment use on the site is vacant.	• Redevelopment of brownfield site, so reduction in need to allocate Greenfield sites. • Increased provision of footpaths and cycleways in area. • Mixed-use development increases propensity for walking and social interaction. • A mix of housing to be provided on the site. • Additional employment activity in the area. • Introduction of Community Facilities	• Increased pressure on local social and economic infrastructure, if adequate compensatory provision is not made.
Flora and fauna	• If left to dereliction, nature conservation interest of site likely to increase.		• New trees planted and soft landscaping proposed	
Soil and land	• If no redevelopment proposals, then no effect on need for materials	• Some contamination on site, which is not being rectified	• Redevelopment would see remediation of contaminated soil to required standards	• Increased demand for resources in construction of the development. • Increased pressure on waste management facilities and landfill sites.
Water	• Vacant nature of site means no change to established surface water patterns or groundwater situation.			• Change to water drainage situation; appropriate standards need to be applied to ensure no harm.

Air quality and noise	• Being vacant, no noise or dust pollution.			• Change in this situation likely, and appropriate mitigation measures need to be applied to ensure no harm.
Climate			• New buildings will be to modern efficiency standards.	
Landscape	• Climax vegetation of woodland should establish	• If left to dereliction, the lack of management on the site would lead to deterioration of landscape character.	• Retention of landscape character, and long term management ensured. • Large amounts of open space and public realm created.	
Cultural heritage	• Being vacant no harm to archaeological resources			• Any potential for disturbance to matters of interest means appropriate studies and mitigation measures necessary.
Transport	• As a vacant site, no traffic is generated	• The closed nature of the site restricts walking and cycling in the area and from one side of the site to the other.	• Masterplan will encourage walking and cycling within the site, and across the wider, local area. • Improvements to the local bus service.	• Overall quantum of traffic activity will increase.
Construc-tion	• If left to dereliction, then no change			• Redevelopment of the site will lead to construction on the site, with consequent demand for materials and construction vehicle movements.

3 POTENTIAL ENVIRONMENTAL EFFECTS

3.1 This Environmental Statement is the culmination of an extensive assessment process during which a wide range of environmental and other factors relevant to the creation of a high quality mixed development have been considered. In accordance with ES regulations and good practice guides, each of the major topic areas is dealt with in a consistent fashion. This includes:

- The identification of existing conditions
- A description of the methodology
- Highlighting potential impacts arising from the proposed development (during and after construction)
- Exploring the scope for the amelioration and mitigation of potentially adverse impacts and explaining how these have been incorporated into the development proposals.
- Setting out a monitoring programme, where necessary
- A discussion of the alternative 'do nothing' scenario
- Identifying any weaknesses in the assessment made
- Drawing conclusions on the topic

3.2 The ES and the separate Technical Papers address the issues in the Table on page 27 in more detail. The geographical area potentially affected by each of the impacts is identified in accordance with the following scale:

- An impact of International importance would be one which affects an interest of international concern, such as a wetland site protected under the Ramsor convention. No impacts on this scale arise in connection with the proposal.
- An impact of National importance would be one which affects the national interest identified by Government policies such as the effects of a National Park, AONB, SSSI or a Grade 1 Listed Building. No impacts on this scale arise in connection with this proposal.
- Impacts of Regional-wide importance would be those where the scale of impact is such that it could support or undermine Regional Guidance or Strategic policy.

- Impacts of a Borough-wide importance will be of relevance broadly with the context of the Planning Authority's administrative boundary.
- Impacts of Local importance are those which affect a limited area, largely contained within or close to the development site itself. The majority of impacts fall into this category.

3.3 Potential impacts may be beneficial or adverse or, in some cases, they may have both beneficial and adverse consequences. They may be short term (e.g. during the construction phase) or long term, and they may be reversible or irreversible. Each of the potential impacts has been categorised in accordance with these criteria and a judgement made on the potential significance of each. The areas of potential impact are explored in more detail in the remainder of this ES and in the supporting Technical Papers. Taking account of this work, measures have been put forward, where appropriate and possible, to mitigate adverse effects. The overall nature and significance of the predicted impacts, taking account of any mitigation proposals, are summarised in the last chapter of this Statement. The predicted or residual impacts are also summarised in Chapter 11.

4 HUMAN RELATED ASPECTS

4.1 This chapter addresses the human related aspects that rise from the development of the East Wharf site.

4.2 The impact of the proposed development would be felt by the Local population in the area as well as by future residents and there are considered to be four reasons why such impacts would occur.

i) The change in the population of the area brought about by 86 new dwellings;

ii) The increase in demand for services and facilities;

iii) The economic impacts;

iv) The opening up of the site

Existing Situation

4.3 The baseline situation for the four potential impacts identified above are discussed in turn.

Population

4.4 The site lies in Watchet which has a population of 3,972 (2001 Census) people.

Housing

4.5 The dwelling types and sizes in Watchet are primarily houses being detached/semi. There are a small proportion of apartments within the town.

4.6 The Housing Needs Survey 2003 identifies a need for affordable housing in the town.

Services

4.7 The new apartments and rise in population will lead to additional demand for servicing and facilities. This chapter deals with the social and community infrastructure that will be required to service and support the new development of which there are considered to be 4 issues:

i) Education

ii) Social & community provision

iii) Shops

iv) Leisure and recreational provision.

4.8 With regards to education, there is a primary school, Knights Templar C of E/Methodist First School at Liddymore Road which replaced two older schools. From here children go to Dainesfield Middle School in Williton then at aged 13 to West Somerset Community College. The Local Education Authority has concluded that there is sufficient spare capacity in the local schools to accommodate the small likely increase in pupils as a result of the development. No adverse impact will therefore occur.

4.9 The existing social and community facilities and shops are located in Swain Street and Market Street with a group of neighbourhood shops in Liddymore Road. Large bulk food and comparison shopping is generally undertaken in the larger served centres of Williton, Minehead, Bridgewater and Taunton. There is a range of open spaces youth and adult facilities as well as children's play facilities within the town. The adopted Local Plan identifies a deficiency in youth and adult use, and children's playspace.

Employment

4.10 The site provides employment in the form of an industrial building on the site. In addition there is Quay West Radio and the Marina operator.

Opening up of the site

4.11 The site has been recently separated from the surrounding area. Due to health and safety reasons and security public access to the site is restricted. The steps leading up to the coastal footpath has been closed for health and safety reasons.

Methodology

4.12 To assess the impact of the proposed development on human related matters the details of the proposal in terms of the function, type and layout of development were assessed against the baseline situation. Thus the planned and projected changes to the situation can be identified.

Impact of Development

4.13 The application would see an increase in population in the area. The Housing Needs Survey predicts that the average sizes of new households are 1.29 person with 0.92 children. With 86 apartments proposed, and a mix of 1 and 2 bedroom apartments it is estimated that the population will be no greater than 185 people. With a current population of approximately 3,972 this represents an increase of approximately 5%.

4.14 It is considered that this rise in population is not large in relative terms to the existing population of the town. The scale of development that is proposed would not lead to effects on human related matters that would impact on the town as a whole. In addition it is considered that the new development would not in itself give rise to any significant adverse effects in terms of changes to the population size or structure.

Provision of Housing

4.15 The provision of 86 (1 and 2 bed) apartments will be beneficial in contributing to the adopted policies in the Local Plan. A greater number of wider ranges of the population will be able to gain access to housing accommodation than would otherwise be the case without the development.

4.16 The provision of apartments differs from the existing situation in Watchet i.e. of traditional 2, 3 and 4 bed houses. However apartments have been provided to better meet the objectives of national planning policy with respect to making the best use of previously developed land. The key to the use of such forms of development is high quality design which the applicants believe has been achieved in the development.

4.17 Whilst it is acknowledged that the Housing Needs Survey identifies a need for affordable housing in the town, no affordable housing is provided due to the need to regenerate the site and the complex issues associated with it, together with the considerable improvements to the public recreation and the provision of community facilities in the form of the extended and enhanced public realm, meeting area available for public use, Tourist Information Office, improved boat workshop and space, public toilets and office for Quay West

Radio. Adopted policy does recognise that other objectives may negate the need to provide affordable housing. (Policy WAT/1).

The Increase In Demand For Services

4.18 Somerset County Council is the Local Education Authority and has been consulted on the likely level of pupil generation for the new apartments and the consequent education requirements. They confirm that there is sufficient capacity in the local schools to accommodate the likely increase in pupils as a result of the development.

4.19 It is important that adequate and appropriate social and community facilities are provided to serve and support the residents of the development. The town has a wide range of social and community facilities eg doctors, dentists, day nurseries, halls, churches. There is no suggestion that the increase in population will place any of these facilities under pressure.

4.20 The provision of these new apartments will provide benefits to existing shops and businesses in the town. Residents will no doubt utilise the existing shops, services and facilities in the town and provide such needed support.

The Economic Impact of East Wharf Development

4.21 This section can be split into three parts to cover:

- Temporary construction costs associated with the development
- Direct jobs that will be created or safeguarded within the new development
- Indirect and induced jobs that will be created or supported by residents of East Wharf as well as increased visitor numbers to Watchet.

Temporary construction costs associated with the development

4.22 Temporary construction jobs are generally omitted from project appraisals. However the government's regeneration agency, English Partnerships, suggests that they may be recorded as a supplementary output particularly if they are likely to create work for the unemployed in high priority areas.

4.23 The estimate of construction employment is based upon RTP estimates which suggest that the development cost total is divided approximately into 35% construction costs and 65% material costs.

4.24 The development cost total of East Wharf is estimated at £12 million. This divides into £4.2m (35%) construction costs and £7.8m (65%) material costs. The construction cost total of £4.2 m was then divided by the national median wage for construction workers in 2006 of £24,214 per year, resulting in 173.5 Full Time Equivalent (FTE) "job years".

4.25 The construction phases for East Wharf are:

- Secure site
- Demolish boat shed and clear site
- A start will be made at the northern end of the site and build towards the site entrance at Harbour Road
- Decant harbour offices into new accommodation
- Demolish Marina facilities, construct Belvedere Building (including substation) and make adjustments to proposed boat workshop, car park and boat store.
- Commission new substation and connect.
- Decommission existing substation and remove from site.
- Complete works.

4.26 It is estimated that time on site will be 21 months. Therefore, the 173.5 FTE job years can be split to give an estimated 100 jobs on site over the whole construction period.

Direct jobs created/safeguarded in the East Wharf development

4.27 The employment generation aspects of the East Wharf development would include:

- 575 sq metres of shops or workshop space - It is likely that these units, all of which are on the ground floor facing the Harbour are likely to appeal to clothes shops, art and craft shops and other designer goods retail chains.

- 186 sq metres of bistro/restaurant space – it is possible that this space could be taken up by a high quality restaurant chain such as Loch Fyne. A seafood restaurant of this nature would help to sustain the local fishing industry and could help to establish Watchet's reputation as a 'gastro centre'.
- Community space – to be taken up by the Town Council and the Tourist Information Centre.

4.28 The English Partnerships Employment Densities Guide shows that average densities for small scale retail are 10 sq metres per job supported. On this basis it can be estimated that 575 sq metres of predominantly A1 space will support 57.5 jobs.

4.29 Of the 57.5 jobs supported by the shops and workshop space, it is anticipated that 50 will be new jobs. The remaining 7.5 jobs could be in the HM Coastguard and Quay West Radio, both of which currently occupy other premises in Watchet. Although these jobs will be counted as safeguarded it is likely that further jobs will be created within the vacated premises on the Esplanade.

4.30 Average employment densities for restaurants are 13 sq metres per job supported. However, for high quality restaurants it is noted that employment densities could be higher. At 10 sq metres per job it would equate to 18.5 jobs created.

4.31 The creation of new Town Council offices will see 2 existing FTE jobs safeguarded. In addition, Watchet Tourist Information will continue to be manned by volunteers. The move of both of these bodies into the East Wharf development will help to open up space for development elsewhere in Watchet.

Table: Direct Jobs Created/Safeguarded at East Wharf

	Jobs created	Jobs safeguarded	Total
Retail/workshop space	50	7.5	57.5
Restaurant/Bistro	18.5	-	18.5
Other	-	2	2
Total	**68.5**	**9.5**	**78**

Indirect jobs supported by new resident spend

4.32 The proposed Urban Splash development includes 86 apartments, 51 of which are 1 bedroom and 35 are 2 bedroom.

4.33 It can be calculated that the population of Watchet will increase by between 86 and 172 people as a result of the residential development.

4.34 The apartments are likely to appeal to people whose gross disposable income is higher than that of the existing Watchet population. The incoming residents are likely to spend a considerable amount of money within the local and surrounding communities and will therefore help to support businesses and jobs in the area.

4.35 It is assumed that average weekly household expenditure will be more in line with the South West average (£446.20) per week as opposed to the Watchet average.

4.36 If the South West figure is applied to the proposed development it can be estimated that the total weekly household expenditure of those living in the proposed development will be £37,719. When leakage assumptions are factored into this calculation it can be estimated that the total weekly spend in the local area as a result of the residential development will be £15,256. Over a whole year, therefore, the total household expenditure in the local area will equate to £793,312.

Table: East Wharf Average weekly household expenditure

	SW Average	Watchet (86 apartments) expenditure	Leakage Factor	After Leakage
Housing, fuel and power	45.20	£3,887.20	10%	£389
Food and non-alcoholic drinks	45.60	£3,887.20	75%	£2,915
Alcoholic drinks, tobacco	10.60	£911.60	25%	£228
Clothing and footwear	18.70	£1,608.20	50%	£804
Household goods & services	30.40	£2,614.40	50%	£1,307
Health	5.10	£438.60	50%	£219
Transport	70.30	£6,045.80	10%	£605
Restaurants, hotels	34.60	£2,975.60	50%	£1,488
Education	7.00	£0	0%	£0
Recreation and leisure	60.20	£5,177.20	50%	£2,589
Communication	10.90	£937.40	10%	£94
Miscellaneous	34.20	£2,941.20	50%	£1,471
Other	73.20	£6,295.20	50%	£3,148
Total	**446.20**	**£37,719.60**		**£15,256**

Source: RTP calculations based upon the Family Spending Survey 2007 (ONS)

4.37 In addition to the estimate of direct spending it is important to calculate the additional impact through the expenditure multiplier in the local economy. The multiplier is a measure of further economic activity, i.e the additional spend generated by local shops, services, and paid workers further along the supply chain. Multipliers for UK cities and towns typically range between 1.19 and 1.40. For the purpose of this exercise a relatively conservative multiplier of 1.3 is used. Therefore, for every £1 spent locally there is an additional 30 pence injected into the local economy from further rounds of spending.

4.38 When a multiplier of 1.3 is applied to the total weekly household spend that will be spent locally it gives a total figure of £19,833 per week. Over a whole year this will equate to £1,031,305.

4.39 Based upon the assumption that £50,000 spend in the local economy per annum supports one job, it can be estimated that the additional spend in the local area as a result of the East Wharf residential development will be enough to support 20.5 jobs.

The impact of East Wharf on visitor numbers and spend

4.40 This section outlines three scenarios for increased visitor numbers and spend in Watchet resulting from the East Wharf development. These are:

- Scenario 1 – based upon the impact of waterfront development and public realm enhancement in Torquay
- Scenario 2 – based upon visitors to Whitby
- Scenario 3 – based upon the Padstow effect i.e. much increased attractiveness, more facilities, much greater numbers and some increase in visitor spend per head.

Scenario 1

4.41 As part of the Torquay Waterfront Evaluation consultants conducted a visitor survey in which people were asked whether or not the waterfront improvements had influenced their visit or holiday decision.

4.42 They concluded that the waterfront improvements had influenced 41,230 visits and 30,540 holidays. Of these, the waterfront developments formed a large part of 7,636 day visitors and 4,581 staying visitors' decisions to visit Torquay (see table below).

4.43 This represented a 2.7% increase in day visits and a 2.0% increase in staying visitors to Torquay.

Table: Additional Visitors to Torquay/Watchet

	Torquay Waterfront Influenced Visit	**Torquay Waterfront Influenced Stay**	**Watchet Harbour Influenced Visit**	**Watchet Harbour Influenced Stay**
It formed a small part of our decision to come	33,594 (+2.2%)	25,959 (+1.7%)	6,052	155
It formed a large part of our decision to come	7,636 (+0.5%)	4,581 (+0.3%)	1,383	27
Additional	**41,230 (+2.7%)**	**30,540 (+2.0%)**	**7,435 (+2.7%)**	**182**
Total with additional			**282,795**	**9,302**

Source: Torquay Figures derived from: EKOS Consulting (2005) Impact Evaluation of Torbay Waterfront Projects

4.44 If these percentage growth figures are applied to Watchet it can be estimated that annual day visitors generated by the Harbour redevelopment will increase by 7,435 to a total of 282,795 and staying visitor numbers will increase by 182 to 10,394 staying nights.

4.45 In order to calculate spending patterns in Torquay resulting from increased visitor numbers the evaluation adopts the following spend weightings:

- It formed a small part of our decision to come: 0.33 of spend per head
- It formed a large part of our decision to come: 0.66 of spend per head.

4.46 Based upon these weightings it can be calculated that day visitor spend in Watchet will increase by £65,473 and staying visitor spend will increase by £19,328 per annum as a result of the harbor development.

Table: Scenario 1 Visitor Spend

	Watchet Harbour Influenced Visit	**Spend with weighting**	**Watchet Harbour Influenced Stay**	**Spend with weighting**
It formed a small part of our decision to come	6,052	£44,936	1,083	£14,288
It formed a large part of our decision to come	1,383	£20,537	191	£5,040
Additional	**7,435 (+2.7%)**	**£65,473**	**1,274**	**£19,328**
Total with additional	**282,795**	**£6,274,840**	**10,394**	**£383,946**

Source: Spend weighting derived from: EKOS Consulting (2005) Impact Evaluation of Torbay Waterfront Projects

4.47 If it is assumed that £32,383 of staying visitor and £36,594 of day visitor spend help to support one job respectively, it can be assumed that an additional 2.5 jobs will be created in Watchet. These can be split by 2 jobs supported by day visitor spend and 0.5 jobs supported by staying visitor spend.

Scenario 2

4.48 One of the knock-on effects of a comprehensive investment programme to improve Whitby's public realm has been a 35% increase in annual visitor numbers.

4.49 If the same percentage increase in visitor numbers is achieved in Watchet post development it will result in an additional 96,400 people visiting Watchet on day visits. In addition, a 35% increase in staying nights would equate to 3,192 additional staying nights per annum.

4.50 In terms of spend, the 96,400 additional visitors could contribute £2,169,000 to the local economy and the 3,192 additional staying nights would add a further £127,616.

4.51 As a result of this, 59 jobs would be supported by additional day visitor spend and 4 jobs would be created due to additional staying nights.

4.52 In total, therefore, growth in line with scenario 2 would result in an additional £2,296,616 of visitor spend, supporting 63 jobs in the local economy.

Table : Scenario 2 Visitor Spend

	Current	**Additional visits (+35%)**	**Additional Spend**	**Jobs supported/ created**
Day Visitors	275,360	96,400	£2,169,000	59
Staying Nights	9,120	3,192	£127,616	4
Total			**£2,296,616**	**63**

Scenario 3

4.53 Scenarios 1 and 2 provide two very different economic growth rates for Watchet. They do not however consider the knock-on effects of regeneration on increasing business numbers (particularly accommodation providers), on the diversification of the economy, on increasing private sector development and on increasing average visitor spend per head.

4.54 Padstow has experienced significant growth in day visitor and staying visitors over the last decade. Much of this growth can be attributed directly to the range of seafood restaurants and shops established by Rick Stein. The profile

of Padstow as a visitor destination has also been raised by Stein's TV programmes and other marketing initiatives.

4.55 Annual visitor number totals in Padstow are not available. However, the Cornwall Visitor Survey found that 25% of all people visiting Cornwall planned to visit Padstow during their stay. If this percentage is applied to the total number of annual visitors to Cornwall (13,717,172) it can be estimated that approximately 3.4 million people visit Padstow per annum. This represents a huge increase in visitor numbers since 1993, when it was estimated that 800,000 people visited Padstow.

4.56 The development of East Wharf to provide a range of new high quality shops and restaurants would help attract more visitors to Watchet. Based upon what has happened in Padstow, the development of East Wharf could help in attracting further private sector investment around the Harbour and the town centre. Ultimately Watchet could become a 'gastro destination' or a centre recognized for high quality arts and crafts or clothing.

4.57 If, like Padstow, Watchet could attract 25% of all visitors to West Somerset it could experience a growth in visitor numbers to 521,750 per annum. Although a large majority of these would be day visitors it is likely that the proportion of staying visitors would increase in line with an increase in accommodation providers and overall occupancy rates during the summer and shoulder months.

4.58 Any significant growth in the number of staying visitors depends upon businesses taking up the new opportunities. For example, if the number of serviced bedrooms in Watchet doubled to 50, and occupancy rates also increased, Watchet could experience an increase in staying visitor nights from 9,120 to 19,020 (see table 4.6).

Table : Scenario 3: Staying Visitor Nights (based on 50 bedrooms and higher occupancy rates)

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Occupancy rate	45	45	45	50	60	65	65	65	60	45	45	45
Watchet rooms occupancy	675	675	675	750	900	975	975	975	900	675	675	675
Total Watchet staying nights (2 people)	1,350	1,350	1,350	1,500	1,800	1,950	1,950	1,950	1,800	1,350	1,350	1,350

4.59 Therefore, based upon these assumptions, the 521,750 potential Watchet visits could be split between 19,020 staying nights and 502,730 day visits. These represent an additional 9,900 staying nights and 227,370 extra day visitors.

4.60 Based upon current average staying and day visitor spend rates in West Somerset, the Scenario 3 visitor growth predictions could result in an additional £5,522,995 spend in the local economy supporting 152 jobs (see table below).

Table: Scenario 3 Additional Spend

	Current	Additional visits	Additional Spend	Jobs supported/ created
Day Visitors	275,360	227,370	£5,127,193	140
Staying Nights	9,120	9,900	£395,802	12
Total			**£5,522,995**	**152**

4.61 This scenario does not take account of the knock on benefits that may be delivered through new business spend in the local economy. For example, if a seafood restaurant takes up space in East Wharf it is likely to source much of its ingredients from local fishermen.

Visiting Boats

4.62 The marina, with its improved facilities and greater retail and bistro offer, could help to attract more visiting boats to Watchet per annum. In the absence of evidence from elsewhere it is difficult to estimate how many extra boats will visit Watchet. However, if the number of visiting boats during the summer

months was to increase to 60 per weekend and remain at 70 on bank holidays, the number of visiting boats could increase to 970 per annum. Spend by the visiting crews (2,910 people) could then increase to £616,338 per annum.

4.63 The Fisher Report highlighted the fact that, if there is demonstrated need, there is scope to develop more berths in the Outer Harbour. This could provide scope for attracting more visiting boats and crews in the future.

Summary

4.64 In summary the East Wharf development will:

- Directly create 68.5 jobs and safeguard a further 9.5 jobs.
- Some of these jobs will be supported by new resident spend, which is estimated to add over £1 million per annum to the local economy.

4.65 Annual visitor numbers to the town are likely to increase significantly. The likelihood is that visitor numbers will increase by between an additional 3,192 (scenario 2) and 9,900 (scenario 3) staying visitor nights and between 96,400 (scenario 2) and 227,370 (scenario 3) extra day visits. These will add an extra £2,296,616 to £5,522,995 to the local economy. This will help to support between 63 and 152 jobs in and around Watchet.

The Opening Up Of The Site

4.66 The submitted plans show the opening up of the site with the erection of enhanced pedestrian and vehicular links and improved public recreation. The permeability of the site will be increased through these new routes.

4.67 The opening up of the site is considered to be a benefit of the development proposal. Increased permeability through new pedestrian and cycle routes will encourage travel by foot and bicycle rather than private car. It will also provide better linkages between the site and the rest of the town.

Mitigation Measures

4.68 The human related measures considered in this chapter are to be a large extent linked. Similarly the mitigation measures are connected.

4.69 The impact of the increase in population must be mitigated by the appropriate improvement in services, i.e. the education, services, community provision, shops and recreational facilities described earlier. The scale of associated development and the financial contribution to service such as education are considered to be appropriate to ensure that there would be no adverse impact from the development. The provision of additional services and infrastructure commensurate with the development is not required and the development will assist in sustaining local services and infrastructure.

4.70 The impact of the increase in housing is directly associated with the increase in population. However, there could possibly be an impact from an inappropriate type and style of housing. The previous section explained how the mix of housing is considered appropriate for the area and why a proportion of affordable housing will not be provided. Therefore, the impact of the housing has been mitigated through the preparation of a suitable development.

4.71 The potential for an adverse impact to be caused through the loss of existing employment space on site has been mitigated through the provision of new employment space as part of a mixed use development and the creation of 68.5 new jobs which represent a 13.5% growth in the total number of employees currently in Watchet.

4.72 Finally, the severance currently experienced in the area from the closed nature of the site is mitigated by the opening up of the site by the proposed developer.

Do Nothing Scenario

4.73 In the 'do nothing' scenario, the site would remain in its current, unoccupied state. In terms of population, there would be no change and consequently there would be no changes in the provision of services. The absence of change in these two issues would have a neutral effect.

4.74 If no housing was forthcoming on the site, this would have a harmful effect. The site is a major part of West Somerset Council's strategy for the Local Plan, and other sites would therefore have to be brought forward. As the largest allocated brownfield site in Watchet it is likely that this would place pressure on the release of some greenfield land.

4.75 The 'do nothing' situation with regard to employment would see the continued vacancy of the former buildings on the site. With no redevelopment of the site to incorporate some workshops, B1 floorspace and other employment opportunities, the absence of new employment opportunities would have a negative effect.

4.76 Finally, if the site were to remain in its current form, the severance effect of the site would remain.

Robustness of analysis

4.77 The assessment of the existing situation in the area and the potential impacts of the development are considered to be robust. The only potential deficiency in baseline data collection is the age of some of the data: from the 1991 census. However, the degree of variation from projected figures for later years is not regarded to be significant in the context of the assessment being made in the ES.

Summary and Conclusions

4.78 The proposed development would increase the population of the area by an estimated 5%. In the context of the surrounding area, this degree of change would not lead to any harm in itself. The effect of any population increase is therefore considered to be neither beneficial nor harmful.

4.79 The housing provided on the site would have a beneficial impact, as a range of dwellings would be provided on a previously developed site. Maximising provision of housing on the site would help reduce the pressure for housing on other sites. The increase in housing is therefore considered to be beneficial.

4.80 The increased demand for services, facilities and amenities arising from the provided development will partly be met within the development itself. Those facilities that cannot be met on site, for instance all of the new residents' shopping needs, will lead to a beneficial effect as local services will have more patrons. The new commercial and recreational facilities within the site will be of benefit to the existing population. Additional community facilities resulting from the development such as education will be met, which will militate against the otherwise potentially adverse effects of increased demand. With

no harm to existing facilities, the improvement in recreational and leisure opportunities, and the increased support for existing local businesses, the effect on services, etc. is therefore considered to be beneficial.

4.81 In the past, the site generated a low amount of employment. The site is allocated in the Deposited Local Plan primarily for a mixed use development, therefore development of part of the site for employment is consistent with the Council's objectives. The scale and type of employment development within the application accords with the aspirations of the Development Brief. Along with the other uses within the mixed use development, the proposal will create a variety of job opportunities. Due to the absence of employment on the site and the new job opportunities to be created, it is therefore considered that the employment effect of the proposed development is beneficial.

4.82 The site is a closed site due to security and health and safety reasons. The development proposals would create new links across the site, which would increase the permeability of the area, and help encourage travel by foot and cycle. The opening of the site is therefore considered to be of local benefit.

4.83 On balance the effect of the proposed development under this heading will be beneficial rather than harmful.

5 TRANSPORATION *(This Section will Change)*

Introduction

5.1 This Chapter of the ES report on the traffic impact of the development of East Wharf. It should be read in conjunction with the Transportation Assessment prepared by Waterman Boreham Transportation (WBT) which accompanies the application.

5.2 It is important that the impact of the traffic generation from the development is fully considered to ensure that development can be satisfactorily accommodated without detriment to the surrounding highway network. In particular the potential to exacerbate current and future traffic flows must be considered and where there are significant deteriations on its free flow of traffic possible mitigation measures must be identified.

Existing Situation

5.3 The East Wharf and East Pier formed part of the construction site for the harbour works. Accordingly, public access was and is still restricted because most of the East Wharf is fenced off for health and safety reasons

Access

5.4 The site is located adjacent to Watchet harbour and is readily accessible on foot from the majority of Watchet. The commercial area of the town centre, on Swain Street, is within a very short walk of the site, along the pedestrianised harbourside, or Harbour Road and either joining Swain Street near to its easternmost end, adjacent to its junction with Anchor Street, or approximately in the centre, via a local authority car park.

5.5 Vehicular access to the site is provided from Harbour Road, which runs parallel with the steam train track, from its junction with Swain Street. Harbour Road has significant levels of car parking provided in a local authority car park along its eastern side. Coach parking facilities are also provided at this location. The Swain Street car park is alternatively accessed from Harbour Road.

Road Network

5.6 The main road link to the town of Watchet is from the south via the B3190 from the A39 at Washford Cross, or the B3191 from the A39 and A358 at Williton. Road signs direct HGV traffic to approach the town via the B3190. Traffic Orders restrict HGV use of the B3191. This road is unsuitable for large vehicles due to narrow carriageways, junction layouts and the proximity of a school and hospital sites. The B3190 connects with the B3191 at Five Bells crossroads. The B3191 continues to Watchet via Brendon Road, across the railway bridge, then through The Cross into Swain Street and Market Street (the main shopping streets). This route should be followed for access to the Western Pier and the existing harbour slipway. The B3191 continues through West Street and Cleeve Hill, following the coastline towards Blue Anchor and Carhampton. Access to the Eastern Pier and East Wharf is via Harbour Road. Harbour Road has a relatively straight alignment and is of a good width, but narrows at the junction with the B3191, where existing buildings are next to the highway.

Traffic Flows

5.7 Watchet generally exhibits no problems of congestion outside of peak holiday periods. The local highway network operates efficiently, providing an excess of capacity for the levels of demand generally experienced.

5.8 During the summer months traffic flows around Watchet increase significantly due to the influx of holiday makers and day-trippers, although it is understood from discussion with local highway officers that, even during these busy months, no significant congestion generally occurs. Levels of traffic associated with the existing marina buildings have been estimated with reference to the TRICS database. The resultant peak hour traffic flows are summarized below.

Table: Estimated trip attraction for existing marina uses

Period	Trip Rate/100sqm		Trips (1032sqm)	
	In	Out	In	Out
AM Peak Hour	1.40	0.08	15	1
PM Peak Hour	0.15	1.04	2	11
Daily	3.46	3.58	36	37

5.9 The above estimates reflect likely levels of traffic attraction on a normal day and do not reflect peak operation. The existing marina has parking spaces marked and numbered, totalling 80 spaces. This reflects the parking requirement noted by the marina management and caters for a higher level of traffic demand during peak periods than reflected above. It is likely, however, that much of this additional demand occurs outwith the daily peak hours and is instead spread more evenly across the day, reflecting the demand for trips to and from Watchet marina for leisure purposes.

Parking

5.10 Outside of summer peak periods, demand for car parking in Watchet is low. Significant capacity is provided in car parks on Harbour Road, Swain Street and Market Street in particular and for the majority of the year these experience relatively low levels of demand. Similarly, the proposed development site currently has 80 marked car parking spaces and currently only a small proportion of these are generally used.

5.11 During the peak summer period, however, parking demand in Watchet increases significantly due to a combination of holiday makers and day trippers. During these periods, parking demand in Watchet approaches and on occasions exceeds available capacity for short periods.

Public Transport

5.12 Watchet is served by 4 regular bus services to nearby local centres, as summarised below:

Service 14 to Bridgwater;

Service 28 to Minehead;

Service 38 to Taunton; and

Service 615 to Bridgwater College

5.13 All of these bus services are readily and conveniently accessible from the development site by means of a short walk.

5.14 The bus service to Bridgwater and Taunton and convenient for connecting to the national rail network available at these towns. Thereby, public transport is a viable alternative to the car for both local and national journeys.

5.15 Watchet Town Council currently list 5 different taxi firms based in the area, allowing travel around town for those unable to walk or cycle.

5.16 For young people agred 16-25, Somerset rural Youth Project run a Moped Loan Scheme. There is a fleet of 50 mopeds available on loan to young people living in rural Somerset. The scheme offers moped training to inexperienced riders.

5.17 Watchet is also well served by local coach services, with coach parking available near to the site.

5.18 Within a short walk of the proposed development is located the west Somerset Railway, which is an enthusiasts steam railway, running along the Somerset coastlie. Although predominantly for tourism purposes, this facility does appeal to holiday makers and day visitors who wish to visit Somerset's coastle towns, including Watchet and thereby reduces demand for car journeys along the coastline.

Impacts

5.19 The volume and distribution of traffic for the development has been derived using the following approach (more details on this methodology contained in the Transport Assessment) which is consistent with the methodology identified in Guidelines for Traffic Impact Assessment (the Institution of Highway and Transportation 1994)

Parking

5.20 Residential car parking is proposed at a ratio of less than 1 space per dwelling throughout the development. In addition, an element of visitor parking will also be provided.

5.21 The residential unit to car parking space ratio of 86% is appropriate in this location due to its highly sustainable nature. All local amenities are available on foot, as is access to efficient bus and rail travel providing links to

employment and retail centres. Availability of a car is not a requirement at this location.

5.22 Access to this parking will be tightly controlled, ensuring that it is used only in association with the residential development.

Traffic

5.23 The multi modal trip attraction and generation of the propsoals has been forecast with reference to TRICS and this is summarised in the Table below.

Car occupants %	**Walk %**	**Cycle %**	**Bus %**
51.0	29.7	1.2	18.1

5.24 Further analysis of the TRICS data base has identified traffic generation rates and allowed multi modal trip generation of the proposed development to be forecast as follows:

	Period	Mode					
		Walk	Cycle	Public Transport	Car Occupants	Car Drivers*	Person Trips**
Trip rates / flat	AM Peak	0.151	0.006	0.092	0.259	0.190	0.508
	PM Peak	0.134	0.005	0.082	0.231	0.158	0.452
	Daily	1.287	0.052	0.784	2.210	1.771	4.334
Trips (Arr + Dep)	AM Peak	13	1	8	22	16	44
	PM Peak	12	0	2	20	14	39
	Daily	111	4	67	190	152	373

*Car driver figure is also included in car occupants

** Person trips equates to the sum of Walk, Cycle, Public Transport and Car Occupants trips, Car Driver being included with Car Occupants

5.25 This represents a material increase in traffic generation, over and above the present use of the site but without overloading the existing Highway network.

Mitigation

5.26 Existing levels of traffic on the local highway network are generally very low, with congestion only occurring during peak summer months. Examples of congestion during the peak period are short-lived and do not present an adverse impact.

5.27 A number of local junctions, however have given cause for concern for operational and road safety reasons as follows:

- Swain Street / Brendon Road;

- B3190 / A39; and,
- Swain Street bridge crossing of the North Somerset Railway line.

5.28 These locations are discussed below.

Swain Street / Brendon Road

5.29 This junction currently suffers from inadequate visibility for traffic exiting Swain Street, across the railway bridge and turning in either direction onto Brendon Road. Visibility in both directions is severely constrained by the stone walls at the edge of the carriageway. No footways currently exist on either side of Brendon Road, or on this part of Swain Street.

5.30 It is noted that, despite the acknowledged sub-standard visibility available at this location, the junction does not exhibit a poor accident record and, historically, has been generally safe in operation.

5.31 Opportunities to improve visibility at this location are severely limited. If the stone walls were to be removed, or lowered to below 1.05m, in order to allow visibility to be maintained above the wall line, there would not only be an impact on the character of the area, but this would allow access to the railway embankments, which is unlikely to be acceptable on safety and security grounds. In order to address this issue, it would be necessary to erect a fence on top of the lowered wall and, given the acute angle of view required, this would be likely to impinge once more on available visibility.

5.32 Another opportunity to improve visibility at this location is to construct a localised buildout into the carriageway of Brendon Road, enabling vehicles on Swain Street to edge within the current carriageway in order to see further along Brendon Road. In order to be effective, however, this buildout would be required to be of the order of 2.0m, which would leave insufficient remaining carriageway width on Brendon Road. This option has therefore not been progressed.

5.33 Opportunities for improving the available visibility at this location are therefore clearly limited. An alternative is to alter the junction form in order to reduce, or remove the necessity to achieve visibility splays along Brendon Road. Opportunities to provide a mini-roundabout have been investigated,

whereby all vehicles are required to give way to traffic approaching from the right. Visibility to the right for traffic on Swain Street is severely limited, but a clear view of the adjacent Brendon Road entry give way line is available from an 'x' distance of 2.0m.

5.34 After discussions with Local Highway Authority it was clear that the installation of a mini roundabout at this location would be considered undesirable

5.35 Given the low levels of traffic attraction associated with the proposals and in light of the existing history of safe operation of this junction, it is considered that specific junction improvements are inappropriate in conjunction with this development.

B3190 / A39 – Washford Cross

5.36 Operational issues at this location currently comprise a combination of lack of visibility for traffic emerging on the A3190 (southbound) and high vehicle speeds of traffic approaching from both directions on the A39. The southbound entry to this junction on the A3190 is on the inside of a bend. Hedgerows and trees line the back of the highway adjacent to this junction on either side and these severely limit visibility in both directions.

5.37 This junction has been subject to improvements by Somerset County Council. These improvements have been constructed with the sole purpose of providing road safety improvements at this hazardous junction.

5.38 Although the operation of this junction was observed to be poor, the levels of generated traffic associated with the development proposal are low. Moreover, it is considered extremely unlikely that more than only nominal traffic volumes will be attracted through this junction. On this basis, it is considered that the development will not result in a material impact on the operation of this junction and therefore no junction improvements are proposed over and above those recently completed by Somerset County Council.

Swain Street Railway Bridge

5.39 Discussions with the Highway Authority have identified a concern over the operation of the Swain Street bridge across the North Somerset Railway. This bridge is narrow and provides no footways in either direction. Vehicle strikes of the bridge parapets give cause for concern and officers also wish to see improvements to the pedestrian route from the town centre in a southerly direction, over the railway line.

5.40 The forecast trip generation associated with the proposals is unlikely to represent a material increase in demand across local infrastructure. Peak hour traffic generation of the proposals is likely to be less than 20 vehicles and pedestrian movement are anticipated to be of a similar order.

5.41 These trips will distribute across local infrastructure and not all will cross the railway bridge on Swain Street. Indeed, of the walk trips, the majority will be associated with journeys to and from the town centre and uses thereabouts and it is considered that only a small proportion will be required to cross the railway line. Of those pedestrian trips that do cross the railway, it is likely that many will use either the surface level crossing near to the site access, or the pedestrian railway bridge, adjacent to the station, rather than using the Swain Street bridge to access Brandon Road. Additional demand across the Swain Street bridge is, therefore, likely to be extremely light.

5.42 In light of the above discussion, it is not considered that the development proposals will generate material impact on the pedestrian, or traffic operation of the Swain Street railway bridge.

5.43 Notwithstanding the above, discussions with the Highway Authority have identified a desire to promote improvements of the Swain Street railway bridge, such as to enhance the pedestrian environment and make pedestrian trips across the bridge more pleasant and attractive. Due to the physical constraints of the existing bridge, provision of a segregated pedestrian route across the railway will prove difficult to achieve. This is likely to require substantial and costly construction and it will also be necessary to achieve numerous licenses, permissions and Orders to facilitate this improvement. It has been agreed in discussion with the Highway Authority that the

complications involved in providing the desired improvements are such that the improvements would be better implemented by the County Council, under powers available to them, to which the developer would not have direct access. The County Council are therefore seeking a financial contribution from the developer, in order to fund these improvements.

5.44 The financial arrangements associated with the acquisition of this site from West Somerset District Council allow for payment of an overage sum, which will reflect the development cost, adjusted to reflect abnormal cost liabilities, in light of the enhanced development value achieved. If off-site highway improvements of the kind described above are considered by both the Planning and Highway Authorities to be worthy of implementation, it is considered appropriate to contribute a sum from this agreed overage payment towards such works. Given the low levels of trip generation associated with the scheme, it is inappropriate to require the developer to fund such improvements outwith the overage payment and to so do would, in any case, represent an abnormal development cost, which would offset the scale of overage payment appropriate. Details of the size of contribution which could be achieved from within the overage sum should be negotiated between planning and highways officers, but should reflect the small scale of generation, hence only nominal impact associated with the proposed development.

Public Access to the Harbour

5.45 Public access to the harbour will be not only maintained, but encouraged by the location of public areas within the proposed marina building. Access to this building will be achieved for pedestrians via a public walkway along the marina side, although the residential areas within will be encouraged for use primarily by residents and guests.

5.46 Vehicular access to this area will be maintained for residents and visitors only with members of the public being encouraged to park in existing town centre car parks.

Mitigation

5.47 Good quality pedestrian links exist throughout Watchet and pedestrian accessibility of all of the car parks in central Watchet, from the site is excellent. This allows convenient and safe use of the existing public car parks around the centre for visits to the public areas of the proposed new beginning.

Do Nothing Scenario

5.48 The alternative scenario examined relates to the possibility of not developing East Wharf and for it to remain as it does currently. This would mean that traffic generation associated with the proposed development would not take place. Furthermore at the Harbour Road/Brendon Road junction there will be improvements when compared with the alternative scenario of no development and no highway improvements.

Robustness of Analysis

5.49 The above assessment is considered to be adequately robust. It uses standard approaches to the assessment which are widely recognised by practitioners in the fields of engineering and planning.

Summary and Conclusions

5.50 This Chapter of the document has dealt with the traffic impact of the proposed development of East Wharf. The Transportation Assessment accompanies the planning application. The findings will make no material impact on the highway capacity to the network which is operating under capacity. Indeed it will enhance local road safety with the installation of a mini roundabout at the Harbour Road/Brendon Road junction.

5.51 Overall it can be concluded that the proposed development can be accommodated by the transport network and that the highway improvements will improve the situation over and above that which currently exists.

6 CULTURAL HERITAGE

Introduction

6.1 This section assesses the potential effects upon archaeology, historic buildings and the Conservation Area. The study includes an assessment of the known and potential archaeological resources of the proposed site not in the context of its immediate surroundings.

6.2 In order to confirm the preparation of this chapter an archaeological desk based assessment has been prepared by Exeter Archaeology which has been reproduced as an Appendix to this ES.

Designations

6.3 The East Wharf development site is located within the statutory Watchet Conservation Area and within a non-statutory Area of High Archaeological Importance. There are no Scheduled Monuments or Listed Buildings within the site.

Archaeological and historical sites

6.4 Sites of archaeological interest both within and adjacent to the development area are shown on Fig. 1 of the Archaeological Assessment. Former 19th-century features on East Wharf include: part of the railway, which extended to the quay, and several buildings. Former railway features also existed within the area likely to also be affected by development (Harbour Road). It is thought these may have been removed, but the former Goods Shed (Watchet Boat Museum) survives. There are a number of archaeological sites adjacent to both East Wharf and Harbour Road, which are not likely to be affected by the development.

Impacts

6.5 An archaeological impact assessment has been carried out by Exeter Archaeology. The following has been summarised.

Archaeological potential

6.6 The site is located within Watchet Conservation Area and within an identified Area of High Archaeological Importance. However, the archaeological impact

of the proposed scheme is considered low and the individual impacts are relatively minor. If the excavations extend beneath the level of the made-up ground, there is the potential for archaeological deposits and features to be exposed. The depth below ground at which remains could survive on East Wharf varies between 2.3m and 6.2m. The construction works might expose features related to the former railway and other quayside activities, including remains of the buildings shown on the 1888 OS map. There is unlikely to be any impact on *in situ* harbour silts. Remains of the railway and several Listed Buildings lie adjacent to Harbour Road. It is unlikely that any of these features will be directly affected unless there are major groundworks.

Construction impacts

6.7 In general terms the archaeological impact of the proposed scheme is low and the individual impacts are relatively minor. No statutorily protected sites are directly affected and most of the structures are of 19th-century or later date.

6.8 The assessment has indicated that the only elements of the proposed development which may have an impact on archaeology are potential excavations and piling works. A previous Environmental Statement for works at East Wharf indicated that excavations were unlikely to extend more than 1.5m below the surface, which would not penetrate below the level of the 'made ground'. If this were still the case, the impact would be limited to post-1862 structures and not to any potential earlier deposits or structures.

6.9 However, piling works are likely to extend below 'made ground' (perhaps 1m), and therefore could impact on any surviving deposits that pre-date the construction of the wharf. The present assessment concludes that the likelihood of deposits surviving is low and, given that the impact is relatively localised, it is suggested that the impacts would be of minor adverse significance, if any.

Mitigation

6.10 Archaeological mitigation in respect of the construction proposals will be determined in consultation with West Somerset Council and Somerset County Council. It is likely that this will consist of a watching brief (archaeological

monitoring) during any ground reduction and construction excavations within the East Wharf.

Residual impacts

6.11 If the above mitigation measures are implemented, the impact will be of minor adverse significance because archaeological remains could still be disturbed by piling and excavation works.

Cumulative Effects

6.12 The archaeological assessment has concluded that there will be no cumulative impacts as a result of the proposed redevelopment.

Robustness of Analysis

6.13 The data contained in this chapter is based on a full archaeological desk based assessment prepared in accordance with the Institute of Field Archaeologists Guidelines. The data is drawn from all readily available sources. No significant difficulties were encountered in compiling the information.

6.14 The archaeological desk based assessment is based principally on secondary sources, comprising archaeological records supplemented by documentary information and cartographic sources. The assessment has been supplemented by consideration of air photographs. Reliance on secondary sources is subject to a number of limitations. Firstly, archaeological records consist only of those sites and finds that have been reported and recorded; absence of records does not imply that an area has no archaeological potential. Relevant discoveries may not have been reported to the record-holding body; whilst areas that are remote and/or subject to non-intrusive land-use may contain sites that are yet to be discovered. In some cases, the precise location of a site or find is not known, either because it was reported imprecisely, or because the documentary or cartographic sources cannot be fixed against current maps. In these cases, the reported location is ‘nominal’ and has to be interpreted as indicative of archaeological potential in the general area rather than as a defined archaeological site. The monitoring programme has been devised to provide precise information about the presence or absence of archaeological remains.

Monitoring programme

6.15 The current assessment of archaeological impact is provisional, and may change in the light of fresh information. An archaeological field evaluation will be implemented prior to construction in order to evaluate areas of archaeological potential. These investigations will provide more precise information bout the presence or absence of archaeological remains than the non-intrusive investigations carried out to date. Moreover, clarification of details regarding design and construction of the proposed development may indicate that the effects on archaeological remains are more localised than anticipated here.

6.16 All archaeological mitigation measure would be carried out in accordance with the specification of works formally submitted to the West Somerset Council and to Somerset County Council Archaeological Officer who would monitor the mitigation measures on the Council's behalf.

Do Nothing Scenario

6.17 If the study site were left in its present disused form it is unlikely that there would be any adverse archaeological impacts in the short term

6.18 Any comprehensive redevelopment of the site would however be likely to have a similar scale of adverse archaeological impact to the proposed development and would require the implementation of a comparable suite of archaeological mitigation measures.

Conclusion

6.19 The assessment of archaeological potential concludes that the site has limited archaeological potential and that a watching brief be undertaken during construction work.

7 LANDSCAPE AND VISUAL ASSESSMENT

7.1 The purpose of this section is to determine the significant landscape character and visual impacts of the proposed development. In 2001 a landscape and visual impact assessment was carried out by Swan Paul Partnership as part of the ES for the East Wharf proposals at that time.

7.2 The Swan Paul report provided a full impact assessment (albeit in respect of alternative proposals) and provides a baseline for considering the current proposals. However, given that the current proposals are different in scale and nature Camlin Lonsdale were commissioned to review the Swan Paul report and to provide a review of the impact of the current proposals accompanying the ES for completeness.

Existing Situation

Regional Context

7.3 Watchet is situated between Bridgwater Bay and the Vale of Taunton and Quantock Fringes. The undulating high vale landscape slopes down to the Washford River valley which extends into the centre of Watchet and to the harbour. Concerning the town, there is a distinct difference between the older town centre and more recent development on higher land, which is reinforced by the route of the railway.

Watchet Harbour

7.4 Watchet and the surrounding area are designated under the West Somerset Local Plan as an area of Special Landscape Value. The town is centred on the harbour. The harbour has been divided by an impounding wall that forms a marina to the east and leaves the original open harbour to the west. The new arrangement of the harbour including the marina, impounding wall and rock revetment relates well to the East Wharf and abutting buildings. The East Wharf itself visually and physically relates more directly to the marina than the open harbour.

East Wharf

7.5 The East Wharf's boundaries are well defined. The area is covered by concrete which extends as far as the marina wall. A rough embankment backs onto the south-east of the area and carries the West Somerset Railway and a public footpath. The embankment meets a cliff to the north of the East Wharf, which descends to the East Pier. There are a number of lighting columns on the East Wharf. The East Wharf directly relates to the marina and the Esplanade, although these elements differ in character. The Esplanade is a public open space and thoroughfare for the town and offers a pleasant place from which to view the marina. In contrast, the East Wharf appears as a commercial area and its position next to the marina is not incongruous, and its openness is not out of scale with the marina.

Impacts

7.6 Current landscape character and visual impact assessment guidelines (Landscape Institute/Scottish Natural Heritage) recommend that an assessment should cover both the fabric and character of the landscape as well as potential visual impacts. The identification of landscape receptors and visual receptors and an assessment of their significance, quality and condition provide a baseline against which potential change arising from a development can be assessed. The effects arising from a proposed development are then considered in terms of potential magnitude of impact and an overall conclusion generated.

7.7 As the proposed development was considered small, the County Council in 2001 indicated that a full assessment may not be necessary, but that basic principles of an LVIA should be adhered to. However, it appears that landscape impacts were not separated out from the visual assessment. This may have been due to the site being located within a townscape as opposed to open country and the footprint of the proposed development being located on derelict land. The three main objectives which the Swan Paul LVIA followed were:

- Identify all the potential landscape and visual impacts of the development.

- Predict and estimate their magnitude as accurately as possible.
- Assess their significance in a logical and well-reasoned way.

7.8 The results of the ADAS field survey describing the characteristics of the wider rural landscape around Watchet is useful for as a description of landscape context. However, it has not been drawn into the main Assessment as the limited visual envelope around the harbour results in a townscape environment.

Landscape Impact

7.9 The Camlin Lonsdale field survey is combined with the Swan Paul LVIA to provide a brief assessment of the potential landscape impact of the proposed East Wharf development. The condition and quality of the landscape provides a baseline for assessing the degree of potential change arising from the development.

7.10 The most significant potential landscape impacts associated with the proposed development are likely to be the positive effects on the quality and condition of the built environment around the harbour area. The key landscape receptors in this area that are likely to be directly impacted upon by the proposed development are East Wharf, eastern pier; marina, esplanade and some buildings around harbour. As noted earlier, the overall condition and quality of the landscape of the area in the immediate vicinity of East Wharf is poor due to the degree of modern intervention. So, whilst the potential sensitivity of the settlement and point features (buildings) is considered to be of medium sensitivity, the proposed new development is likely to strengthen the landscape fabric and the potential impact is considered to be medium and positive. In a similar way, whilst the current landscape experience is considered to be of low sensitivity the improvement in the area should result in a medium impact and a positive change.

7.11 The effect on other landscape receptors under Settlement and Point Features (West Wharf, western pier; open harbour, buildings around harbour. Coastguard buildings; houses to west of harbour) and on Landform, Water (sea), Linear Features (railway) and Other Land Uses is less tangible. As the

development will not have a direct landscape impact on these receptors and they are considered to be of low sensitivity, the potential impact has been judged to be low.

Visual Impact

7.12 The Camlin Lonsdale field survey is combined with the Swan Paul LVIA to provide a brief assessment of the potential visual impact of the proposed East Wharf development.

7.13 The most significant visual impacts are associated with the views from the West Somerset Railway and the residential properties west of the railway. The visual receptors (Railway and Residential) are of medium sensitivity and as key views of the harbour and out to sea will be curtailed, the impact is considered to be Medium.

7.14 The visual receptors within the harbour, in particular the Marina and the promenade along the Esplanade (Open Space and Recreational Areas), are also considered to be of medium sensitivity. However, as key views will be blocked by the new development and the overall character of the harbour area is likely to be enhanced, the visual impact is considered to be medium low.

7.15 Other key visual receptors in the area (Minor Roads; Pubic Rights of Way; Residential; Workplaces; Important Views) have varying sensitivity, B3191/B3190 and local streets and footpaths (low); Public buildings around the harbour (low); the Residential properties on surrounding hills (medium) and the views from Daws Castle on the cliffs to the west of the town (high). However, due to the visual envelope for East Wharf being very restricted, the enhancement of the built environment and the viewing distances involved, the visual impact is considered to be low.

Overall Assessment Result

7.16 The overall effect of landscape and visual impact is summarised in the following table.

	Landscape								
	Sensitivity				Impact				
RECEPTOR	H	M	L	I	H	M	L	I	*Overall*
Landform			X				X		**Low**
Water		X					X		**Low**
Woodland									**n/a**
Agriculture									**n/a**
Boundaries									**n/a**
Other land uses			X				X		**Low**
Settlement		X				X			**Medium +**
Linear features			X				X		**Low**
Point features		X				X			**Medium**
Experience			X			X			**Medium +**
	Visual								
	Sensitivity				Impact				
RECEPTOR	H	M	L	I	H	M	L	I	*Overall*
Trunk roads & Motorways									**n/a**
A & B roads									**n/a**
Minor roads			X				X		**Low**
PRoW			X				X		**Low**
Important Views			X				X		**Low**
Railways		X				X			**Medium**
Open space & recreational areas		X					X		**Medium/ Low**
Public buildings			X				X		**Low**
Residential		X				X			**Medium**
Workplaces			X				X		**Low**

Mitigation

7.17 None required. The proposed development of 3 and 6 storeys with further building to the south allows the natural progression of higher to lower land from the east down to the Wharf. This arrangement allows those residents at the rear of the site to achieve more views. This arrangement also provides for a better relationship to the existing buildings in the town.

Residual Impact

7.18 None

7.19 The potential impact remains minor beneficial.

Cumulative Effect

7.20 The proposed development will compliment the marina and add to the visual interest of the area without detracting from it. It is therefore recommended

that the development of East Wharf will provide a positive cumulative effect.

Mitigation

7.21 None required.

Do Nothing Scenario

7.22 Should the site not be developed in accordance with the proposals the site would be left in its current state.

Conclusions

7.23 The proposed development will not have a significant detrimental impact on the landscape character of the site. In the majority of cases, the proposals will enhance the relationship of the site to its neighbours and the conditions within the site itself. With the increased public access and removal of intrusive boundaries, the introduction of green links the neighbourhood will experience improved visual and landscape amenity.

8 BIODIVERSITY AND NATURE CONSERVATION

Introduction

8.1 This chapter addresses the potential significant ecological effects the proposed development at East Wharf may have on the site and surrounding area. It should be read in conjunction with the Ecological Assessment prepared by Waterman CPM. This assessment includes a summary of the current conditions found within the area and identifies mitigation measures where appropriate for adverse ecological effects that may arise as part of the proposed development. Due to uncertainties relating to the detailed design of the development, assessments are based upon worst-cast scenarios.

8.2 The scoping process identified potential significant ecological effects with regard to identified habitats, birds, bats, otters, reptiles and other protected species.

Assessment Methodology

Scoping

8.3 The scope of the ecological assessment has been developed iteratively 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 country importance within 1km of the proposed development site boundary;
- Data on notable flora and fauna; for example, legally protected, nationally rare/scare, county rare/scarce. Biodiversity Action Plan (BAP) priority species and other species of conservation concern within 1km of the site (extended to 4km in the case of bats);
- Ongoing review of proposed development activities and their likely range of effect on ecological resources.

8.4 Where an ecological feature is likely to be subject to a significant effect (see below), both the value of the feature/resource and the likelihood of a

significant effect occurring are considered. Where a significant effect is identified, the effect on the particular feature is evaluated as adverse or beneficial at the relevant geographical scale (local, district etc.).

Assessment Method

8.5 The assessment method used has been developed over the past five years by the National Working Group on Ecological Impact Assessment convened under the auspices of the Institute of Ecology and Environmental Management (IEEM). These guidelines have been subject to extensive formal consultation with e.g. English nature, the Environment Agency and the Institute of Environmental Management and Assessment (IEMA). These guidelines, published in July 2006, are considered to represent current industry best practice.

8.6 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 assessment is as follows:

- International;
- UK
- National (England);
- Regional (South-West England|);
- County (Somerset);
- District (West Somerset);
- Local (within 1km of the proposed development site); and
- Within immediate zone of influence or within the site boundary.

8.7 All resources valued at local level and above are considered in terms of whether any effects are likely to be ecologically significant or not.

8.8 Having identified the activities likely to cause significant ecological effects (see above) it is then necessary to identify associated changes and their implications in terms of scale, magnitude, duration, reversibility and timing for valued ecological resources.

Ecological Significance

8.9 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). 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 …".**

8.10 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. The term 'ecologically significant' should not be confused with any other definitions of the term 'significant' used elsewhere in this Environmental Statement.

8.11 Finally, the residual effect of the scheme including consideration of any additional mitigation measures is presented.

Legislation and Planning Guidance

8.12 For each of the valued ecological features identified (for example, a habitat or species) any relative planning policy, legislative protection or other conservation interest (for example, BAP) is described. However, a number of over-arching policies are of relevance that apply generically. Not least of these is the recently published PPS9 which sets out government policy for biodiversity and geolofical conservation. The following key principles from the statement are relevant to this assessment:

> **"Plan policies and planning decisions should aim to maintain, and enhance, restore or add to biodiversity and geological conservation interests."**
>
> **"The aim of planning decisions should be to prevent harm to biodiversity and geological conservation interests. Where granting planning permission would result in significant harm to those inters,**

local planning authorities will need to be satisfied that the development cannot reasonably be located on any alternative sites that would result in less or no harm. In the absence of any such alternatives, local planning authorities should ensure that, before planning permission is granted, adequate mitigation measures are put in place."

"Plan policies should promote opportunities for the incorporation of beneficial biodiversity and geological features within the design of development."

"The re-use of previously developed land for new development makes a major contribution to sustainable development by reducing the amount of countryside and undeveloped land that needs to be used. However, where such sites have significant biodiversity or geological interest of recognised local importance, local planning authorities, together with developers, should aim to retain this interest or incorporate it into any development of the site."

8.13 Relevant Local Plan policies are set out in Section 2.

Establishing the Ecological Baseline

8.14 The ecological baseline was established by identifying the valued and sensitive ecological resources within the study are by a combination of desk study and field surveys. The desk study consultation included the proposed development site and the surrounding 1km area (extended to 4km in the case of bats), whilst the field surveys were largely confined to the habitats within and immediately adjacent to the site boundary.

Desk Study

8.15 In order to provide an ecological context for the site, ecological records were requested from relevant organisations including:

- Somerset Environmental Record Centre (SERC);
- Francis Farr Cox of the Environment Agency (EA) was consulted
- Somerset Ornithological Society.

Extended Phase 1 Habitat Survey

8.16 An Extended Phase 1 Habitat Survey of the proposed development site was undertaken during June 2006. The survey methodology followed the standard Phase 1 Habitat Survey technique, as extended by the Institute of Environmental Assessment to include protected and/or notable species.

8.17 In addition, the Government's Multi-Agency Geographic Information for the Countryside website was accessed for contextual information on the location of statutory designated nature conservation sites within a 5km radius of the Site.

Field Survey

8.18 An extended Phase 1 Survey was undertaken to identify and map habitats and dominant flora present, together with the presence of, or potential for, specially protected species. The WCPM survey technique adopted was at a level intermediate between the standard Joint Nature Conservation Committee (JNCC) Phase 1 and Phase 11 (detailed botany/fauna) survey.

8.19 The winter months are a suboptimal time for carrying out ecological assessments, as certain plants may not be visible at this time of year. However, it is considered that despite this owning to the nature of the habitats present on Site, the timing of the survey was considered to be a significant constraint.

Evaluation

8.20 The habitats and species evaluations are based on the guidance from the Institute of Ecology and Environmental Management (IEEM). The level of value of specific ecological receptors is assigned using the geographic frame of reference, i.e. international value being the most important, then national, regional, county, district, local and lastly, within the site boundary only.

8.21 Value judgements are based on various characteristics that can be used to identify ecological resources or features likely to be important in terms of biodiversity. These include site designations (such as Sites of Special Scientific Interest (SSSI) or, for undesignated features, the size, and conservation status (locally, nationally or internationally) and the quality of

the ecological resource. In terms of the latter, 'quality' can refer to habitats (for instance if they are particularly diverse, or a good example of a specific habitat type), other features (such as wildlife corridors or mosaics of habitats), or species populations or assemblages.

EXISTING CONDITIONS

Natural Area Context

8.22 Natural England (NE) has divided England into 'nature areas', which are defined by geology, landscape character and habitats. The site lies within NE's natural Area number 88. 'The Value of Taunton and Quantock Fringes' (Ref 12). The landscape of this area comprises a wide range of habitat types, although they now only cover small areas due to agricultural intensification. Woodland cover is minimal, although many tree and shrub species are associated with ancient hedgerows. Semi-natural habitats also tend to be highly fragmented. The importance of linear features such as hedgerows, rivers and streams are vital in preserving the wildlife of this area.

Statutory Nature Conservation Designations

8.23 The site is not covered by any statutory or non-statutory site designations.

8.24 Three SSSI's are located within a 5km radius from the site (see Plan 3075/02).

The Blue Anchor to Lilstock Coast SSSI runs adjacent to the north of the Site and has been designated because of its unique geology, rather than ecological interest;

- The Cleeve Hill SSSI lies approximately 1.4km to the south-west of the Site and has been designated for the calcareous grassland it supports; and
- The Quantocks SSSI located approximately 4.1km to the south-west of the site ahs been designated because it comprises extensive areas of semi-natural habitat.

Non Statutory Nature Conservation Designations

8.25 The Watchet Station Local Wildlife Site (LWS) runs adjacent to the south-east of the site and has been designated because it supports notable plant species for Somerset including crown vetch Coronilla varia, Bithynian vetch Vicia

bithynian, grass vetchling Lathyrus nissolia, yellow wort blackstonia perfoliata and pyramidal orchid Anacamptis pyramidalis.

8.26 The Blue Anchor to Lilstock Cliff) LWS is located approximately 0.2km to the east of the site and has been designated for the calcareous grassland it supports.

8.27 The Washford River LWS is situated approximately 0.3km to the west of the site and has been designated because of its high biological water quality; records from the EA indicate the river has a DMWP score of up to 190. This means it supports a diverse range of freshwater invertebrates that are pollution sensitive.

Site Habitats

Buildings, hard standing and Ruderal Species

8.28 There is a large boat storage shed in the centre of the site, which is in a poor state of repair. The single storey building has a corrugated asbestos roof, with concrete walls plus steel joists and doors.

8.29 The marina offices are located to the very south of the Site and consist of two, two storey brick buildings. They have wooden cladding and are in good state of repair.

8.30 The opportunities for species associated with the structures, namely bats and birds are considered extremely limited and as such the buildings are considered to be of negligible value.

8.31 The majority of the site is comprised of hardstanding with occasional scattered ruderal species. The main ruderal species recorded included: ribwort plantain Plantago lanceolata, ragwort Senecio spp., perennial sow thistle Sonchus arvensis, dandelion Taraxacum officinale and scentless mayweed Tripleurospemum inodorum. Hardstanding provides little or no opportunities for wildlife and is therefore considered to be of negligible value. Due to the limited coverage of what are common ruderal special, the habitat is considered to be of negligible value.

8.32 The north-western perimeter of the site is bounded by a 1.5km high sea wall, there is no vegetation growing within crevices on the wall. There is public access to the shore via some concrete steps.

Scrub

8.33 Adjacent to the south-western boundary there is a belt of scrub. Species recorded include; buddleja Buddleja davidii, an ornamental cherry Prunus sp. and bramble Rubus fruticosus. Areas of dense scrub are likely to be of value to nesting birds and invertebrates or foraging. As such, scrub habitats are considered to be of value within the context of the site.

Woodland

8.34 A patch of semi-mature woodland extends into the site. The trees have modal diameter at breast height of 15cm. Canopy species noted include; sycamore Acer pseudoplatanus, ash Fraxinus excelsior and English elm Ulmus procera; the ground flora consisted of species such as wood avens Geum urbanum and ivy Hedera helix.

8.35 The woodland has been used by local children for mountain bike activities which has seriously eroded the top soil and suppressed under-storey growth. That said, together with woodland off-site to the east, the woodland on the site enriches the local habitat resource in a relatively urbanised area. It is therefore considered to be of local value, although it is heavily degraded and its value could decrease if disturbance continued unchecked.

Ornamental Planting

8.36 Close to the station there is a patch of ornamental shrub species. These non-native species offer little to the local biodiversity resource and are considered to be of negligible value.

Exposed Cliff Face

8.37 Outside and to the north of the site is an exposed cliff face. It is extremely steep, supporting no vegetation. It has no obvious biodiversity interest and is considered to be of negligible ecological value.

Rough Grassland

8.38 A band of rough grassland runs adjacent to concrete slab path that leads up to the top of the cliffs. Species recorded include: ground elder Aegopodium podagraria, cock's foot Dactylis glomerata, red fescue Festuca rubra and ribwort plantain Plantago lanceolata. Although this habitat provides only limited potential for wildlife, it is considered to be of value within the context of the site.

Habitats Adjacent to the Site

Watchet Station Local Wildlife Site

8.39 The part of the LWS adjacent to the site comprises railway embankments supporting rough grassland. Owing to the timing of the survey it is not know whether the plant species for which the LWS is designated are found in this area. Due to the site's designation and function as a wildlife corridor the area is considered to be of district value.

Bristol Channel Tidal Estuary

8.40 The Bristol Channel lies to the north of the site and is tidal in the section adjacent to the site. At low tide, shingle, intertidal mud and the underlying bedrock is exposed. The shore was largely barren with a minimal covering of seaweed. It is considered to be of negligible ecological value offering few opportunities for flora and fauna, however, it is an SSI owing to its geological interest.

Marina

8.41 The marina is adjacent to the west of the site. Water is impounded by a weir at low tide. There is a 12m drop to the water. No data was returned regarding this area although based on the habitat present it is unlikely that the marina supports substantive biodiversity interest.

Scrub

8.42 There is a patch of scrub merging into rough grassland at the top of the cliffs. Species recorded include bramble and elder Sambucus nigra. As such the habitat is considered of negligible value.

Protected or Notable Plant Species

8.43 The data search returned several records of Somerset notable plant species from within the 2km data search area, yellow wort Blackstonia perfoliata, dodder Cuscuta epithymum, nit-grass Gastridium ventricosum and fragrant orchid Gymnadenia conopsea.

8.44 Red Data book species returned in the data search include: rough marsh-mallow Althaea hirsuta and cornflower Centaurea Cyanus.

8.45 These species are associated with habitats that do not occur within the site boundaries and, as such, are not considered further.

Fauna

Bats

8.46 The Somerset Bat Group holds only one record of bats within 2km of the site. The record is of an unknown bat species at St Decimals Church, located approximately 1km south west of the site.

8.47 The site's urban context and position next to the Bristol Channel make it unlikely to support significant numbers of bats. However, certain species, such as the common pipistrelle can be associated with urban centres, particularly if suitable foraging habitat is available. The railway corridor adjacent to the site may offer suitable foraging habitat for bats.

8.48 No suitable roosting opportunities were available in any of the buildings within the site boundaries. The large boat storage shed had a small patch of ivy cover on the western side of the building but because of its exposed location open to the wind, it holds only limited bat potential. The rest of the building was in a poor state of repair and so too offered limited bat potential. The two marina office buildings are in a good state of repair and consequently have limited bat potential.

8.49 None of the trees in the adjacent woodland had any bat roosting potential because of their immaturity.

Birds

8.50 Several records of Schedule 1 species were returned through the data search. All birds, their eggs and nests, are protected to some extent by the Wildlife and Countryside Act (WCA) 1981 (as amended) (ref 13). Certain rare or more endangered species – those listed on Schedule 1 of the Act – are further protected by increased penalties.

8.51 Records of Schedule 1 species include, goshawk Accipiter gentilis, kingfisher Alcedo atthis, scaup Aythya marila, peregrine falcon Falco peregrinus, hobby Falco subbuteo. Mediterranean gull Larus melanocephalus and common crossbill Loxia curvirostra. Given the nature of the habitats present it is unlikely that any of these species are using the site for either breeding or foraging (ref 14) and, as such, should not be impacted by the proposed development.

8.52 Records from SERC indicate that there are four red data list species (Ref 15) within a 2km radius of the site: marsh warbler Acrocephalus palustris, cirl bunting Emberiza cirlus, spotted flycatcher Muscicapa striata and grey partridge Perdix perdix. The site holds limited habitat for these species or other species due to its urban character.

8.53 Casual observations recorded seagulls were flying overhead. Also a blackbird Turdus merula and a robin Erithacus rubecula were noted in the immature woodland. These birds could be using the woodland and scrub for breeding although none of these species is considered of particular note.

8.54 Five records for black redstart Phoenicurus ochruros were returned through the data search, located approximately 0.3km to the south of the site. This species is usually associated with urban areas; in particular, they require stony ground for feeding (ref 16). They are likely to be on passage rather than nesting, as supported by the fact the birds were recorded during the winter. As such, the habitats on site were considered unsuitable to support the species.

8.55 The lower shores of the Bristol Channel tidal estuary, to the north of the site, are unlikely to offer foraging habitat to large numbers of estuarine bird species

due to the lack of substantive foraging habitat and disturbance from both passing boats and the public.

Fish

8.56 The EA hold several records of UP BAP species along the Washford River including: European eel Anguilla Angular, river lamprey Lampetra fluviatilis, Atlantic salmon Salmo salar and brown trout Salmo trutta. Some of these could use the Marina, although not in notable numbers.

Great Crested Newts

8.57 SERC holds no records for great created newts Triturus cristatus from the site itself or within a 2km search radius. Potentially suitable terrestrial habitat exists at the site margins, in the form of scrub, woodland and rough grassland habitats. However the presence of the species is considered unlikely.

Reptiles

8.58 SERC hold several records for adder Vipera berus and two records of slow-worms Anguis fragilis, within 2km of the site. These reptiles are protected from intentional harm under the WCA 1981 (as amended) (Ref 13).

8.59 The rough unmanaged grassland that is found at the base of the cliff face, in the north-eastern corner of th4 site, is considered suitable habitat to support reptiles.

Water Vole

8.60 SERC holds several records for water voles Arvicola terrestris, the nearest being located approximately 1.7km to the south-east of the site. Water voles are also listed on the West Somerset SAP.

8.61 However, there are no habitats within the site boundaries or connected habitats, which are suitable for water voles and, as such the species is not considered further.

Protected or Notable Invertebrates

8.62 SERC holds several records for UK BAP inveterate species within a 2km radius of the site: dingy skipper Erin’s tags (notable), marbled white

Millenarian galathea serena and bog bush cricket Metrioptera brachyptera. The rough grassland could potentially support these species.

Potential Impacts, Mitigation and Enhancement

Proposed Development

8.63 The proposed development will consist of residential and commercial units. This will largely affect habitats of negligible value, with habitats of some value namely a small area of scrub, woodland and rough grassland would be retained. The implications of this are described below, with reference to relevant planning policies.

Construction Phase

8.64 On account of the current use of the Site and the nature of the development, no significant adverse impacts on the three statutory sites within 5km are expected. There is however the potential to cause disturbance to the Watchet Station LWS, which runs adjacent to the Site. This could be avoided by temporary protective fencing during construction and usual site best practice to avoid pollution or excessive dust deposition.

8.65 Potential for protected species is limited to reptiles and nesting birds in grassland and scrub at the Site boundaries. From the plans of the proposed development it appears that as habitats these are not likely to be directly affected. If this is not the case then mitigation may be required, although this could be simply achieved through timing of works or sensitive clearance. All wild birds, with a few exceptions, their nests and eggs are protected under the WCA 1981 (as amended). Reptiles are protected from harm under the same legislation.

8.66 There is also the potential for the trees to be impacted during the construction works if not adequately protected. Standard tree protection measures should avoid damage and significant adverse impacts to the trees of local value that are to be retained on site.

Operational Phase

8.67 The proposed buildings are five and six storeys in height. As such, there will be an increase in extent and duration of shading of some areas when compared with the existing situation. However, given the nature of the existing habitats it is unlikely that this will result in adverse effects.

8.68 The new development will increase lighting within the Site and potentially light spill to adjacent areas. In the Watchet Planning Design and Access Statement there is a clause stating that there would be 'minimal light spill to surrounding areas'. The surrounding habitats are unlikely to be particularly sensitive to slight increases in night time light levels, however, although minimising light spill, as stated, would be preferable.

8.69 Whilst the development will introduce greater numbers of people to the Site, and hence disturbance, it is not considered likely to result in adverse effects on the valued flora and fauna identified.

Enhancement Measures

8.70 PPS9, RPG10 and draft RSS for the South West place a requirement to seek the enhancement of the biodiversity within development. This requirement is also included in Local Plans Policy NC/3 (Ref 9).

8.71 The steep slopes supporting rough grassland and woodland within the site do not present straightforward opportunities for enhancement owing to the difficult terrain. This habitat should be retained within the development however. Opportunities are realistically limited to site landscaping.

8.72 The site could be enhanced for nesting birds by erecting nesting boxes.

8.73 Currently no landscape proposals have been put forward. In the developer's Planning Design and Access Statement there is a clause concerning introduction of 'as much greenery to the site as possible' and the use of native plant species would be considered. Preferably these species need to be of local provenance and be fruit and seed bearing. This would provide a good source for birds and small mammals, enhancing the site's biodiversity. The planting of additional trees and use of planting as stated above would enhance the site and therefore would be in line with Policy RPG10 and Policy TW/1.

Enforcement of Strategies

8.74 The mitigation and enhancement measures described could be enforced through approximately worded planning conditions.

9 WATER RESOURCES AND GROUND CONDITIONS

Introduction

9.1 This Chapter describes the current situation on the site with regards to water environment i.e. surface water drainage, flood defence and groundwater conditions. A series of technical reports prepared by Buro Happold (see contents page) should be read in conjunction with this Chapter.

9.2 Information regarding the current hydrological and hydrogeological condition be involved consideration and available background information including the previous ES for the Watchet East Wharf Development completed by Royal Haskoning (Dec 2001). Additional information has been derived from the Environment Agency, British Geological Society Ordnance Survey, and Envirocheck Report.

9.3 In particular consideration is given to the impact of the mixed use development with respect to surface water drainage, flooding and groundwater.

Existing Situation

Water Resources

9.4 There are a number of water features in close proximity to the site:

- Bristol Channel and Bridgewater Bay immediately to the north,
- Watchet Harbour and Marina immediately to the west,
- Washford River approximately 250m to the west,
- Blue Anchor Bay approximately 4 miles to the west, and
- Groundwater

Coastal Erosion and Flood Defence

9.5 The site is widely protected from erosion through the historic provision of seawalls and revetment and at a higher level, natural cliff. For periods of the tide, the shore protection adjacent to the proposed development is not exposed to wave action.

9.6 Erosion rates of the higher embankment cliff should be monitored to mitigate erosion risk and implement any remedial measures necessary.

River Water Quality

9.7 Washford River is located approximately 250m to the west of the site. It passes underneath Market Street via a culvert and drains into Bridgwater Bay, in the Bristol Channel, to the west of Watchet Harbour. Water quality in Washford River is monitored by the Environment Agency at two points in close proximity to the site. The first, at the mouth of the river as it discharges into Bridgewater Bay, referred to as the Watchet – Sea river stretch, and the second is approximately 300m to the south-west of the Marina (approximately 150m from the mouth of the river), and is referred to as the Torre Fifa – Watchet river stretch.

9.8 Water quality is assessed against the River Quality Objectives (RGO). These are targets used to assess whether the river is of adequate quality to support a certain type of ecosystem. Each stretch of river is given a target from the River Ecosystem Classification scheme. These range from very good quality (suitable for all fish species) to poor quality (likely to limit fish species).

9.9 The results of tests performed between 1988 and 2005 and detailed monitoring results for the period 2003 to 2005 and 2002 to 2004 are provided within the Technical Reports which accompany this ES. A summary of the latest results for the period 2003 to 2005 and 2002 to 2004 is provided below:-

River Stretch	Year	Target	Compliance
Watchet - Sea	2003 - 2005	2 - good	Compliant
Watchet - Sea	2002 - 2004	2 - good	Compliant
Torre Fifa – Watchet	2003 - 2005	1 – very good	Compliant
Torre Fifa – Watchet	2002 - 2004	1 – very good	Compliant

River Quality Objectives

9.10 Water quality is also assessed by looking at the chemical, biological and nutrient levels of the river stretch. This highlights whether there are any elevated pollutant levels that would need to be addressed and treated. Chemical and biological levels are graded between A (very good) to F (bad). Nutrient levels are analysed for nitrates and phosphates. Levels are graded

from 1 to 6, with 1 implying a very low presence of nutrients and 6 implying a very high presence of nutrients.

9.11 The chemical monitoring results for the period 2003 to 2005 and 2002 to 2004 are summarised below.

River Stretch	Year	Grade
Watchet - Sea	2003 - 2005	B - good
Watchet - Sea	2002 - 2004	A -very good
Torre Fifa – Watchet	2003 - 2005	A – very good
Torre Fifa – Watchet	2002 - 2004	A – very good

Chemical Monitoring Results

9.12 The biological monitoring results for the period between 2000 and 2005 are summarised in the Table below.

River Stretch	Year	Grade
Watchet – Sea	2004	B - good
Watchet – Sea	2000	A -very good
Torre Fifa – Watchet	2005	A – very good
Torre Fifa – Watchet	2002	A – very good

Biological Monitoring Results

9.13 The nutrient monitoring results for the period 2003 to 2005 and 2002 to 2004 are summarised in the Table below

River Stretch	Year	Nitrate Level	Phosphate Level
Watchet – Sea	2003 - 2005	4 - high	2 - low
Watchet – Sea	2002 - 2004	4 - high	2 - low
Torre Fifa – Watchet	2003 - 2005	4 - high	2 – low
Torre Fifa – Watchet	2002 - 2004	4 - high	2 - low

Nutrient Monitoring Results

9.14 A summary of the chemical, biological and nutrient monitoring results taken from 1993 to 2005 and details of the most recent monitoring results are provided within the Technical Report.

9.15 Based on the data provided above, the water quality of Washford River within proximity of the site is considered to be good.

9.16 Following discussions with the Environment Agency it has been confirmed that the Washford River in Watchet is a designated salmon fishery.

9.17 Other available water quality information for Washford River indicated that there are no sewage works within the vicinity of the site which may affect a sensitive area.

9.18 The River in this location is covered by a Catchment Abstraction Management Strategy (CAMS). CAMS have been put in place to manage how much water is removed from particular areas. This may affect large water users such as agriculture or industry whereby licenses can be suspended during periods of water shortage to ensure supply for domestic customers.

Bathing Water Quality

9.19 Blue Anchor Bay, located approximately 4 miles to the west of the site is classified as a bathing water beach and therefore must comply with the standards set out in the EC Bathing Water Directive. Water quality results for the period 1988 to 2006 have been obtained from the Environment Agency. Twenty samples were taken throughout the peak bathing season of May to September. The samples were analysed for microbiological indicators of faecal contamination, in particular total coliforms, faecal coliforms and faecal streptococci. Bathing waters were classified into four categories; poor, sufficient, good an excellent. The results for the tests performed between 1988 and 2006 and detailed monitoring results for 2006 are provided within the Technical Report. A summary of the results for the past three years is shown in the table below**.**

Sampling Point	**Year**	**Classification**
Blue Anchor West	2006	Good
Blue Anchor West	2005	Excellent
Blue Anchor West	2004	Good

Bathing Water Quality

9.20 The above monitoring results for 2004 to 2006 indicate that the water quality within Blue Anchor Bay is good.

Watchet Marina Water Quality

9.21 No water quality data is available for Watchet Marina. Surface water run off from the adjacent harbour walls discharges directly into the Marina with no prior treatment. The eastern harbour wall is used for car parking and boat

maintenance and therefore hydro-carbons and chemicals, such as anti-foulants, may be present in the run off. Boats moored within the Marina may also impact on water quality due to oil/petrol leaks and other spillages. The floating fuelling station may also reduce water quality due to leaks and spillages. A public surface water sewer discharges into the south-east corner of the Marina. It is not known whether this flow passes through an interceptor prior to discharge. However, the Marina is subject to regular flushing from the Bristol Channel which would dilute any pollutants. The marina is also upstream of Blue Anchor Bay bathing beach and Blue Anchor to Lilstock SSSI. If the Marina did contain high levels of contamination this may be noticeable on the water quality of the bathing beach and the quality of the SSSI. The water quality within the Marina has therefore been estimated as fair for the purpose of this report.

9.22 Water quality within the Marina can only be accurately determined through water quality sampling.

Groundwater

9.23 The Envirocheck report classifies the majority of the site as a 'Non Aquifer'. This implies negligible permeability and a formation which contains insignificant quantities of groundwater. However, groundwater flow through the rock formation present on site, although imperceptible, does take place and will need to be considered in assessing the risk associated with persistant pollutants.

9.24 The southern part of the site (forming the esplanade) has been classified as a 'Minor Aquifer' with overlying soils of intermediate leaching potential which can possibly transmit a wide range of pollutants. It is possible that the aquifer provides a baseflow to the Washford River upstream of the site, but given the likely hydraulic gradients beneath the site, the aquifer is likely to discharge direct into the harbour.

9.25 Given the site comprises harbour walls and quays, any groundwater beneath the site within the fill material is anticipated to be in direct hydraulic continuity with the surrounding sea water and is therefore expected to show

considerable diurnal variation in groundwater levels, mirroring the movements of the tide.

9.26 There are no groundwater abstractions within 500m of the site boundary. There are a number of groundwater abstraction points located between approximately 850m and 940m to the south-west of the site. These abstractions concern E J Burrell & Son, which relates to the abstraction of groundwater for general farming and domestic usage, and St. Regis Paper Co. Ltd, which relates to the abstraction of groundwater for paper making.

9.27 The Environmental Statement compiled by Royal Haskoning in December 2001 states that tests have been performed on groundwater within the site to determine its existing quality. The tests revealed that groundwater does not contain any elevated concentrations of contaminants, although sulphate concentration was high in one sample. A copy of the results from these tests is provided within the Technical Report.

Geology and Ground Conditions

Geology

9.28 The Geological Survey of Great Britain (England and Wales) 1:50,000 Series, Sheet 294, Dulverton, Solid and Drift Edition geological map, and the Envirocheck geology report, indicate that the stratigraphic sequence is as summarised in the following table.

Geological Period	Unit	Rock Type
Jurassic	Lower Lias	Mudstone and Limestone
Triassic	Mercia Mudstone Group	Mudstone and Halite

Table General Geological Sequence

9.29 Superficial deposits are not shown on the available geological maps within the site boundary. Areas of alluvium associated with the Washford River are shown immediately to the south-west, undifferentiated head shown to the south and undifferentiated beach and tidal flats are shown to the east of the site. All of these deposits comprise a mixture of clay, silt, sand and gravel.

9.30 The geological map and the Envirocheck geology report indicate that the area has been subjected to faulting. One of the faults passes through the site in an

east -west orientation and is evident from a cliff face exposure at the western end of Helwell Bay, approximately 500m east of the site. The exposed lithologies are summarised below:

- Lower Lias – this unit comprises dark grey MUDSTONE with bands of limestone. The fracture state of this material is highly variable. Where the fracturing is more severe, water was seen trickling from the rock face and causing significant weathering. The mudstone weathers to dark grey clay.
- Mercia Mudstone – this unit consists of red/orange brown MUDSTONE interbedded with light grey MUDSTONE/SILTSTONE. The Mercia Mudstone Group is also known to contain halite and gypsum bands. This material weathers to red brown clay.

9.31 In the cliff face exposure, the older Mercia Mudstone has been juxtaposed against the younger Lower Lias.

9.32 Nine borehole and two trial pit logs have been obtained from British Geological Survey. These exploratory holes were located in the Marina (i.e. below site level) and formed between December 1997 and January 1998, using rotary coring techniques and mechanical excavation. The logs indicate that the base of the Marina is covered by a layer of very soft grey CLAY that has been transported into the Marina and settled out in the low energy environment. This material is generally underlain by firm to very stiff dark grey and orange brown CLAY. This lower clay generally overlies mudstone of the same colour, indicating the presence of a weathered zone at the top of the rock.

9.33 Some of the boreholes show the grey Lower Lias as the upper rock unit, underlain by the orange brown Mercia Mudstone. However some boreholes only encountered the Mercia Mudstone. The plan layout of the encountered lithologies indicates the boundary between the Lower Lias and the Mercia Mudstone is located within the zone of the harbour wall that has been repaired.

9.34 The Environmental Statement for the Watchet East Wharf Development compiled by Royal Haskoning in December 2001 makes reference to a ground investigation carried out at the East Wharf in 1997. This investigation confirmed concrete and tarmac underlain by made ground which of thickness

between 2.3m and 6.2m. The made ground comprised red-brown gravelly clay/clayey gravel, occasional fragments of mudstone, siltstone, concrete, wood and metal, and black sandy gravelly clinker, which may be derived from a former nearby gas works. The made ground is reported as overlying natural strata, which consists of weathered Lower Lias or Mercia Mudstone.

Contamination

9.35 The Royal Haskoning Environmental Statement compiled in December 2001 reports that chemical testing was carried out on selected soil samples and leachates and that the results were compared against the Intergovernmental Committee on the Redevelopment of Contaminated Land (ICRCL) threshold levels for domestic land use. When compared against the ICRCL threshold levels, elevated soil concentrations of arsenic, copper, lead, mercury and zinc were detected, primarily within the made ground. Elevated concentrations of arsenic were also detected within the natural strata. No elevated concentrations were detected within the leachates. It should be noted the ICRCL threshold levels have since been superseded by CLR11 – Model Procedures for the Management of Land Contamination, *Environment Agency*, September 2004. Ground gas monitoring was also carried out but no concentrations of methane or carbon dioxide, and no oxygen depletion were recorded.

Sensitivity of Receptors

Water Resources

9.36 In terms of flood risk and erosion, the key receptors are people and property. These are primary receptors with a high sensitivity that need to be considered thoroughly to fully mitigate potential impacts.

9.37 The coastline that runs between Blue Anchor Bay and Lilstock (to the west and east of the site respectively) is designated as a Site of Special Scientific Interest (SSSI) with respect to geological conservation. The SSSI is also known to be used by wintering waders and wildfowl. The sensitivity of this area is therefore considered high.

9.38 Given that Blue Anchor Bay is used for bathing, water quality of a very high standard must be maintained. The sensitivity of this area is therefore considered to be high.

9.39 The water quality of Washford River has been classified as good and is a designated salmonid fishery. The sensitivity is therefore classified as high. The river is upstream of the site and is unlikely to be significantly affected by any development, although it is possible that groundwater beneath the site provides a baseflow to the River.

9.40 Water quality in Watchet Marina is unknown, but it has been estimated as fair considering that the water in the Marina is moved regularly by the high tides of the Bristol Channel and sites downstream of the Marina include the SSSI and Blue Anchor bathing beach. However, it also receives surface water run off from the adjacent hard paved areas which may contain hydrocarbons and other chemicals from standing cars and boat maintenance. Boats moored within the Marina may also add other pollutants to the water such as oil and petrol from engines. Considering that the Marina is used for boating and not for bathing or water emersion sports, the sensitivity of the water within Watchet Marina is deemed to be low.

9.41 The majority of the site has been classed as a non-aquifer and therefore groundwater flows are likely to be low. The southern part of the site has been classed as a minor aquifer which implies that groundwater flow may be present and provide a baseflow to the Washford River. However, it is likely that the aquifer will discharge directly into Watchet Marina and Harbour. All water abstraction points are upstream of the site, with the nearest being approximately 850m from the site. The sensitivity of groundwater within the vicinity of the site is therefore considered to be low.

Geology and Ground Conditions

9.42 Site users are potential receptors for risks associated with contamination. Under the baseline conditions site users include members of the public visiting or passing through the Marina and employees working in the nearby buildings. During the construction phase site users will include those present under

baseline conditions, construction workers and members of the public accessing areas adjacent to the construction site.

9.43 During the operational phase, baseline condition users, employees, residents and visitors to the new development, and maintenance workers will form the site users. Site users are considered to be high sensitivity receptors.

9.44 Nearby structures are potential receptors for risks associated with geology and include the harbour wall and buildings lining the access route for construction traffic. The harbour wall forms the western edge of the site and retains the ground onto which the new structures are to be built. The structures that line the access route are susceptible to the effects of construction traffic and the construction process. Nearby structures are considered to be high sensitivity receptors.

9.45 The groundwater regime is likely to be impacted by the development in terms of permeability and water flow. This could have an affect on the stability of structures, especially the harbour wall, which could generate knock-on effects as discussed. Furthermore, a change in the permeability of the ground could generate alternative water pathways which may adversely affect the surrounding environment. The overall sensitivity of this receptor is considered to be high.

Land Use and Potential Sources of Pollution

Discharge Consents

9.46 A number of discharge consents held by Wessex Water are located within 1km of the site. The majority of these relate to the discharge of storm sewage overflow from the public sewer network and discharge into the Washford River. Two of the Wessex Water discharge consents are for treated effluent. These are located approximately 300m and 900m to the west and south-west of the East Wharf site respectively. The first connects to an effluent pipe which extends into the Bristol Channel. The second discharges into Washford River.

9.47 St. Regis Paper Co Ltd hold a number of discharges consents related to paper making. These are located approximately 850m to the south-west of the site and discharge into Washford River.

Land Use

9.48 There are seven active contemporary trade directory entries (such as manufacturing industries) located within 1km of the site, although none of these fall within the site boundaries. Out of these seven entries, none of them are fuel stations.

9.49 The Envirocheck report, dated 23 November 2006, identifies one local authority recorded landfill site known as 'Limekiln' approximately 950m to the west of the site boundary. The last reported status of this landfill site indicated that it had been closed. The boundary quality has been recorded as moderate. No other information regarding the landfill site is provided within this entry.

9.50 The Envirocheck report has no record of any Contaminated Land Register Entries or Notices within 1km of the site boundary.

Pollution

9.51 The Envirocheck report has no record of any pollution incidents within 1km of the site boundary. Similarly there are no records of any hazardous substances being used or stored within 1km of the site boundary. Other potential sources of pollution from current land uses on and adjacent to the site include the car parking and boat maintenance area to the east of the Marina. Surface water run off from these areas discharges directly into the Marina with no prior treatment and could contain hydro-carbons and other chemicals associated with boat maintenance. Plans obtained from Wessex Water illustrate a surface water sewer discharging into the south-eastern corner of Watchet Marina. It is not known whether this flow is treated prior to discharge.

Impact of the Development

Water Resources

9.52 The proposed development has the potential to impact on surface water features within the area. The significance of any impact will depend on the importance of the water feature, the magnitude of any impact, and the design of the site drainage system. Where significant effects have been identified, mitigation measures to minimise negative effects have been recommended.

9.53 Potential impacts have been identified for the construction and operational phases of this development and have been assessed against the baseline conditions.

Coastal Erosion

9.54 The scheme is not impacting on the coastal zone, and therefore not impacting on erosion processes. The shore defence structures have been provided with sufficient easement to allow maintenance and avoid surcharge. However, it is recommended that West Somerset Council continue their monitoring of coastal erosion so that any remedial measures may be implemented in a timely manner.

Mitigation Measures

9.55 No mitigation measures are necessary

Tidal Flood Risk

9.56 Although much of the site to be developed is located in category Zone 2 for flooding, key components are located in Zone 3a. The unmitigated plan is at risk from flooding at a number of locations and through a number of potential processes.

- The harbour side accessed retail units are at risk from elevated water levels and are accessed from Zone 3a. There is no safe egress from these units should a design event occur during occupation.
- There is a possible through flow, and therefore flood route, between the two blocks of harbour side retail / commercial units.

- Ground levels between the boat museum and the main block are low and fall within the flood Zone 3 category of risk.
- The proposed parking is accessed from a Zone 3a area, and therefore potentially at risk of flooding.

9.57 The building has been set back from the existing seawall to facilitate access, maintenance and minimise exposure of the building to overtopping, however, the calculations undertaken in the Flood Risk Assessment indicate that significant volumes of water may overtop the seawall during storms, leading to the following risks:

- Water overtopping the Eastern seawall may flood the boat museum.
- Water overtopping the seawall at Section B and C may generate a potentially significant impact force and could cause structural damage to the boat museum.
- Overtopping discharges over the seawall would be dangerous to the public during storms, both pedestrian and vehicular.
- Overtopping of the harbour arm will flow straight into the harbour, and is not considered problematic to the development
- Overtopping discharge will affect the hard standing area to the north of the building, potentially generating a water flow towards the harbour.

9.58 Considering 100 year development life, construction completed 2008:

Starting from the 1:200yr Still water Level in Table	7.42m AOD (2002)
2002 to 2025 @ 3.5mm/yr	+ 80.5mm
2025 to 2055 @ 8.0mm/yr	+ 240mm
2055 to 2085 @ 11.5mm/yr	+ 345mm
2085 to 2108 @ 14.5mm/yr	+ 333.5mm
Total Sea Level Rise Allowance =	999mm
PPS25 Still Water Design Level =	8.42m AOD

9.59 Considering that the recently published guidance from PPS 25 incorporates a 'high emission' allowance for climate change, it is considered to be at the upper boundary of likely impact. A freeboard allowance of 570mm has been incorporated into the design to provide security against scientific ambiguity and a safety factor against inundation of the building.

PPS25 Still Water Design Level =	8.42m AOD
Freeboard allowance	+ 570mm
Design Threshold allowance =	8.99m AOD

Mitigation Measures

9.60 The site is currently served by an existing flood defence which provides a standard of service less than required by the statutory authorities.

9.61 Still water, tidal, flooding and inundation through dynamic overtopping of the seawall have been assessed in the Flood Risk Assessment report and used as design parameters for mitigating associated risks.

9.62 An unmitigated scheme would represent a potential risk to pedestrians, vehicles and the building during storm events. To address this risk the building has been designed to take account of its environmental exposure. It is proposed that the current sea defence be augmented with a wave wall profile, increasing the standard of flood protection and protecting the development from tidal inundation and potential wave impact loads.

- The ground floor is raised, set at a level of 8.99m OD, taking account of the 1:200 year event (0.05 chance in any year), Sea Level Rise (0.999m), plus an additional freeboard allowance of 0.57m.
- A safe pedestrian access and egress route is provided.
- Plant rooms will be additionally designed for flood resilience.
- An augmented defence wall is provided to protect the building from potential wave impact loads, and direct overtopping discharge. Increasing the current standard of service provided by the current wall.

- Pedestrians and vehicles may be restricted from accessing the seafront during storm events through the operation of a gate or similar means.

Potential Effects on Groundwater and Water Quality during Construction

9.63 During construction potential impacts are likely to include:

- Clearance of land, excavation and backfilling resulting in elevated suspended sediment in site run off draining to nearby surface water, and potentially increasing sediment loads.
- Demolition of buildings potentially resulting in dust and debris entering watercourses.
- Leakage or accidental spillage of fuels or chemicals used on site during construction, potentially contaminating groundwater and nearby surface water, including cement material during construction of road infrastructure and buildings and dirty water from the construction site.
- Increased vehicular traffic from construction vehicles potentially resulting in hydro-carbons and oils entering the site drainage system, which discharges into Watchet Marina, or discharges directly over the Marina wall.
- On-site mixing of construction materials may potentially result in accidental spillage of oils, fuels, cement, sand and gravel.
- Leak or breakage of sewerage system from temporary toilet facilities resulting in crude sewage infiltrating ground water or being washed into the site drainage system, which discharges into Watchet Marina, or discharges directly over the Marina wall.

9.64 The potential impacts noted above are discussed in more detail below. Mitigation measures which could be included in the design to avoid or minimise adverse effects are discussed later.

Increased Sediment Loads

9.65 One of the biggest risks to adjacent surface water bodies during construction is from site runoff containing elevated suspended sediment levels, increasing sediment loads. This can result from land clearance, excavation, movement of

materials to and from the site and storage of materials on site. High sediment input can have direct adverse effects on adjacent surface watercourses through increasing turbidity (thus reducing light penetration and reducing plant growth), and by smothering vegetation and bed substrates, thus impacting on invertebrate and fish communities by destruction of feeding areas, refuges and breeding / spawning areas. Indirect adverse effects can also be associated with suspended sediments that have associated inorganic or organic contaminants (e.g. heavy metals and pesticides, respectively).

9.66 The magnitude of any impact will depend on the scale and nature of any potential incident and thus is difficult to predict.

9.67 Considering the predicted water quality of Watchet Marina, the magnitude of any impact may be considered to be medium adverse, with an overall impact significance of MINOR ADVERSE.

9.68 Blue Anchor to Lilstock SSSI has a high sensitivity and may be affected by increased sediment deposition via Watchet Marina and Harbour. The Marina and Harbour are likely to have some attenuation properties due to tidal flushing thereby minimising potential impacts on Blue Anchor to Lilstock SSSI. The resultant magnitude of any potential impact is therefore deemed to be small adverse with an overall significance of MODERATE ADVERSE.

9.69 Blue Anchor Bay is a bathing water beach and is therefore sensitive to any change. However, considering the distance between Blue Anchor Bay and the site, increased sediment would have been dispersed. The impact to Blue Anchor Bay would therefore be INSIGNIFICANT.

9.70 Washford River is considered to have a high sensitivity due to its good standard of water quality. The river lies upstream of Watchet Marina and therefore any impact is considered to be INSIGNIFICANT.

Dust and Debris

9.71 Demolition of existing buildings, such as the warehouse, and other structures have the potential to release dust and debris that may be blown into adjacent watercourses. Increased dust levels in watercourses may reduce the levels of light reaching aquatic plant and animal species. Debris blown into

watercourses can decrease the recreational and aesthetic quality of the resources.

9.72 The impact magnitude to Watchet Marina is considered to be small adverse, ensuing an impact significance of MINOR ADVERSE. .

9.73 Blue Anchor to Lilstock SSSI is likely to be more affected by debris than dust (due to some attenuation provided by Watchet Marina), although this is still likely to have little impact on the condition of the SSSI. The magnitude of potential impact is determined to be negligible. Therefore the overall significance of the effect is considered to be MINOR ADVERSE.

9.74 Blue Anchor Bay has a high sensitivity, but due to its proximity to the site it is unlikely to be affected by dust and debris. The impact is therefore considered to be INSIGNIFICANT.

9.75 Washford River also has a high sensitivity, but again due to its proximity to the site and sheltering by adjacent structures, the impact is considered to be INSIGNIFICANT.

Accidental Leaks and Spillages of Hazardous Substances

9.76 During construction, there is an elevated risk of potential leaks or accidental spillage of hazardous chemicals used on site infiltrating to groundwater or migrating to nearby surface watercourses and resulting in an adverse impact. For the most part it is only when large quantities of hazardous substances are spilled, or the spillage is directly into the watercourse, that a significant risk of acute toxicity will arise in the receiving water. This can present a specific risk to certain bottom-dwelling invertebrates and other aquatic invertebrates.

9.77 The magnitude of any impact will depend on the scale and nature of any potential incident and thus is difficult to predict.

9.78 Considering the predicted water quality of Watchet Marina, the magnitude of any impact may be considered to be medium adverse, with an overall impact significance of MINOR ADVERSE.

9.79 Blue Anchor to Lilstock SSSI has a high sensitivity and is in relative close proximity to the site. Although any leakage or spillage on the site would

experience some attenuation and dilution within the harbour and Bristol Channel, hazardous substances could have a medium adverse impact, resulting in an overall impact significance of MAJOR ADVERSE.

9.80 Blue Anchor Bay is located approximately 4 miles to the west of the site, therefore any leakage or spillage on the site would experience some attenuation and dilution within the Bristol Channel. However, given the high sensitivity of this area, especially with regard to hazardous substances, the impact magnitude is considered to be medium adverse, with an impact significance of MAJOR ADVERSE.

9.81 Washford River is considered to have a high sensitivity due to its good standard of water quality. Contaminants which infiltrate groundwater could migrate towards the Washford River, although this is considered unlikely. The impact magnitude is therefore considered to be negligible, which translates to an overall impact significance of MINOR ADVERSE.

9.82 The groundwater beneath the site is considered to have a low sensitivity due to the small amount of flow anticipated. However, considering that groundwater is hydraulically linked to the Marina and potentially the Washford River, the magnitude of any impact is deemed to be small, resulting in MINOR ADVERSE impact significance.

Disturbance of Contaminated Material

9.83 Made ground on site may contain areas of contamination. There is the potential for contaminated land to be disturbed and migrate towards Watchet Marina and other water features, either by infiltration into the groundwater or overland.

9.84 The impact magnitude to Watchet Marina is considered to be small, with an overall impact significance of MINOR ADVERSE. Although Blue Anchor to Lilstock SSSI, and Blue Anchor Bay have a high sensitivity, their proximity to the site will allow attenuation and dilution of contaminants within the Marina. The impact magnitude is therefore considered to be small adverse, with an overall impact significance of MODERATE ADVERSE.

9.85 Washford River has a high sensitivity, although its proximity to the site and low risk of groundwater providing a base flow to the River gives rise to a negligible impact magnitude. This translates to an overall impact significance of MINOR ADVERSE.

9.86 The impact magnitude on groundwater beneath the site is deemed to be small, considering the low flows anticipated. The overall impact significance is therefore MINOR ADVERSE.

Hydro-carbons and Oils

9.87 The release of hydro-carbons and oils into the on-site drainage system is likely to increase during the construction period due to a large number of vehicles, including heavy vehicles, accessing the site.

9.88 Oils and fuels may be washed from road surfaces into the drainage system, which discharges to Watchet Marina, or over the harbour wall and directly into the Marina. The potential magnitude of impacts on the water quality in Watchet Marina is considered to be medium adverse, resulting in an overall impact significance of MINOR ADVERSE.

9.89 The magnitude of change to the Blue Anchor to Lilstock SSSI would be less due to the attenuation and dilution provided in the Marina, and is therefore considered to be small adverse. This provides an impact significance of MODERATE ADVERSE.

9.90 Blue Anchor Bay, assessed as a sensitive receptor, would experience even more attenuation and dilution of any spilled hydro-carbons or oils. The impact magnitude is considered to be small adverse, with an impact significance of MODERATE ADVERSE.

9.91 Washford River is considered to have a high sensitivity due to its good standard of water quality. Hydro-carbons and oils which infiltrate groundwater could potentially migrate towards the River, although this is considered to be very unlikely. The impact magnitude is therefore considered to be negligible, which translates to an overall impact significance of MINOR ADVERSE.

9.92 The groundwater beneath the site is considered to have a low sensitivity due to the small amount of flow anticipated. However, it is hydraulically connected to Watchet Marina and is therefore considered to have an impact magnitude of small adverse. This provides an overall impact significance of MINOR ADVERSE.

Summary

Receptor	**Receptor Sensitivity**	**Impact**	**Magnitude of Impact**	**Significance of Impact**
Watchet Marina	Low	Increased sediment loads	Medium adverse	Minor adverse
		Dust and debris	Small adverse	Minor adverse
		Accidental leaks and spills of hazardous materials	Medium adverse	Minor adverse
		Disturbance of contaminated land	Small adverse	Minor adverse
		Hydro-carbons and oils	Medium adverse	Minor adverse
Blue Anchor to Lilstock SSSI	High	Increased sediment loads	Small adverse	Moderate adverse
		Dust and debris	Negligible	Minor adverse
		Accidental leaks and spills of hazardous materials	Medium adverse	Major adverse
		Disturbance of contaminated land	Small adverse	Moderate adverse
		Hydro-carbons and oils	Small adverse	Moderate adverse
Blue Anchor Bay	High	Accidental leaks and spills of hazardous materials	Medium adverse	Major adverse

Receptor	Receptor Sensitivity	Impact	Magnitude of Impact	Significance of Impact
		Disturbance of contaminated land	Small adverse	Moderate adverse
		Hydro-carbons and oils	Small adverse	Moderate adverse
Washford River	High	Accidental leaks and spills of hazardous materials	Negligible	Minor adverse
		Disturbance of contaminated land	Negligible	Minor adverse
Groundwater	Low	Accidental leaks and spills of hazardous materials	Small adverse	Minor adverse
		Hydro-carbons and oils	Small adverse	Minor adverse

Table Summary of Impact Significance during Construction

Mitigation Measures

9.93 The construction methods discussed below will assist in avoiding, reducing and minimising the potential for contaminants migrating to water features and thus protect water quality and the ecosystems and fisheries they support.

9.94 The Contractor will be required to prepare a Construction Environmental Management Plan (CEMP), which will include mitigation measures to protect the water environment. This will set out how construction activities will be undertaken in accordance with the pollution prevention guidelines published by the Environment Agency, particularly PPG1 (General guide to the prevention of water pollution), PPG5 (Works in, near or liable to affect watercourses) and PPG6 (Working at construction and demolition sites), and other good construction guidance, such as Guidance on silt pollution and how to prevent it.

9.95 Monthly water monitoring is advised during the construction period, to ensure proposed mitigation measures are being effective in maintaining the existing surface water quality.

9.96 Providing correct working procedures are adopted and care is taken to avoid pollution of the watercourses, no significant residual effects are predicted for the construction phase of this development.

Increased Sediment Loads

9.97 The areas of exposed surface should be minimised and the gradient kept as shallow as possible to prevent large amounts of earth being washed into the Marina during periods of heavy rainfall. Any areas which are exposed should be re-seeded or surfaced as soon as practicable.

9.98 Tight control of site boundaries should be enforced by the contractor, including minimal land clearance and restrictions on the use of machinery adjacent to Watchet Marina. Wheel wash facilities should also be provided at all entry and exit points. The water from the wheel wash facilities will be disposed of and not discharged into the Marina.

9.99 Run off from site will be captured in perimeter cut-off ditches, settlement lagoons, and/or settlement tanks. These will allow run-off to be treated prior to discharge. Approval will be required from the Environment Agency for any discharges to controlled waters such as Watchet Marina.

Dust and Debris

9.100 Dust management procedures which are typically implemented for air quality management issues, such as damping down to suppress the creation of dust, could be applied to mitigate impacts from dust resulting from demolition and earthworks.

9.101 Good site practice, perimeter fences and tight control of materials and waste will minimise the risk of debris entering water courses.

Accidental Leaks and Spillages of Hazardous Substances

9.102 The Contractor will be required to prepare a Construction Environmental Management Plan (CEMP), which will include a detailed mitigation strategy to minimise the risk of accidental leaks and spillages of hazardous substances. This will set out how construction activities will be undertaken in accordance with the pollution prevention guidelines published by the Environment Agency, for example PPG2 (Above ground oil storage tanks).

9.103 Storage facilities and tanks will be provided and the re-fuelling of machinery will be conducted within bunded areas. The storage and bunded areas will be constructed of impervious floors and walls with the capacity for the contents of the storage tank and an additional 10% safety margin. Drip trays used for diesel pumps and standing plant will be regularly maintained to prevent leaks. Oil interceptors will also be installed in areas that may be used for temporary oil storage and refuelling. As a remedial measure, spill containment equipment such as absorbent materials will be stored on site.

9.104 Any mixing of construction materials, such as cement, will be conducted in designated areas located away from drainage lines and Watchet Marina.

9.105 The mitigation strategies implemented should be reviewed regularly to best suit the practices currently being undergone on site.

Disturbance of Contaminated Material

9.106 Any contaminated land or groundwater discovered on site during construction will be remediated, removed or avoided.

Hydro-carbons and Oils

9.107 Interceptors will be incorporated into the site drainage system at high risk areas, such as parking, unloading and refuelling areas, to remove hydro-carbons and oils from surface water prior to discharge. Other measures including drip trays, under equipment such as generators, and wheel washing facilities will also be implemented to minimise the risk of pollutants infiltrating groundwater or Watchet Marina.

Potential Effects on Groundwater and Water Quality during Operation

9.108 Potential effects on water quality, both adverse and beneficial, during the operational phase may result from:

- Improvement of discharges to Watchet Marina through improvements to existing surface water drainage systems.
- Any breakage/leak of the drainage system network resulting in untreated sewage or runoff discharging directly to adjacent surface water courses.
- Accidental spillages of hazardous materials stored and used on site.
- Use of herbicides and fertilisers in routine maintenance of landscaped areas, causing localised contamination of nearby surface waters.
- Use of anti-foulants and other chemicals used for boat maintenance (such as fuel and oil) which would discharge into the surface water drainage network.

9.109 The development will comprise primarily of residential dwellings, live/work space, leisure and retail, and commercial. New access routes for cars and pedestrians, and car parking for residents of the development, are also included. It is assumed that foul water will be discharged to the Wessex Water sewer located to the south of the site. Surface water runoff will be collected by a new surface water drainage system which will discharge into Watchet Marina.

9.110 The drainage strategy for the proposed development is provided as a Technical Appendix to this report**.**

9.111 Those effects during operation which are deemed significant are discussed in detail below. Mitigation measures which could be included in the design to avoid or minimise adverse effects are discussed later.

Improvement to Surface Water Discharges

9.112 Surface water run off from the existing East Wharf currently discharges into Watchet Marina with no prior treatment. The area of hardstanding in the proposed development is similar to that in its existing state. There will be

minimal change to the total volume of surface water run off, although the proposed green roof system will provide some attenuation to flow.

9.113 Surface water from building roofs will be collected in a piped gravity system and discharged into Watchet Marina. Flow from these areas will not require prior treatment.

9.114 Surface water from external hard landscaped areas, access roads and from the parking areas will be collected in a separate piped gravity system to that of the roof drainage. Gullies will have silt traps and all flow will be passed through an oil separator prior to being discharged into Watchet Marina to remove impurities.

9.115 The impact of a new drainage system on the water quality within Watchet Marina is considered to be small beneficial, which provides an overall impact significance of MINOR BENEFICIAL.

9.116 Water within the Marina is hydraulically connected to the Bristol Channel, and therefore the Blue Anchor to Lilstock SSSI and Blue Anchor Bay, and also to Washford River. It is possible that an improvement in the water quality within the Marina would have a small beneficial impact on the SSSI, resulting in an impact significance of MODERATE BENEFICIAL. Considering the proximity of Blue Anchor Bay and Washford River to the Marina the impact is deemed to be INSIGNIFICANT.

Leakage from Sewerage or Surface Water Drainage System

9.117 Any risk associated with the breakage or leakage of the sewerage or surface water drainage system is considered to be low, given that new drains are to be constructed as part of the development within East Wharf. Should a break occur in the sewerage system however, this could migrate into the groundwater, and potentially Washford River, and Watchet Marina which links to the Blue Anchor to Lilstock SSSI and Blue Anchor Bay.

9.118 Sewage contains high levels of nutrients, organic matter (e.g. BOD), coliforms and suspended solids. This can result in nutrient enrichment and eutrophication, smothering of bottom-dwelling organisms and plants, and significantly reduced oxygen levels.

9.119 The magnitude of these potential impacts with regard to water quality within Watchet Marina is considered to be SMALL ADVERSE, with an overall significance of MINOR ADVERSE. Given the attenuation and dilution provided by the Marina, the magnitude of potential impacts with regard to the SSSI and Blue Anchor Bay is considered to also be SMALL ADVERSE, with an overall impact significance of MODERATE ADVERSE.

9.120 Washford River is upstream of the site and it is not thought likely that groundwater provides a baseflow to the River. It would therefore be difficult for contaminants within the ground to migrate towards the River and cause significant adverse effects. The impact magnitude is therefore considered to be negligible. However, given the high sensitivity of the River the overall impact significance is MINOR ADVERSE.

9.121 The groundwater beneath the site is considered to have a low sensitivity due to the small amount of flow anticipated. The magnitude of any impact is therefore considered to be small, resulting in MINOR ADVERSE impact significance.

Storage and Use of Hazardous Chemicals

9.122 Significant effects associated with the storage and use of hazardous chemicals on site is not expected. The predominant uses are for residential, offices, leisure and retail facilities and as such there is unlikely to be any significant volumes of hazardous chemicals stored on site. The waste oil disposal point currently located on the East Wharf development site will be relocated to the new boat workshop area. However, this will be bunded and, with an appropriate maintenance regime, should not breech the enclosure walls. Any impact is therefore considered to be INSIGNIFICANT.

Fertiliser and Herbicide Use on Landscape Features

9.123 Landscaped areas on site may require the use of fertilisers, herbicides and other pesticides as part of their management. Proprietary fertilisers contain nitrates and phosphates, which can migrate to adjacent surface water bodies and cause eutrophication and subsequent deterioration in fish populations and aquatic ecology. Pesticides are by their nature biologically active chemicals

that present a high risk of toxicity if they reach receiving waters. Herbicides may present a particular threat as they are normally designed to be highly water soluble, and therefore are more vulnerable to run-off. Considering that the majority of the site is to be hard paved with few landscaped areas, and providing that fertilisers, pesticides or herbicides are used in accordance with current DEFRA and manufacture guidelines, any associated effects will be INSIGNIFICANT.

Anti-foulants and Other Boat Maintenance Chemicals

9.124 The drainage strategy for the boat maintenance area is currently being developed; current plans are detailed in the drainage strategy provided in the Technical Appendix. It is likely that a small area within the boat storage yard will be designated for high risk boat maintenance and it will be within this area that activities such as engine changes and anti-fouling will commence. The area will discharge to the foul sewer network to prevent harmful chemicals from entering the surface water sewer network, which may consequently discharge into a nearby water feature.

Summary

Receptor	Receptor Sensitivity	Impact	Magnitude of Impact	Significance of Impact
Watchet Marina	Low	Improvement to surface water discharge	Small beneficial	Minor beneficial
		Leakage from drainage systems	Small adverse	Minor adverse
Blue Anchor to Lilstock SSSI	High	Improvement to surface water discharge	Small Beneficial	Moderate Beneficial
		Leakage from drainage systems	Small adverse	Moderate adverse
Blue Anchor Bay	High	Leakage from drainage systems	Small adverse	Moderate adverse
Washford River	High	Leakage from drainage systems	Negligible	Minor adverse
Groundwater	Low	Leakage from drainage systems	Small adverse	Minor adverse

Table Summary of Impact Significance during Operation

Mitigation Measures

9.125 In order to avoid, reduce and minimise adverse effects on surface water quality from development at Watchet Marina, mitigation controls must be considered from the beginning of the detailed design phase. This will enable mitigation to be embedded in the design and therefore minimise the need for active controls during operation. Suggested mitigation measures for the potential adverse impacts are discussed below.

Improvement to Surface Water Discharges

9.126 The impacts highlighted with regard to surface water discharge were deemed to be beneficial to the water quality of the surrounding water features. Surface water run off from hard paved areas, including roads and car parks, will be collected in gullies with silt traps and discharged through an oil interceptor to remove hydro-carbons. The water will then be discharged into Watchet Marina.

9.127 Roof drainage will be collected by a gravity piped system and also discharged to Watchet Marina. This will not require treatment prior to discharge. The green roof system will also provide a small amount of attenuation to flows.

Leakage from Sewerage or Surface Water Drainage System

9.128 A new sewerage system will be constructed to drain the proposed development. Regular monitoring and maintenance to ensure that the drainage system, and related equipment such as interceptors, does not become cracked or blocked will prevent contaminants from infiltrating groundwater and/or migrating towards Watchet Marina.

Residual Impacts

9.129 Residual risks from flooding are avoided, however, there is a management role incumbent on the marina operator to close any installed access restriction onto the seafront, and harbour arm. This potential risk is considered negligible, as the harbour authority will have a duty of care to implement the safety feature.

9.130 Impacts identified have been addressed and mitigation measures proposed to minimise the scale of the impact on the water environment.

9.131 The absence of a positive drainage network during the construction phase complicates the methods in which contaminants are contained and treated, primarily hydro-carbons and oils. However, mitigation measures will minimise these impacts, and considering that the impacts will be short term only, the residual impacts will generally be minor.

9.132 Mitigation measures have been proposed to treat and contain contaminated soils or pollutants from crude sewage entering the groundwater and/or being washed into Watchet Marina. Good site practice will also reduce the likelihood of accidental spillages of chemicals and fuels from entering the groundwater or site surface water run off.

9.133 Good site practice will reduce the likelihood of excess sedimentation in site surface water run off. There are still residual risks remaining, but the probability is low and the risks are short term only, therefore adverse residual impacts will be minor.

9.134 Mitigation measures proposed for the operational phase of the development are intended to avoid adverse impacts, rather than minimise. Residual impacts will therefore be negligible.

Geology and Ground Conditions

Site Users and Current Baseline Conditions

9.135 Available information indicates the presence of made ground on the site, some of which may be derived from a former nearby gas works. It is possible that the made ground may be contaminated. Results of chemical testing carried out as part of the ground investigation done in 1997 indicate elevated concentrations of arsenic, copper, lead, mercury and zinc (compared to ICRCL threshold levels for domestic land use). However, these threshold levels are no longer accepted comparators for human health risk assessment. Also, the vertical and horizontal extent of contamination is not known. The site is currently covered by hardstanding and tarmac thus there is no exposure pathway to site users. The risk to current site users under baseline conditions

it therefore low to negligible. However, this should be confirmed with further ground investigation works.

Site Users during Construction Phase

9.136 A number of potential impacts on site users during the construction phase have been identified. These include:

- Contact with contaminated soils.
- Inhalation of dust arising from construction activities.
- Contact with hazardous materials e.g. fuels, chemicals, cement etc, during construction.
- Ground gas.

9.137 The implications of the impacts noted above are discussed in more detail below. Mitigation measures which could be implemented to avoid or minimise adverse effects are discussed later**.**

Contact with Contaminated Soils

9.138 During the construction phase the excavation and removal of potentially contaminated soils will be required during the formation of foundations and substructure. These ground works could bring site users into direct contact with potentially contaminated soils and ground gas accumulations or allow release of contaminated dust or mud into adjacent areas. This is assessed to be a small magnitude adverse effect on a high sensitivity receptor, resulting in an impact significance of MODERATE ADVERSE.

Inhalation of Dust Arising from Construction Activities

9.139 Construction activities are likely to generate air-borne dust which could be inhaled by site users. This is assessed to be a small magnitude adverse effect on a high sensitivity receptor, resulting in an impact of MODERATE ADVERSE significance.

Contact with Hazardous Materials

9.140 Site users could come into contact with hazardous materials during the construction phase e.g. fuels, chemicals, cement etc, particularly if spillages

occur. This is considered to be a small magnitude adverse effect on a high sensitivity receptor, resulting in an impact significance of MODERATE ADVERSE.

Ground Gas

9.141 Available information does not indicate any issues relating to ground gas. However, the number of monitoring points, frequency of visits and the length of the monitoring period are not known, and conditions at the site may have changed since the 1997 ground investigation was carried out. The presence of ground gas should be investigated further. If ground gas is found to be present, construction workers are likely to be the only affected parties during the construction phase. This is assessed to be a medium impact, potentially high impact, on a high sensitivity receptor. This gives an impact significance of MAJOR to SEVERE ADVERSE.

Summary

Receptor	Receptor Sensitivity	Impact	Magnitude of Impact	Significance of Impact
Site Users	High	Contaminated soils	Small adverse	Moderate adverse
		Air-borne dust	Small adverse	Moderate adverse
		Hazardous materials	Small adverse	Moderate adverse
		Ground gas	Medium/High adverse	Major/Severe adverse

Table Summary of Impact Significance to Site Users during Construction

Mitigation Measures

9.142 An intrusive ground investigation with appropriate sampling and in situ and laboratory testing should be carried out in order to obtain sufficient information to improve the current understanding of the baseline conditions at the site, and for appropriate mitigation measures to be determined.

Contact with Contaminated Soils

9.143 The intrusive ground investigation should include chemical laboratory testing for a suitable suite of determine ands, based upon the known site history. The results should be compared against current threshold levels e.g. CLEA Soil

Guideline Values, to determine the location, size and concentration of any contaminated areas. Likely mitigation measures may include remediation or avoidance of proven contaminated land through to the use of appropriate Personal Protective Equipment (PPE) during construction activities.

Inhalation of Dust Arising from Construction Activities

9.144 Concentrations of air-borne dust are likely to be greatest at the source, with the effects of dispersion and dilution increasing with greater distance from the point of generation. It is therefore likely that members of the public and occupiers of nearby buildings will not be adversely affected by this issue. However, should dust generation be so great that members of the public are affected, likely mitigation measures which could be adopted include damping down to suppress the creation of dust. Construction workers should also use appropriate PPE.

Contact with Hazardous Materials

9.145 Hazardous materials e.g. fuels, oils, cement etc, should be stored in accordance with the manufacturers recommendations. Appropriate PPE should be used by all personnel handling any hazardous material. Measures should also be in place to deal with any spillages or leakages quickly and effectively to prevent the general public coming into contact with these materials.

Ground Gas

9.146 Although available information suggests that there are no issues relating to ground gas, this needs to be confirmed through further investigation. If ground gas is found to be present, construction workers are most at risk during the construction phase. Mitigation measures include ground gas monitoring as part of an intrusive ground investigation. This should also be done during the construction phase, particularly in confined spaces and areas of hot workings e.g. welding.

Site Users during Operational Phase

9.147 This section discusses the likely impacts of the development on site users during the operational phase.

9.148 The main risk to site users during the operational phase is coming into contact with contaminated soils. The proposed development will result in the majority of the site being covered either by the new structures or by hard landscaping. The exposure pathway between site users and contaminated land will be severed. This is considered to be a negligible impact on a high sensitivity receptor, resulting in an impact significance of MINOR ADVERSE.

9.149 During the operational phase ground gas can affect residents, visitors and employees in the new structures, as well as maintenance personnel. The effects of each gas are the same as during the construction phase. The impact is assessed as being medium, potentially high, on a high sensitivity receptor, which results in an impact significance of MAJOR to SEVERE ADVERSE. Mitigation measures will be required.

Summary

Receptor	Receptor Sensitivity	Impact	Magnitude of Impact	Significance of Impact
Site Users	High	Contaminated soils	Negligible adverse	Minor adverse
		Ground gas	Medium/High adverse	Major/Severe adverse

Table Summary of Impact Significance to Site Users during Operation

Mitigation Measures

9.150 Based on the results of the intrusive ground investigation, including chemical testing, a source-pathway-receptor model should be derived to ensure that all potential mechanisms for site users coming into contact with contaminated soils are identified. During the operational phase, likely mitigation measures could involve the introduction of clean fill material where soft landscaping areas may be contaminated and the venting of ground gas from buildings/confined spaces. Hard covering from buildings, floor slabs, roads and car parking areas will sever the potential exposure pathway between proven contaminated soil and operational site users.

Adjacent Structures during Construction Phase

9.151 This section discusses the likely impacts of the development on adjacent structures during the construction phase. The discussion is summarised below.

Mitigation measures which could be incorporated to avoid or minimise adverse effects are discussed later.

9.152 The harbour wall will be subjected to greater loading due to construction traffic etc. If the loading is too great for the wall to tolerate, the integrity of the structure and hence the stability of the site could adversely affected. This is assessed as being a potentially large adverse impact on a high sensitivity receptor resulting in an impact of SEVERE ADVERSE significance.

9.153 Nearby buildings are likely to be adversely affected by construction and vibrations associated with the construction process. This is considered to be a small adverse impact on a high sensitivity receptor resulting in an impact significance of MODERATE ADVERSE.

Summary

Receptor	Receptor Sensitivity	Impact	Magnitude of Impact	Significance of Impact
Adjacent Structures	High	Harbour wall	Large adverse	Severe adverse
		Nearby buildings	Small adverse	Moderate adverse

Table Summary of Impact Significance to Adjacent Structures during Construction

Mitigation Measures

9.154 One of the aims of the site investigation should be to obtain as much information regarding the geometry, construction, backfill and history of the harbour wall as possible. The depth, length and form of the anchors to the wall should also be confirmed so that the stability of the wall can be determined. All of this information should be incorporated into the detailed design of the proposed structure and all of the construction processes e.g. temporary works and traffic management, to ensure that the stability of the harbour wall is not impaired. Monitoring of the wall should be carried out to ensure that deflections during the construction period remain within acceptable tolerances. Contingency measures should be put in place in case of excessive or abnormal wall deflections. Alternatively, the wall could be strengthened in some way to increase the load bearing capacity.

9.155 Nearby buildings a likely to be affected by the construction works. Mitigation measures that could be adopted include traffic management regimes and the use of banksmen during any reversing manoeuvres.

Adjacent Structures during Operational Phase

9.156 This section discusses the likely impacts of the development on adjacent structures during the operational phase.

9.157 The new structures will impose additional loads onto the back of the harbour wall. This is assessed as being a potentially large adverse impact on a high sensitivity receptor resulting in an impact of SEVERE ADVERSE significance. Mitigation measures will be required and these are discussed later.

9.158 Nearby buildings are only likely to be affected during the operational phase of the development as a result of increased traffic. This is considered to be a negligible impact on a high sensitivity receptor, giving an impact significance of MINOR ADVERSE.

Summary

Receptor	Receptor Sensitivity	Impact	Magnitude of Impact	Significance of Impact
Adjacent Structures	High	Harbour wall	Large adverse	Severe adverse
		Nearby buildings	Negligible	Minor adverse

Table Summary of Impact Significance to Adjacent Structures during Operation

Mitigation Measures

9.159 The stability of the harbour wall is critical to the development. This should be incorporated into the detailed design of the structure to ensure that stability is maintained. The monitoring of the wall that should be undertaken during the construction phase could be continued during the operational phase to check that the wall is not being overstressed by the development. Contingency measures should be put in place to respond to any abnormal or excessive wall movements. The wall could also be strengthened in some way before any construction work is undertaken.

Groundwater during Construction Phase

9.160 This section discusses the likely impacts of the development on the groundwater regime during the construction phase. The discussion is summarised below. Mitigation measures which could be incorporated to avoid or minimise adverse effects are discussed later.

9.161 Excavation and filling could adjust the groundwater regime in the short-term, by providing alternative flow paths for the water to follow. This could lead to instability of the ground, particularly during excavation, which could affect human safety and the stability of nearby structures. This is considered to be a small impact on a high sensitivity receptor, resulting in an impact significance of MODERATE ADVERSE.

Summary

Receptor	Receptor Sensitivity	Impact	Magnitude of Impact	Significance of Impact
Groundwater regime	High	Ground instability	Small adverse	Moderate adverse

Table Summary of Impact Significance to Groundwater Regime during Construction

Mitigation Measures

9.162 Further ground investigation works should be carried out to obtain a clearer understanding of the groundwater regime beneath the site. This should include the installation and monitoring of piezometers. The findings of the additional investigation should be incorporated into the design of excavations and temporary works to reduce the risks associated with ground instability. Furthermore, contingency measures should be in place to reduce the effects of water inundation e.g. pumping. If pumping is adopted, the rate of pumping should not be so great that the effects of instability are exacerbated due to the migration of fine grained material.

Groundwater during Operational Phase

9.163 This section discusses the likely impacts of the development on adjacent structures during the operational phase. The discussion is summarised below.

Mitigation measures which could be incorporated to avoid or minimise adverse effects are discussed later.

9.164 The long-term groundwater regime is likely to be affected by the nature of the materials that are put into the ground during the construction phase. There is the potential for any alteration in ground permeability to affect groundwater flow paths and the associated impacts on adjacent structures e.g. if less permeable material is placed behind the harbour wall, this could act to reduce the water pressures behind the wall. However, the groundwater could be forced to other parts of the site and the surrounding area, thereby increasing the water pressures there. This is considered to be a medium impact on a high sensitivity receptor, resulting in an impact significance of MAJOR ADVERSE.

Summary

Receptor	Receptor Sensitivity	Impact	Magnitude of Impact	Significance of Impact
Groundwater regime	High	Ground instability	Medium adverse	Major adverse

Table Summary of Impact Significance to Groundwater Regime during Operation

Mitigation Measures

9.165 Further ground investigation works should be carried out to obtain a clearer understanding of the groundwater regime beneath the site. This should include the installation and monitoring of piezometers. The findings of the additional investigation should be incorporated into the design development to ensure that materials of an appropriate permeability are used in areas of filling. An assessment could also be carried out to determine the likely knock-on effects of any groundwater changes on other structures in the surrounding area.

Residual Impacts

9.166 Potential sources of contamination have been identified. These are primarily associated with made ground present on the site and due to the historical use of the site.

9.167 The range of results of chemical testing that is available have indicated the potential for elevated concentrations of arsenic, copper, lead, mercury and zinc. However, the available results have previously been compared, by others, against ICRCL threshold values which have been superseded. There is also the potential for hydrocarbons to be present due to fuels and oils. It is understood that some of the made ground may be derived from a former nearby gas works. Contamination other than that which has been identified may therefore exist. Further investigation is required to determine the extent and nature of contamination with regards controlled waters and human health.

9.168 Residual impacts are considered in the table overleaf. There are currently no specific measures envisaged for dealing with these impacts. This will be reviewed as further information becomes available from ground investigation works.

Significant Residual Impacts	Hotspot of contamination detected by ground investigation or during construction and remediated, thereby reducing impacts on controlled waters.	As above but dependent on rainfall infiltration which is reduced during operation phase	Undetected contamination sources may exist or be generally present in made ground which could be causing pollution of controlled water independent of rainfall infiltration effects	Impact of materials used during filling activities on groundwater regime, which may have knock-on effects on adjacent structures
Importance of Receptor	Medium/ High	Medium/ High	Medium/ High	High
Magnitude of Change	Medium beneficial	Negligible beneficial	Negligible neutral	Moderate adverse
Duration	Permanent	Permanent	Permanent	Permanent
Nature	Indirect	Indirect	Indirect	Indirect
Significance	Unknown	To be determined based on results of further ground investigation	To be determined based on results of further ground investigation	To be determined based on results of further investigation
Level of Certainty	Uncertain	Uncertain	Uncertain	Uncertain

Summary of Residual Impacts

Do Nothing Scenario

9.169 The only considered alternative scenario to the proposed development is to maintain the current situation i.e. the site remains undeveloped.

9.170 In this situation it is unlikely that there would be any change to existing surface water, flood defence, groundwater sites or ground conditions.

Robustness of Analysis

9.171 In compiling this Chapter it has been necessary to depend on information produced by other parties. Information may be condensed in the summarising of the findings.

9.172 With regard to ground conditions, additional on site analysis would identify the extent of contamination.

Summary and Conclusions

9.173 A number of potential impacts have been identified. These have been assessed in terms of their likely magnitude of the impact and the sensitivity of the receptor giving an impact significance rating. Where appropriate mitigation measures have been identified, which if implemented would help to reduce the significance of these impacts to an acceptable degree.

10 NOISE

Assessment Methodology

10.1 The noise assessment method for the project has been as follows:

1. Carry out a site survey to quantify the existing noise climate in the vicinity of the site and identify locations of nearby residential premises.
2. Identify the likely noise sources associated with the development, and where possible quantify these and calculate the levels likely to occur outside the residential premises.
3. Compare the existing noise climate with the likely "with development" noise climate and establish the likely impact of any increases in noise levels.
4. Where appropriate, develop numerical criteria against which to design noise mitigation measures (eg noise criteria based on BS4142).
5. Develop practicable noise mitigation measures and noise control strategies where needed.

Existing Conditions

10.2 The East Wharf is an open concrete space with a large metal shed on the eastern side of Watchet marina. The site is currently used as a maintenance and storage area for boats.

10.3 The nearest residential properties to the site are located adjacent to a footpath next to the railway tracks approximately 40 m to the east of the site. There are several commercially used buildings along the marina front and additional residential buildings at the west end of the marina promenade approximately 150 m from the site. One of the existing commercial buildings on the marina front (former Ritz amusements) is likely to be converted into a residential development in the near future. Other residents are located along Harbour Road.

10.4 From visits to site the dominant source of noise observed was the natural wave movement of the sea (Bristol Channel). On days when the wind was strong the noise from rattling yacht masts was also significant. Other noise included

people activity around the existing site and intermittent noise from private aircraft flying overhead. Noise from trains (including some steam engines) occurs infrequently, primarily at weekends and during the tourist seasons.

Planning and Noise Guidance

PPG24 – planning and noise

10.5 This document suggests that local planning authorities should ensure that development does not cause an unacceptable degree of noise disturbance, but should not place unjustifiable obstacles in the way. It acknowledges that the impact of noise from sport, recreation and entertainment will depend to a large extent on frequency of use and the design of facilities. So the authority should take account of how frequently noise will be generated and how disturbing it will be, and balance the enjoyment of the participants against nuisance to other people.

10.6 Regarding noise limits, the document suggests that it may be appropriate to set either an absolute limit based on the average level of noise which should not be exceeded for a specified time period; or a relative limit based on the permitted increase in noise level with respect to the background level: this is the approach used in BS4142.

BS4142:1997 – Rating industrial noise affecting mixed residential and industrial areas

10.7 BS4142 is concerned with assessing the likelihood of complaints owing to sources of an industrial nature, by comparing the level of noise from the source in question with the background noise from other sources. It is commonly applied in respect to setting limits for controlling noise from building services plant. Its applicability to noise from entertainment is open to question, but it is nevertheless a much referred to document in assessing the potential effect of noisy development.

10.8 BS4142 acknowledges that its guidance is general in nature and may not cover all situations. It makes the point that response to noise is subjective and affected by non-acoustic factors as well as acoustic factors. Apart from the relative level, factors listed are absolute level, time of day, change in the noise

environment, local attitudes to the source of noise and the nature of the neighbourhood. In a later section on reporting, the standard also makes clear that the hours of operation of the source should be taken into consideration.

10.9 Although subject to various qualifications, the guidance in BS4142 is to the effect that if the rating noise L_{Aeq} exceeds existing background noise levels by 10 dB or more, complaints are likely; if it exceeds background levels by 5 dB it is marginal; and if it is 10 dB below the background complaints are unlikely. The rating level is obtained from the L_{Aeq} of the source, plus a 5 dB penalty if the source has distinctive characteristics (as is the case for music).

BS5228 Noise and vibration control on construction and open sites

10.10 BS5228 refers to the need for protection against noise and vibration of persons living and working in the vicinity of construction and open sites and for those working on the sites.

10.11 It gives recommendations for methods of noise and vibration control relating to construction and open sites where activities generate significant noise and/or vibration levels. The standard provides guidance on predicting and measuring noise levels from construction activities and assessing its impact on people exposed to the noise.

10.12 BS5228 provides typical noise levels for a broad range of construction activities and equipment. Typical sound power data is provided for equipment ranging from hand held drills to equipment used for piling. Methods to reduce the noise emission for these techniques are also provided in detail.

10.13 Although the standard provides guidance on expected noise levels and methods of reducing the impact of noise from such activities it is important to note that objective criteria is not given.

Potential Impacts

Mechanical services plant noise

10.14 It is proposed to have a plant compound located at the rear of the boat building at fourth floor level. The compound will house an AHU and a chiller which

will serve the ventilation and cooling demands of the non-residential zones of the development, notably the café/function room.

10.15 This is potentially a source of noise disturbance for both existing local residents and new residents located in the development.

Road traffic noise

10.16 Existing traffic flows have not been established, but from observations on site it appears that there is currently very little traffic in the town. Traffic is however known to be busy during peak tourist season.

10.17 The impact of road traffic noise from visitors and residents of the development, together with vehicles servicing the development has been assessed, particularly in relation to residents nearest Harbour Road which is the main thoroughfare through the town to the development.

10.18 Traffic noise levels are dependent on a number of factors, but primarily on vehicle flow rates. Calculations of road traffic noise have been undertaken using the method set out in Department of Transport guidance *Calculation of Road traffic noise* (CRTN).

10.19 Predicted "with development" traffic flows suggest the traffic associated with the development will be minimal. Traffic flows are in fact below the range for which accurate calculations can be undertaken using CRTN. This suggests that the impact of the traffic noise associated with the development will be low and is likely to be considerably lower than the traffic noise which already occurs during peak tourist season.

Noise break-out from the cafe / function room and retail units

10.20 The café and function room located at ground floor level of the boat building may sometimes house noisy events and functions, perhaps involving amplified music (subject to local licensing conditions). Noise from such events will need to be controlled in order to prevent disturbance to both existing local residents and the residents of the apartment spaces above. The retail units located at ground floor of buildings W1 and W2 are also a potential source of noise disturbance depending upon the type of use.

Noise from the boat storage area

10.21 As part of the development the existing boat storage and workshop area on the east wharf will be moved to an area between the cliff and the rear wharf buildings.

10.22 Noise sources associated with the boat storage area may at times include boat maintenance activities such as running engines, welding, grinding, drilling and other workshop/garage activities.

Construction noise

10.23 Construction of new buildings is inherently a noisy activity. The impact of construction noise can be significant, but unlike many other forms of noise it is temporary and so the main impact only occurs whilst the construction is taking place.

10.24 The main sources of noise associated with construction are concrete breaking (demolition of existing), piling, and vehicle traffic (particularly spoil removal).

Mitigation

Mechanical services plant noise

10.25 A-weighted noise criteria of 30 dB during daytime and 28 dB during night time have been established at 1 m outside windows of existing residential premises. The criteria have been determined in accordance with the principles set out in BS4142 and are based on being 5 dB below the existing background noise levels. Existing background noise levels were determined during a 3 week noise survey in January 2007.

10.26 To achieve the criteria and thus make the noise impact minimal, the following measures will need to be implemented:

- Use of “low noise” chiller plant with quiet fans and enclosed compressors.
- Use of air handling units with double skin casings (metal/insulation/metal) and primary attenuators on inlet, exhaust, supply and return air connections.
- The noise barrier around the plant compound will need to be made of a

material with a density of >10 kg/m^2 and constructed so that there are no gaps.

- The building services specifications should include a clause to control potentially attention catching characteristics of noise from the plant.

Road traffic noise

10.27 Given the likely minimal impact of noise from road traffic associated with the development, no mitigation measures are considered necessary.

Noise break-out from the cafe / function room and retail units

10.28 A-weighted noise criteria of 35 dB during daytime and 33 dB during night time have been established at 1 m outside windows of existing residential premises. The criteria have been determined in accordance with the principles set out in BS4142 and are based on being 5 dB above the existing background noise levels, with a 5 dB penalty for the potentially attention-catching nature of the noise (eg amplified music).

10.29 By adopting the above criteria it is likely that the risk of complaints about noise from events held at the café/function room would be low. Some noise may however be audible outside the nearest existing residential locations if noisy events are held.

10.30 To achieve the above criteria will require the façade (glazing and doors particularly) to be designed to provide a good standard of sound insulation. Noise levels (eg of amplified music) will need to be limited and operating hours considered carefully. It is recommended that an electronic noise limiter is installed in the space to warn management of the facility if noise levels approach the limit to enable them to take measures to control the noise.

10.31 In setting the noise limit, noise affecting the residents in the new flats above the café/function room will also need to be considered.

Noise from the boat storage area

10.32 Watchet has a long history as a harbour town and noise associated with the movement and maintenance of boats is therefore likely to be familiar to residents living around the harbour. Moving the boat storage area from its

current location on the east wharf will however increase noise levels experienced by residents closest to the new location. To mitigate this impact it is recommended that:

- maintenance work on boats should only be carried out during normal working hours (this would require management) and management arrangements put in place to provide an equitable sution.
- The building will be acoustically enhanced to achieve at least Building Regulation standards.
- Residents will be made aware of the working marina environment and any agreed restrictions on noisy working.

Construction noise

10.33 Noise from the construction of the new building will be minimised by using low noise construction techniques where possible. For example, subject to site investigation works, it is currently proposed to use bored piles rather than impact piling (impact piling produces high levels of noise and vibration).

10.34 The use of solid timber site hoardings around the perimeter of the site will help reduce noise affecting residents along the seafront, although residents overlooking the site would not benefit from this.

10.35 The number vehicle trips to the site will be minimised by virtue of the fact that the building does not have significant areas of basement and therefore only minimal excavation work (and associated spoil removal in trucks) is expected.

10.36 As recognised in BS5228, in addition to controlling noise, there are a number of management and public relations measures that can help reduce the impact of construction noise on local residents and businesses:

- Care should be taken to ensure that construction noise causes minimal disruption to the local tourist industry as this is vital for many local businesses. Activities at the beginning of the construction process tend to be noisiest so it would be best to avoid commencing construction during the peak tourist season.

- Inform local residents and businesses of the construction program, when noisy works are likely to occur, and for how long.
- Carry out noisy operations on site (eg breaking concrete) at the least disruptive times (avoid early mornings, lunchtime and early evening).
- Make it easy for local residents and businesses to complain and ensure that prompt responses are given to the complainants.
- Consider carrying out continuous noise monitoring to provide a record of noise levels to assist in dealing with complaints and managing noise levels.

Cumulative Impact

10.37 It is unlikely that the cumulative effect of the noise sources discussed above will be significant and no further mitigation over and above the measures discussed above are deemed to be required.

Conclusions

10.38 The impact of noise from the proposed development of East Wharf in Watchet has been assessed. Various different noise sources have been identified, quantified and assessed as follows:

- Noise from the operation of new mechanical services plant will have a minimal impact provided that the plant is designed to meet the proposed noise criteria. This is likely to be achievable using conventional “low noise” chillers, attenuated air handling units and noise barrier screens around the plant area.
- The noise impact of road traffic associated with the completed development is expected to be minimal and no mitigation measures are therefore considered necessary.
- Noise break-out from the cafe / function room and retail units will have a minimal impact provided that environmental noise criteria are complied with. Compliance with the environmental noise criteria will be dependent upon the design of the façades and external doors, together with setting appropriate internal noise limits. Management will be required to ensure

that noise limits are complied with. Use of an electronic sound limiter in the café / function room is recommended.

- The proposed relocation of the boat yard will move this source of noise closer to some of the residents and businesses of East Wharf. Timing of noisy and extent of maintenance activities should be managed but is not envisaged to create a problem given that the activities already exist.
- Construction noise will inevitably have some impact on local residents and businesses. This impact will be mitigated as far as possible by using low noise construction techniques, managing timing of noisy construction activities and maintaining good public relations.

11 CONCLUSIONS

11.1 This ES has identified and reviewed the range of potential environmental impacts that may arise from the development of the East Wharf site. Development of this previously-developed site will inevitably give rise to some environmental impact. However, the scale of these effects is limited in most cases and predominantly beneficial. The effects relating to traffic using the road network are minor and can be reduced further by maximising the use made of other modes of travel, including walking, cycling and public transport. The proposal has been conceived from the outset to pursue this objective. The creation of new employment and retail space on the site, the provision of a mix of community and leisure uses, the enhancement of bus services and the detailed design and content of the new development to encourage walking and cycling, are important components limiting adverse environmental effects.

11.2 Many of the effects of the development will be beneficial, others will be neutral, and there are few effects that will have adverse consequences. Those adverse effects arising from the proposal are assessed to be of minor significance. Features have been incorporated into the proposed development at the design stage to ameliorate adverse consequences where they are inevitable. Other components have been incorporated to enhance visual and environmental characteristics. This results in many effects of the development being assessed as having a significant beneficial impact. The creation of an enhanced public space in the area will provide recreational opportunities to a wider community than at present and the 'opening up' of the site compared to its current closed nature are notable examples.

Alternative Scenarios

11.3 The Introduction to the ES referred to the requirement of the Scoping Report to consider alternatives to a mixed use development. As stated in the Introduction, the plans submitted with the planning application have been devised following many meetings of the applicants' specialist consultants. The layout, form and scale of the development have followed the constraints of the site and its surroundings identified by the consultants. In this way, the

fundamental approach to the mitigation of the impacts of the development has been undertaken at the design stage: a philosophy of avoiding adverse effects rather than rectifying their impact is a more sustainable approach to planning major development schemes.

11.4 There are, of course, alternative ways of developing the site to that shown in the submitted plans. Broadly, these are as discussed in the Table at the end of this Chapter.

11.5 The main reasons for choosing a mixed development were firstly to achieve the District Council's desire in their Brief for the site to see such development. Secondly, the desire to make the best use of previously-developed land means the density of housing should be increased. If other planning interests are not to be harmed, this can only be achieved through high quality of design. The urban design approach is recognised as a way of resolving these issues, and is specially referred to in Government guidance such as PPS1 and RPG10 and its emerging replacement. Finally, the submitted application is considered to demonstrate a form of development that has had regard to the potential environmental effects and to embody principles that seek sustainability.

11.6 The findings of the applicants' consultants have also resulted in a scheme that differs in matters of detail with the principles outlined in the District Council's Development Brief. However the proposals submitted in the application still follow the fundamental principles as stated in paragraph 4.15 and 4.18 which state:

> **"The Urban Design Framework makes provision for a multi use building on East Wharf. The conceptual layout for the building envisages single building analysis with larger workshops at the rear of the building and ancillary units where there is frontage onto public area. It is anticipated that the majority of groundfloor uses will be for commercial purposes including shops, restaurants, cafes, workshops and possibly a gallery. The building would be primarily 3 storeys high with some 4 storey components. The gross floor area of the building is 5250 sqm. The make up of floor space within the building would potentially be as follows:**

Groundfloor 1,500 sqm

First Floor 1,500 sqm

Second Floor 1,500 sqm

Third Floor 750 sqm

The external areas to the East Wharf would include Marine Gardens a rising terrace immediately to the north of the building separating it from Splash Point. It would have an inner courtyard behind the building which would include dedicated car parking for residents and businesses as well as some open area adjacent to workshops immediately to the south of East Wharf. Buildings would provide a public space for performance, outdoor markets and other community areas. The space would retain its flexibility to allow the larger crane lift boats out of the water at certain times and to cater for other operational areas from time to time. The boat storage area of around 300 sqm is provided between the southern end of the building and the access road."

11.7 There are differences in detail in the layout of the development proposal, but these are not considered to be adverse or significant.

11.8 A summary of the impacts of the proposed development is set out in the Table at the end of this chapter. This includes the measures to be taken to mitigate potentially adverse effects, and so can be compared to the Table in chapter 3, which set out the potential environmental effects without mitigation measures. In some instances, after the ES has assessed the actual impacts that are likely to occur from the development, the potential significance of the topics have been found to be less significant than first indicated in the Table. Of perhaps the most importance, through, is the conclusion that with mitigation measures the likely impact in many instances has reduced. Typically, the likely impact has reduced from adverse to neutral, for instance, with the Transportation topic. This indicates the proposed mitigation measures would satisfactorily address the predicted impacts of the development.

11.9 The overall conclusions of the detailed assessment that is presented in this ES are that:

- There are no adverse consequences that are so serious as to suggest that the proposed development should not take place:
- The development proposal forms a key part of the Council's development strategy for the future;
- The high quality of the design of the new development, and the incorporation of specific landscape, nature conservation and other features, will keep adverse effects to an acceptable minimum;
- The highways impact of the development has been predicted, and the appropriate mitigation measures incorporated within the development, and in the surrounding area. The incorporation of sustainable development principles in the development will encourage modes of transport other than by private car.
- A number of the features central to the proposal will give rise to benefits to the locality generally, and to the future resident population in Watchet particularly. Important amongst these is the provision of a significant addition to the supply of housing in the area as well as new and improved community facilities.
- Developing a careful planned and integrated new neighbourhood, adopting mixed use urban design principles, will enable necessary development to be carried out in a way which is environmentally responsive.
- The water resource and ground conditions have been predicted and the appropriate mitigation measures incorporated within the development.

Form of development	Advantages	Disadvantages
Single use development: entirely for housing	• Increased housing provision for the Borough, so reducing the need to allocate other sites for housing	• Contrary to Development Brief and Policy, which seeks a mixed use development. • No provision for facilities to serve the development, which would lead to longer journeys off the site. • A mix of uses, with employment, community, retail, etc, creates amore sustainable form of development, as local facilities are within walking distance.
Mixed development, based on 'standard' urban design principles rather than urban village	• None apparent	• 'Standard' design solutions lead to urban environments that do not create new urban areas of distinct high quality. This approach contrary to recent Government guidance that seeks good, imaginative design to promote an urban renaissance. • 'Standard' designs typically do not take into account the full opportunity to maximise travel by foot and cycle. • Resolving the issue of making the best use of land for housing whilst creating high quality urban design, respecting character and amenity is rarely achieved through 'standard' design solutions.
Increasing the density of development on the site to a much high degree.	• Increased housing provision for the District, so reducing the need to allocate other sites for housing • Recent Government advice advocating maximising the density of housing	• Development in this manner would move further away from the Development Brief. • The site has limitations to the amount of development that can be accommodated satisfactorily on it, in terms of issues such as open space provision and the form/design that development would take. Reappraisals of these limitations may lead to alternative forms of mitigation measures, be that through changes to the Masterplan or post-development measures. Subject to this, then the site may accommodate more development. • Similarly, the sounding infrastructure has limitations, such as traffic/junction conditions. Additional development at the site would necessitate alternative mitigation measures. • With resolution of the above two factors, then no disadvantages of this approach.

Topic Area	Description of Impact	Geographical Importance					Significance	Impact	Nature	Mitigation measures and comments
		I	N	R	B	L				
Human Relates matters	Change in population				*		Moderate	Neutral	Lt. 1R	Community and recreation facilities incorporated into the development.
	Increase in housing				*		Significant	Beneficial	Lt. 1R	
	Change to employment				*		Significant	Beneficial	Lt. 1R	Provision of employment opportunities in the redevelopment, with increased diversity of employment on the site. Greater economic benefits to Watchet.
	Social infrastructure				*		Moderate	Neutral	Lt. 1R	
	Recreation and open space				*		Significant	Beneficial	Lt. 1R	Enhanced public realm.
	Opening up of the site					*	Significant	Beneficial	Lt. 1R	New footpaths and cycleways across site, where none exist currently. Improvements to the public realm.
Soil and land	Contaminated soil					*	Slight	Beneficial	Lt. 1R	Removal of existing contaminated soil
	Soil compaction					*	Slight	Neutral	Lt. 1R	No identified harm, with good practice in construction
	Recycling/landfill capacity				*		Slight	Adverse	St, Lt, 1R	Waste management and re-use of demolition materials on site will reduce landfill take.
Water	Surface water run off					*	Moderate	Neutral	Lt. 1R	Adequate capacity to cope with predicted flows
	Siltration					*	Slight	Neutral	Lt. 1R	No adverse effects predicted
	Groundwater contamination					*	Moderate	Beneficial	Lt. 1R	Existing slight contamination remedied
	Groundwater flow								Lt. 1R	
	Flooding					*	Moderate	Neutral		No adverse effects predicted
						*	Moderate	Neutral		No adverse impact produced
Air quality and noise	Noise levels					*	Moderate	Neutral	Lt. 1R	Mitigation measures during demolition and construction will keep emissions to within recommended targets, Proposed development not predicted to be harmful.
	Vibration					*	Slight	Neutral	Lt. 1R	
	Dust and debris emissions					*	Moderate	Beneficial	Lt. 1R	General air quality improvements in area will occur, through UK Air Quality Strategy.
Climate	Greenhouse gases			*			Slight	Neutral	Lt, 1R	New buildings on site would be to modern, energy efficient standards.
	Micro-climate					*	Slight	Neutral	Lt, 1R	Development would not create any adverse effects.
Landscape	Landscape character				*		Significant	Beneficial	Lt. 1R	Substantial area of open space retained on site, including the most important groups and individual trees and hedgerows
	Urban relationships					*	Significant	Beneficial	Lt. 1R	Provision of public spaces within the development and wider access to site
					*					

	Amenity resources						Significant	Beneficial	Lt. 1R	Public realm within site will benefit wider population
Biodiversity	Flora & Fauna					*	Slight	Beneficial	St, 1R	Potential to enhance biodiversity on the site.
Cultural heritage	Archaeological resources					*	Slight	Neutral	Lt. 1R	Low archaeological potential on the site, watching brief during construction.
	Architectural resources					*	Slight	Beneficial	Lt. 1R	No buildings of interest on site. New development to be of high quality of design.
Transportation	Local traffic conditions				*		Significant	Beneficial	Lt, 1R	Increased traffic can be accommodated within highway network. Proposed junction works would improve highways situation.
	Access to public transport				*		Significant	Beneficial	Lt, 1R	Public transport improvements are proposed.
	Walking and cycling				*		Significant	Beneficial	Lt, 1R	Increased provision of footpaths and cycleways in area.
	Severance				*		Moderate	Neutral	Lt, 1R	No detrimental effects caused by the development.
	Safety				*		Moderate	Neutral	Lt, 1R	
Construction	Noise					*	Slight	Neutral	St, 1R	Good working practices and hours of work. Compliance with established controls on construction, which would be enforced by the local authority.
	Dust					*	Slight	Neutral	St, 1R	
	Vibration					*	Slight	Neutral	St, 1R	
	Construction traffic					*	Moderate	Neutral	St, 1R	

Key: Geographical level of Importance

I = International
N = National
R = Regional
B = Borough
L = Local

Nature of Impact

S = Short term
L = Long term
R = Reversible
IR = Irreversible