

**Industrie Cartarie Tronchetti (ICT) UK Limited and Crag Hill  
Estates Ltd (CHEL)**

# **Paper Mill Facility, Plot C**

# **Airfields, Northern Gateway**

Environmental Statement

Part 2 – Human Health Technical Paper 12

Revision RevA 20/09/2021



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# I. Introduction

## Overview

- I.1. This Technical Paper of the Environment Statement (ES) identifies and addresses any significant potential effects of the Proposed Development during the construction and operational phases of the development on human health in the context of the Site and the surrounding area.
- I.2. The consideration of human health is presented within the relevant Technical Papers of the ES, including Geology and Ground Conditions (Paper 1), Traffic and Transportation (Paper 2), Ecology and Nature Conservation (Paper 5), Socio Economic (Paper 6), Noise and Vibration (Paper 7), Air Quality, Odour and Dust (Paper 8). However, to provide a single overview of this topic, an assessment of the health interactions of the project will be included within this Technical Paper of the ES. It also presents information on the potential impacts on wellbeing, which is not covered in any other ES Technical Paper.
- I.3. For details regarding the site context and existing surroundings and details regarding the project description please see Section 2 of the ES Part 1 Report.

## Purpose of the Report

- I.4. This Technical Paper seeks to demonstrate that there will be no significant adverse impacts on Human Health as a result of the Proposed Development. Where adverse effects are anticipated appropriate mitigation will be identified and applied.
- I.5. Additionally, this Technical Paper seeks to demonstrate how the Proposed Development will have an impact on wellbeing within the Sealand ward and Flintshire County Council Local Authority area. In assessing the impacts on wellbeing, the World Health Organisation (WHO) definition has been taken as the basis for this assessment. The WHO defines health as “a state of complete physical, mental and social wellbeing and not merely the absence of disease or infirmity”, and is the definition used in the UK when assessing the impact of projects on human health (WHO, 2017).

## Report Structure

1.6. The report is structured to ensure it can perform the following roles:

- To review the health determinants in the context of the Proposed Development.
- To identify human health impacts (positive and negative) that may arise as a result of the Proposed Development and to assess the significance of these effects.
- To provide recommendations on mitigation to avoid or reduce the impact of any identified negative adverse impacts or the enhancement of positive effects.
- To provide detail of any residual effects that remain after mitigation.

## 2. Documents Consulted

### Introduction

- 2.1. This section of the ES Technical Paper outlines key legislation and policy that has been considered in the assessment impacts for the Proposed Development.

### National Wellbeing Policy and Initiatives

#### Better Health – Better Wales (1998)

- 2.2. 'Better Health – Better Wales' was published in 1998 and considers health impact assessment as a tool to help achieve sustainable health. It explains;

*“The essence of Health Impact Assessment is:*

- *applying screening criteria to help select policies or projects for Health Impact Assessment;*
- *profiling the areas and communities affected;*
- *applying a pre-defined model of health to predict potential impacts;*
- *evaluating the importance, scale and likelihood of those impacts;*
- *option appraisal and recommendations for action.”*

#### Healthy Lives Healthy People (2010) Public Health White Paper

- 2.3. The White Paper acknowledges that previous top-down approaches to combat public health had not been effective. In order to make progress, the government determined it should be the responsibility of local authorities and local communities to find creative solutions to improve health and wellbeing within their areas.
- 2.4. The document included initiatives such as improving all aspects of health, tackling obesity, alcohol and smoking-relating illnesses, mental health, how the NHS and its workforce should

be funded and outline further legislation to be introduced to support the targeted improvement of health and wellbeing.

### National Survey for Wales

2.5. The National Survey for Wales involves around 12,000 people each year and covers a topics such as;

- Local area and environment
- Wellbeing and finances
- Housing
- Democracy and government
- Population health
- Internet and media
- Culture and Welsh language
- Sport and recreation
- Children and education
- NHS and social care

2.6. The results are used by the Welsh Government to inform policy decisions. National Survey for Wales headline results: April 2019 to March 2020 are as follows;

- 41% of people in material deprivation are lonely, compared with 12% of people not in material deprivation.
- Younger people are more likely to report that they are lonely than older people.
- 25% of people have four or five of the healthy lifestyle behaviours (not smoking, drinking within guidelines, eating 5 portions of fruit and veg a day, and meeting exercise guidelines). This hasn't changed over the last four years.

- 75% of employees get paid sick leave, but only 16% of those who are self-employed and working mainly for one company.
- 65% of over-30s have a workplace pension in place.
- 21% of over-30s have made no financial plans for retirement.
- 28% of people from black, Asian and minority ethnic backgrounds had personally experienced discrimination at work in the last year, compared with 9% of white people.
- 26% of people volunteer by giving their time for free to an organisation or club.
- Among people who can speak Welsh, 22% say they would prefer to speak in Welsh with staff at local services and facilities.
- 47% of people say their local authority provides high quality services.

### **NHS Long Term Plan (2019)**

- 2.7. The NHS Long Term Plan: 10 key public health points was published in January 2019 and aims to relieve pressure on services and ensure sustainability for future years.
- 2.8. The document covers the following 10 public health points:
1. Prevention
  2. Smoking
  3. Obesity and Type 2 Diabetes
  4. Diet and Alcohol
  5. Antimicrobial resistance and vaccines
  6. Cancer
  7. Mental Health
  8. Air Pollution
  9. Children and Maternity Care
  10. Gambling
- 2.9. Some of the ways that the document aims to improve care for patients over the next ten years are as follows;

- preventing 150,000 heart attacks, strokes and dementia cases
- providing education and exercise programmes to tens of thousands more patients with heart problems, preventing up to 14,000 premature deaths
- saving 55,000 more lives a year by diagnosing more cancers early
- investing in spotting and treating lung conditions early to prevent 80,000 stays in hospital
- spending at least £2.3bn more a year on mental health care increasing funding for primary and community care by at least £4.5bn
- bringing together different professionals to coordinate care better
- helping more people to live independently at home for longer

### **Office for National Statistics (ONS) National Wellbeing Programme**

- 2.10. The ONS Measuring National Well-being programme aims to produce accepted and trusted measures of the well-being of the nation. The report described well-being as “how we are doing” as individuals, as communities and as a nation and how sustainable this is for the future.
- 2.11. The programme includes headline indicators in areas such as health, relationships, education and skills, what we do, where we live, our finances, the economy, governance, the environment and measures of “personal well-being” (individuals' assessment of their own well-being).
- 2.12. The programme publishes updates to the national well-being measures every 6 months, including an interactive wheel of measures and interactive charts. Annually, a "Life in the UK" report is published that provides a snapshot of the nation's well-being. Additionally, an annual statistical bulletin on personal well-being plus personal well-being frequently asked questions is published.

## Together for Mental Health - Delivery Plan: 2019-22 in response to COVID-19 (2020)

2.13. The Together for Mental Health - Delivery Plan was originally published in 2012 and it has been revised on a number of occasions, most recently in 2020 to update the actions within the plan in response to the impact that COVID-19 has had on the mental health and wellbeing of people in Wales.

2.14. It sets out a strategy to improve mental health and well-being across all ages. The high-level outcomes underpinning the strategy are:

- The mental health and well-being of the whole population is improved.
- The impact of mental health problems and/or mental illness is better recognised and reduced.
- Inequalities, stigma and discrimination are reduced.
- Individuals have a better experience of the support and treatment they receive and feel in control of decisions.
- Improved quality and access to preventative measures and early intervention to promote recovery.
- Improved values, attitudes and skills of those supporting individuals of all ages with mental health problems.

2.15. Actions within the plan include;

*“Welsh Government (Health and Social Services) to support people with mental health conditions into employment or to remain in work through delivery of a health-led employment support programme which consists of the Out of Work Peer Mentoring Service, the In-Work Support Service and an Individual Placement Support pilot.”*

*“The Welsh Physical Activity Partnership (joint partnership between Sports Wales, Public Health Wales and Natural Resources Wales) to develop a national physical activity action plan and agree next steps to encourage engagement in sport and physical activity which will help to support positive mental health and well-being.”*

*“Welsh Government (Health and Social Services), working with the Suicide and Self-Harm National Advisory Group to drive implementation of the Talk to Me 2 Suicide and Self Harm Prevention Strategy 1213 (extended to 2022) through regional forums/plans and national coordinator posts.”*

### **A Healthier Wales: our Plan for Health and Social Care (2019)**

2.16. The plan sets out a long-term future vision of a ‘whole system approach to health and social care’, which is focused on health and wellbeing, and on preventing illness. It also states.

*We will build on the philosophy of Prudent Healthcare, and on the close and effective relationships we have in Wales, to make an impact on health and wellbeing throughout life. We will have a greater emphasis on preventing illness, on supporting people to manage their own health and wellbeing, and on enabling people to live independently for as long as they can, supported by new technologies and by integrated health and social care services which are delivered closer to home.*

2.17. The plan specifies actions which will enable the vision to be achieved. The five main ways it aims to change health and social care are as follows;

1. In each part of Wales, the health and social care system will work together,
2. Shift services out of hospital to communities,
3. Get better at measuring what really matters,
4. Make Wales a great place to work in health and social care,
5. To make our services work as a single system, we need everyone to work together.

### **Planning Policy Wales (Edition 11, 2021)**

2.18. Planning Policy Wales (PPW) sets out the land use planning policies of the Welsh Government. It is supplemented by a series of Technical Advice Notes (TANs), Welsh Government Circulars, and policy clarification letters, which together with PPW provide the national planning policy framework for Wales.

2.19. The PPW sets out Key Planning Principles including “Facilitating accessible and healthy environments” it explains;

*“Our land use choices and the places we create should be accessible for all and support healthy lives. High quality places are barrier-free and inclusive to all members of society. They ensure everyone can live, work, travel and play in a way that supports good physical and mental health. Our built and natural environments should be planned to promote mental and physical well-being. The best way of achieving this is to involve and collaborate with others to ensure issues are understood and prevented at the earliest opportunity through effective engagement with those affected by or having an interest in the development concerned.”*

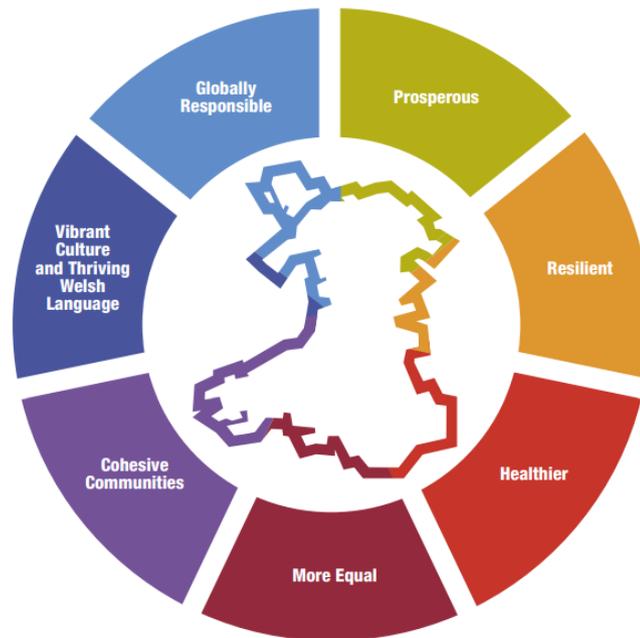
2.20. In terms of National Sustainable Placemaking Outcomes of Facilitating Accessible and Healthy Environments it considers the following;

- Accessible and high-quality green space
- Accessible by means of active travel and public transport
- Not car dependent
- Minimises the need to travel
- Provides equality of access
- Feels safe and inclusive
- Supports a diverse population
- Good connections
- Convenient access to goods and services
- Promotes physical and mental health and well-being

### **Well-being of Future Generations (Wales) Act 2015 and Future Wales**

2.21. The Well-being of Future Generations (Wales) Act 2015 ('the Act') sets out seven well-being goals. This is legally-binding and applies to national government, local government, local health boards and other specified public bodies. It details the ways in which these bodies must work,

and work together, to improve the well-being of Wales. Health forms a key part of this as shown in Figure 12.1.



**Figure 12.1 Seven well-being goals**

### **Future Wales - The National Plan 2040**

- 2.22. The Future Wales – the National Plan 2040 (the “Plan”) is a National Development Framework, setting the direction for development in Wales to 2040. It aims to address key national priorities including sustaining and developing a vibrant economy, achieving decarbonisation and climate-resilience, developing strong ecosystems and improving the health and well-being.
- 2.23. The Plan takes account of the Well -being of Future Generations Act which is evident in the Integrated Impact Assessments illustrated in Figure 12.2.

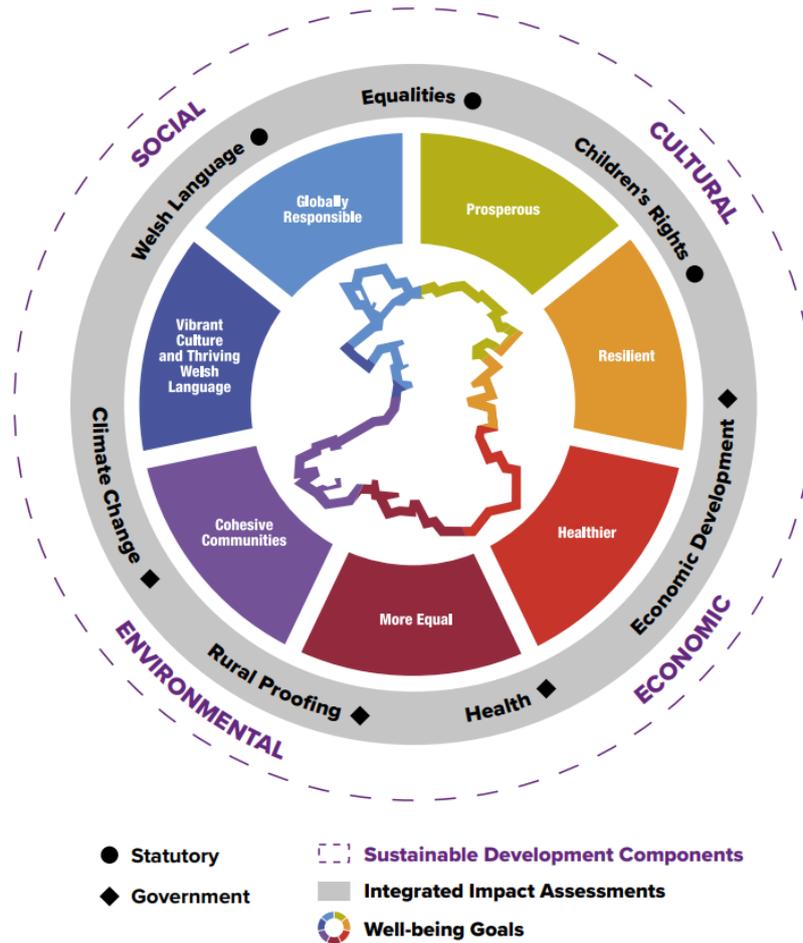


Figure 12.2: Integrated Impact Assessments

2.24. In addition, Policy I ‘Where Wales will grow’ lists Deeside as a National Growth Area. It states, “In three National Growth Areas there will be growth in employment and housing opportunities and investment in infrastructure.”

## Local Planning Policy

### Flintshire Unitary Development Plan (FUDP)

2.25. The FUDP is the adopted development plan for the 15-year period 2000 – 2015. Although the adopted UDP became time expired at the end of 2015 it remains the adopted development plan for the County.

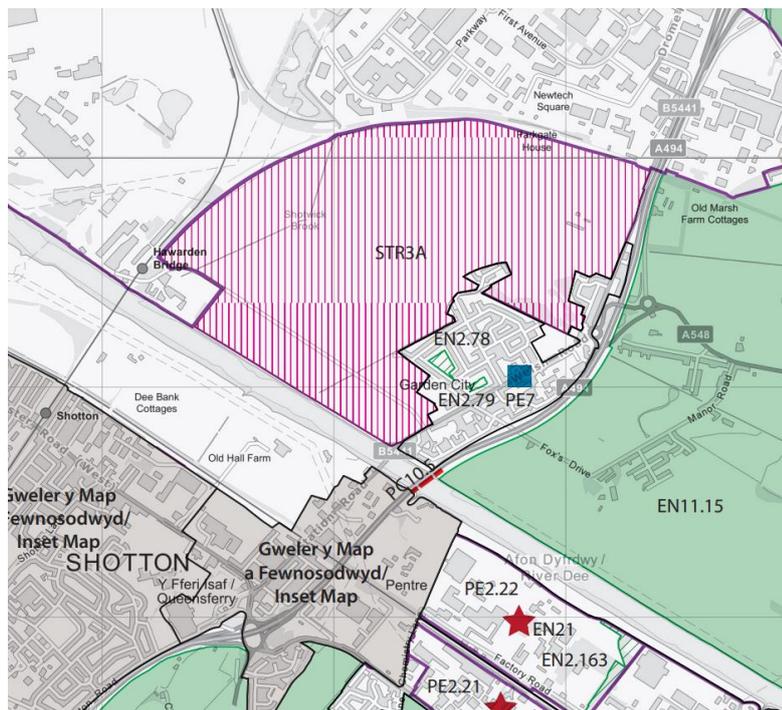
- 2.26. It provides a framework for making rational and consistent decisions on planning applications and to guide development to appropriate locations. This identifies sites where new housing, employment and other development can take place, as well as setting out policies to protect important countryside, habitats, resources and heritage.
- 2.27. The documents strategic aims include “*to promote and facilitate the development of a safe and healthy environment.*” This is reflected in policy for new development.

## Emerging Planning Policy

### Local Development Plan (LDP)

- 2.28. The Flintshire Local Development Plan (LDP) has been submitted for examination, which is due to be held by an independent Planning Inspector in 2021. Once adopted it will supersede the UDP.
- 2.29. The LDP will focus on delivering sustainable development in the County for a 15-year period 2015 to 2030 and will include:
- policies which will guide decisions on planning applications;
  - proposals for the development of housing, retail, employment and other land uses;
  - policies which seek the protection and enhancement of the natural and built environment.
- 2.30. The Proposed Development site is located within the Northern Gateway Mixed Use Development Site (STR3A) as designated by the LDP. Figure 12.3 shows the policy designation including the nearby Town Centre (PE7) Green Space (EN2) and Green Barriers (EN11).
- 2.31. Policy STR3 explains that Northern Gateway Mixed Use Development Site is one of two strategic development sites that will make an important contribution to the overall provision for growth in Flintshire over the Plan period.
- 2.32. The site will be developed for employment, housing, commercial, community facilities, including;
- i. 1,325 new homes, including affordable

- ii. 72.4 hectares of B2/B8 employment land
- iii. Commercial development hub adjacent to A550
- iv. District Centre(s) to serve local convenience needs
- v. Strengthened and raised River Dee flood defences
- vi. Provision of internal road infrastructure
- vii. Provision of land and a contribution to extending Sealand CP School
- viii. Sustainable drainage/flood management solution
- ix. Provision of green infrastructure network
- x. Sensitive re-use of John Summers Listed buildings and grounds



**Figure 12.3 Extract from LDP Policy Map**

- 2.33. Policy PE7 relates to Town Centres. The policy states ‘Retail, leisure and commercial development will be directed towards a hierarchy as identified on the proposals map. Proposals will be supported where they are appropriate in scale and type for a particular centre. The policy reflects the ‘town centre first’ principles, but recognises the difficulty facing town and district centres as a result of the retailing climate and online shopping’
- 2.34. Policy EN2 Green Infrastructure states ‘development proposals will be required to protect, maintain and enhance the extent, quality and connectivity of the green infrastructure network, including designated green spaces (as shown on the proposals maps), and where appropriate:
- a) create new green infrastructure linkages from the proposed development to the existing network;
  - b) fill in gaps in the existing network to improve connectivity.’
- 2.35. Policy EN11 Green Barriers proposes designated green barriers in which development will only be permitted for specific needs, for example justified rural enterprise needs, essential facilities for outdoor sport and outdoor recreation and limited extension, alteration or replacement of existing dwellings.

### 3. Consultations

3.1. Consultation has been undertaken with the Betsi Cadwaladr University Health Board in relation to the Health Impact Assessment (HIA) which forms part of the wider assessment and will be submitted with the planning application. The details of the consultation are summarised in Table 12.1.

Theme / Issue	Date	Consultee	Method	Summary of Discussion	Outcome / Output
HIA scoping	19-08-21	Professor Robert Atenstaedt MA MPhil MBBS MSc DPhil MPH Consultant in Public Health Medicine & Associate Director of Public Health for North Wales, Public Health Wales; Visiting Professor in Public Health Medicine, Glyndŵr University. Honorary Senior Lecturer, School of Medical Sciences, Bangor University.	Email	Commentary was provided on the HIA scoping document which had been submitted to Public Health Wales. Key points were as follows; The type of HIA needs clarification. Population profile, literature review and stakeholder knowledge and experience need to be triangulated. More detail on consultation with stakeholders required. It is noted that adopting a participatory approach would allow the Health Board and other partners to provide more local evidence and ensure a more holistic consideration of the health impacts. Terminology and wider health impacts need consideration.	The HIA reflects the comments made, including;  Introduction specifies the type of HIA  Consultation has been undertaken and detailed in the assessment  Terminology has been revised

Table 12.1: Summary of Consultations and Discussions

## **4. Methodology and Approach**

### **Approach to Assessment**

- 4.1. Apart from effects relating to wellbeing, this Technical Paper summarises health-related effects described in other relevant Technical Papers of the ES in relation to; Geology and Ground Conditions (Paper 1), Traffic and Transportation (Paper 2), Ecology and Nature Conservation (Paper 5), Socio Economic (Paper 6), Noise and Vibration (Paper 7), Air Quality, Odour and Dust (Paper 8) and links these effects to the methodology.
- 4.2. The methodologies for these assessments are set out in their relevant Technical Papers, and include the identification of receptors, baseline conditions and assessment of their effects. To assess the project related effects associated with human health, it has been necessary to identify and quantify the types of effect on human health and overall wellbeing.

### **Assessment Methodology and Criteria**

- 4.3. The assessment of human health impacts has been undertaken using the following methodology:
- Review of the strategic policy context to provide an outline of the relevant national and sub-national /local health-related objectives of the area.
  - Likely environmental and economic impacts of the Proposed Development on health determinants, and the location of sensitive receptors have informed the study area which is defined in section 4 of this Technical Paper.
  - Desk-top review of the Local and County wide available data to establish the baseline for the assessment, using sources such as the Office for National Statistics (ONS), Public Health Wales (PHW) data and Census records. This has allowed the health, social and economic profile of the affected population(s) to be established as well as vulnerable groups and sensitive community resources affected by the development to be identified.

- Scientific literature to support an association between changes that are likely to occur due to the Proposed Development and changes to health outcomes has been referenced within the baseline information (section 5).
- The relevant assessment of physical environmental effects and any proposed mitigation included in the following ES Technical Papers are also included in this Technical Paper: Geology and Ground Conditions (Paper 1), Traffic and Transportation (Paper 2), Ecology and Nature Conservation (Paper 5), Socio Economic (Paper 6), Noise and Vibration (Paper 7), Air Quality, Odour and Dust (Paper 8). The impacts without mitigation described in these Technical Papers will be reviewed as part of the assessment in Section 7 of this ES Technical Paper.
- A separate Health Impact Assessment (HIA) (Appendix 12.1) has also been undertaken which considers how the Proposed Development will have an effect on the key factors that can influence people's health and wellbeing, and to suggest ways in which negative health impacts can be mitigated and positive health impacts enhanced. This ES Technical Paper considers the findings of the HIA as part of the assessment in Sections 7 and 8.
- Assessment of the likely human health impacts of the Proposed Development during the construction and operation phases, based on sensitivity value of receptor and magnitude of effect.
- Recommendation of mitigation measures including those measures described in in the following ES Technical Papers are also included in this Technical Paper; Geology and Ground Conditions (Paper 1), Traffic and Transportation (Paper 2), Ecology and Nature Conservation (Paper 5), Socio Economic (Paper 6), Noise and Vibration (Paper 7), Air Quality, Odour and Dust (Paper 8).
- Identification of residual effects following implementation of mitigation measures.
- Identify any significant cumulative effects that arise in relation to other schemes within the local area.

4.4. To produce the methodology for the assessment of the Proposed Development, the health determinants provided within the consultation draft document named "Addressing Human

Health in Environmental Impact Assessment” by Cave et al in 2019 have been used. The document states “The expectation should be that the scoping process establishes a proportionate number of health issues to be considered for further assessment.” As such, this Technical Paper sets out the relevant determinants and their effects/impacts to be assessed in relation to the Proposed Development, set out in Table 12.2.

<b>Main category</b>	<b>Examples of determinants and factors influencing health and wellbeing</b>			
	<b>Construction</b>	<b>Justification</b>	<b>Operation</b>	<b>Justification</b>
General social, economic and political factors	<b>Scoped in</b> <ul style="list-style-type: none"> <li>• economic, social, environmental and health trends</li> </ul>	The construction of the proposed development is likely to have an impact on the local economy due to its scale.	<b>Scoped in</b> <ul style="list-style-type: none"> <li>• economic, social, environmental and health trends</li> <li>• local and national priorities, policies, programmes and projects</li> </ul>	The operation of the proposed development is likely to have an impact on the local economy due to its type and scale.
	<b>Scoped out</b> <ul style="list-style-type: none"> <li>• discrimination/racism</li> <li>• social exclusion</li> <li>• local and national priorities, policies, programmes and projects</li> <li>• freedoms of speech and press</li> <li>• political participation</li> <li>• poverty</li> <li>• general inequalities</li> </ul>	The construction phase of the proposed development will not alter and political factors, policies or the ability of individuals to comment or participate in politics.	<b>Scoped out</b> <ul style="list-style-type: none"> <li>• discrimination/racism</li> <li>• freedoms of speech and press</li> <li>• political participation</li> <li>• poverty</li> <li>• social exclusion</li> <li>• general inequalities</li> </ul>	The operational phase of the proposed development will not alter and political factors, policies or the ability of individuals to comment or participate in politics.

Global ecosystem	<b>Scoped in</b> <ul style="list-style-type: none"> <li>biodiversity; natural spaces and habitats</li> </ul>	The construction phase of the proposed development has the potential to alter biodiversity in the area.	<b>Scoped in</b> <ul style="list-style-type: none"> <li>biodiversity; natural spaces and habitats</li> </ul>	The operational phase of the proposed development has the potential to alter biodiversity in the area.
	<b>Scoped out</b> <ul style="list-style-type: none"> <li>climate change (including extreme weather events)</li> <li>natural hazards</li> </ul>	The construction phase of the proposed development will not alter the climate or natural hazards.	<b>Scoped out</b> <ul style="list-style-type: none"> <li>climate change (including extreme weather events)</li> <li>natural hazards</li> </ul>	The operational phase of the proposed development will not alter the climate or natural hazards.
Natural environmental factors	<b>Scoped in</b> <ul style="list-style-type: none"> <li>air quality</li> <li>open and green space, landscape</li> </ul>	There is potential for the construction of the proposed development to impact on air quality and the provision of open/greenspace.	<b>Scoped in</b> <ul style="list-style-type: none"> <li>air quality</li> <li>open and green space, landscape</li> </ul>	There is potential for the operation of the proposed development to impact on air quality and the provision of open/greenspace.
	<b>Scoped out</b> <ul style="list-style-type: none"> <li>disease vectors</li> <li>food resources and safety</li> <li>radiation</li> <li>water resources and safety</li> <li>biological and chemical agents</li> <li>soil (contamination)</li> </ul>	The construction phase of the proposed development will not alter environmental factors such as food resource or radiation due to the nature and location of the construction type.	<b>Scoped out</b> <ul style="list-style-type: none"> <li>disease vectors</li> <li>food resources and safety</li> <li>radiation</li> <li>water resources and safety</li> <li>biological and chemical agents</li> <li>soil (contamination)</li> </ul>	The operation phase of the proposed development will not alter environmental factors such as food resource or radiation due to the nature and location of the scheme.
Built environment	<b>Scoped in</b> <ul style="list-style-type: none"> <li>noise/vibrations</li> <li>industrial areas – industrial contaminated sites</li> </ul>	The construction phase of the proposed development will create noise and impact upon the built environment.	<b>Scoped in</b> <ul style="list-style-type: none"> <li>smell/odours</li> <li>noise/vibrations</li> <li>industrial areas – industrial contaminated sites</li> </ul>	The operation of the proposed development has the potential to impact upon smell/odour. There will also be noise impact due to the type of use on the site.

	<p><b>Scoped out</b></p> <ul style="list-style-type: none"> <li>• housing safety</li> <li>• housing size and level of crowding</li> <li>• housing supply, affordability, and accessibility</li> <li>• residential segregation</li> <li>• sites of cultural significance (sacred or historic)</li> <li>• light pollution (e.g., reflections)</li> <li>• smell/odours</li> <li>• neighbourhood infrastructure and livability</li> <li>• places</li> <li>• streets and routes</li> <li>• urban green space, parks/landscape</li> </ul>	<p>The construction phase of the proposed development will not alter housing in any way. There will be no impact on neighbourhood infrastructure or culture.</p>	<p><b>Scoped out</b></p> <ul style="list-style-type: none"> <li>• housing safety</li> <li>• housing size and level of crowding</li> <li>• housing supply, affordability, and accessibility</li> <li>• residential segregation</li> <li>• vibrations</li> <li>• indoor air quality</li> <li>• sites of cultural significance (sacred or historic)</li> <li>• places</li> <li>• light pollution (e.g., reflections)</li> <li>• streets and routes</li> <li>• urban green space, parks/landscape</li> <li>• neighbourhood infrastructure and livability</li> </ul>	<p>The operational phase of the proposed development will not alter housing in any way. Furthermore, places and cultural significance will not be impacted upon by the proposed development.</p>
<p><b>Services</b></p>	<p><b>Scoped in</b></p> <ul style="list-style-type: none"> <li>• public transportation – access and quality</li> </ul>	<p>The construction phase may result in additional public transport users.</p>	<p><b>Scoped in</b></p> <ul style="list-style-type: none"> <li>• public transportation – access and quality</li> <li>• Private services and local economy</li> </ul>	<p>The operational phase may result in additional public transport users. Furthermore, the proposed development will increase private services and impact the local economy.</p>

	<p><b>Scoped out</b></p> <ul style="list-style-type: none"> <li>• hospitals – access and quality</li> <li>• primary community and secondary health care – access and quality</li> <li>• childcare services – access and quality</li> <li>• social services – access and quality</li> <li>• waste systems – waste disposal</li> <li>• water and sanitation systems</li> <li>• financial institutions</li> <li>• retail food resources</li> <li>• educational – access and quality</li> <li>• Private services and local economy</li> <li>• police/security and emergency response</li> </ul>	<p>The construction of the proposed development will not affect services apart from those listed above. This is due to the contained nature of the construction and development process.</p>	<p><b>Scoped out</b></p> <ul style="list-style-type: none"> <li>• hospitals – access and quality</li> <li>• primary community and secondary health care – access and quality</li> <li>• childcare services – access and quality</li> <li>• social services – access and quality</li> <li>• waste systems – waste disposal</li> <li>• water and sanitation systems</li> <li>• financial institutions</li> <li>• retail food resources</li> <li>• educational – access and quality</li> <li>• police/security and emergency response</li> </ul>	<p>The operation of the proposed development will not affect services apart from those listed above. This is due to the nature of the proposed development.</p>
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Employment and livelihood	<b>Scoped in</b> <ul style="list-style-type: none"> <li>income and employment benefits</li> <li>un-/employment and job security</li> </ul>	The proposed development will create jobs during construction phase which has a direct impact on employment and livelihood.	<b>Scoped in</b> <ul style="list-style-type: none"> <li>income and employment benefits</li> <li>un-/employment and job security</li> </ul>	The proposed development will create jobs during operation which has a direct impact on employment and livelihood.
	<b>Scoped out</b> <ul style="list-style-type: none"> <li>workplace occupational hazards</li> <li>workplace rewards and control</li> </ul>	Onsite health and safety policy will be implemented during the construction phase of the Proposed Development to reduce occupational hazards. The guidance will be produced in accordance with Health and Safety Legislation. Therefore, there is no need for this to be assessed as part of the Human Health Technical Paper.	<b>Scoped out</b> <ul style="list-style-type: none"> <li>workplace occupational hazards</li> <li>workplace rewards and control</li> </ul>	Workplace occupational hazards have been scoped out of the assessment as end users of the Proposed Development will have on-site health and safety information that will be relevant to their operations.
Family and community structure	<b>Scoped in</b> <ul style="list-style-type: none"> <li>crime and violence</li> </ul>	There is potential for the presence of a construction site to have implications for crime and violence in the area.	<b>Scoped in</b> N/A	The operational phase of the proposed development is not considered to have an impact on community centres, cultural and spiritual participation or other factors that impact upon the family and community structure.

	<p><b>Scoped out</b></p> <ul style="list-style-type: none"> <li>• community centres</li> <li>• cultural and spiritual participation</li> <li>• family structure and relationships</li> <li>• social support (neighbourliness, social networks and isolation)</li> <li>• voluntary group participation</li> <li>• health inequalities (e.g., in different neighbourhoods)</li> <li>• health of minorities and vulnerable groups/impacts on different social groups</li> </ul>	<p>The construction of the proposed development is unrelated to social factors such as cultural participation as such it will have no impact on this.</p>	<p><b>Scoped out</b></p> <ul style="list-style-type: none"> <li>• community centres</li> <li>• cultural and spiritual participation</li> <li>• family structure and relationships</li> <li>• social support (neighbourliness, social networks and isolation)</li> <li>• voluntary group participation</li> <li>• health inequalities (e.g., in different neighbourhoods)</li> <li>• health of minorities and vulnerable groups/impacts on different social groups</li> <li>• crime and violence</li> </ul>	<p>The operational phase of the proposed development is not considered to have an impact on community centres, cultural and spiritual participation or other factors that impact upon the family and community structure.</p>
Behavioural risk factors and lifestyle	<p><b>Scoped in</b></p> <p>N/A</p>	<p>The construction of the proposed development will not impact upon behavioural risk and lifestyle factors.</p>	<p><b>Scoped in</b></p> <p>N/A</p>	<p>The operation of the proposed development will not impact upon behavioural risk and lifestyle factors.</p>

	<b>Scoped out</b> <ul style="list-style-type: none"> <li>• hygiene</li> <li>• physical activity/inactivity</li> <li>• smoking</li> <li>• substance abuse</li> <li>• alcohol consumption</li> <li>• diet</li> <li>• leisure and recreational activity</li> </ul>	<p>The construction of the proposed development will not impact upon behavioural risk and lifestyle factors.</p>	<b>Scoped out</b> <ul style="list-style-type: none"> <li>• hygiene</li> <li>• physical activity/inactivity</li> <li>• smoking</li> <li>• substance abuse</li> <li>• alcohol consumption</li> <li>• diet</li> <li>• leisure and recreational activity</li> </ul>	<p>The operation of the proposed development will not impact upon behavioural risk and lifestyle factors apart from leisure and recreational activity.</p>
Biological and genetic factors	<b>Scoped in</b> N/A	<p>Existing health conditions and disabilities, age or gender will not be affected by the construction of the proposed development.</p>	<b>Scoped in</b> N/A	<p>Existing health conditions and disabilities age or gender will not be affected by the operation of the proposed development.</p>
	<b>Scoped out</b> <ul style="list-style-type: none"> <li>• Age</li> <li>• Gender</li> <li>• Existing health conditions and disabilities</li> </ul>	<p>Existing health conditions and disabilities, age or gender will not be affected by the construction of the proposed development.</p>	<b>Scoped out</b> <ul style="list-style-type: none"> <li>• Age</li> <li>• Gender</li> <li>• Existing health conditions and disabilities</li> </ul>	<p>Existing health conditions and disabilities age or gender will not be affected by the operation of the proposed development.</p>

Table 12.2 Justification for scoped in/out determinants

## Magnitude

4.5. The significance of health effects considers the magnitude of impacts on health determinants during construction and operation, alongside the sensitivity of the population exposed to these impacts.

4.6. The magnitude of an impact on a health determinant and/or community resource can be either beneficial or adverse. Table 12.3 shows the criteria used to determine the magnitude of impact.

Magnitude	Guidelines for magnitude of impact on health determinants/receptor
Major	<p>A substantial change to a health determinant, with two or more of the following characteristics:</p> <ul style="list-style-type: none"> <li>assessed as 'major' by relevant environmental topics;</li> <li>likely to be perceived by the population as a substantial change;</li> <li>has the potential to affect the occurrence of acute or chronic mental or physical illness;</li> <li>long term duration or permanent (judgements on timescales are dependent on nature of impact).</li> </ul>
Moderate	<p>A change to a health determinant, with two or more of the following characteristics:</p> <ul style="list-style-type: none"> <li>assessed as 'moderate' by relevant environmental topics;</li> <li>likely to be perceived by the population as a change;</li> <li>has the potential to improve / reduce mental wellbeing or quality of life, or exacerbate / alleviate symptoms of existing illness;</li> <li>medium to long-term duration.</li> </ul>
Minor	<p>A modest change to a health determinant, with two or more of the following characteristics:</p> <ul style="list-style-type: none"> <li>assessed as 'minor' by relevant environmental topics;</li> <li>likely to be perceived by the population as a modest change;</li> <li>has the potential to lower or raise wellbeing in terms of levels of comfort and contentment;</li> <li>short to medium term duration</li> </ul>
Negligible	<p>A 'very low' magnitude of impact is likely to be perceptible and localised. It may have the potential to lower or raise wellbeing in terms of levels of comfort and contentment.</p>
Neutral	No impact

Table 12.3: Guidelines for magnitude of impact on health determinants/receptor

4.7. Sensitivity is defined by the size of the population exposed to an impact and its vulnerability to health effects. Table 12.4 sets out guidelines for the assessment of population exposure and vulnerability for the health assessment. Table 12.5 shows how these two factors are combined to give a rating of sensitivity.

Rating/Sensitivity Value	Guidelines on vulnerability of population (for health assessment)	Guidelines on size of population exposed
Very High	Affected population includes a significantly higher than national average proportion of vulnerable or disadvantaged groups who are more likely to experience adverse health effects as a result of the impact in question.	A very high level of exposure would occur over a wide geographical area e.g. national and/or be likely to affect a very large number of people.
High	Affected population includes a higher than national average proportion of vulnerable or disadvantaged groups who are more likely to experience adverse health effects as a result of the impact in question.	A high level of exposure would occur over a regional geographical area e.g. North Wales and/or be likely to affect a large number of people.
Medium	Affected population includes an average or close to average proportion of vulnerable or disadvantaged groups who are more likely to experience adverse health effects as a result of the impact in question.	A medium level of exposure would cover the borough area e.g. Flintshire.
Low	Affected population includes a below average proportion of vulnerable or disadvantaged groups who are more likely to experience adverse health effects as a result of the impact in question.	A low level of exposure would cover a small geographical area e.g. Deeside or the Sealand ward and/or affect a small number of people.
Negligible	Not applicable (the population is considered not to be vulnerable to health effects).	Not applicable (no population is considered to be vulnerable to health effects).

Table 12.4: Guidelines for the assessment of population vulnerability and exposure for health assessment.

4.8. Table 12.5 shows the population sensitivity matrix for health assessment.

Population exposure	Population vulnerability				
	Very High	High	Medium	Low	Negligible
Very High	Very High	Very High	High	Medium	Negligible
High	Very High	High	Medium	Medium	Negligible
Medium	High	Medium	Medium	Low	Negligible
Low	Medium	Medium	Low	Low	Negligible
Negligible	Negligible	Negligible	Negligible	Negligible	Negligible

Table 12.5: Population sensitivity matrix

4.9. The matrix used for the assessment of the significance of health effects is provided in Table 12.6.

		Sensitivity Value of Receptor					
		Very High (e.g. International)	High (e.g. National)	Medium (e.g. Regional / County)	Low (e.g. Local)	Negligible	
Magnitude of Effect	Positive Impacts	Major	Substantial Benefit	High / Substantial Benefit	Moderate / High Benefit	Minor / Moderate Benefit	Minor Benefit
		Moderate	High / Substantial Benefit	Moderate / High Benefit	Moderate Benefit	Minor Benefit	Negligible / Minor Benefit
		Minor	Moderate / High Benefit	Minor / Moderate Benefit	Minor Benefit	Negligible / Minor Benefit	Negligible / Minor Benefit
		Negligible	Minor Benefit	Minor Benefit	Negligible / Minor Benefit	Negligible / Minor Benefit	Neutral / Negligible
		Neutral	Neutral	Neutral	Neutral	Neutral	Neutral
	Negative Impacts	Negligible	Minor Adverse	Minor Adverse	Negligible / Minor Adverse	Negligible / Minor Adverse	Neutral / Negligible
		Minor	Moderate / High Adverse	Minor / Moderate Adverse	Minor Adverse	Negligible / Minor Adverse	Negligible / Minor Adverse
		Moderate	High / Substantial Adverse	Moderate / High Adverse	Moderate Adverse	Minor Adverse	Negligible / Minor Adverse
		Major	Substantial Adverse	High / Substantial Adverse	Moderate / High Adverse	Minor / Moderate Adverse	Minor Adverse
			Significant impact	Potentially significant impact	Potentially significant impact	Potentially significant impact	Not significant

Table 12.6: Population significance matrix

## Receptors

### Study Area

4.10. A map of the receptors within the study area is outlined in Figure 12.4 below:

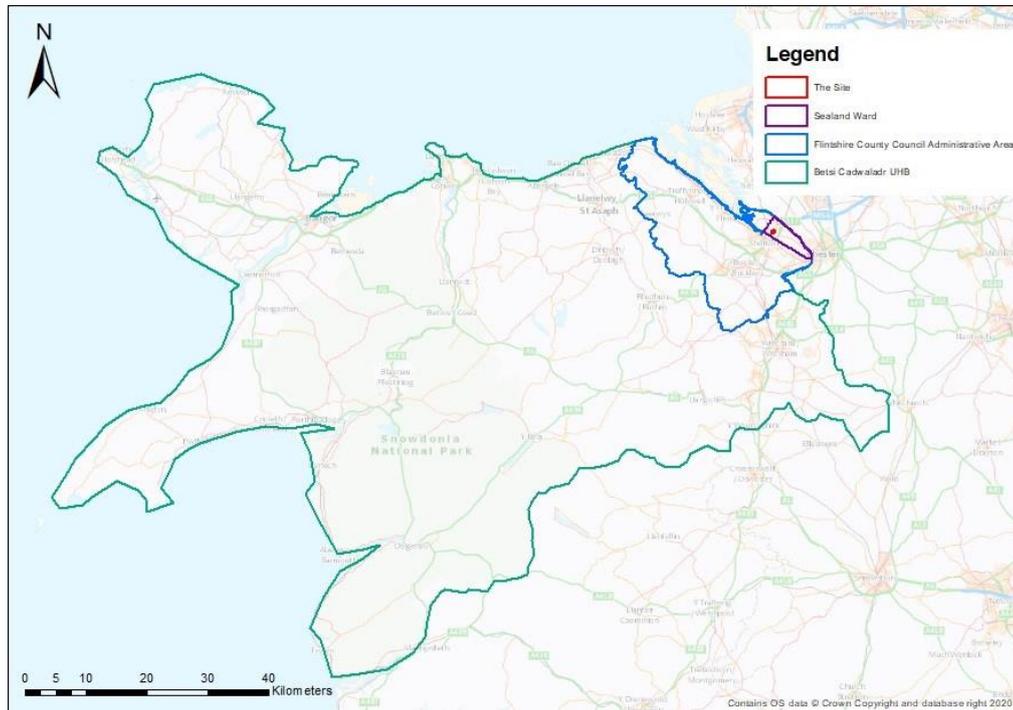


Figure 12.4 – Map showing the study area

Designation	Receptors
International	Worldwide
National	Wales
Regional	North Wales
County	Flintshire
Borough / District	Deeside
Local/Neighbourhood	Sealand ward

Table 12.7: Receptors

### Community profile

4.11. Baseline data has been collected for study area for the Proposed Development for this ES Technical Paper. The study area is based on likely environmental and economic impacts on health determinants of the Proposed Development and the location of sensitive receptors or population groups.

4.12. The population profile includes data and information about:

- demographics: population density, age profile;
- social and economic characteristics: employment, income, deprivation; and
- health characteristics: life expectancy, health and wellbeing indicators for adults and children.

4.13. The health determinants provided within the document “Addressing Human Health in Environmental Impact Assessment” by Cave et al in 2019 and baseline data have informed the identification of receptors for each of the human health impacts, shown in Table 12.8.

Determinant	Example Receptors
General social, economic and political factors	Local and county wide population i.e. Sealand ward, Deeside and Flintshire
Global ecosystem	Local population i.e. Sealand ward and Deeside
Natural environmental factors	Local population i.e. Sealand ward and Deeside
Built environment	Immediate local population i.e. Sealand ward
Services	Local population i.e. Sealand ward and Deeside
Employment and livelihood	Local and county wide population i.e. Sealand ward, Deeside and Flintshire
Family and community structure	Immediate local population i.e. Sealand ward

Behavioural risk factors and lifestyle	N/A
Biological and genetic factors	N/A

Table 12.8: Human Health Impacts

## Environmental Impacts

- 4.14. In relation to human health, there are no published standards against which the predicted impacts of a development can be assessed in terms of defining the magnitude of effect. The approach adopted therefore used professional judgement and takes account of the baseline profile of the area and the health determinants set out as part of the methodology for the assessment. The approach to the assessment of environmental impacts is shown in Table 12.9 below.

Rating	Environmental Impact
Major	<b>Positive:</b> The Proposed Development, without mitigation measures, will have a substantial positive impact on the environment in comparison to baseline indicators and health determinants.
	<b>Negative:</b> The Proposed Development, without mitigation measures, will have a substantial negative impact on the environment, in comparison to baseline indicators and health determinants.
Moderate	<b>Positive:</b> The Proposed Development, without mitigation measures, will have a positive impact on the environment, that is neither deemed substantial, nor small, in comparison to baseline indicators and health determinants.
	<b>Negative:</b> The Proposed Development, without mitigation measures, will have a negative impact on the environment that is neither deemed to be substantial, nor small, in comparison to baseline indicators and health determinants.
Minor	<b>Positive:</b> The Proposed Development, without mitigation measures, will have a small positive impact on the environment in comparison to baseline indicators and health determinants.
	<b>Negative:</b> The Proposed Development, without mitigation measures, will have a small negative impact on the environment, in comparison to baseline indicators and health determinants.
Negligible / no impact	The Proposed Development, without mitigation measures, will have little or no impact on the environment in comparison with baseline indicators and health determinants.

Table 12.9: Environmental Impacts

## Significance of Effects

- 4.15. The significance of effect is determined using the significance matrix in Section 6 of the Environmental Statement Part I Report. This identifies the receptor level across the top of

the matrix and the magnitude of environmental impact down the side and where they meet within the matrix identifies the significance of the effect.

## Impact Prediction Confidence

- 4.16. It is also of value to attribute a level of confidence by which the predicted impact has been assessed. The criteria for these definitions are set out below:

Confidence Level	Description
High	The predicted impact is either certain i.e. a direct impact, or believed to be very likely to occur, based on reliable information or previous experience.
Low	The predicted impact and its levels are best estimates, generally derived from first principles of relevant theory and experience of the assessor. More information may be needed to improve confidence levels.

Table 12.10: Confidence Levels

## Assumptions and limitations

- 4.17. Due to the recent changes in EU legislation for the assessment of Environmental Impact Assessments and production of Environmental Statements there has not yet been a precedent for Technical Papers that present data and recommendations that focus on human health from a wellbeing perspective. The topic of wellbeing is broad and subject to professional judgement.
- 4.18. There is the added difficulty of the fact that there has not yet been any guidance produced for the assessment of human health, apart from indications that topics such as air quality should be covered under this topic.
- 4.19. It is assumed that the ES topics which have informed the Human Health Technical Paper are reliable and the conclusions to be correct. It is also assumed that the suggested mitigation measures will be implemented and effective.
- 4.20. Baseline information and supporting scientific literature which forms the basis for the Human Health assessment has been taken from publicly available sources. These are up to date and credible sources which have had professional judgement applied to determine the likely effects on Human Health.

## 5. Baseline Information

5.1. This section includes baseline information on the determinants of health and a description of the characteristics of the receptor population(s).

### Health and Demographic profile

#### Population

5.2. The estimated population of Flintshire is 155,593 with approximately 18% under being 15 years of age or under, 61% aged 16-64 and 21% aged 65 and over. The population profile is broadly in line with the UK as shown in Figure 12.5.



Figure 12.5 Estimated Population

Source: ONS, 2018

## Economic and Employment Activity

- 5.3. There is an established link between unemployment and levels of physical inactivity, debilitating illnesses and mental health and wellbeing. Unemployment has been proven to increase rates of mental health issues, disability and sickness and overall reduces life expectancy (The Health Foundation, 2020).
- 5.4. The Marmot Review (2010); investigates health inequalities and the relationship between health and social group. Although review is based on England the findings with regard to the relationship between health and other factors are applicable in Wales. The report identified six policy objectives for reducing health inequalities, these are;
- Give every child the best start in life;
  - Enable all children young people and adults to maximise their capabilities and have control over their lives;
  - Create fair employment and good work for all;
  - Ensure healthy standard of living for all;
  - Create and develop healthy and sustainable places and communities; and
  - Strengthen the role and impact of ill health prevention
- 5.5. The Review finds ‘being in good employment is protective of health. Conversely, unemployment contributes to poor health.’ The review was updated in 2020, the report shows that employment may also have a negative impact on health in some cases for example if it causes stress or may not be of good quality. It defines good quality as featuring “job security; adequate pay for a healthy life; strong working relationships and social support; promotion of health, safety and psychosocial wellbeing; support for employee voice and representation; inclusion of varied and interesting work; a fair workplace; promotion of learning development and skills use; a good effort–reward balance; support for autonomy, control and task discretion; and good work–life balance.”

5.6. It also finds that;

- Employment rates have increased since 2010;
- There has been an increase in poor quality work, including part-time, insecure employment;
- The number of people on zero hours contracts has increased significantly since 2010
- The incidence of stress caused by work has increased since 2010;
- Real pay is still below 2010 levels and there has been an increase in the proportion of people in poverty living in a working household; and

5.7. Table 12.11 shows that Flintshire and the Sealand ward have a slightly higher proportion of economically active population than the national average, at 79.0 and 78.4 respectively. However, in terms of unemployment in Flintshire the proportion of population is lower than the national average whereas the Sealand ward the same figure is higher.

	England and Wales (%)	Flintshire (%)	Sealand ward (%)
<b>Economically Active</b> <sup>†</sup>	76.8	79.0	78.4
<b>In Employment</b> <sup>†</sup>	71.0	74.0	72.1
Employees <sup>†</sup>	60.6	65.5	64.9
Self Employed <sup>†</sup>	10.4	8.5	7.2
<b>Unemployed (Model-Based)</b> <sup>§</sup>	7.6	6.4	8.1

Table 12.11: Employment Statistics

<sup>†</sup> - numbers are for those aged 16 and over, % are for those aged 16-64

<sup>§</sup> - numbers and % are for those aged 16 and over. % is a proportion of economically active

Source: NOMIS, 2011

Furthermore, the Summary statistics for North Wales region: 2020 shows “For the year ending 30 September 2019, North Wales had the highest employment rate and lowest economic inactivity rate of the four Welsh regions.”

5.8. In addition, “The employment level is the total number of people (aged 16+) that are in employment and the employment rate is the percentage of the population (aged 16-64) that is in employment. Of the four regions, North Wales had the highest employment rate in Wales in the year ending 30

September 2019. Flintshire was the local authority with the highest employment rate in Wales with a rate of 79.7 per cent (higher than both Wales and the UK).”

- 5.9. Table 12.12 below illustrates the percentage of the working population by type of employment role.

Employment Role	England and Wales (%)	Flintshire (%)	Sealand ward (%)
Managers and Senior Officials	10.8	9.3	7.6
Professional	17.4	13.6	8.9
Associate Professional and Technical	12.7	10.8	10.1
Administrative and Secretarial	11.4	10.9	8.2
Skilled Trades	11.5	14.1	12.1
Personal Services	9.4	9.6	8.5
Sales and Customer Services	8.4	8.9	10.8
Process Plant and Machine Operatives	7.2	11.1	14.8
Elementary Occupations	11.2	11.7	19.0

**Table 12.12: Population (%) by Employment Role Type**

Note: Percentages are based on all persons in employment.

Source: NOMIS, 2011

- 5.10. The data in Table 12.12 shows the highest percentage of workers in Flintshire fall within the ‘Skilled Trade’ category, for the Sealand ward the highest percentage falls within ‘Elementary Occupations’.
- 5.11. Table 12.13 shows both weekly and hourly earnings (Pounds) by place of residence in Flintshire, Wales and Great Britain.
- 5.12. The data in Table 12.13 shows the gross weekly pay earnings of Full-time workers in Flintshire is £22.90 higher than the Wales average of £541.70, nonetheless £22.50 less than the average for Great Britain. For Males it is also higher in Flintshire than Wales, and less than Great Britain. However, for Female Full-Time workers the Gross Weekly Pay is lower in Flintshire, £502.30, than both Wales (£515.40) and Great Britain (£544.30).

Earnings by place of residence (2020)	Flintshire (Pounds)	Wales (Pounds)	Great Britain (Pounds)
<b>Gross Weekly Pay</b>			
Full-Time Workers	564.6	541.7	587.1
Male Full-Time Workers	586.4	562.4	622.9
Female Full-Time Workers	502.3	515.4	544.3
<b>Hourly Pay - Excluding Overtime</b>			
Full-Time Workers	13.60	13.83	15.18
Male Full-Time Workers	13.38	14.12	15.64
Female Full-Time Workers	13.85	13.49	14.42

**Table 12.13: Earnings by place of residence (2020)**

Source: ONS annual survey of hours and earnings - resident analysis

Notes: Median earnings in pounds for employees living in the area.

## Deprivation Overview

5.13. Measures of deprivation differ to measures of income; however, deprivation is a consequence of a lack of resources and income. This is then cumulatively translated to living in poverty and is often referred to as relative deprivation. Townsend (PSE, 2016) developed a list of sixty indicators that assessed 'styles of living' to support the relative deprivation approach. These indicators covered topics such as:

- Diet;
- Clothing;
- Fuel and light;
- Home amenities;
- Housing and housing facilities;
- The immediate environment of the home;
- The general conditions and security of work;

- Family support;
- Recreation;
- Education;
- Health; and
- Social relations.

5.14. Townsend determined that a lack of or non-participation in these categories was an indicator of deprivation. A 'score' for different forms of deprivation could be ascertained and related to household income.

5.15. The Proposed Development overlaps two Middle Layer Super Output Area's Sealand 1 (W01000332) and Sealand 2 (W01000333).

5.16. The Welsh Index of Multiple Deprivation (WIMD) is the official measure of relative deprivation for small areas in Wales. It identifies areas with the highest concentrations of several different types of deprivation. It is a National Statistic produced by statisticians at the Welsh Government.

Sealand 1 (W01000332)

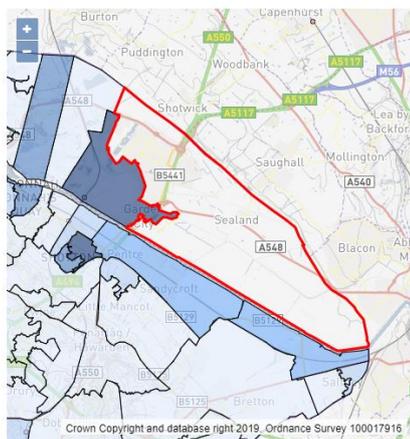


Figure 12.11 Sealand 1 output ward  
Source: WIMD, 2019

Sealand 2 (W01000333)

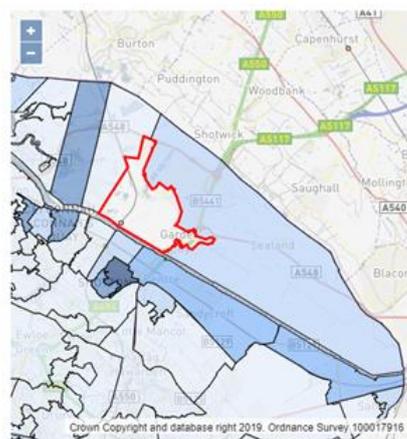


Figure 12.12 Sealand 2 output ward  
Source: WIMD, 2019

5.17. Table 12.14 shows the WIMD is currently made up of eight separate domains (or topics) of deprivation. The table also includes the overall rank of each ward. Each of the domains include several indicators of deprivation. Both Sealand Output Areas are within a minimum of the 10% most deprived areas in Wales (except for Employment in Sealand 1, 50% least deprived.).

Topic	Sealand 1 (W01000332)		Sealand 2 (W01000333)	
	Rank out of 1909 in Wales	Meaning	Rank out of 1909 in Wales	Meaning
Overall	575	30-50% most deprived	158	10% most deprived.
Income	890	30-50% most deprived	267	10-20% most deprived.
Employment	1138	50% least deprived.	301	10-20% most deprived
Health	695	30-50% most deprived.	184	10% most deprived.
Education	435	20-30% most deprived.	31	10% most deprived.
Access to Services	368	10-20% most deprived	858	30-50% most deprived
Community Safety	240	10-20% most deprived.	93	10% most deprived.
Physical Environment	155	10% most deprived.	260	10-20% most deprived
Housing	274	10-20% most deprived	479	20-30% most deprived

Table 12.14: The Welsh Index of Multiple Deprivation (WIMD)

## Education

- 5.18. Children who perform poorly at school are more likely to be unemployed or gain lower income employment/ insecure employment. This can have a detrimental impact upon health (Marmot et al, 2010 and 2020). Young people who are NEET (not in education, employment or training) have an increased chance of unemployment, experiencing mental health problems and criminal activity.
- 5.19. Table 12.15 shows that pupils in the Flintshire area that achieve NVQ3 and Above is 51.7%, lower than both Wales and Great Britain respectively. Also, the attainment levels of No Qualifications are also high at 8.3%, with average in Wales 7.6% and in Great Britain 6.4%.

Qualifications (Jan 2020-Dec 2020)	Flintshire (%)	Wales (%)	Great Britain (%)
NVQ4 And Above	31.6	38.8	43.1
NVQ3 And Above	51.7	58.5	61.4
NVQ2 And Above	73.4	76.5	78.2
NVQ1 And Above	87.2	86.7	87.9
Other Qualifications	4.4	5.7	5.7
No Qualifications	8.3	7.6	6.4

**Table 12.15: Qualifications (Jan 2020-Dec 2020)**

Source: ONS annual population survey

Notes: For an explanation of the qualification levels see the definitions section. Numbers and % are for those of aged 16-64 % is a proportion of resident population of area aged 16-64

## Health

- 5.20. Life expectancy is a key indicator in the health of the local population. Life expectancy can change across areas of a city and is strongly linked to deprivation levels as shown in Marmot et al (2020).
- 5.21. Table 12.16 shows life expectancy for the Sealand ward for both males and females is lower than the average for Flintshire and the UK. In comparison to the UK the life expectancy for those in Sealand is around 3.5years lower.

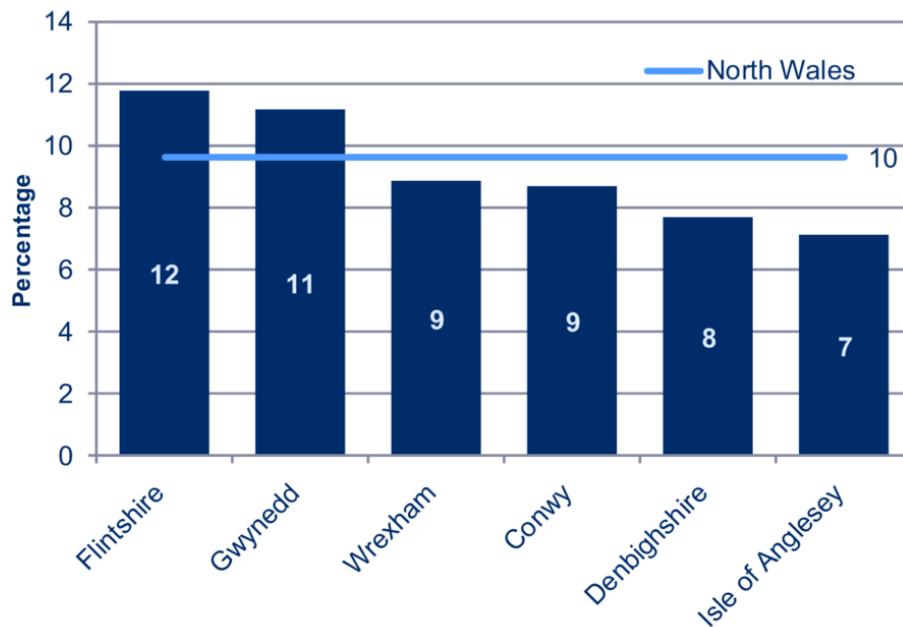
Location	Female average (years)	Male average (years)
UK	82.9	79.3
Flintshire	82.4	79.0
Sealand (ward)	79.4	75.9

**Table 12.16: Life Expectancy**

Source: ONS, 2018

5.22. However, The National Survey for Wales shows Flintshire to perform well in terms of healthy behaviours compared to the North Wales region.

5.23. Adults aged 16 and over showing 0 or 1 healthy lifestyle behaviours, by Local authority, 2017-18 and 2018-19\* (age standardised).



**Figure 12.6 Healthy Lifestyle Behaviours**  
The 2017-18 and 2018-19 periods have been combined for data quality purposes

Source: National Survey for Wales

*Note: The 5 healthy lifestyle behaviours are: not smoking, average weekly alcohol consumption 14 units or lower, eating at least 5 portions fruit & vegetables the previous day, having a healthy body mass index, and being physically active at least 150 minutes the previous week.*

5.24. Percentage of adults aged 16 and over reporting they are in good or very good general health, by local authority, 2017-18 and 2018-19\* (age standardised). In Flintshire it is 76%, slightly above the North Wales average of 75%.

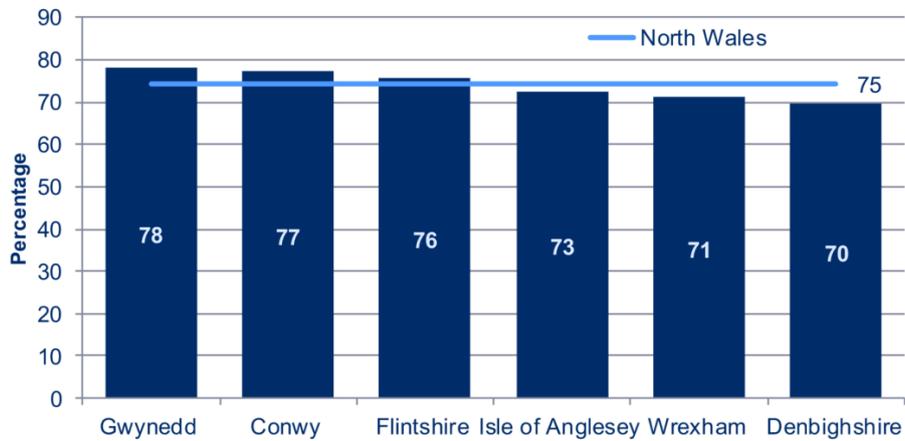


Figure 12.7 Adults reporting they are in good or very good general health

\* The 2017-18 and 2018-19 periods have been combined for data quality purposes

Source: National Survey for Wales

### Long-term Illness

- 5.25. Long-term illness and disabilities also have an effect on people’s health and wellbeing, affecting their ability to access education, work or local services and facilities.
- 5.26. Table 12.17 below shows the number of people who reported having a limiting long-term illness or disability in the 2011 Census. Of the output Area’s Sealand I (W01000332) and Sealand 2 (W01000333) combined usual residents, 16.7% will experience limited day to day activities of which 7.2% are limited a lot.

Location	All Usual Residents	Day-to-Day Activities Limited a Little	Day-to-Day Activities Limited a Lot	Day-to-Day Activities Not Limited
Sealand I (W01000331)	1,609	164	111	1,334
Sealand II (W01000332)	1,568	135	119	1,314

Table 12.17: Limiting long-term illness or disability

Source: Welsh Government 2011

## Mental Health

5.27. Table 12.18 shows admissions to mental health facilities by local health board in Wales.

Location/Health Board	Formal admissions	Informal admissions	Total admissions	Population	% total admissions
<b>Wales</b>	<b>1,916</b>	<b>6,399</b>	<b>8,315</b>	<b>3,169,586</b>	<b>0.26%</b>
Betsi Cadwaladr University Health Board	409	1,044	1,453	703,361	0.21%
Powys Teaching Health Board	52	191	243	133,030	0.18%
Hywel Dda University Health Board	244	658	902	389,719	0.23%
Abertawe Bro Morgannwg University Health Board	287	1,477	1,764	390,949	0.45%
Cwm Taf University Health Board	179	1,080	1,259	449,836	0.28%
Aneurin Bevan University Health Board	164	1,149	1,313	598,194	0.22%
Cardiff and Vale University Health Board	368	796	1,164	504,497	0.23%
Independent hospitals total	213	4	217	-	-

Table 12.18: admissions to mental health facilities by local health board in Wales

5.28. The Proposed Development lies within the area covered by Betsi Cadwaladr University Health Board (BCUHB). Table 12.18 shows that this local health board has a relatively low level of admissions per percentage population compared to the other health boards.

5.29. Table 12.19 shows patients in mental health hospitals and units in Wales with a mental illness.

Location/Health Board	2015	2016	2017	2018	2019
<b>Wales</b>	<b>1,441</b>	<b>1,430</b>	<b>1,368</b>	<b>1,319</b>	<b>1,291</b>
Betsi Cadwaladr University Health Board	224	236	237	224	239
Powys Teaching Health Board	46	36	30	29	30
Hywel Dda University Health Board	114	123	120	117	123
Abertawe Bro Morgannwg University Health Board	440	399	374	373	329
Cwm Taf University Health Board	139	168	146	142	135
Aneurin Bevan University Health Board	162	169	172	152	154
Cardiff and Vale University Health Board	316	299	289	282	281

Table 12.19: Patients in mental health hospitals and units in Wales with a mental illness

5.30. Table 12.19 shows that the number of patients in mental health hospitals and units with a mental illness in BCUHB has remained stable over the five years from 2015 to 2019 whereas Wales as a whole has seen a steady decline over the same period.

5.31. Table 12.20 shows Warwick-Edinburgh Mental Well-being Scale (WEMWBS) by local authority and health board. This shows that Flintshire has the highest score in Wales with

53.5, Betsi Cadwaladr University Health Board also performs well (52.4), and both are higher than Wales as a whole (51.4).

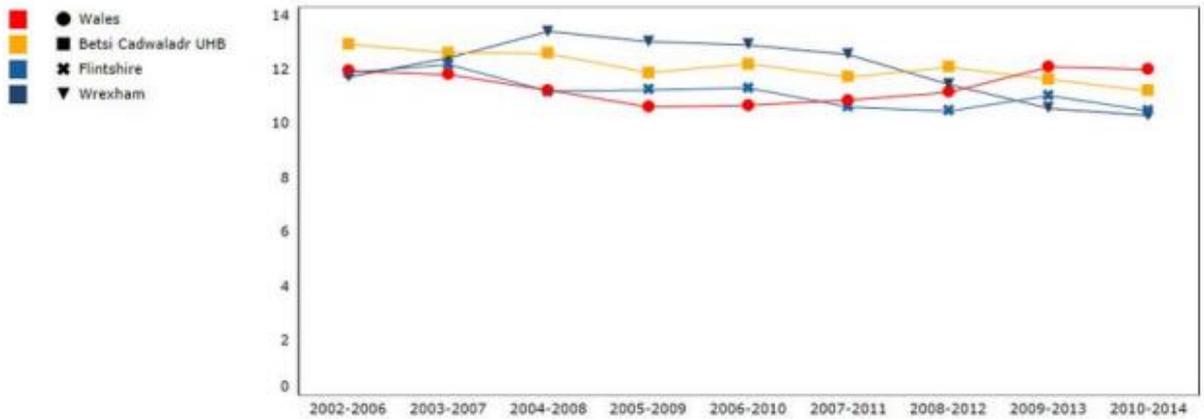
Area	2018-19
Flintshire	53.5
Conwy	53.3
Cardiff	53.2
Gwynedd	52.9
Cardiff and Vale University Health Board	52.5
Betsi Cadwaladr University Health Board	52.4
Neath Port Talbot	52.1
Isle of Anglesey	51.8
Powys Teaching Health Board	51.7
Powys	51.7
Monmouthshire	51.7
Denbighshire	51.6
Bridgend	51.6
Wales	51.4
Abertawe Bro Morgannwg University Health Board	51.1
Newport	51.1

Carmarthenshire	51.1
Swansea Bay University Health Board	51.0
Wrexham	50.9
Cwm Taf Morgannwg University Health Board	50.8
Merthyr Tydfil	50.5
Aneurin Bevan University Health Board	50.5
Hywel Dda University Health Board	50.4
Cwm Taf University Health Board	50.4
Rhondda Cynon Taf	50.3
Swansea	50.3
Caerphilly	50.2
Ceredigion	50.2
Vale of Glamorgan	50.0
Torfaen	49.8
Pembrokeshire	49.7
Blaenau Gwent	48.9

Table12.20: Warwick-Edinburgh Mental Well-being Scale (WEMWBS) by local authority and health board

5.32. Figure 12.8 shows how rates of suicide in the area covered by BCUHB compare to Wales East Area rates over time. Suicide rates are presented as number of deaths per 100,000 people of all ages and are given as five-year averages.

Suicides, European age-standardised rate (EASR) per 100,000, persons aged 10+, Wales, Betsi Cadwaladr UHB and local authorities, 5 years rolling rate, 2002/06-2010/14



Caution should be used when interpreting suicide rates due to improvements to the way they were coded from 2011. More details can be found in the Technical Guide. Produced by Public Health Wales Observatory, using Public Health Mortality and Mid-Year Population Estimates (ONS)

Figure 12.8 Suicide rate in Wales East Area

Source: BCUHB, 2018

- 5.33. The suicide rate in Flintshire has declined over the period, and largely remained below the BCUHB and Welsh averages. Wrexham started off below the BCUHB and Wales rates, went above it for a number of years, but has now dropped below again.

### Crime and Violence

- 5.34. The highest rates (all above the national average) are found in urban areas with high concentrations of deprivation. Recorded crime data has been published for “Community Safety Partnerships” (CSP), year ending June 2020.
- 5.35. Table 12.21 shows crime incidents in Sealand for the 12-month period from June 2020 to May 2021. The largest category was ‘Violence and sexual offences’, followed by ‘Anti-Social Behaviour’. Below are these incidents broken down by category.

Crime Category	Incidents	Percentage
Violence and sexual offences	215	30.9%
Anti-social behaviour	194	27.9%
Criminal damage and arson	80	11.5%

Public order	66	9.5%
Other theft	46	6.6%
Vehicle crime	21	3%
Shoplifting	19	2.7%
Burglary	16	2.3%
Other crime	13	1.9%
Drugs	13	1.9%
Bicycle theft	9	1.3%
Theft from the person	1	0.1%
Robbery	1	0.1%
Possession of weapons	1	0.1%

Table 12.21: Crime incidents in Sealand from June 2020 to May 2021

Source: Information provided by data.police.uk. Published under the Open Government License v3.0

5.36. Figure 12.9 shows crime incidents in Wales for the 12-month period from June 2020 to May 2021.

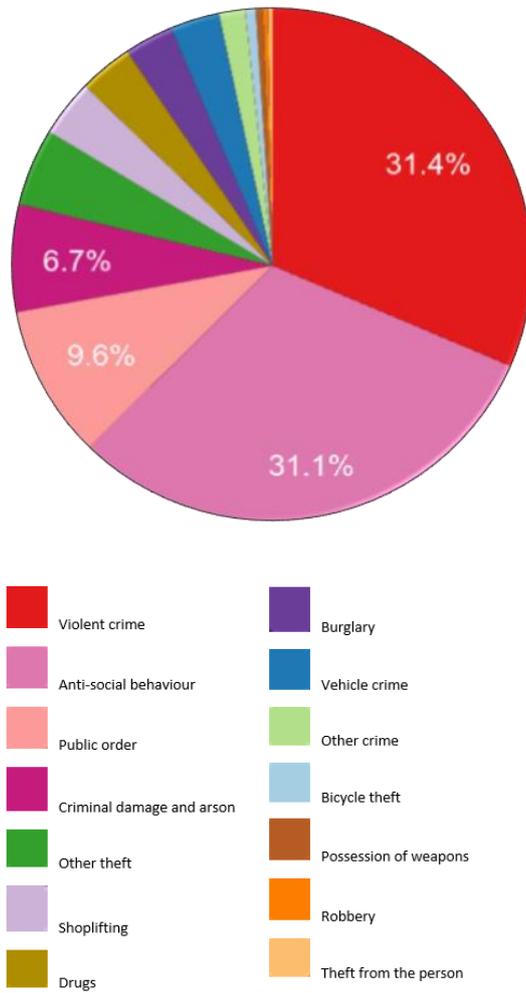


Figure 12.9: Crime incidents in Wales from June 2020 to May 2021

Source: Information provided by data.police.uk. Published under the Open Government License v3.0

5.37. Similarly, to Sealand ward the largest proportions were ‘Violent crime’ at 31.4% and ‘Anti-social behaviour’ at 31.1%.

## **Environment (Baseline against which to measure changes to health determinants)**

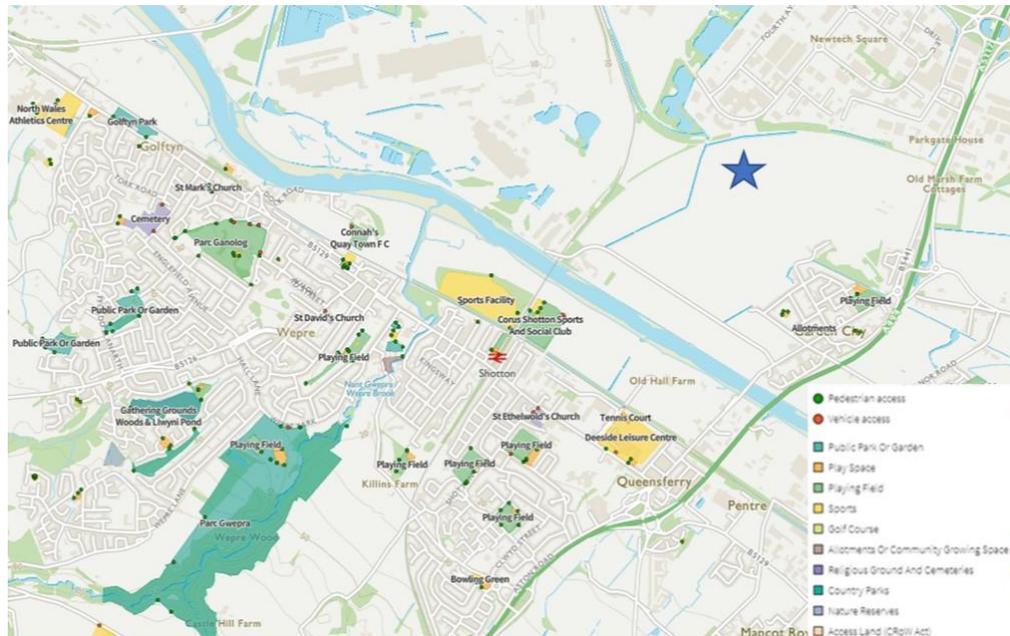
### **Air Quality**

- 5.38. Air pollution has a direct impact on health causing “increased risk of cancer, childhood and adult asthma, heart disease and dementia; increased mortality and hospital admissions.” (Marmot et al, 2020).
- 5.39. There is a clear link between air quality and health for example WHO, 2000 have suggested that about 36,000–129,000 adult deaths a year are brought forward due to long-term exposure to air pollution generated by traffic in European cities. Particulate Matter (PM10) is released as emissions from road traffic and are damaging to health as they can be deposited within the lungs which can lead to respiratory problems such as asthma.
- 5.40. Nitrogen dioxide (NO<sub>2</sub>) is also released as emissions from road traffic. Numerous epidemiological studies have identified associations between NO<sub>2</sub> concentrations and respiratory health, but it may be that in these studies NO<sub>2</sub> is a key marker for traffic-related pollution more generally.
- 5.41. Summary statistics for North Wales region: 2020 shows “Flintshire had the highest concentration of nitrogen dioxide in the air in the region in 2017 (9 µg/m<sup>3</sup>), the lowest observed concentration was 5 µg/m<sup>3</sup> on the Isle of Anglesey and in Gwynedd. The observed concentration reduced in all local authorities across the region since 2007, with the greatest observed reduction in Wrexham (5µg/m<sup>3</sup>).”
- 5.42. However, the site is not in the vicinity of an Air Quality Management Area.

### **Greenspace/Bluespace**

- 5.43. There are recognised mental and physical health benefits of access to greenspace i.e. grass, trees, or other vegetation set apart for recreational or aesthetic purposes and bluespace i.e. visible outdoor surface waters. For example, it provides access to nature and space for physical activity. Marmot et al, 2020 recognise that there is a direct relationship between green infrastructure and “Increased risk of cancer, childhood and adult asthma, heart disease and dementia. Lower levels of physical exercise leading to higher risk of obesity, diabetes and cardiovascular disease.”

- 5.44. The proximity, size and amount of green space available to people in urban environments influenced physical and mental health outcomes (Forestry Commission, 2010). A review undertaken by the Forestry Commission found that the key health benefits of green space are:
- ‘Long- and short-term physical benefits associated with obesity, life expectancy, heart rate and blood pressure;
  - attention and cognitive benefits associated with restoration, mood and self-esteem;
  - physical activity benefits associated with the use of greenspace;
  - self-reported benefits in terms of health and life satisfaction; and
  - community cohesion benefits through social contact fostered by greenspace’.
- 5.45. Furthermore, Greenspace Scotland showed that there is a positive relationship between green space and general health. It states, “Evidence indicates that greenspace is most valuable as a resource for physical activity when used by high volumes of people: therefore, spaces need to be accessible, of sufficient size, and connected to residential areas.”
- 5.46. With regard to the impact of greenspace on mental health and well-being it states, ‘studies consistently show a relationship between levels of stress and access to urban green spaces’ and identified ‘activity and exercise, natural daylight, stimulation of the senses and aesthetic experience’ as potential factors in reducing stress.
- 5.47. Maller et al shows the link between contact with nature and health. The Sustainable Development Commission explain that ‘exposure to natural spaces – everything from green parks and open countryside to gardens and other greenspace – is good for health’. For example, it states “Exposure to natural spaces is good for health in and of itself and also in terms of facilitating physical activity and social contact.”
- 5.48. Access to natural environments can also have a positive impact on mental health. For example, Douglas states, “There is good scientific evidence that contact with nature in urban areas can improve mental health and can help in the restoration on psychological well-being.”
- 5.49. OS Mapping shows the green spaces within towns and cities. Figure 12.10 below shows the greenspace and bluespace within Flintshire. The site is denoted by a purple star.



**Figure 12.10 Greenspace/Bluespace in Deeside**

Source: OS, 2020

- 5.50. Figure 12.10 shows that within the immediate vicinity of the site, there are few green spaces. The nearest large area of green space is Parc Gweptra, which is approximately 2km from the site.
- 5.51. Notwithstanding this, the site is less than 100m from the River Dee, which is an area of open space and provides access to bluespace.
- 5.52. Furthermore, there are areas of green open space proposed within the residential areas of the Northern Gateway site.

### Baseline summary

- 5.53. It is evident from the baseline information provided that Flintshire as well as the Sealand ward have some levels of a deprived population and groups which may be vulnerable to health impacts. These include;
  - Unemployed;
  - Those with low educational attainment.

- 5.54. This suggests that the health profile of the receptor population is generally average to below average economically and in education and may be more sensitive to health impacts of the development than other areas may be.
- 5.55. The Site has some access to open space and bluespace. However, there is limited access to greenspace with the nearest large area approximately 2km from the Site.

### Summary of vulnerable groups

- 5.56. Table 12.22 summarises the most disadvantaged and/or vulnerable groups present in the study area. The most disadvantaged and/or vulnerable groups fall into two or more categories. Those groups that have been included in the scope of this assessment are those that are identified as likely to be differentially affected by the Proposed Development.

Vulnerable groups	Vulnerable sub-groups
Income related groups	People on low income
	Unemployed
Education	Low educational attainment
Health	People who suffer from mental illness
	People suffering from long-term illness
Groups who suffer discrimination or other social disadvantage	People with physical or learning disabilities/difficulties
	People with long term health conditions
Age	Children and young people
	Older people

Table 12.22: Vulnerable Groups

## 6. Alternatives Considered

- 6.1. While a series of alternatives have been considered as part of the evolution of the proposals, these have not been specifically influenced by the need to address human health impacts and are therefore not discussed within this Technical Chapter. Section 4 of the ES Part 1 Report provides details of the alternatives considered.

## 7. Potential Environmental Effects

- 7.1. This section of Technical Paper summarises the likely impacts on health and wellbeing as a result of the construction and operation of the Proposed Development.
- 7.2. The health impacts of other Technical Papers of this Environmental Statement are considered in this section. However, full details regarding methodology and data should be read within each of the relevant Technical Papers.

### Construction Phase

#### General Social, Economic and Political Factors

##### Economic, Social, Environmental and Health Trends

- 7.3. In relation to the economic activity levels of the local population, data in Section 5 of this Technical Paper has shown that the Sealand ward has a slightly higher percentage of people in employment than the England and Wales average. In terms of educational attainment, although Sealand has a lower proportion of those not achieving any qualifications, the qualifications achieved in the area tend to be of a lower grade compared to Great Britain. This is reflected in the type of job role people in the area are employed in with the highest proportion falling within the 'Skilled Trade', 'Process Plant and Machine Operatives' and 'Elementary Occupations'. This contrasts with the same statistics for England and Wales which has a larger proportion of those employed in 'Professional' occupations.
- 7.4. There is a relationship between employment, including the nature of the job role, with impacts on health. The Socio-Economic Technical Paper (Technical Paper 6 of this ES) shows that during the construction phase the net additional employment created by the Proposed Development will be approximately 508 FTE jobs in Flintshire, 945 FTE jobs in the wider impact area and 794 FTE jobs for Wales. The wider impact area is defined as the combined area of Flintshire, Cheshire West and Chester, Wrexham and Wirral. However, these jobs will only be temporary. A significant proportion of the jobs are expected to be taken up by existing local residents.
- 7.5. It is expected that the construction phase of the Proposed Development will potentially support in the order of 63 new trainees.

- 7.6. Furthermore, the construction will have a positive impact on the local economy. The Socio-Economic Technical Paper 6 of this estimates that the Proposed Development would generate a net additional GVA of around £92.6m for Flintshire, £90.0m for the wider impact area and £98.4m for Wales.
- 7.7. The magnitude of impact on the baseline is thought to be minor due to its short-term nature, scale of impact and likely perception by the population. It has been demonstrated that the local population that will be exposed to the impact have a medium vulnerability in terms of economic activity and health in comparison with national level statistics.
- 7.8. In accordance with the methodology set out in Section 4 of this Technical Paper when vulnerability is medium, and exposure is medium the sensitivity is also considered medium. Furthermore, Table 12.5 indicates that when sensitivity is medium, and magnitude is minor the significance of effect will be minor. In terms of human health this is a positive impact, as such significance of effect will be a **Minor Benefit**.
- 7.9. In relation to the environmental impact in comparison with the baseline indicator and health determinants there will be a relatively small positive change. Therefore, professional judgement has been applied to conclude that there will be a **Minor Positive** environmental impact.

## Global Ecosystem

### Biodiversity; Natural Spaces and Habitats

- 7.10. Access to nature has a positive impact on both physical and mental health. The Site currently comprises managed grassland. There are few green spaces in the immediate vicinity of the site. The nearest large area of green space is Parc Gwepra, which is approximately 2km from the site.
- 7.11. The Ecology and Nature Conservation Technical Paper of this ES has shown that in terms of construction impacts without mitigation the Proposed Development may have a major impact on the 'River Dee and Bala Lake SAC, SSSI and Dee Estuary SAC/SPA/Ramsar' due to risk of pollution and disturbance. Moderate negative impacts are also shown for 'River Dee Wildlife Site' and 'Shotton Bank Wildlife Sites'. However, it is noted that these negative impacts are temporary. The remaining protected sites which were assessed are expected to see no or negligible impacts.

- 7.12. In terms of habitats the Ecology and Nature Conservation Technical Paper of this ES has shown that without mitigation during the construction phase there may be a major negative impact on the Watercourse River Dee due to pollution risk. Minor negative impacts are also expected as a result of pollution risk on Watercourses Shotwick Brook and Northern Drain with regard to hedgerow loss and root compaction as well as impact on woodland. However, it is noted that these negative impacts are temporary. The remaining habitats which were assessed are expected to have negligible impact as a result of the construction phase.
- 7.13. With regard to construction phase impacts on species the Ecology and Nature Conservation Technical Paper of this ES finds that there will be minor negative impacts on bats and birds due to temporary disturbance. In addition, there will be a permanent negative impact on birds as a result of loss of amount of breeding habitat. Impact on badger, otter, reptiles and water vole as a result of construction was shown to be negligible.
- 7.14. The construction of the Proposed Development represents a minor impact on the baseline in terms of health due to the impacts identified as negative largely being temporary and likely perception by the population. It has been shown that the population of the Sealand ward and Deeside that will be exposed to the impact have a medium vulnerability in terms of access to green space. As such the sensitivity is considered low. Therefore, the significance of effect in terms of human health will be a **Negligible/Minor Adverse** with a **Minor Negative** environmental impact.

## Natural Environmental Factors

### Air Quality

- 7.15. The Air Quality, Odour and Dust Technical Paper of this ES has shown that without mitigation there will be minor negative environmental impact with Negligible to Minor Adverse significance of effect from;
- PM<sub>10</sub> and NO<sub>x</sub> from on-site Construction Non-Road Mobile Machinery (NRMM machinery)
  - Dust and PM<sub>10</sub> associated with earthworks activities
  - Dust and PM<sub>10</sub> associated with construction activities

- 7.16. There will be a Moderate Negative environmental impact with Negligible to Minor Adverse significance of effect from PM10 and NOx from Construction traffic exhaust emissions (trackout).
- 7.17. The HIA for the Proposed Development also acknowledges the impact of air quality during the construction phase.
- 7.18. The construction of the Proposed Development represents a minor impact on the baseline in terms of health due to its short term and likely perception by the population. It has been shown that the local population that will be exposed to the impact have a medium vulnerability in terms of air quality. Considering exposure, the sensitivity is considered low. Therefore, the significance of effect in terms of human health will be a **Negligible/Minor Adverse** with a **Minor Negative** environmental impact.

#### **Open and Green Space, Landscape**

- 7.19. The Site currently comprises managed grassland. There are few green spaces in the immediate vicinity of the Site. The nearest large area of green space is Parc Gwepra, which is approximately 2km from the site.
- 7.20. The construction of the Proposed Development represents a minor impact on the baseline in terms of health due to its temporary and likely perception by the population. It has been shown that the population of the Sealand ward and Deeside that will be exposed to the impact have a medium vulnerability in terms of access to green space. As such the sensitivity is considered low. Therefore, the significance of effect in terms of human health will be a **Negligible/Minor Adverse** with a **Minor Negative** environmental impact.

### **Built Environment**

#### **Noise and Vibrations**

- 7.21. The Noise and Vibration Technical Paper 7 of this ES shows that during the construction of the Proposed Development without mitigation there will be Negligible to Moderate Negative environmental impact with Negligible to Minor Adverse in terms of Construction noise impacting on existing noise sensitive receptors. The impacts from traffic noise is expected to be neutral and vibration impacts during construction negligible.

- 7.22. The HIA for the Proposed Development also acknowledges the impact of acoustics during the construction phase.
- 7.23. In terms of human health increased noise and vibration caused by the construction may result in increased stress or distress. The construction phase of the Proposed Development represents a minor impact on the baseline in terms of health due to its localised impact. The local population vulnerability is considered low. Exposure will also be low therefore sensitivity is considered low. Therefore, the significance of effect in terms of human health will be a **Negligible/Minor Adverse** with a **Minor Negative** environmental impact.

#### **Industrial Areas – Industrial Contaminated Sites**

- 7.24. The Geology and Ground Conditions Technical Paper 1 of this ES shows that without mitigation during the construction phase of the Proposed Development the impact enabling work and installation of foundation structures are negligible. Whereas the impact from fuel storage is Moderate Negative with moderate/high adverse and minor adverse significance of effect on national and local receptors, respectively. With regard to the storage of soil the local impact will be negligible however the impact on National (River Dee) and Local (Shotwick Brook) are moderate negative with moderate/high adverse and minor adverse significance of effect, respectively.
- 7.25. The construction phase of the Proposed Development represents a moderate impact on the baseline in terms of health as a result of impacts on ground conditions. The local population vulnerability is considered medium. Exposure will also be medium therefore sensitivity is considered medium. Therefore, the significance of effect in terms of human health will be a **Moderate Adverse** with a **Moderate Negative** environmental impact.

### **Services**

#### **Public Transportation – Access and Quality**

- 7.26. The site is well situated to take advantage of existing public transport infrastructure. The Travel Plan explains “*within 20 minutes travel, access can be gained to Garden City, Shotton and parts of Queens Ferry. Within 40 minutes access can be gained to Shotwick, Shotton, Ewloe, Buckley and surrounding areas. Within 60 minutes of public transport travel, access can be gained to Holywell and Mold to the west, Birkenhead to the north, Frith and Lache to the south and Dunham-on -the-hill to the east.*”

7.27. Increased traffic with potential delays and pollution on the roads surrounding the site may impact access to and quality of public transport specifically buses. It may also impact safety and the likelihood of individuals to choose private vehicles rather than public transport. The HIA for the Proposed Development considered public transport provision during construction and the potential impact of construction employees accessing the site via public transport.

7.28. As a result of the construction of the Proposed Development the Traffic and Transportation Technical Paper 2 of this ES has found that without mitigation there will be minor negative impact with negligible/minor Adverse significance of effect as follows;

- Increase in HGV traffic flows may impact on driver delay due to construction traffic.
- The HGVs associated with the construction process may result in increased dust and dirt.

7.29. Furthermore, there will be a negligible impact as a result of;

- Increase in HGV traffic flows on the local highway network may impact on severance, driver delay, pedestrian amenity, fear and intimidation, and road safety
- The construction of the Site will create a number of construction jobs over a number of years. These workers will arrive from various locations and therefore the additional traffic may have an impact on the local highway network in terms of driver delay, pedestrian amenity, and road safety.

7.30. The construction of the Proposed Development represents a minor impact on the baseline in terms of health as short-term disruption to public transport may cause stress and disruption. It has been shown that the population of the Sealand ward and Deeside that will be exposed to the impact have a low vulnerability in terms of existing public transport provision. Sensitivity is therefore considered low. The significance of effect in terms of human health will be a **Negligible/Minor Adverse** with a **Minor Negative** environmental impact.

## Employment and Livelihood

### **Income and Employment Benefits**

7.31. The baseline data shows gross weekly pay earnings of full-time workers in Flintshire of £564.60 which is £22.90 higher than the Wales average of £541.70. However, this is £22.50 less than

the average for Great Britain which is £587.10. The construction of the Proposed Development will create training and employment opportunities which will be particularly beneficial to those who are currently unemployed. This will have a positive effect in terms of income to individual households. However, the type of employment created will be temporary and is likely to fall within the 'Skilled Trade', 'Process Plant and Machine Operatives' and 'Elementary Occupations' categories which are already prominent in the area. Therefore, the construction of the Proposed Development will not diversify opportunities in the area or impact the average income.

- 7.32. The construction of the Proposed Development represents a negligible impact on the baseline in terms of the impact of income on health due to similar levels of occupation existing in the area. It has been shown that the local population that will be exposed to the impact have a medium vulnerability in terms of income with the average slightly lower than Great Britain. As such the sensitivity is considered medium. Therefore, the significance of effect in terms of human health will be a **Negligible/Minor Benefit** with a **Minor Positive** environmental impact.

#### **Employment/Unemployment and Job Security**

- 7.33. The Socio-Economic Technical Paper (Technical Paper 6 of this ES) shows that during the construction phase the net additional employment created by the Proposed Development will be approximately 508 FTE jobs in Flintshire, 945 FTE jobs in the wider impact area and 794 FTE jobs for Wales, however these will only be temporary. A significant proportion of the jobs are expected to be taken up by existing local residents.
- 7.34. The construction of the Proposed Development will create training and employment opportunities which will be particularly beneficial to those who are currently unemployed. However, the type of employment created will be temporary and is likely to fall within the 'Skilled Trade', 'Process Plant and Machine Operatives' and 'Elementary Occupations' categories which are already prominent in the area. Therefore, the construction of the Proposed Development will not diversify opportunities.
- 7.35. The construction of the Proposed Development represents a minor impact on the baseline in terms of the impact of employment on health due to similar levels of occupation existing in the area and the temporary nature of the jobs. It has been shown that the local population that will be exposed to the impact have a medium vulnerability in terms of economic deprivation.

As such the sensitivity is considered medium. Therefore, the significance of effect in terms of human health will be a **Minor Benefit** with a **Minor Positive** environmental impact.

## Family and Community Structure

### Crime and Violence

- 7.36. Baseline statistics for the Sealand ward show that between June 2020 and May 2021 over 30% of crime in the area fell into the category of ‘Violence and sexual offences’ with almost 28% being ‘Anti-Social Behaviour’ and 11.5% ‘Criminal damage and arson’. The crime statistics for the area are broadly in line with Wales as a whole.
- 7.37. The HIA for the Proposed Development explains that the materials stored, and the influx of new people caused by construction can make an area more vulnerable to crime or, at least, be perceived as being more vulnerable to crime.
- 7.38. The construction of the Proposed Development represents a negligible impact on the baseline in terms of health due to its localised impact. The area is considered to have medium vulnerability in terms of crime compared to national level statistics. Exposure will be low resulting in low sensitivity. Therefore, the significance of effect in terms of human health will be a **Negligible/Minor Adverse** with a **Minor Negative** environmental impact.

Nature of Impact	Receptor	Environmental Impact	Significance of Effect	Confidence Level
General Social, Economic and Political Factors – Economic, Social, Environmental and Health Trends	Local and county wide e.g. Flintshire	Minor Positive	Minor Benefit	High
Global Ecosystem - Biodiversity; Natural Spaces and Habitats	Local - Deeside and the Sealand ward	Minor Negative	Negligible/Minor Adverse	High
Natural Environmental Factors - Air Quality	Local - Deeside and the Sealand ward	Minor Negative	Negligible/Minor Adverse	High

Natural Environmental Factors - Open and Green Space, Landscape	Local - Deeside and the Sealand ward	Minor Negative	Negligible/Minor Adverse	High
Built Environment - Noise and Vibrations	Immediate Local - Sealand ward	Minor Negative	Negligible/Minor Adverse	High
Built Environment - Industrial Areas – Industrial Contaminated Sites	Local and county wide e.g. Flintshire	Moderate Negative	Moderate Adverse	High
Services - Public Transportation – Access and Quality	Local - Deeside and the Sealand ward	Minor Negative	Negligible/Minor Adverse	High
Employment and Livelihood - Income and Employment Benefits	Local and county wide e.g. Flintshire	Minor Positive	Negligible/Minor Benefit	High
Employment and Livelihood - Employment/Unemployment and Job Security	Local and county wide e.g. Flintshire	Minor Positive	Minor Benefit	High
Family and Community Structure - Crime and Violence	Immediate Local - Sealand ward	Minor Negative	Negligible/Minor Adverse	High

Table 12.23: Significance of Effect - Construction Phase

## Operational Phase

### General Social, Economic and Political Factors

#### Economic, Social, Environmental and Health Trends

- 7.39. The Socio-Economic Technical Paper (Technical Paper 6 of this ES) estimates that the Operational Phase of the Proposed Development would generate net additional GVA per annum of around £35m for Flintshire, £26.7m for the wider impact area and £36.5m for Wales.

- 7.40. Furthermore, the Socio-Economic Technical Paper states “*once fully developed, it is estimated that the Proposed Development will generate approximately £2.9 million of business rates revenue per annum.*”
- 7.41. Furthermore, the HIA for the Proposed Development explains that access to a range of employment opportunities and ensuring a variety of employment locations and job roles is essential for the growth and long-term prospering of the local economy.
- 7.42. The operation of the Proposed Development represents a moderate impact on the baseline in terms the impact of employment on health due to long term impact and perception of the local population. It has been shown that the local population that will be exposed to the impact have a medium vulnerability in terms of economic profile. As such the sensitivity is considered medium. Therefore, the significance of effect in terms of human health will be a **Moderate Benefit** with a **Moderate Positive** environmental impact.

#### **Local and National Priorities, Policies, Programmes and Projects**

- 7.43. The Proposed Development will contribute to the growth aspirations of Flintshire County Council and will form part of the Northern Gateway Strategic site. The Site will act as a catalyst for further development in the area. This will have a positive economic impact which will impact the local and regional population for example by providing jobs for local people and benefiting businesses involved in the supply chain.
- 7.44. The Socio-Economic Technical Paper (Technical Paper 6 of this ES) shows that the operation of the Proposed Development will have a positive impact in terms of;
- Creation of long-term employment opportunities
  - Long-term increases in economic output (GVA)
  - Increase in business rate revenue
  - Training and apprenticeship opportunities
  - Effect on local labour market
  - Commuting and migration impact

- Wider socio-economic impacts

- 7.45. The Deeside Enterprise Zone is a nationally significant flagship initiative which the Proposed Development will form part of. It will contribute to the regeneration and economic prosperity of the area by reaffirming the perception of the area as a centre for manufacturing and introducing diversity in terms of the type of business based in the area. This will introduce new skills and employment opportunities to local residents and may act as a catalyst for further investment. These positive impacts are likely to decrease deprivation in the area which is linked to improvements in health.
- 7.46. The Socio-Economic Technical Paper (Technical Paper 6 of this ES) shows that there is a shortfall in the domestic production of tissue paper product. It states, “*Domestic manufacturing is currently distributed across 16 mills, meeting around 72% of UK demand.*” It explains that almost 30% of demand is being met by mainly European based suppliers and the UK infrastructure is now relatively dated therefore the need for imports could increase over future years. The Proposed Development will decrease this need and contribute to UK based manufacturing.
- 7.47. The operation of the Proposed Development represents a moderate impact on the baseline in terms the impact of local and national priorities, policies, programmes and projects due to long term duration and contribution to strategic policy objectives. It has been shown that the local population that will be exposed to the impact have a medium vulnerability in terms of availability of the type of employment which the Proposed Development will provide. As such the sensitivity is considered medium. Therefore, the significance of effect in terms of human health will be a **Moderate Benefit** with a **Moderate Positive** environmental impact.

## Global Ecosystem

### Biodiversity; Natural Spaces and Habitats

- 7.48. The Site currently comprises managed grassland. There are few green spaces in the immediate vicinity of the site. The nearest large area of green space is Parc Gweptra, which is approximately 2km from the Site.
- 7.49. The Ecology and Nature Conservation Technical Paper of this ES has shown that the operational phase of the Proposed Development will have major negative impacts on ‘River Dee and Bala Lake SAC, SSSI’ in terms of migrating route for salmon, river lamprey and sea lamprey through changes in water temperature in turn this will impact freshwater pearl

mussel. These impacts will be permanent. Similarly, there will be a permanent major negative impact on 'Dee Estuary SAC/Ramsar/SSSI' with regard to migrating routes for river and sea lamprey through changes in water temperature. Other impacts on protected sites are considered negligible.

- 7.50. In terms of habitat the Ecology and Nature Conservation Technical Paper of this ES finds that there will be a permanent minor negative impact with regard to degradation of retained trees, hedges, and scrub through root compaction/dust pollution or lack of management. In addition, temporary minor negative impacts caused by the operational phase in relation to 'Degradation of Northern Drain' and 'Degradation of tree planting and landscaping within the site'.
- 7.51. The Ecology and Nature Conservation Technical Paper of this ES considers the impacts on species as a result of the operational phase and find that without mitigation there will be minor negative impacts on badger, bats and birds. These impacts will be permanent.
- 7.52. The operation of the Proposed Development represents a moderate impact on the baseline in terms of health due to its permanent nature and likely perception by the population. It has been shown that the population of the Sealand wards and Deeside that will be exposed to the impact have a medium vulnerability in terms of access to green space. As such the sensitivity is considered low. Therefore, the significance of effect in terms of human health will be a **Minor Adverse** with a **Minor Negative** environmental impact.

## Natural Environmental Factors

### Air Quality

- 7.53. The Air Quality, Odour and Dust Technical Paper of this ES has shown that there will be a Negligible to Minor Negative environmental impact with Negligible significance of effect from;
- Emissions from an increase in operational traffic
  - Emission from on-site combustion plant
- 7.54. In addition, it shows there will be a Negligible environmental impact in relation to odour nuisance from existing and future sources with Negligible significance of effect.
- 7.55. The operation of the Proposed Development represents a minor impact on the baseline in terms of health due to its short term and likely perception by the population. It has been

shown that the local population that will be exposed to the impact have a medium vulnerability in terms of air quality. Considering exposure, the sensitivity is considered low. Therefore, the significance of effect in terms of human health will be a **Negligible/Minor Adverse** with a **Minor Negative** environmental impact.

#### **Open and Green Space, Landscape**

- 7.56. The Site currently comprises managed grassland. There are few green spaces in the immediate vicinity of the site. The nearest large area of green space is Parc Gwepra, which is approximately 2km from the site.
- 7.57. The operation of the Proposed Development represents a moderate impact on the baseline in terms of health due to its short term and likely perception by the population. It has been shown that the population of Sealand ward and Deeside that will be exposed to the impact have a medium vulnerability in terms of access to green space. As such the sensitivity is considered low. Therefore, the significance of effect in terms of human health will be a **Minor Adverse** with a **Minor Negative** environmental impact.

#### **Built Environment**

##### **Smell and Odour**

- 7.58. The Air Quality, Odour and Dust Technical Paper of this ES has shown that there will be a Negligible environmental impact in terms of odour nuisance from existing and future sources with Negligible significance of effect. This is due to the provision of embedded mitigation, as well as the distance of the odour source to sensitivity receptors.
- 7.59. The operation of the Proposed Development represents a negligible impact on the baseline in terms of health due to its short term and likely perception by the population. It has been shown that the local population that will be exposed to the impact have a medium vulnerability in terms of Smell and Odour. Considering exposure, the sensitivity is considered low. Therefore, the significance of effect in terms of human health will be a **Negligible** with a **Negligible** environmental impact.

### Noise and Vibrations

- 7.60. The Noise and Vibration Technical Paper of this ES shows that without mitigation there will be a Negligible to Moderate Negative environmental impact as a result of industrial noise with Negligible to Minor Adverse Significance of Effect. Furthermore, the increase in traffic on local road networks as a result of the operation of the Proposed Development is expected to have a Neutral to Negligible impact.
- 7.61. In terms of human health increased noise and vibration caused by the operation may result in increased stress or distress. The operation phase of the Proposed Development represents a minor impact on the baseline in terms of health due to its localised impact. The local population vulnerability is considered low. Exposure will also be low therefore sensitivity is considered low. Therefore, the significance of effect in terms of human health will be a **Negligible/Minor Adverse** with a **Minor Negative** environmental impact.

### Industrial Areas – Industrial Contaminated Sites

- 7.62. The Geology and Ground Conditions Technical Paper I of this ES shows that without mitigation during the operation phase of the Proposed Development the impact in relation to Exposure to sub-surface surface contamination, discharge of process effluent and storage of chemicals are negligible. Ingress of ground gas/radon could have a minor negative impact with a negligible/minor adverse significance of effect without mitigation.
- 7.63. The operational phase of the Proposed Development represents a minor impact on the baseline in terms of health as a result of impacts on ground conditions. The local population vulnerability is considered medium. Exposure will also be medium therefore sensitivity is considered medium. Therefore, the significance of effect in terms of human health will be a **Minor Adverse** with a **Minor Negative** environmental impact.

## Services

### Public Transportation – Access and Quality

- 7.64. Increased traffic with potential delays and pollution on the roads surrounding the site may impact access to and quality of public transport specifically buses. It may also impact safety and the likelihood of individuals to choose private vehicles rather than public transport.

7.65. The Traffic and Transport ES Technical Paper 2 has shown that the impact on public transport users and increases in traffic as a result of the operation of the Proposed Development will be minor negative with a negligible/minor adverse significance of effect. With regard to accessibility, it is expected that the operation of the Proposed Development will have a negligible impact with minor benefit significance of effect.

A Travel Plan has also been produced which prepared in support of this application, which will form the basis of a long-term management strategy for the site, delivering sustainable transport objectives. The Traffic and Transport ES Technical Paper 2 explains that the Travel Plan encourages a behavioral shift away from private car travel.

7.66. The operation of the Proposed Development represents a minor impact on the baseline in terms of access and quality of public transport. It has been shown that the population of the Sealand ward and Deeside that will be exposed to the impact have a low vulnerability in terms of existing public transport provision. Sensitivity is therefore considered low. The significance of effect in terms of human health will be a **Negligible/Minor Adverse** with a **Minor Negative** environmental impact.

#### **Private Services and Local Economy**

7.67. The Proposed Development will contribute to the growth aspirations of Flintshire County Council and will form part of the Northern Gateway Strategic site. The Socio-Economic Technical Paper (Technical Paper 6 of this ES) shows that the operation of the Proposed Development will have a positive impact in terms of;

- Creation of long-term employment opportunities
- Long-term increases in economic output (GVA)
- Increase in business rate revenue
- Training and apprenticeship opportunities
- Effect on local labour market
- Commuting and migration impact
- Wider socio-economic impacts

- 7.68. The Socio-Economic Technical Paper (Technical Paper 6 of this ES) estimates that the Operational Phase of the Proposed Development would generate net additional GVA per annum of around £35m for Flintshire, £26.7m for the wider impact area and £36.5m for Wales.
- 7.69. The operation of the Proposed Development represents a moderate impact on the baseline in terms the impact of employment on health due to its contribution to economic prosperity in the area. It has been shown that the local population that will be exposed to the impact have a medium vulnerability in terms of deprivation profile. As such the sensitivity is considered medium. Therefore, the significance of effect in terms of human health will be a **Moderate Benefit** with a **Moderate Positive** environmental impact.

## Employment and Livelihood

### Income and Employment Benefits

- 7.70. The Socio-Economic Technical Paper (Technical Paper 6 of this ES) estimates that the operational phase of the Proposed Development will create 211 FTE jobs in Flintshire, 299 FTE jobs in the wider impact area and 311 FTE jobs in Wales.
- 7.71. The Socio-Economic Technical Paper states that “the quantity of training and apprenticeship opportunities that will be created during the Operational Phase, as a result of the Proposed Development, is not something that can be accurately estimated at this stage.” However, ICT are committed to providing opportunities for training and apprenticeships and this will be explored in partnership with Cambria Coleg and other local skills providers.
- 7.72. The operation of the Proposed Development represents a moderate impact on the baseline in terms the impact of employment on health due to the perception of the local population and the provision of long-term employment. It has been shown that the local population that will be exposed to the impact have a medium vulnerability in terms of income with the average slightly lower than Great Britain. As such the sensitivity is considered medium. Therefore, the significance of effect in terms of human health will be a **Moderate Benefit** with a **Moderate Positive** environmental impact.

### Employment/Unemployment and Job Security

- 7.73. The Socio-Economic Technical Paper (Technical Paper 6 of this ES) explains that the Proposed Development is likely to have an impact on employment in the area by creating a variety of

roles which result in opportunities for local people for example vulnerable groups such as those who are currently unemployed and those with low educational attainment may benefit from workplace-based training.

- 7.74. The Socio-Economic Technical Paper states “Based on the skills-mix typically associated with the occupation profile identified, it is anticipated that close to 60% of jobs will be at NVQ level 2 or lower.”
- 7.75. The Proposed Development will create long term employment providing job security and skills to local people.
- 7.76. The operation of the Proposed Development represents a moderate impact on the baseline in terms the impact of employment on health due to the perception of the local population as well as the provision of long-term employment and training. It has been shown that the local population that will be exposed to the impact have a medium vulnerability in terms income and skills. As such the sensitivity is considered medium. Therefore, the significance of effect in terms of human health will be a **Moderate Benefit** with a **Moderate Positive** environmental impact.

Nature of Impact	Receptor	Environmental Impact	Significance of Effect	Confidence Level
General Social, Economic and Political Factors – Economic, Social, Environmental and Health Trends	Local and county wide e.g. Flintshire	Moderate Positive	Moderate Benefit	High
General Social, Economic and Political Factors – Local and National Priorities, Policies, Programmes and Projects	Local and county wide e.g. Flintshire	Moderate Positive	Moderate Benefit	High
Global Ecosystem - Biodiversity; Natural Spaces and Habitats	Local - Deeside and the Sealand ward	Minor Negative	Minor Adverse	High
Natural Environmental Factors - Air Quality	Immediate local population - Sealand ward	Minor Negative	Negligible/Minor Adverse	Low

Natural Environmental Factors - Open and Green Space, Landscape	Local - Deeside and the Sealand ward	Minor Negative	Minor Adverse	High
Built Environment – Smell and Odour	Immediate local population - Sealand ward	Negligible	Negligible	High
Built Environment - Noise and Vibrations	Immediate local population - Sealand ward	Minor Negative	Negligible/Minor Adverse	High
Built Environment - Industrial Areas – Industrial Contaminated Sites	Local and county wide e.g. Flintshire	Minor Negative	Minor Adverse	High
Services - Public Transportation – Access and Quality	Local - Deeside and the Sealand ward	Minor Negative	Negligible/Minor Adverse	High
Built Environment - Private Services and Local Economy	Local and county wide e.g. Flintshire	Moderate Positive	Moderate Benefit	High
Employment and Livelihood - Income and Employment Benefits	Local and county wide e.g. Flintshire	Moderate Positive	Moderate Benefit	High
Employment and Livelihood - Employment/Unemployment and Job Security	Local and county wide e.g. Flintshire	Moderate Positive	Moderate Benefit	High

**Table 22.24: Significance of Effect - Operation Phase**

## 8. Proposed Mitigation

- 8.1. This section of this Technical Paper relates to the mitigation measures in relation to health. It refers to other Technical Papers contained within this ES which should be read alongside this Human Health Technical Paper.

### Construction Phase

- 8.2. Where any adverse human health effects arise as a result of the Construction Phase, appropriate mitigation measures have been identified in this section.

### Global Ecosystem

#### **Biodiversity; Natural Spaces and Habitats**

- 8.3. The Ecology and Nature Conservation Technical Paper of this ES explains that there are a number of mitigation measures which will be implemented during the construction phase which result in the residual impacts being reduced to negligible or neutral. For example, impacts on protected sites will be mitigated by Environmental Permits and the findings of Appropriate Assessments. Mitigation is also proposed for impacts on habitats such as Installation of root protection fencing around retained trees/woodland. In relation to species mitigation includes Monthly monitoring over winter months, followed by remedial action in Construction Environmental Management Plan (CEMP) i.e. installation of heras fencing with hessian screening to minimize impact on birds.
- 8.4. In addition, there are a number of mitigation measures which result in the residual impact being a minor benefit during the construction phase for example;
- Hedgerow planting, resulting in a net gain of 500m of native hedgerow length within the site
  - Creation of new grassland scrub mosaics in adjacent 'enabling works' area
  - Replacement tree planting will result in net gain in number of trees within site; impact temporary whilst planted trees mature

- 8.5. In terms of human health following the implementation of proposed mitigation the significance of effect will be reduced to **Negligible** with a **Negligible** environmental impact.

## Natural Environmental Factors

### Air Quality

- 8.6. The Air Quality, Odour and Dust Technical Paper of this ES has shown that impacts will be mitigated by measures implemented through the Construction Environmental Management Plan (CEMP).
- 8.7. The resulting residual impact will be Negligible. The CEMP will ensure that the necessary mitigation measures are put in place to reduce any impact on the health of the local population as a result of the construction phase of development.
- 8.8. Furthermore, impact from PM10 and NOx from on-site Construction NRMM machinery will be mitigated by a specification of minimum NRMM emission requirements. This will also result in a Negligible residual impact.
- 8.9. The construction of the Proposed Development therefore represents a neutral residual effect on the baseline. Therefore, the significance of effect in terms of human health will be a **Neutral** with a **Negligible** environmental impact.

### Open and Green Space, Landscape

- 8.10. The Ecology and Nature Conservation Technical Paper of this ES explains that there are a number of mitigation measures which will be implemented during the construction phase which result in the residual impacts being reduced to negligible or neutral. For example, impacts on protected sites will be mitigated by Environmental Permits and the findings of Appropriate Assessments. Mitigation is also proposed for impacts on habitats such as Installation of root protection fencing around retained trees/woodland. In relation to species mitigation includes Monthly monitoring over winter months, followed by remedial action in CEMP (i.e. installation of heras fencing with hessian screening) to minimize impact on birds.
- 8.11. In addition, there are a number of mitigation measures which result in the residual impact being a minor benefit during the construction phase for example;

- Hedgerow planting, resulting in a net gain of 500m of native hedgerow length within the site
- Creation of new grassland scrub mosaics in adjacent 'enabling works' area
- Replacement tree planting will result in net gain in number of trees within site; impact temporary whilst planted trees mature

8.12. In terms of human health following the implementation of proposed mitigation the significance of effect will be reduced to **Negligible** with a **Negligible** environmental impact.

## Built Environment

### Noise and Vibrations

8.13. The Noise and Vibration Technical Paper of this ES of this ES explains that impacts from the construction noise and traffic noise as a result of the construction of the Proposed Development will be mitigated by measures implemented through the Construction Environmental Management Plan (CEMP). In addition, the impact from construction vibration will be mitigated by limiting piling activities and utilising low vibration plant techniques.

8.14. In terms of human health following the implementation of proposed mitigation the significance of effect will be reduced to **Negligible** with a **Negligible** environmental impact.

### Industrial Areas – Industrial Contaminated Sites

8.15. The Geology and Ground Conditions Technical Paper 1 of this ES explains the CEMP will identify appropriate fuel storage location and all facilities should meet the Oil Storage Regulations and design suitable stockpile management plans reducing the impact of the construction of the proposed development to negligible.

8.16. In terms of human health following the implementation of proposed mitigation the significance of effect will be reduced to **Negligible** with a **Negligible** environmental impact.

## Services

### Public Transportation – Access and Quality

- 8.17. The Traffic and Transportation Technical Paper 2 of this ES shows that mitigation including the implementation of the CEMP which will ensure that the necessary mitigation measures are put in place to reduce any impact on the health of the local population as a result of the construction phase of development. Measures contained within the CEMP will be carried forward in a detailed CEMP which will be controlled by planning condition on any planning permission. In addition, HGV traffic will be reduced by the re-use on Site materials where possible. Wheel washing facilities will reduce dirt and dust. Furthermore, sustainable transport choices will be encouraged in the Travel Plan.
- 8.18. In terms of human health following the implementation of proposed mitigation the significance of effect will be reduced to **Negligible** with a **Negligible** environmental impact.

## Family and community structure

### Crime and Violence

- 8.19. The CEMP sets out site health and safety measures including site security. This will reduce the risk of crime such as vandalism and anti-social behaviour.
- 8.20. In terms of human health following the implementation of proposed mitigation the significance of effect will be reduced to **Neutral** with a **Negligible** environmental impact.

## Operational Phase

- 8.21. Where any adverse human health effects arise as a result of the Operational Phase, appropriate mitigation measures have been identified in this section.

## Global Ecosystem

### Biodiversity; Natural Spaces and Habitats

- 8.22. The Ecology and Nature Conservation Technical Paper of this ES explains that there are a number of mitigation measures which will be implemented during the operational phase which result in the residual impacts being reduced to negligible or neutral. For example, impacts on

protected sites will be mitigated by Environmental Permits and the findings of Appropriate Assessments. Mitigation is also proposed for impacts on habitats such as Implementation of Ecological Management Plan. With regard to species mitigation includes the creation of 'dark corridors' around suitable habitat features within site to reduce the impact on bats.

- 8.23. In terms of human health following the implementation of proposed mitigation the significance of effect will be reduced to **Negligible** with a **Negligible** environmental impact.

### Natural Environmental Factors

#### Air Quality

- 8.24. The Air Quality, Odour and Dust Technical Paper of this ES has shown that impacts from emission from the on-site combustion plant will be mitigated via the embedded mitigation of increasing gas turbine flue heights to 30m above ground level. Furthermore, it shows that impact from odour nuisance from existing and future sources will be mitigated by embedded mitigation measures included within the design of the on-site wastewater treatment works. As a result of the mitigation measures the residual impact will be negligible.
- 8.25. In terms of human health following the implementation of proposed mitigation the significance of effect will be reduced to **Negligible** with a **Negligible** environmental impact.

#### Open and Green Space, Landscape

- 8.26. The Ecology and Nature Conservation Technical Paper of this ES explains that there are a number of mitigation measures which will be implemented during the operational phase which result in the residual impacts being reduced to negligible or neutral. For example, impacts on protected sites will be mitigated by Environmental Permits and the findings of Appropriate Assessments. Mitigation is also proposed for impacts on habitats such as Implementation of Ecological Management Plan. With regard to species mitigation includes the creation of 'dark corridors' around suitable habitat features within site to reduce the impact on bats.
- 8.27. In terms of human health following the implementation of proposed mitigation the significance of effect will be reduced to **Negligible** with a **Negligible** environmental impact.

## Built Environment

### Noise and Vibrations

8.28. The Noise and Vibration Technical Paper of this ES explains that impacts from the industrial noise as a result of the operation of the Proposed Development will be mitigated by the following;

- The orientation of services plant flues and HGV / Loading operations away from the nearest sensitive receptors to minimise noise propagation.
- Appropriate specification of façade and roof constructions to provide adequate sound insulation levels.
- The acoustic bund and barrier boundary treatments incorporated as mitigation within the design of adjacent proposed residential developments has also been considered.

8.29. In terms of human health following the implementation of proposed mitigation the significance of effect will be reduced to **Negligible** with a **Negligible** environmental impact.

### Industrial Areas – Industrial Contaminated Sites

8.30. The Geology and Ground Conditions Technical Paper I of this ES explains that the following mitigation measures will reduce the impact of the operational phase of the Proposed Development to negligible;

- Ingress of ground gas and radon can be controlled through the installation of gas mitigation measures.
- Environmental Permit conditions will be set, and on-site effluent treatment completed accordingly.
- Operational areas will be set upon hard standing and where necessary chemical storage areas will be bunded in accordance with permit conditions and/or regulation.

8.31. In terms of human health following the implementation of proposed mitigation the significance of effect will be reduced to **Negligible** with a **Negligible** environmental impact.

## Services

### Public Transportation – Access and Quality

- 8.32. The Traffic and Transportation Technical Paper 2 of this ES shows that mitigation including proposed infrastructure improvements and mitigation packages, pedestrian/cycle linkages and encouragement of sustainable transport modes through the Travel Plan.
- 8.33. In terms of human health following the implementation of proposed mitigation the significance of effect will be reduced to **Negligible** with a **Negligible** environmental impact.

## 9. Potential Residual Effects

- 9.1. The proposed mitigation measures set out in Chapter 8 will restrict potential impacts on Human Health arising from the construction and operational phases of the Proposed Development. However, there will still be residual impacts as a result of the Proposed Development, these will be Negligible.

### Potential Residual Effects – Construction Phase

- 9.2. The overall impact of the proposal in terms of Human Health issues during the construction phase is highlighted in the table below:

Nature of Impact	Receptor	Environmental Impact	Significance of Effect	Confidence Level	Mitigation	Residual Significance of Effect
General Social, Economic and Political Factors – Economic, Social, Environmental and Health Trends	Local and county wide e.g. Flintshire	Minor Positive	Minor Benefit	High	No mitigation required	Minor Benefit
Global Ecosystem - Biodiversity; Natural Spaces and Habitats	Local - Deeside and the Sealand ward	Minor Negative	Negligible/Minor or Adverse	High	Biodiversity mitigation measures set out in ES Technical Paper 5 and the CEMP	Negligible
Natural Environmental Factors - Air Quality	Local - Deeside and the Sealand ward	Minor Negative	Negligible/Minor or Adverse	High	Air quality mitigation measures set out in the CEMP and ES Technical Paper 8	Negligible

Natural Environmental Factors - Open and Green Space, Landscape	Local - Deeside and the Sealand ward	Minor Negative	Negligible/Minor or Adverse	High	Biodiversity mitigation measures set out in ES Technical Paper 5 and the CEMP	Negligible
Built Environment - Noise and Vibrations	Immediate local population - Sealand ward	Minor Negative	Negligible/Minor or Adverse	High	Noise and vibration mitigation measures set out in ES Technical Paper 7	Negligible
Built Environment - Industrial Areas – Industrial Contaminated Sites	Local and county wide e.g. Flintshire	Moderate Negative	Moderate Adverse	High	Ground Condition mitigation measures set out in the CEMP	Negligible
Services - Public Transportation – Access and Quality	Local - Deeside and the Sealand ward	Minor Negative	Negligible/Minor or Adverse	High	Traffic and Transport mitigation measures set out in the CEMP and ES Technical Paper 2	Negligible
Employment and Livelihood - Income and Employment Benefits	Local and county wide e.g. Flintshire	Minor Positive	Negligible/Minor or Benefit	High	No mitigation required	Negligible/Minor or Benefit
Employment and Livelihood - Employment/Unemployment and Job Security	Local and county wide e.g. Flintshire	Minor Positive	Minor Benefit	High	No mitigation required	Minor Benefit
Family and Community Structure - Crime and Violence	Immediate Local - Sealand ward	Minor Negative	Negligible/Minor or Adverse	High	Safety and Security measures implemented via the CEMP	Negligible

Table 12.25: Residual Significance of Effect - Construction Phase

## Potential Residual Effects – Operational Phase

9.3. The overall impact of the proposal in terms of Human Health issues during the operational phase is highlighted in the table below:

Nature of Impact	Receptor	Environmental Impact	Significance of Effect	Confidence Level	Mitigation	Residual Significance of Effect
General Social, Economic and Political Factors – Economic, Social, Environmental and Health Trends	Local and county wide e.g. Flintshire	Moderate Positive	Moderate Benefit	High	No mitigation required	Moderate Benefit
General Social, Economic and Political Factors – Local and National Priorities, Policies, Programmes and Projects	Local and county wide e.g. Flintshire	Moderate Positive	Moderate Benefit	High	No mitigation required	Moderate Benefit
Global Ecosystem - Biodiversity; Natural Spaces and Habitats	Local – Deeside and the Sealand ward	Minor Negative	Minor Adverse	High	Biodiversity mitigation measures set out in ES Technical Paper 5	Negligible
Natural Environmental Factors - Air Quality	Local – Deeside and the Sealand ward	Minor Negative	Negligible/Minor Adverse	Low	Air quality mitigation measures set out in ES Technical Paper 8	Negligible

Natural Environmental Factors - Open and Green Space, Landscape	Local - Deeside and the Sealand ward	Minor Negative	Minor Adverse	High	Biodiversity mitigation measures set out in ES Technical Paper 5	Negligible
Built Environment - Smell and Odour	Immediate local population - Sealand ward	Negligible	Negligible	High	No mitigation required	Negligible
Built Environment - Noise and Vibrations	Immediate local population - Sealand ward	Minor Negative	Negligible/ Minor Adverse	High	Noise and vibration mitigation measures set out in ES Technical Paper 7	Negligible
Built Environment - Industrial Areas - Industrial Contaminated Sites	Local and county wide e.g. Flintshire	Minor Negative	Minor Adverse	High	Ground Condition mitigation measures set out in ES Technical Paper 1	Negligible
Services - Public Transportation - Access and Quality	Local - Deeside and the Sealand ward	Minor Negative	Negligible/Minor Adverse	High	Travel Plan and Mitigation Measures set out in the Traffic and Transport ES Technical Paper 2	Negligible
Built Environment - Private Services and Local Economy	Local and county wide e.g. Flintshire	Moderate Positive	Moderate Benefit	High	No mitigation required	Moderate Benefit
Employment and Livelihood - Income and Employment Benefits	Local and county wide e.g. Flintshire	Moderate Positive	Moderate Benefit	High	No mitigation required	Moderate Benefit

Table 12.26: Residual Significance of Effect - Operation Phase

## 10. Additive Impacts (Cumulative Impacts and their Effects)

10.1. For the purposes of this ES we define the additive cumulative effects as:

***‘Those that result from additive impacts (cumulative) caused by other existing and/or approved projects together with the project itself***

10.2. The developments that are likely to have a cumulative impact when considered with the proposed development have been scoped with the Local Authority and Key Consultees during the preparation of this ES (a full list is included within Section 9 of the ES Part One Report). The following table includes the agreed list of cumulative developments that have been assessed in respect of Human Health. These are also shown geographically on the plan included at **Appendix 13** of the ES Part One Report.

	Cumulative Development	Details	Status	Justification for Cumulative
1	<p>Airfields (former RAF Sealand) Site (Northern Gateway)</p> <p>LPA ref: 049320 and last varied S73 application LPA ref: 061125.</p> <p>Applicant: Crag Hill Estates Ltd.</p>	<p>Outline application for the redevelopment of a strategic brownfield site for an employment led mixed use development with new accesses and associated infrastructure including flood defences and landscaping.</p> <p>The Net Cumulative Development associated with the Airfields site after deducting the floor space (124,344m<sup>2</sup>) taken up by the Proposed ICT Paper Mill Facility (B2, B8, ancillary B1a) and operational Amazon development (ref: 060222) is as follows:</p> <p>Development comprises:</p> <p>Residential (C3): 689units  Retail (A1): 4,646m<sup>2</sup>  Office (B1a): 6,533m<sup>2</sup>  B2 /B8 Employment: 60,044m<sup>2</sup>  Car Dealership (Sui generis): 7,779m<sup>2</sup>  <b>Net Total floorspace: 689 units / 79,002m<sup>2</sup></b></p>	<p>LPA ref: 049320 Planning permission granted by Flintshire County Council in January 2013.</p> <p>The last varied S73 application was granted on the 26 April 2021 (ref: 061125) to remove conditions 26, 28, 30, 34 and 44 and vary condition 13.</p> <p>Development expected to come forward over the next 0-5 years.</p>	<p>Potential relationship due to the proximity to the Proposed Development, and it is expected to generate human health effects, as a result of construction and operation.</p>
2	<p>Former Corus Garden City Site (Northern Gateway)</p> <p>Applicant: PGNGL</p> <p>Outline (LPA ref: 054758) / S73</p>	<p>Employment-led mixed-use development, incorporating Logistics and Technology Park (B1, B2, B8) with residential (C3), local retail centre (A1), hotel (C1), training and skills centre (C2, D1), new parkland; conversion of buildings, demolition of barns; and associated infrastructure comprising construction of accesses, roads, footpaths / cycle paths, earthworks and flood mitigation / drainage</p>	<p>Outline planning permission granted by Flintshire County Council in May 2014.</p> <p>The last permission to be granted under a S73 application was approved in June 2020</p>	<p>Potential relationship due to the proximity to the Proposed Development, and it is expected to generate human health effects, as a result of construction and operation.</p>

application (LPA ref: 059635)	works at Northern Gateway, Land off Welsh Road, Deeside.  Development comprises:  Residential (C3): 770 units Retail (A1): 2500m <sup>2</sup> Office (B1a): 3300m <sup>2</sup> Light industrial uses (B1b, B1c): 7400m <sup>2</sup> Hotel Uses (C1): 3000m <sup>2</sup> Training and skills centre (C2, D1): 4000m <sup>2</sup> Logistics Park (B2, B8, ancillary B1a): 120000m <sup>2</sup> <b>Total floorspace: 770 units / 140,200m<sup>2</sup></b>	(ref: 059635) was for removal of conditions 6, 8, 11 and 32 and variation of conditions 7, 31, 36 and 44.  Development expected to come forward over the next 0-10 years.	
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Table12.27: Cumulative Development

- 10.3. The cumulative human health impacts of these schemes have been considered, as far as possible, during both the Construction and Operational phases of the Proposed Development. In addition, consideration has also been given to the likely timing and persistence of these effects over the short, medium and long term.
- 10.4. This Paper has identified that the Proposed Development's construction and operational phases would at worst have a Negligible significance of effect on human health determinants with Negligible environmental impact therefore, the cumulative effects of the Proposed Development in combination with other concurrent development would still not be significant in EIA terms.

## 11. Conclusion

- 11.1. The Construction and Operation phases of the Proposed Development will have a variety of impacts, which could have effects on human health. Consultation has been undertaken with Public Health Wales which has informed the scope the HIA which considers how the Proposed Development will have an effect on the key factors that can influence people's health and wellbeing and suggests potential mitigation and enhancement.
- 11.2. This ES Technical Paper has presented an analysis of the baseline data for the study area alongside a review of scientific literature showing its relationship with human health. This has informed the assessment of impacts on human health considering the determinants set out in the consultation draft document named "Addressing Human Health in Environmental Impact Assessment" by Cave et al in 2019.
- 11.3. The assessment identified positive environmental impacts as a result of the construction phase of the Proposed Development. These include the provision of employment and training opportunities, therefore providing a benefit in terms of social and economic health determinants.
- 11.4. Where potential negative impacts on human health have come to light through the assessment mitigation measures have been outlined. For example, the CEMP outlines the necessary measure to mitigate impacts during construction. Specific restrictions for some health determinants are also require, for example in relation to noise and vibration limits are set which must be adhered to.
- 11.5. Similarly, with regard to the operational phase, a number of positive impacts have been identified in relation to the health determinants. For example, it is thought that the Proposed Development will act as a catalyst for further investment in the area. It will contribute to the achievement of the strategic objectives of the Northern Gateway Mixed Use Development Site as set out in the Flintshire Local Development Plan.
- 11.6. Where potential negative impacts have been identified as a result of the operation of the Proposed Development mitigation measures have been outlined. For example, impact on access to and quality of public transport will be reduced by proposed infrastructure improvements and pedestrian/cycle linkages.
- 11.7. As a result of the mitigation measure it is considered that the Proposed Development's construction and operational phases would at worst have a **Negligible** significance of effect on human health determinants with **Negligible** environmental impact.



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## Appendices

## Appendix 12.1 – Health Impact Assessment

**Industrie Cartarie Tronchetti (ICT) UK Limited and Crag Hill  
Estates Ltd (CHEL)**

# **ICT Paper Mill, Northern Gateway**

**Appendix 12.1 - Health Impact Assessment**

Revision B 07/09/2021



## Revision Record

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## I. Introduction

### Overview

- I.1. This Health Impact Assessment (HIA) has been prepared by Cundall on behalf of Industrie Cartarie Tronchetti (ICT) UK Ltd and Crag Hill Estates Ltd (CHEL) (henceforth referred to as (“The Applicant”) as part of a package of supporting documents which accompanies a planning application to Flintshire County Council (FCC).
- I.2. This HIA has been produced to support a full planning application comprising of the following proposals:

*Full Planning Application for erection of Paper Processing Mill to produce and manufacture tissue paper (B2, B8 use class) with ancillary B1a office space; associated servicing and infrastructure including car parking, HGV parking and vehicle and pedestrian circulation; noise mitigation features; earthworks to create development platforms; creation of drainage features including a new outfall to the River Dee; water treatment plant; and landscaping.*
- I.3. Whilst there is currently no statutory requirement to undertake HIA in the United Kingdom (UK), its role and value have been endorsed or highlighted in a range of policy and strategy contexts. This HIA has been produced following responses received at Environmental Impact Assessment (EIA) scoping stage consultation with Flintshire County Council and a subsequent stage of HIA screening.
- I.4. The project is also subject to full Environmental Impact Assessment (EIA).

### The Health Impact Assessment

- I.5. The HIA will be carried out in order to identify the impacts of the Proposed Development on the health and wellbeing of the nearby population, consider health inequalities, and identify opportunities for mitigation and enhancement measures to improve health outcomes.

## 2. Site Context and Proposed Development

### Site Location and Context

- 2.1. The Site is located in North Wales, within the local authority area of Flintshire County Council. The Site is located on the western edge of Garden City, a village within the Sealand area of Flintshire. The nearest town centre is Queensferry, which is approximately 1 mile from the Site. The town of Mold is 8 miles to the south west and the city of Chester is 6 miles to the east of the Proposed Development.
- 2.2. The Site occupies a strategic location, not only within Flintshire, but also in a sub-regional and national spatial context. Located next to Deeside Industrial Park, a major centre for employment, the Site lies strategically within the wider Deeside area, and is well served by the local trunk road network with access from Welsh Road (B5441). To the east of the B5441 Welsh Road lies the A494 Trunk Road. The A494 is a dual carriageway that connects the M56 Motorway to the A55, and it is a strategic transport route which connects North Wales to North West England, providing links to Liverpool, Cheshire and Greater Manchester.
- 2.3. The Site is part of, and integral to, the larger Deeside Enterprise Zone (EZ) designated by the Welsh Government in September 2011.

### The Proposed Development

- 2.4. Whilst the Site is identified for B1, B2 B8 employment development as part of its allocation under Policy HSG2A in the Flintshire UDP (2011) for mixed use development and has outline planning permission (ref: 049320) for an employment led mixed use development granted in January 2013 and subsequently varied (ref: 061125) in April 2021, ICT UK Ltd.'s bespoke operational requirements are such that they need a building on Site that would exceed building height parameters approved within the extant planning permission which are currently set at 30m for this plot and requires land outside the redline application boundary granted outline planning permission.
- 2.5. The planning application therefore seeks full planning permission for the Proposed Development which is described below:

*Full Planning Application for erection of Paper Processing Mill to produce and manufacture tissue paper (B2, B8 use class) with ancillary B1a office space; associated servicing and infrastructure including car parking, HGV parking and vehicle and pedestrian circulation; noise mitigation features; earthworks to create development platforms; creation of drainage features including a new outfall to the River Dee; water treatment plant; and landscaping.*

2.6. The table below provides a summary of the planning application proposals:

Phase	Use / Use Class	Size of Floor space (m <sup>2</sup> )	Finished Floor Level (FFL)	Building heights	Maximum car parking spaces
Phase 1	B2, ancillary Uses B8, B1a	66,034m <sup>2</sup> (includes office, water treatment building, boiler room, mill station entrance gatehouse and drivers gatehouse)	Main process buildings at 5.25 m AOD	10m – 40m above FFL to parapet level.	26 HGV spaces and a total of up to 248 car spaces (including 7 disabled spaces and 13 motorcycle spaces.
Phase 2	B2, B8 uses	17,002m <sup>2</sup>	Main process buildings at 5.25m AOD	10m – 21.25m above FFL to parapet level	-
Phase 3	B2, B8 uses	40,533m <sup>2</sup>	Main process buildings at 5.25m AOD	10m – 40m above FFL to parapet level	A total of 83 car spaces
<b>TOTAL</b>	-	<b>124,343 m<sup>2</sup></b>	-	-	<b>26 HGV spaces and a total of up to 331 car spaces and 13 motorcycle spaces</b>

Car Parking will be in accordance with Flintshire County Council car parking standards

**Table 2.1: Schedule of Accommodation**

### The Proposed Development

- 2.7. The Paper Mill Facility will be developed in three phases, comprising employment floorspace including manufacturing and production area (B2 use class), ancillary offices (B1a use class), and a warehouse section, (B8 use class) with car parking and HGV parking.
- 2.8. There are various component parts to the Mill which comprise a number of activities which are designed to process and mill the pulp to manufacture and produce tissue paper products.

- 2.9. The floorspace of the Paper Mill and associated buildings subject of the full planning application is 124,343m<sup>2</sup>. Buildings which remain detached from the Mill Facility include the main offices, water treatment plant and mill station, which includes the incoming electrical power to generate the Facility.

## 3. Health Impact Assessment Approach

### Introduction

- 3.1. The international Gothenburg consensus definition of health impact assessment is: “a combination of procedures, methods and tools by which a policy, programme or project may be judged as to its potential effects on the health of a population, and the distribution of those effects within the population.”
- 3.2. Recently, alternative definitions have been proposed (Elliott et al. 2010) as the practice of HIA has evolved. This recognises that how health is defined can differ based on who is being consulted. Whatever definition is used it is clear HIA is a systematic approach to identifying the health and wellbeing impacts of a project.
- 3.3. HIA uses a range of structured and evaluated sources of qualitative and quantitative evidence that includes public and other stakeholder’s perceptions and experiences as well as public health, epidemiological, toxicological and medical knowledge. The approach is particularly concerned with the distribution of effects within a population as different groups are likely to be affected in different ways. In addition, HIA looks at how health and social inequalities might be reduced or widened by proposals, in this case the Sealand ward of FCC.
- 3.4. The HIA will provide an analysis of the potential impacts of the Proposed Development as well as recommending options, where appropriate, for enhancing the positive impacts, mitigating the negative ones and reducing health inequalities.

### Definition of Health

- 3.5. HIA recognises that although illness and disease (mortality and morbidity) are useful ways of understanding and measuring health they need to be fitted within a broader understanding of health and wellbeing to be useful. The HIA uses key health ‘determinants’ to consider the social, economic, cultural and environmental factors that influence health and wellbeing, many of which can be influenced by the design of people’s living and working environments.

## Creation of Healthy Places

- 3.6. This report will first seek to develop an understanding of the baseline conditions of health. In the assessment of the Proposed Development, it is understood that health is not only avoiding harm through compliance with safety measures for construction, but also through Minimising harmful environmental effects and improving overall wellbeing.

## HIA Scoping

- 3.7. As part of the HIA process, a HIA scoping exercise was undertaken with findings from Betsi Cadwaladr University Health Board. The exercise focused on the scope and data sources proposed to be included as part of this HIA.
- 3.8. Betsi Cadwaladr University Health Board requested that terminology be updated so that 'human health' is noted as 'population health' and 'receptors' is now referred to as 'population groups'.
- 3.9. Details on stakeholder consultation was requested and the following stakeholders will be consulted as part of the Proposed Development:
- Councillor Chris Bithell (Lab, Mold East)
  - Cabinet Member for Planning & Public Protection
  - Councillor Derek Butler (Lab ,Broughton South)
  - Cabinet Member for Economic Development
  - Councillor Christine Jones (Lab, Sealand)
  - Sealand Community Council.

## 4. Proposed HIA Methodology and Scope

### Introduction

- 4.1. HIA is not a statutory requirement in Wales however it is considered best practice and there is guidance available from the Wales HIA support unit.
- 4.2. The guidance sets out the following core steps of the HIA process:
1. Screening
  2. Scoping
  3. Appraisal of Evidence
  4. Reporting and recommendations
  5. Monitoring and Evaluation
- 4.3. It should be noted that this HIA is being carried out alongside an EIA process. The EIA includes extensive technical assessment on the potential effects of the Proposed Development covering many topics that can usefully inform the assessment of health impacts within this HIA. This includes the potential effects of air quality, water environment, noise and waste on population health.
- 4.4. In addition, the EIA includes a socio-economic impact assessment considering the effects of the Proposed Development on the economy of the area.
- 4.5. This HIA will focus on six key themes:
1. How the development fits with the health, wellbeing and related policies and strategies of Flintshire County Council's Health and relevant UK and local planning policy
  2. The existing baseline conditions of the local area, the relevant council ward and local authority area

3. The potential positive and negative health and wellbeing effects of the Proposed Development
  4. The potential impacts on vulnerable groups in the community e.g. older people, children, families, people with disabilities, people on low incomes/unemployed
  5. Safety and hazard risks to future users of the site and nearby residents
  6. The potential indirect, cumulative and synergistic health impacts
- 4.6. This HIA will recommend appropriate mitigation and enhancement measures as required (alongside and complementary to the mitigation measures identified in the EIA).

### **Geographical Scope**

- 4.7. The geographical scope of this HIA is the development site, surrounding residential/commercial areas. The population considered is the residential population around the proposed site, those who currently work in the area, as well as those who will be involved in the construction and operation of the project.
- 4.8. For the local resident population key vulnerable groups will be considered to assess any potential health inequalities that might be widened or narrowed by the project.
- 4.9. The site is located within a mixed-use area, comprised of commercial and residential properties within the Sealand ward of Flintshire.

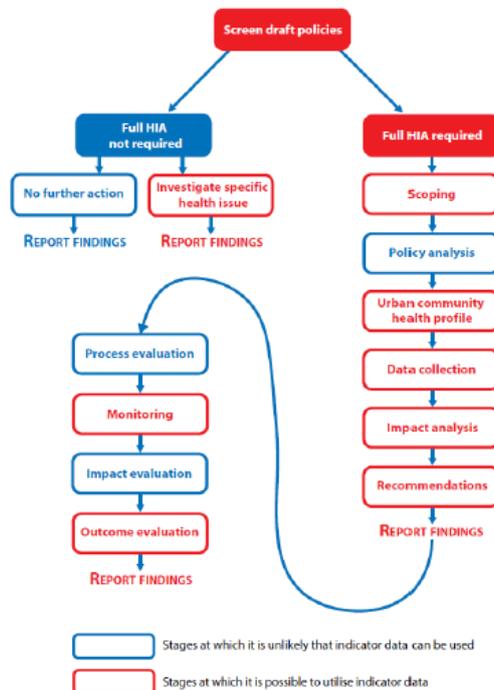
### **Temporal Scope**

- 4.10. This HIA will consider the impacts that may arise during both the construction and operation of the Proposed Development. The likely duration of the impacts will be identified within the assessment and will be consistent with other relevant assessments that form part of the planning application. The phasing programme and timescales are as follows:
- Planning Submission – 2021 (Q4)
  - Planning Determination – 2022 (Q1)

- Initial Site Enabling – 2022 (Q3) – 2022 (Q4) (Including cut and fill and creation of development platform)
- Phase 1 of the Paper Mill Facility – 2022 (Q3) – 2024 (Q1)
- Phase 2 of the Paper Mill Facility – 2024 (Q4) – 2026 (Q2)
- Phase 3 of the Paper Mill Facility – 2034 (Q1) – 2035 (Q3)

## Methodology

4.1.1. This HIA will be in accordance with the IMPACT Urban Health Impact Assessment (UrHIA) methodology as general guidance (Figure 1.1 below).



**Figure 4.1: Impact Urban Health Impact Assessment (UrHIA) methodology**

4.1.2. There are various tools that can be used to identify determinants of health that are likely to be influenced by the development in question, with the aim of ensuring that the health impacts are identified, and appropriate action is taken to address any negative impacts and maximise any benefits.

4.13. A range of information sources have been considered in the HIA assessment process including:

- ONS 2011 census and neighbourhood data
- Local health data
- OS Mapping data
- Data included in the National Survey for Wales
- The Welsh Index of Multiple Deprivation
- NOMIS

4.14. The scope of assessment comprises:

1. A literature review will be undertaken which will establish the evidence base for the health determinants to be assessed as part of the HIA against potential health outcomes.
2. Agreement of identification of the geographical area to be assessed as part of the HIA.
3. Establishing the baseline community profile for the local area.
4. Liaise with relevant stakeholders, including Flintshire County Council's Public Health team and the local authority case officer.
5. Assess the proposed development against the identified health determinants using the supporting documentation for the planning application.
6. Propose any recommendations to the client with regards mitigation measures identified as required as part of the assessment process.

### **Stakeholder Engagement**

- 4.15. The project team will engage with stakeholders with the view of identifying what people consider to be the health effects of the Proposed Development, how these effects could be managed to ensure that opportunities to improve health and wellbeing are maximised and how any potential risks to health and wellbeing could be minimised.
- 4.16. Betsi Cadwaladr University Health Board have been consulted with regards the scope and data sources proposed to be included in this HIA. Discussion with Health Board are continuing as part of this HIA process.

### **Assessment of health effects**

- 4.17. This section of the HIA describes the determinants of public health and considers how the planning application may have an impact on these elements. This section also provides an indication on how the health and wellbeing of existing and new residents/workers can be directly and indirectly affected by the design of new development.
- 4.18. There are a number of social, environmental and economic factors that contribute to an individual's health and wellbeing. These factors range from levels of educational attainment, delivery of housing, income deprivation levels to amount of green spaces available in communities.
- 4.19. There is a substantial body of evidence on the relationship between socioeconomic factors and health and on the influence the built environment has on health. According to the Commission on the Social Determinants of Health *“Where people live affects their health and chances of leading flourishing lives. Communities and neighbourhoods that ensure access to basic goods, that are socially cohesive, that are designed to promote good physical and psychological wellbeing and that are protective of the natural environment are essential”*.
- 4.20. There are large inequities in health within our society. Those on lower incomes in deprived areas typically experience worse health and die younger than those with higher incomes and in less deprived areas.
- 4.21. Similarly, there are inequalities in the quality of life. People in the least deprived areas in the United Kingdom (UK) experience a substantially higher proportion of their life expectancy in good health (83.3 years in males) than those in the most deprived areas (73.9 years in males).

This is not to say those who are wealthier may not also be at risk of poor health. For example, they may live more sedentary lives, be reliant on the car for travel and have poor access to local health services.

4.22. The built environment can have a significant impact on health. For example, the location of new development and the relationship between residential areas and industrial development can lead to impacts on:

- Living, working and travel patterns
- The shape of the local economy
- Opportunities to access goods and services
- Levels of physical activity
- Patterns of pollution that will affect the local environment and in turn health

4.23. There are also more indirect links between the place where people live and wellbeing. For example, the Marmot Review (2010) looked at health and the built environment. This study discussed the importance of views of open space as having a positive impact on stress, obesity and the general sense of wellbeing as well as cuts the risk of premature death.

4.24. The assessment has been predominantly qualitative, except where data was available to enable quantification, or where quantification of health impacts has been undertaken in other assessments e.g. technical studies supporting the planning application.

4.25. The assessment process will be comprised of a review of the baseline conditions details of the proposed development to establish the effect of the development on each health determinant. For any health determinants where the proposed development is considered to have a negative effect, mitigation measures will be identified as part of the assessment.

### **Focus of Assessment**

4.26. Health impacts are assessed using a framework of key determinants of health and the development pathways by which effects are experienced.

4.27. Impacts are identified in a health impact table (Table 4.1 below) within each category of health determinant. The health determinants have been selected based on the nature of the Proposed Development. This structure is used to help structure the information and highlight key issues. It is recognised that many of these issues are cross-cutting and this is reflected in the mitigation and enhancement section. The categories are detailed in Table 4.1.

<b>Health Determinant</b>	<b>Impact Category</b>
Construction	Disturbance and stress Site Safety
Active Travel and Connectivity	Promotion of sustainable modes of transport Minimising car use and designing out cars Safety Access to public transport and connectivity
Access to public services and infrastructure	Education Access to social infrastructure Public Transport Provision
Open and green spaces	Open space Biodiversity Views and landscaping
Healthy foods	Hot food takeaways
Community safety	Crime Traffic Management Lighting
Equality and social cohesion	Public buildings Public spaces Facilities and infrastructure accessible to all population groups
Employment and economy	Local employment opportunities Healthy workplaces
Environmental Hazards	Air quality Dust Noise Contaminated land Waste
Climate Change	Flood risk Overheating Sustainability

**Table 4.1: Health Impact Table**

4.28. Consideration is given to the potential impacts on vulnerable groups in the community e.g. older people, children, families, people with disabilities, and people on low incomes/unemployed. Health inequalities and social exclusion are considered and the potential for the project to affect them.

- 4.29. Possible effects within the impact categories are considered for both construction and operation phases.

### **Assigning Significance to Potential Impacts**

- 4.30. The criteria used to determine the level of significance of the health impacts are shown in Table 4.2. The following questions were also considered in determining which the level of significance:

- Which population groups are affected and in what way?
- Is the effect reversible or irreversible?
- Does the effect occur over the short, medium or long term?
- Is the effect permanent or temporary?
- Does it increase or decrease with time?
- Is it of local, regional, national or international importance?
- Is it beneficial, neutral or adverse?
- Are health standards or environmental objectives threatened?
- Are mitigating measures available and is it reasonable to require these?
- Are the effects direct, indirect and or cumulative?

<b>Significance Level</b>	<b>Criteria</b>
Major positive	The proposed development, without mitigation measures, will have a substantial positive impact on the environment in comparison to baseline indicators and health determinants.
Moderate positive	The proposed development, without mitigation measures, will have a positive impact on the environment, that is neither deemed substantial, nor small, in comparison to baseline indicators and health determinants.
Minor positive	The proposed development, without mitigation measures, will have a small positive impact on the environment in comparison to baseline indicators and health determinants.
Negligible / no impact	The proposed development, without mitigation measures, will have little or no impact on the environment in comparison with baseline indicators and health determinants.
Minor negative	The proposed development, without mitigation measures, will have a small negative impact on the environment, in comparison to baseline indicators and health determinants.
Moderate negative	The proposed development, without mitigation measures, will have a negative impact on the environment that is neither deemed to be substantial, nor small, in comparison to baseline indicators and health determinants.
Major negative	The proposed development, without mitigation measures, will have a substantial negative impact on the environment, in comparison to baseline indicators and health determinants.
Major positive	The proposed development, without mitigation measures, will have a substantial positive impact on the environment in comparison to baseline indicators and health determinants.
Moderate positive	The proposed development, without mitigation measures, will have a positive impact on the environment, that is neither deemed substantial, nor small, in comparison to baseline indicators and health determinants.

**Table 4.2: Significance Criteria**

### **Limitations and assumptions of the study**

- 4.31. Literature and baseline data use in the study will be limited to readily available public and published sources. The information contained within the other project documents will be used to characterise the study area and identify impacts on health determinants.
- 4.32. The approach to the assessment of health impacts will generally be qualitative, identifying likely positive and negative impacts based on casual relationships between determinants and health outcomes identified within the literature reviewed.

## 5. Planning Policy and Literature Review

### National Wellbeing Policy and Initiatives

#### Better Health – Better Wales (1998)

- 5.1. 'Better Health – Better Wales' was published in 1998 and considers health impact assessment as a tool to help achieve sustainable health. It explains;

*“The essence of Health Impact Assessment is:*

- *applying screening criteria to help select policies or projects for Health Impact Assessment;*
- *profiling the areas and communities affected;*
- *applying a pre-defined model of health to predict potential impacts;*
- *evaluating the importance, scale and likelihood of those impacts;*
- *option appraisal and recommendations for action.”*

#### Healthy Lives Healthy People (2010) Public Health White Paper

- 5.2. The White Paper acknowledges that previous top-down approaches to combat public health had not been effective. In order to make progress, the government determined it should be the responsibility of local authorities and local communities to find creative solutions to improve health and wellbeing within their areas.
- 5.3. The document included initiatives such as improving all aspects of health, tackling obesity, alcohol and smoking-related illnesses, mental health, how the NHS and its workforce should be funded and outline further legislation to be introduced to support the targeted improvement of health and wellbeing.

### National Survey for Wales

5.4. The National Survey for Wales involves around 12,000 people each year and covers a topics such as;

- Local area and environment
- Wellbeing and finances
- Housing
- Democracy and government
- Population health
- Internet and media
- Culture and Welsh language
- Sport and recreation
- Children and education
- NHS and social care

5.5. The results are used by the Welsh Government to inform policy decisions. National Survey for Wales headline results: April 2019 to March 2020 are as follows;

- 41% of people in material deprivation are lonely, compared with 12% of people not in material deprivation.
- Younger people are more likely to report that they are lonely than older people.
- 25% of people have four or five of the healthy lifestyle behaviours (not smoking, drinking within guidelines, eating 5 portions of fruit and veg a day, and meeting exercise guidelines). This hasn't changed over the last four years.
- 75% of employees get paid sick leave, but only 16% of those who are self-employed and working mainly for one company.

- 65% of over-30s have a workplace pension in place.
- 21% of over-30s have made no financial plans for retirement.
- 28% of people from black, Asian and minority ethnic backgrounds had personally experienced discrimination at work in the last year, compared with 9% of white people.
- 26% of people volunteer by giving their time for free to an organisation or club.
- Among people who can speak Welsh, 22% say they would prefer to speak in Welsh with staff at local services and facilities.
- 47% of people say their local authority provides high quality services.

### **NHS Long Term Plan (2019)**

5.6. The NHS Long Term Plan: 10 key public health points was published in January 2019 and aims to relieve pressure on services and ensure sustainability for future years.

5.7. The document covers the following 10 public health points:

1. Prevention
2. Smoking
3. Obesity and Type 2 Diabetes
4. Diet and Alcohol
5. Antimicrobial resistance and vaccines
6. Cancer
7. Mental Health
8. Air Pollution
9. Children and Maternity Care
10. Gambling

5.8. Some of the ways that the document aims to improve care for patients over the next ten years are as follows;

- preventing 150,000 heart attacks, strokes and dementia cases

- providing education and exercise programmes to tens of thousands more patients with heart problems, preventing up to 14,000 premature deaths
- saving 55,000 more lives a year by diagnosing more cancers early
- investing in spotting and treating lung conditions early to prevent 80,000 stays in hospital
- spending at least £2.3bn more a year on mental health care increasing funding for primary and community care by at least £4.5bn
- bringing together different professionals to coordinate care better
- helping more people to live independently at home for longer

### **Office for National Statistics (ONS) National Wellbeing Programme**

- 5.9. The ONS Measuring National Well-being programme aims to produce accepted and trusted measures of the well-being of the nation. The report described well-being as “how we are doing” as individuals, as communities and as a nation and how sustainable this is for the future.
- 5.10. The programme includes headline indicators in areas such as health, relationships, education and skills, what we do, where we live, our finances, the economy, governance, the environment and measures of “personal well-being” (individuals' assessment of their own well-being).
- 5.11. The programme publishes updates to the national well-being measures every 6 months, including an interactive wheel of measures and interactive charts. Annually, a "Life in the UK" report is published that provides a snapshot of the nation's well-being. Additionally, an annual statistical bulletin on personal well-being plus personal well-being frequently asked questions is published.

### **Together for Mental Health - Delivery Plan: 2019-22 in response to COVID-19 (2020)**

- 5.12. The Together for Mental Health - Delivery Plan was originally published in 2012 and it has been revised on a number of occasions since most recently in 2020 to update the actions

within the plan in response to the impact that COVID-19 has had on the mental health and wellbeing of people in Wales.

5.13. It sets out a strategy to improve mental health and well-being across all ages. The high-level outcomes underpinning the strategy are:

- The mental health and well-being of the whole population is improved.
- The impact of mental health problems and/or mental illness is better recognised and reduced.
- Inequalities, stigma and discrimination are reduced.
- Individuals have a better experience of the support and treatment they receive and feel in control of decisions.
- Improved quality and access to preventative measures and early intervention to promote recovery.
- Improved values, attitudes and skills of those supporting individuals of all ages with mental health problems.

5.14. Actions within the plan include;

*“Welsh Government (Health and Social Services) to support people with mental health conditions into employment or to remain in work through delivery of a health-led employment support programme which consists of the Out of Work Peer Mentoring Service, the In-Work Support Service and an Individual Placement Support pilot.”*

*“The Welsh Physical Activity Partnership (joint partnership between Sports Wales, Public Health Wales and Natural Resources Wales) to develop a national physical activity action plan and agree next steps to encourage engagement in sport and physical activity which will help to support positive mental health and well-being.”*

*“Welsh Government (Health and Social Services), working with the Suicide and Self-Harm National Advisory Group to drive implementation of the Talk to Me 2 Suicide and Self Harm Prevention Strategy 1213 (extended to 2022) through regional forums/plans and national coordinator posts.”*

### **A Healthier Wales: our Plan for Health and Social Care (2019)**

- 5.15. The plan sets out a long-term future vision of a ‘whole system approach to health and social care’, which is focused on health and wellbeing, and on preventing illness. It also states.

*We will build on the philosophy of Prudent Healthcare, and on the close and effective relationships we have in Wales, to make an impact on health and wellbeing throughout life. We will have a greater emphasis on preventing illness, on supporting people to manage their own health and wellbeing, and on enabling people to live independently for as long as they can, supported by new technologies and by integrated health and social care services which are delivered closer to home.*

- 5.16. The plan specifies actions which will enable the vision to be achieved. The five main ways it aims to change health and social care are as follows;

1. In each part of Wales the health and social care system will work together,
2. Shift services out of hospital to communities,
3. Get better at measuring what really matters,
4. Make Wales a great place to work in health and social care,
5. To make our services work as a single system, we need everyone to work together.

### **Planning Policy Wales (Edition 11, 2021)**

- 5.17. Planning Policy Wales (PPW) sets out the land use planning policies of the Welsh Government. It is supplemented by a series of Technical Advice Notes (TANs), Welsh Government Circulars, and policy clarification letters, which together with PPW provide the national planning policy framework for Wales.

- 5.18. The PPW sets out Key Planning Principles including “Facilitating accessible and healthy environments” it explains;

*“Our land use choices and the places we create should be accessible for all and support healthy lives. High quality places are barrier-free and inclusive to all members of society. They ensure everyone can live, work, travel and play in a way that supports good physical and mental health. Our built and natural environments should be planned to promote mental and physical well-being. The best way of achieving this is to involve and collaborate with others to ensure issues are understood and prevented*

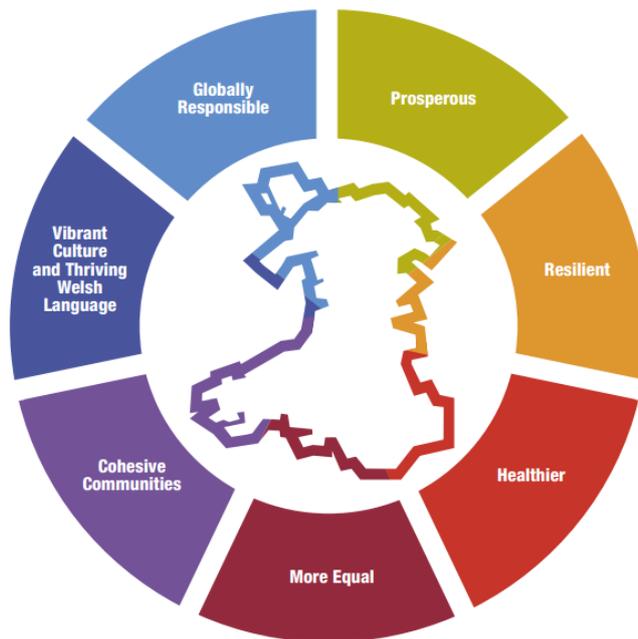
*at the earliest opportunity through effective engagement with those affected by or having an interest in the development concerned.”*

5.19. In terms of National Sustainable Placemaking Outcomes of Facilitating Accessible and Healthy Environments it considers the following;

- Accessible and high-quality green space
- Accessible by means of active travel and public transport
- Not car dependent
- Minimises the need to travel
- Provides equality of access
- Feels safe and inclusive
- Supports a diverse population
- Good connections
- Convenient access to goods and services
- Promotes physical and mental health and well-being

### **Well-being of Future Generations (Wales) Act 2015 and Future Wales**

5.20. The Well-being of Future Generations (Wales) Act 2015 ('the Act') sets out seven well-being goals. This is legally-binding and applies to national government, local government, local health boards and other specified public bodies. It details the ways in which these bodies must work, and work together, to improve the well-being of Wales. Health forms a key part of this as shown in Figure 5.1.



**Figure 5.1 Seven well-being goals**

**Future Wales - The National Plan 2040**

- 5.21. The Future Wales – the National Plan 2040 (the “Plan”) is a national development framework, setting the direction for development in Wales to 2040. It aims to address key national priorities including sustaining and developing a vibrant economy, achieving decarbonisation and climate-resilience, developing strong ecosystems and improving the health and well-being.
- 5.22. The Plan takes account of the Well -being of Future Generations Act which is evident in the Integrated Impact Assessments illustrated in Figure 5.2.

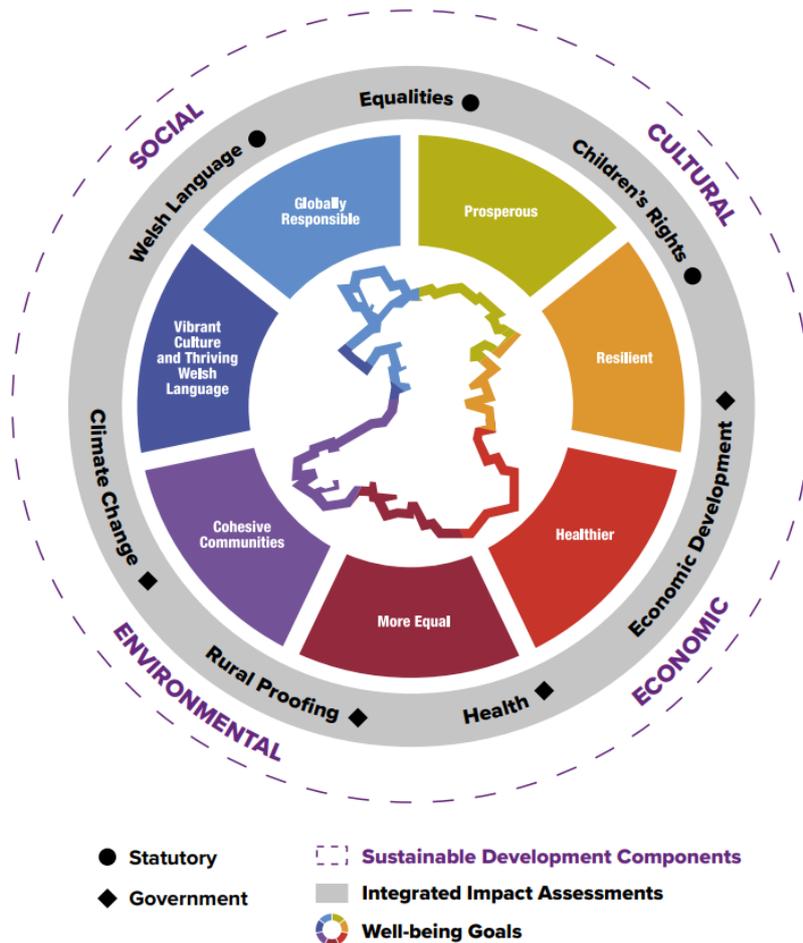


Figure 5.2 Integrated Impact Assessments

5.23. In addition, Policy I 'Where Wales will grow' lists Deeside as a National Growth Area. It states, "In three National Growth Areas there will be growth in employment and housing opportunities and investment in infrastructure."

## Local Planning Policy

### Flintshire Unitary Development Plan (FUDP)

5.24. The FUDP is the adopted development plan for the 15-year period 2000 – 2015. Although the adopted UDP became time expired at the end of 2015 it remains the adopted development plan for the County.

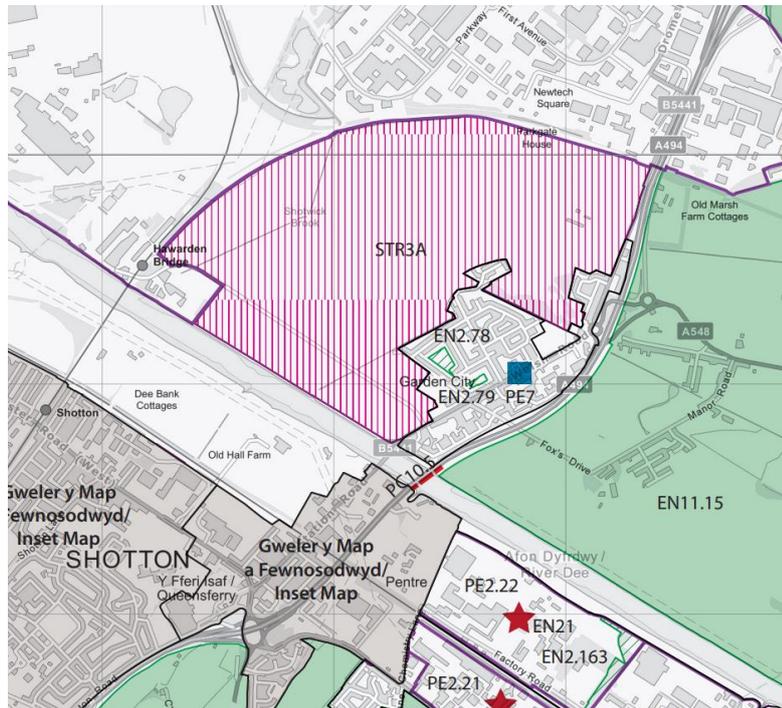
- 5.25. It provides a framework for making rational and consistent decisions on planning applications and to guide development to appropriate locations. This identifies sites where new housing, employment and other development can take place, as well as setting out policies to protect important countryside, habitats, resources and heritage.
- 5.26. The documents strategic aims include “to promote and facilitate the development of a safe and healthy environment.” This is reflected in policy for new development.

## Emerging Planning Policy

### Local Development Plan (LDP)

- 5.27. The Flintshire Local Development Plan (LDP) has been submitted for examination, which is due to be held by an independent Planning Inspector in 2021. Once adopted it will supersede the UDP.
- 5.28. The LDP will focus on delivering sustainable development in the County for a 15-year period 2015 to 2030 and will include:
- policies which will guide decisions on planning applications;
  - proposals for the development of housing, retail, employment and other land uses;
  - policies which seek the protection and enhancement of the natural and built environment.
- 5.29. The Proposed Development site is located within the Northern Gateway Mixed Use Development Site (STR3A) as designated by the LDP. Figure 4.3 show the policy designation including the nearby Town Centre (PE7) Green Space (EN2) and Green Barriers (EN11).
- 5.30. Policy STR3 explains that Northern Gateway Mixed Use Development Site is one of two strategic development sites that will make an important contribution to the overall provision for growth in Flintshire over the Plan period.
- 5.31. The site will be developed for employment, housing, commercial, community facilities, including;

- i. 1,325 new homes, including affordable
- ii. 72.4 hectares of B2/B8 employment land
- iii. Commercial development hub adjacent to A550
- iv. District Centre(s) to serve local convenience needs
- v. Strengthened and raised River Dee flood defences
- vi. Provision of internal road infrastructure
- vii. Provision of land and a contribution to extending Sealand CP School
- viii. Sustainable drainage/flood management solution
- ix. Provision of green infrastructure network
- x. Sensitive re-use of John Summers Listed buildings and grounds



**Figure 5.3 Extract from LDP Policy Map**

- 5.32. Policy PE7 relates to Town Centres. The policy states ‘Retail, leisure and commercial development will be directed towards a hierarchy as identified on the proposals map. Proposals will be supported where they are appropriate in scale and type for a particular centre. The policy reflects the ‘town centre first’ principles, but recognises the difficulty facing town and district centres as a result of the retailing climate and online shopping’
- 5.33. Policy EN2 Green Infrastructure states ‘development proposals will be required to protect, maintain and enhance the extent, quality and connectivity of the green infrastructure network, including designated green spaces (as shown on the proposals maps), and where appropriate:
- a) create new green infrastructure linkages from the proposed development to the existing network;
  - b) fill in gaps in the existing network to improve connectivity.’
- 5.34. Policy EN11 Green Barriers proposes designated green barriers in which development will only be permitted for specific needs, for example justified rural enterprise needs, essential

facilities for outdoor sport and outdoor recreation and limited extension, alteration or replacement of existing dwellings.

## 6. Determinants of Health

- 6.1. This section of the HIA describes the determinants of public health and considers how the Full planning application may have an impact on these elements. This section also provides an indication on how the health and wellbeing of existing and new residents can be directly and indirectly affected by the design of new development.
- 6.2. There are a number of social, environmental and economic factors that contribute to an individual's health and wellbeing. These factors range from levels of educational attainment, delivery of housing, income deprivation levels to amount of green spaces available in communities.
- 6.3. There is a substantial body of evidence on the relationship between socioeconomic factors and health and on the influence the built environment has on health. According to the Commission on the Social Determinants of Health *"Where people live affects their health and chances of leading flourishing lives. Communities and neighbourhoods that ensure access to basic goods, that are socially cohesive, that are designed to promote good physical and psychological wellbeing and that are protective of the natural environment are essential"* (2005).
- 6.4. There are large inequities in health within our society. Those on lower incomes in deprived areas typically experience worse health and die younger than those with higher incomes and in less deprived areas.
- 6.5. The built environment can have a significant impact on health. For example, the location of new development and the relationship between residential areas and industrial development can lead to impacts on:
- Living, working and travel patterns.
  - The shape of the local economy.
  - Opportunities to access goods and services.
  - Levels of physical activity.
  - Patterns of pollution that will affect the local environment and in turn health.

- 6.6. There are also more indirect links between the place where people live and wellbeing. For example, the Marmot Review (2010) looked at health and the built environment. The Review discussed the importance of views of open space as having a positive impact on stress, obesity and the general sense of wellbeing as well as cuts the risk of premature death.
- 6.7. This HIA focuses on the following determinants of health, which a new development of this type can, to a greater or lesser extent, influence:
- Construction
  - Active Travel and Connectivity
  - Access to public services and infrastructure
  - Access to open and green spaces
  - Access to Healthy foods
  - Community safety
  - Equality and social cohesion
  - Employment and economy
  - Environmental Hazards
  - Climate Change

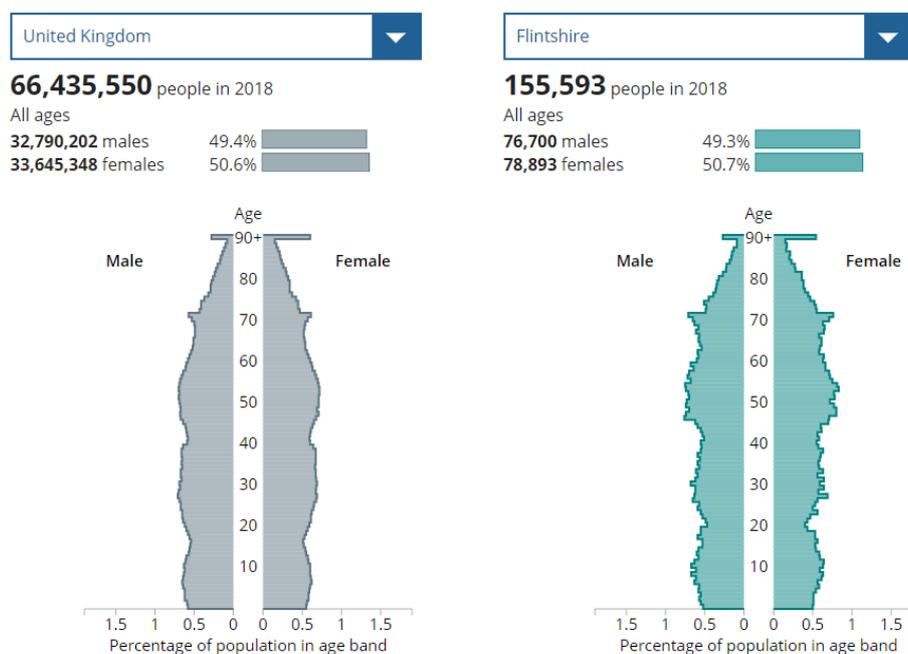
## 7. Baseline Information

7.1. This section includes baseline information on the determinants of health and a description of the characteristics of the population group(s).

### Health and Demographic profile

#### Population

7.2. The estimated population of Flintshire is 155,593 with approximately 18% under being 15 years of age or under, 61% aged 16-64 and 21% aged 65 and over. The population profile is broadly in line with the UK as shown in Figure 7.1.



**Figure 7.1 Estimated Population**

Source: ONS, 2018

## Economic and Employment Activity

- 7.3. There is an established link between unemployment and levels of physical inactivity, debilitating illnesses and mental health and wellbeing. Unemployment has been proven to increase rates of mental health issues, disability and sickness and overall reduces life expectancy (The Health Foundation, 2020).
- 7.4. The Marmot Review (2010); investigates health inequalities and the relationship between health and social group. Although review is based on England the findings with regard to the relationship between health and other factors are applicable in Wales. The report identified six policy objectives for reducing health inequalities, these are;
- Give every child the best start in life;
  - Enable all children young people and adults to maximise their capabilities and have control over their lives;
  - Create fair employment and good work for all;
  - Ensure healthy standard of living for all;
  - Create and develop healthy and sustainable places and communities; and
  - Strengthen the role and impact of ill health prevention
- 7.5. The Review finds ‘being in good employment is protective of health. Conversely, unemployment contributes to poor health.’ The review was updated in 2020, the report shows that employment may also have a negative impact on health in some cases for example if it causes stress or may not be of good quality. It defines good quality as featuring “job security; adequate pay for a healthy life; strong working relationships and social support; promotion of health, safety and psychosocial wellbeing; support for employee voice and representation; inclusion of varied and interesting work; a fair workplace; promotion of learning development and skills use; a good effort–reward balance; support for autonomy, control and task discretion; and good work–life balance.”
- 7.6. It also finds that;
- Employment rates have increased since 2010;

- There has been an increase in poor quality work, including part-time, insecure employment;
- The number of people on zero hours contracts has increased significantly since 2010
- The incidence of stress caused by work has increased since 2010;
- Real pay is still below 2010 levels and there has been an increase in the proportion of people in poverty living in a working household; and

7.7. Table 7.1 shows that Flintshire and the Sealand ward have a slightly higher proportion of economically active population than the national average, at 79.0 and 78.4 respectively. However, in terms of unemployment in Flintshire the proportion of population is lower than the national average whereas the Sealand ward the same figure is higher.

	England and Wales (%)	Flintshire (%)	Sealand ward (%)
<b>Economically Active<sup>†</sup></b>	76.8	79.0	78.4
<b>In Employment<sup>†</sup></b>	71.0	74.0	72.1
Employees <sup>†</sup>	60.6	65.5	64.9
Self Employed <sup>†</sup>	10.4	8.5	7.2
<b>Unemployed (Model-Based)<sup>§</sup></b>	7.6	6.4	8.1

Table 7.1: Employment Statistics

<sup>†</sup> - numbers are for those aged 16 and over, % are for those aged 16-64

<sup>§</sup> - numbers and % are for those aged 16 and over. % is a proportion of economically active

Source: NOMIS, 2011

7.8. Furthermore, the Summary statistics for North Wales region: 2020 shows “For the year ending 30 September 2019, North Wales had the highest employment rate and lowest economic inactivity rate of the four Welsh regions.”

7.9. In addition, “The employment level is the total number of people (aged 16+) that are in employment and the employment rate is the percentage of the population (aged 16-64) that is in employment. Of the four regions, North Wales had the highest employment rate in Wales in the year ending 30 September 2019. Flintshire was the local authority with the highest employment rate in Wales with a rate of 79.7 per cent (higher than both Wales and the UK).”

7.10. Table 7.2 below illustrates the percentage of the working population by type of employment role.

Employment Role	England and Wales (%)	Flintshire (%)	Sealand ward (%)
Managers and Senior Officials	10.8	9.3	7.6
Professional	17.4	13.6	8.9
Associate Professional and Technical	12.7	10.8	10.1
Administrative and Secretarial	11.4	10.9	8.2
Skilled Trades	11.5	14.1	12.1
Personal Services	9.4	9.6	8.5
Sales and Customer Services	8.4	8.9	10.8
Process Plant and Machine Operatives	7.2	11.1	14.8
Elementary Occupations	11.2	11.7	19.0

Table 7.2: Population (%) by Employment Role Type

Note: Percentages are based on all persons in employment.

Source: NOMIS, 2011

7.11. The data in Table 7.2 shows the highest percentage of workers in Flintshire fall within the 'Skilled Trade' category, for the Sealand ward the highest percentage falls within 'Elementary Occupations'.

7.12. Table 7.3 shows both weekly and hourly earnings (Pounds) by place of residence in Flintshire, Wales and Great Britain.

7.13. The data in Table 7.3 shows the gross weekly pay earnings of Full-time workers in Flintshire is £22.90 higher than the Wales average of £541.70, nonetheless £22.50 less than the average for Great Britain. For Males it is also higher in Flintshire than Wales, and less than Great Britain. However, for Female Full-Time workers the Gross Weekly Pay is lower in Flintshire, £502.30, than both Wales (£515.40) and Great Britain (£544.30).

Earnings by place of residence (2020)	Flintshire (Pounds)	Wales (Pounds)	Great Britain (Pounds)
Gross Weekly Pay			

Full-Time Workers	564.6	541.7	587.1
Male Full-Time Workers	586.4	562.4	622.9
Female Full-Time Workers	502.3	515.4	544.3
<b>Hourly Pay - Excluding Overtime</b>			
Full-Time Workers	13.60	13.83	15.18
Male Full-Time Workers	13.38	14.12	15.64
Female Full-Time Workers	13.85	13.49	14.42

**Table 7.3: Earnings by place of residence (2020)**

Source: ONS annual survey of hours and earnings - resident analysis

Notes: Median earnings in pounds for employees living in the area.

## Deprivation Overview

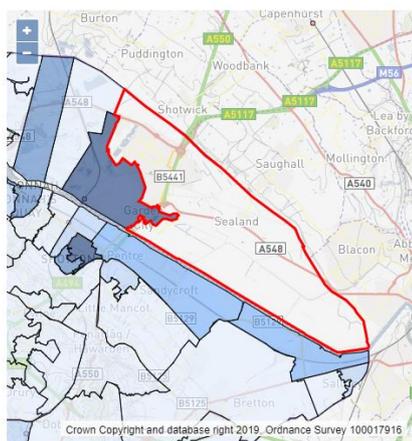
7.14. Measures of deprivation differ to measures of income; however, deprivation is a consequence of a lack of resources and income. This is then cumulatively translated to living in poverty and is often referred to as relative deprivation. Townsend (PSE, 2016) developed a list of sixty indicators that assessed 'styles of living' to support the relative deprivation approach. These indicators covered topics such as:

- Diet;
- Clothing;
- Fuel and light;
- Home amenities;
- Housing and housing facilities;
- The immediate environment of the home;
- The general conditions and security of work;
- Family support;
- Recreation;
- Education;
- Health; and

- Social relations.

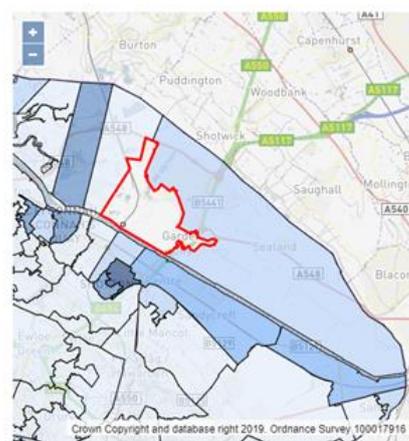
- 7.15. Townsend determined that a lack of or non-participation in these categories was an indicator of deprivation. A 'score' for different forms of deprivation could be ascertained and related to household income.
- 7.16. The Proposed Development overlaps two Middle Layer Super Output Area's Sealand 1 (W01000332) and Sealand 2 (W01000333).
- 7.17. The Welsh Index of Multiple Deprivation (WIMD) is the official measure of relative deprivation for small areas in Wales. It identifies areas with the highest concentrations of several different types of deprivation. It is a National Statistic produced by statisticians at the Welsh Government.

Sealand 1 (W01000332)



**Figure 7.2 Sealand 1 output ward**  
Source: WIMD, 2019

Sealand 2 (W01000333)



**Figure 7.3 Sealand 2 output ward**  
Source: WIMD, 2019

- 7.18. Table 7.4 shows the WIMD is currently made up of eight separate domains (or topics) of deprivation. The table also includes the overall rank of each ward. Each of the domains include several indicators of deprivation. Both Sealand Output Areas are within a minimum of the 10% most deprived areas in Wales (except for Employment in Sealand 1, 50% least deprived.).

Topic	Sealand 1 (W01000332)		Sealand 2 (W01000333)	
	Rank out of 1909 in Wales	Meaning	Rank out of 1909 in Wales	Meaning
Overall	575	30-50% most deprived	158	10% most deprived.
Income	890	30-50% most deprived	267	10-20% most deprived.
Employment	1138	50% least deprived.	301	10-20% most deprived
Health	695	30-50% most deprived.	184	10% most deprived.
Education	435	20-30% most deprived.	31	10% most deprived.
Access to Services	368	10-20% most deprived	858	30-50% most deprived
Community Safety	240	10-20% most deprived.	93	10% most deprived.
Physical Environment	155	10% most deprived.	260	10-20% most deprived
Housing	274	10-20% most deprived	479	20-30% most deprived

Table 7.4: The Welsh Index of Multiple Deprivation (WIMD)

## Education

- 7.19. Children who perform poorly at school are more likely to be unemployed or gain lower income employment/ insecure employment. This can have a detrimental impact upon health (Marmot et al, 2010 and 2020). Young people who are NEET (not in education, employment or training) have an increased chance of unemployment, experiencing mental health problems and criminal activity.
- 7.20. Table 7.5 shows that pupils in the Flintshire area that achieve NVQ3 and Above is 51.7%, lower than both Wales and Great Britain respectively. Also, the attainment levels of No Qualifications are also high at 8.3%, with average in Wales 7.6% and in Great Britain 6.4%.

Qualifications (Jan 2020-Dec 2020)	Flintshire (%)	Wales (%)	Great Britain (%)
NVQ4 And Above	31.6	38.8	43.1
NVQ3 And Above	51.7	58.5	61.4
NVQ2 And Above	73.4	76.5	78.2
NVQ1 And Above	87.2	86.7	87.9
Other Qualifications	4.4	5.7	5.7
No Qualifications	8.3	7.6	6.4

**Table 7.5: Qualifications (Jan 2020-Dec 2020)**

Source: ONS annual population survey

Notes: For an explanation of the qualification levels see the definitions section. Numbers and % are for those of aged 16-64 % is a proportion of resident population of area aged 16-64

## Health

- 7.21. Life expectancy is a key indicator in the health of the local population. Life expectancy can change across areas of a city and is strongly linked to deprivation levels as shown in Marmot et al (2020).
- 7.22. Table 7.6 shows life expectancy for the Sealand ward for both males and females is lower than the average for Flintshire and the UK. In comparison to the UK the life expectancy for those in Sealand is around 3.5years lower.

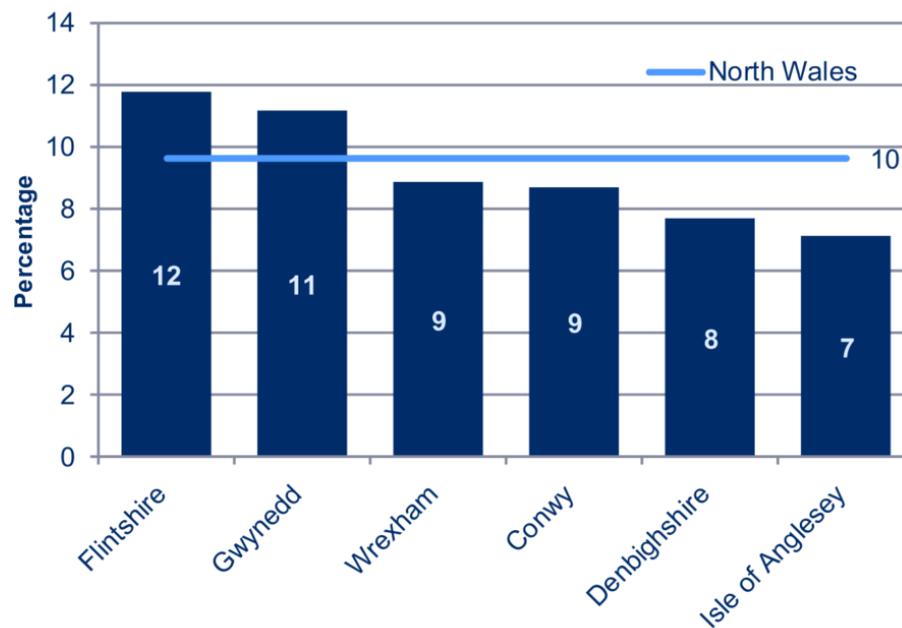
Location	Female average (years)	Male average (years)
UK	82.9	79.3
Flintshire	82.4	79.0
Sealand (ward)	79.4	75.9

**Table 7.6: Life Expectancy**

Source: ONS, 2018

7.23. However, The National Survey for Wales shows Flintshire to perform well in terms of healthy behaviours compared to the North Wales region.

7.24. Adults aged 16 and over showing 0 or 1 healthy lifestyle behaviours, by Local authority, 2017-18 and 2018-19\* (age standardised).



**Figure 7.4 Healthy Lifestyle Behaviours**  
The 2017-18 and 2018-19 periods have been combined for data quality purposes

Source: National Survey for Wales

*Note: The 5 healthy lifestyle behaviours are: not smoking, average weekly alcohol consumption 14 units or lower, eating at least 5 portions fruit & vegetables the previous day, having a healthy body mass index, and being physically active at least 150 minutes the previous week.*

7.25. Percentage of adults aged 16 and over reporting they are in good or very good general health, by local authority, 2017-18 and 2018-19\* (age standardised). In Flintshire it is 76%, slightly above the North Wales average of 75%.

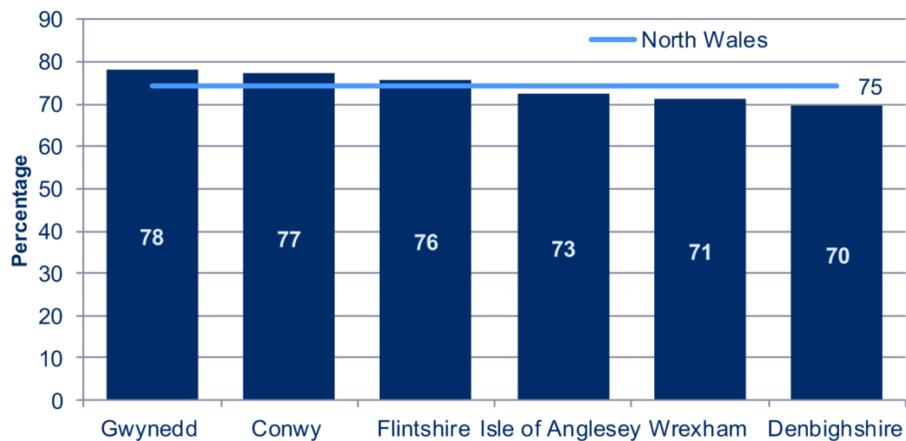


Figure 7.5 Adults reporting they are in good or very good general health

\* The 2017-18 and 2018-19 periods have been combined for data quality purposes

Source: National Survey for Wales

### Long-term Illness

- 7.26. Long-term illness and disabilities also have an effect on people’s health and wellbeing, affecting their ability to access education, work or local services and facilities.
- 7.27. Table 7.7 below shows the number of people who reported having a limiting long-term illness or disability in the 2011 Census. Of the output Area’s Sealand I (W01000332) and Sealand 2 (W01000333) combined usual residents, 16.7% will experience limited day to day activities of which 7.2% are limited a lot.

Location	All Usual Residents	Day-to-Day Activities Limited a Little	Day-to-Day Activities Limited a Lot	Day-to-Day Activities Not Limited
Sealand I (W01000331)	1,609	164	111	1,334
Sealand II (W01000332)	1,568	135	119	1,314

Table 7.7: Limiting long-term illness or disability

Source: Welsh Government 2011

## Mental Health

7.28. Table 7.8 shows admissions to mental health facilities by local health board in Wales.

Location/Health Board	Formal admissions	Informal admissions	Total admissions	Population	% total admissions
<b>Wales</b>	<b>1,916</b>	<b>6,399</b>	<b>8,315</b>	<b>3,169,586</b>	<b>0.26%</b>
Betsi Cadwaladr University Health Board	409	1,044	1,453	703,361	0.21%
Powys Teaching Health Board	52	191	243	133,030	0.18%
Hywel Dda University Health Board	244	658	902	389,719	0.23%
Abertawe Bro Morgannwg University Health Board	287	1,477	1,764	390,949	0.45%
Cwm Taf University Health Board	179	1,080	1,259	449,836	0.28%
Aneurin Bevan University Health Board	164	1,149	1,313	598,194	0.22%
Cardiff and Vale University Health Board	368	796	1,164	504,497	0.23%
Independent hospitals total	213	4	217	-	-

Table 7.8: admissions to mental health facilities by local health board in Wales

7.29. The Proposed Development lies within the area covered by Betsi Cadwaladr University Health Board (BCUHB). Table 7.8 shows that this local health board has a relatively low level of admissions per percentage population compared to the other health boards.

7.30. Table 7.9 shows patients in mental health hospitals and units in Wales with a mental illness.

Location/Health Board	2015	2016	2017	2018	2019
<b>Wales</b>	<b>1,441</b>	<b>1,430</b>	<b>1,368</b>	<b>1,319</b>	<b>1,291</b>
Betsi Cadwaladr University Health Board	224	236	237	224	239
Powys Teaching Health Board	46	36	30	29	30
Hywel Dda University Health Board	114	123	120	117	123
Abertawe Bro Morgannwg University Health Board	440	399	374	373	329
Cwm Taf University Health Board	139	168	146	142	135
Aneurin Bevan University Health Board	162	169	172	152	154
Cardiff and Vale University Health Board	316	299	289	282	281

Table 7.9: Patients in mental health hospitals and units in Wales with a mental illness

7.31. Table 7.9 shows that the number of patients in mental health hospitals and units with a mental illness in BCUHB has remained stable over the five years from 2015 to 2019 whereas Wales as a whole has seen a steady decline over the same period.

7.32. Table 7.10 shows Warwick-Edinburgh Mental Well-being Scale (WEMWBS) by local authority and health board. This shows that Flintshire has the highest score in Wales with 53.5, Betsi

Cadwaladr University Health Board also performs well (52.4), and both are higher than Wales as a whole (51.4).

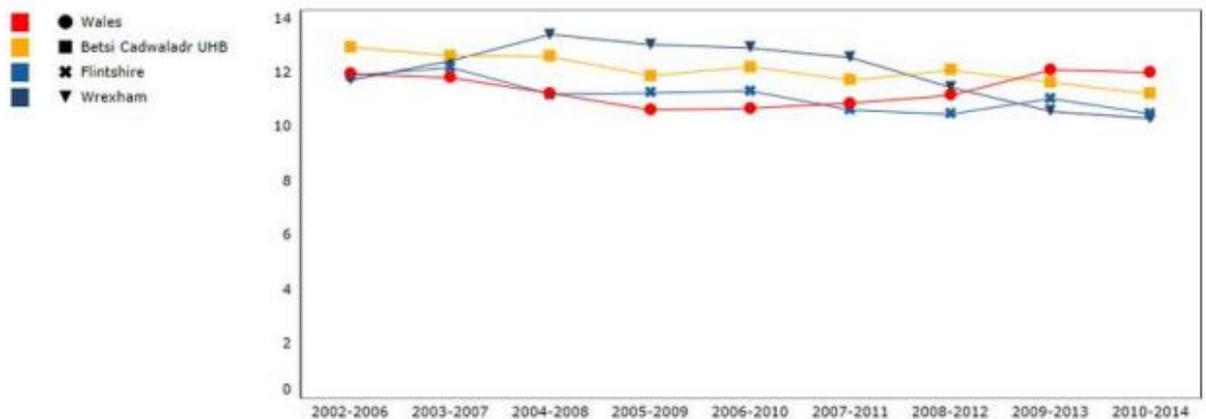
Area	2018-19
Flintshire	53.5
Conwy	53.3
Cardiff	53.2
Gwynedd	52.9
Cardiff and Vale University Health Board	52.5
Betsi Cadwaladr University Health Board	52.4
Neath Port Talbot	52.1
Isle of Anglesey	51.8
Powys Teaching Health Board	51.7
Powys	51.7
Monmouthshire	51.7
Denbighshire	51.6
Bridgend	51.6
Wales	51.4
Abertawe Bro Morgannwg University Health Board	51.1
Newport	51.1

Carmarthenshire	51.1
Swansea Bay University Health Board	51.0
Wrexham	50.9
Cwm Taf Morgannwg University Health Board	50.8
Merthyr Tydfil	50.5
Aneurin Bevan University Health Board	50.5
Hywel Dda University Health Board	50.4
Cwm Taf University Health Board	50.4
Rhondda Cynon Taf	50.3
Swansea	50.3
Caerphilly	50.2
Ceredigion	50.2
Vale of Glamorgan	50.0
Torfaen	49.8
Pembrokeshire	49.7
Blaenau Gwent	48.9

Table 7.10: Warwick-Edinburgh Mental Well-being Scale (WEMWBS) by local authority and health board

- 7.33. Figure 7.6 shows how rates of suicide in the area covered by BCUHB compare to Wales East Area rates over time. Suicide rates are presented as number of deaths per 100,000 people of all ages and are given as five-year averages.

Suicides, European age-standardised rate (EASR) per 100,000, persons aged 10+, Wales, Betsi Cadwaladr UHB and local authorities, 5 years rolling rate, 2002/06-2010/14



Caution should be used when interpreting suicide rates due to improvements to the way they were coded from 2011. More details can be found in the Technical Guide. Produced by Public Health Wales Observatory, using Public Health Mortality and Mid-Year Population Estimates (ONS)

Figure 7.6: Suicide rate in Wales East Area

Source, BCUHB 2018

7.34. The suicide rate in Flintshire has declined over the period, and largely remained below the BCUHB and Welsh averages. Wrexham started off below the BCUHB and Wales rates, went above it for a number of years, but has now dropped below again.

### Crime and Violence

7.35. The highest rates (all above the national average) are found in urban areas with high concentrations of deprivation. Recorded crime data has been published for “Community Safety Partnerships” (CSP), year ending June 2020.

7.36. Table 7.11 shows crime incidents in Sealand for the 12-month period from June 2020 to May 2021. The largest category was ‘Violence and sexual offences’, followed by ‘Anti-Social Behaviour’. Below are these incidents broken down by category.

Crime Category	Incidents	Percentage
Violence and sexual offences	215	30.9%
Anti-social behaviour	194	27.9%
Criminal damage and arson	80	11.5%

Public order	66	9.5%
Other theft	46	6.6%
Vehicle crime	21	3%
Shoplifting	19	2.7%
Burglary	16	2.3%
Other crime	13	1.9%
Drugs	13	1.9%
Bicycle theft	9	1.3%
Theft from the person	1	0.1%
Robbery	1	0.1%
Possession of weapons	1	0.1%

Table 7.11: Crime incidents in Sealand from June 2020 to May 2021

Source: Information provided by data.police.uk. Published under the Open Government License v3.0

7.37. Figure 7.7 shows crime incidents in Wales for the 12-month period from June 2020 to May 2021.

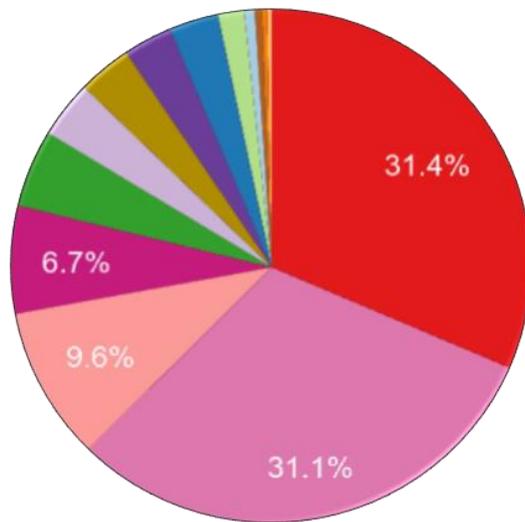




Figure 7.7: Crime incidents in Wales from June 2020 to May 2021

Source: Information provided by data.police.uk. Published under the Open Government License v3.0

7.38. Similarly, to Sealand ward the largest proportions were ‘Violent crime’ at 31.4% and ‘Anti-social behaviour’ at 31.1%.

## Environment (Baseline against which to measure changes to health determinants)

### Air Quality

- 7.39. Air pollution has a direct impact on health causing “increased risk of cancer, childhood and adult asthma, heart disease and dementia; increased mortality and hospital admissions.” (Marmot et al, 2020).
- 7.40. There is a clear link between air quality and health for example WHO, 2000 have suggested that about 36,000–129,000 adult deaths a year are brought forward due to long-term exposure to air pollution generated by traffic in European cities. Particulate Matter (PM10) is released as emissions from road traffic and are damaging to health as they can be deposited within the lungs which can lead to respiratory problems such as asthma.
- 7.41. Nitrogen dioxide (NO<sub>2</sub>) is also released as emissions from road traffic. Numerous epidemiological studies have identified associations between NO<sub>2</sub> concentrations and respiratory health, but it may be that in these studies NO<sub>2</sub> is a key marker for traffic-related pollution more generally.

7.42. Summary statistics for North Wales region: 2020 shows “Flintshire had the highest concentration of nitrogen dioxide in the air in the region in 2017 (9 µg/m<sup>3</sup>), the lowest observed concentration was 5 µg/m<sup>3</sup> on the Isle of Anglesey and in Gwynedd. The observed concentration reduced in all local authorities across the region since 2007, with the greatest observed reduction in Wrexham (5µg/m<sup>3</sup>).”

7.43. However, the site is not in the vicinity of an Air Quality Management Area.

### **Greenspace/Bluespace**

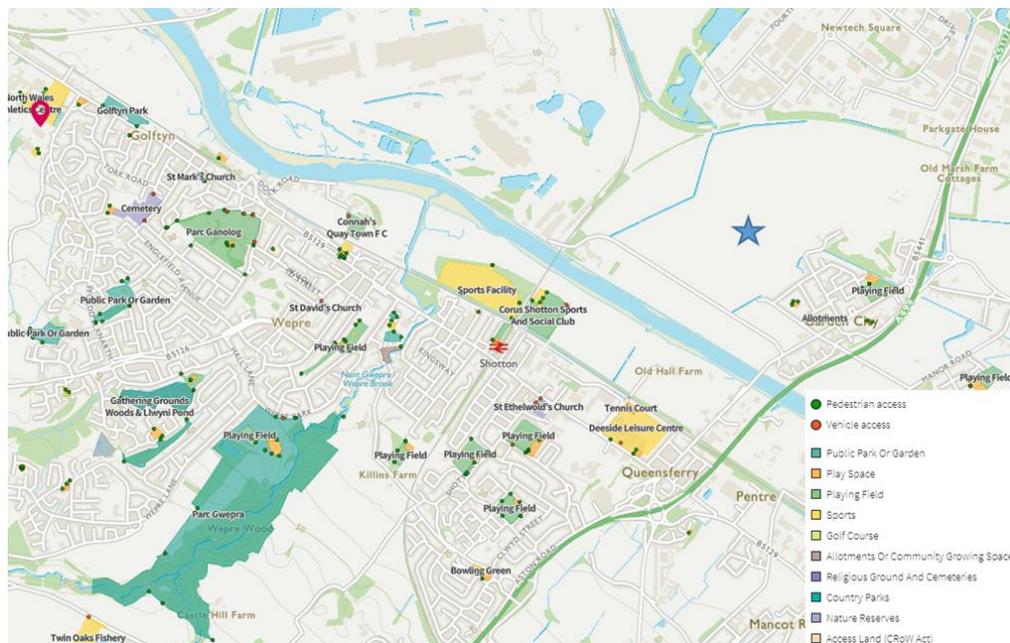
7.44. There are recognised mental and physical health benefits of access to greenspace i.e. grass, trees, or other vegetation set apart for recreational or aesthetic purposes and bluespace i.e. visible outdoor surface waters. For example, it provides access to nature and space for physical activity. Marmot et al, 2020 recognise that there is a direct relationship between green infrastructure and “Increased risk of cancer, childhood and adult asthma, heart disease and dementia. Lower levels of physical exercise leading to higher risk of obesity, diabetes and cardiovascular disease.”

7.45. The proximity, size and amount of green space available to people in urban environments influenced physical and mental health outcomes (Forestry Commission, 2010). A review undertaken by the Forestry Commission found that the key health benefits of green space are:

- ‘Long- and short-term physical benefits associated with obesity, life expectancy, heart rate and blood pressure;
- attention and cognitive benefits associated with restoration, mood and self-esteem;
- physical activity benefits associated with the use of greenspace;
- self-reported benefits in terms of health and life satisfaction; and
- community cohesion benefits through social contact fostered by greenspace’.

7.46. Furthermore, Greenspace Scotland showed that there is a positive relationship between green space and general health. It states, “*Evidence indicates that greenspace is most valuable as a resource for physical activity when used by high volumes of people: therefore, spaces need to be accessible, of sufficient size, and connected to residential areas.*”

- 7.47. With regard to the impact of greenspace on mental health and well-being it states, ‘studies consistently show a relationship between levels of stress and access to urban green spaces’ and identified ‘activity and exercise, natural daylight, stimulation of the senses and aesthetic experience’ as potential factors in reducing stress.
- 7.48. Maller et al shows the link between contact with nature and health. The Sustainable Development Commission explain that ‘exposure to natural spaces – everything from green parks and open countryside to gardens and other greenspace – is good for health’. For example, it states “Exposure to natural spaces is good for health in and of itself and also in terms of facilitating physical activity and social contact.”
- 7.49. Access to natural environments can also have a positive impact on mental health. For example, Douglas states, “There is good scientific evidence that contact with nature in urban areas can improve mental health and can help in the restoration on psychological well-being.”
- 7.50. OS Mapping shows the green spaces within towns and cities. Figure 12.10 below shows the greenspace and bluespace within Flintshire. The site is denoted by a purple star.



**Figure 7.8 Greenspace/Bluespace in Deeside**

Source: OS, 2020

- 7.51. Figure 7.8 shows that within the immediate vicinity of the site, there are few green spaces. The nearest large area of green space is Parc Gwepra, which is approximately 2km from the site.
- 7.52. Notwithstanding this, the site is less than 100m from the River Dee, which is an area of open space and provides access to bluespace. The site is also close to an area of open spaces proposed as part of the proposed residential developments on the wider Northern Gateway site.

### Baseline summary

- 7.53. It is evident from the baseline information provided that Flintshire as well as the Sealand ward have some levels of a deprived population and groups which may be vulnerable to health impacts. These include;
- Unemployed;
  - Those with low educational attainment.
- 7.54. This suggests that the health profile of the population groups is generally average to below average economically and in education and may be more sensitive to health impacts of the development than other areas may be.
- 7.55. The site has some access to openspace and bluespace. However, there is limited access to greenspace with the nearest large area approximately 2km from the site.

### Summary of vulnerable groups

- 7.56. Table 7.12 summarises the most disadvantaged and/or vulnerable groups present in the study area. The most disadvantaged and/or vulnerable groups fall into two or more categories. Those groups that have been included in the scope of this assessment are those that are identified as likely to be differentially affected by the Proposed Development.

Vulnerable groups	Vulnerable sub-groups
Income related groups	People on low income
	Unemployed

Education	Low educational attainment
Health	People who suffer from mental illness
	People suffering from long-term illness
Groups who suffer discrimination or other social disadvantage	People with physical or learning disabilities/difficulties
	People with long term health conditions
Age	Children and young people
	Older people

**Table 7.12: Vulnerable Groups**

## 8. Assessment of Impact

- 8.1. This section of the HIA assesses the health determinants which were identified as relevant to the Proposed Development during the HIA scoping process.

## Construction Impacts

	Key population groups	Potential Effects	Proposed Mitigation or Actions
Disturbance and Stress	Local residents Older Residents Home working employees	There will be an increased level of activity associated with construction. This could result in increased levels of stress for local people.	A CEMP is being produced to support the planning submission which will detail measures for public liaison during the construction period of the development.  The CEMP will also include the hours of construction and other mitigation measures to reduce disturbance and stress.
Site Safety	Construction workers Local Residents Older people Young children	Increased health and safety risks and potential for injury or hazards as a result of construction and associated machinery.	A CEMP is being produced to support the planning submission which will detail measures to ensure construction site worker safety.

Promoting walking and cycling	Local residents  Construction workers	The proposed development may impact on existing walking and cycling routes during construction.	<p>A Transport Assessment will be produced in support of the planning application and will assess the site's existing connectivity to walking routes and cycleways.</p> <p>During the construction phase of the development opportunities for residents to walk around the site will be restricted due to construction works and ensuring a safe environment. Where possible, construction workers will be encouraged to walk or cycle to site.</p>
Minimising car use	Construction workers	Due to the number of construction workers that will be accessing the site, it is possible there will be an increase in the number of commuters in the local area.	<p>A Transport Assessment will be produced in support of the planning application and will assess the site's connectivity to public transport infrastructure.</p> <p>Where possible, construction workers will be encouraged to walk or cycle or take public transport to site rather than using a private vehicle.</p>
Connectivity	Construction workers	The Transport Assessment which will be produced in support of the planning application will assess the site's connectivity to public transport infrastructure.	<p>A Transport Assessment will be produced in support of the planning application and will assess the site's connectivity to public transport infrastructure.</p> <p>Information and guidance will be made available on walking, cycling and public transport options to access the site, in addition to car sharing.</p> <p>Information will also be provided in relation to local residents connectivity around the closed construction site, this will be detailed in the CEMP.</p>

Education	Young people Unemployed people	The proposed development will be developed over a number of phases. There will therefore be prolonged opportunities during the construction period of the development in relation to training opportunities for apprenticeships or college students who are training within the construction sector.	The project presents an opportunity to provide training and improve skills in the local resident population.  This will help lower the area's unemployment rate and improve productivity and competitiveness. A partnership approach between the Project team and local training providers, such as local colleges and adult education institutes, will help support vocational construction training.
Access to social infrastructure	N/A	N/A	N/A
Public transport provision	Construction workers Local residents	During construction some employees may access the site using public transport infrastructure.	A Transport Assessment will be produced in support of the planning application will assess the site's connectivity to public transport infrastructure.  Information and guidance will be made available on walking, cycling and public transport options to access the site.
Open space	Children and young people Families Older people People with disabilities or mobility issues Local residents Local employees	Access to open space provides opportunities for play, recreation and leisure. Studies have shown the access to open space benefits local people in relation to mental illness and satisfaction with local areas.	The site is allocated as a strategic development site therefore loss of the green space has been considered as part of the planning policy making process. Mitigation for the loss of greenspace has also been considered this process.

Biodiversity	<p>Protected species</p> <p>Local wildlife</p>	<p>The construction period will impact the biodiversity value of the site.</p> <p>The nearby River Dee is a designated nature conservation site comprising a Special Areas of Conservation (SAC), and local wildlife site. The River Dee is a Site of Specific Scientific Interest (SSSI).</p>	<p>The ecological ES technical paper will assess the impact on biodiversity and propose appropriate mitigation measures. The mitigation measures are proposed will be incorporated into the CEMP.</p> <p>For example, impacts on protected sites will be mitigated by Environmental Permits and the findings of Appropriate Assessments. Mitigation is also proposed for impacts on habitats such as Installation of root protection fencing around retained trees/woodland. In relation to species mitigation includes Monthly monitoring over winter months, followed by remedial action in CEMP (i.e. installation of heras fencing with hessian screening) to minimise impact on birds.</p>
Views and landscaping	Local residents	<p>During construction there will be some change in the visual appearance of the site. However, the impacts caused specifically through construction activities will be temporary. The main impacts will be a change from what people have become accustomed to and the activity on the site as it constructed may have some temporary effects on people's perception of the site.</p>	<p>A full assessment of the impact on development in relation to the surrounding area will be included in the relevant Townscape and Visual Impact ES technical paper. Any mitigation and residual findings will be reported in the ES.</p> <p>For example, during the Construction Phase of the Proposed Development, screening will be incorporated to conceal the appearance of the site, this will be reported in the CEMP.</p>
Hot food takeaways	N/A	N/A	N/A

<p>Crime</p>	<p>Construction workers  Local people</p>	<p>Construction sites with their store of materials and the influx of new people can make an area more vulnerable to crime or, at least, be perceived as being more vulnerable to crime.</p>	<p>A CEMP is being produced for the planning application which will detail proposed site security measures to be implemented throughout the construction period.</p> <p>For example, fencing and security measures will reduce the risk of crime such as vandalism and anti-social behaviour.</p>
<p>Traffic management</p>	<p>Older people  Local residents</p>	<p>During the construction period there will be an increase in cars and HGV on the road associated with construction activities.</p> <p>The increase in cars and construction traffic could lead to inconveniences for local residents during their daily activities.</p>	<p>A detailed Transport Assessment will form part of the planning application and the findings will be reported in the relevant ES technical paper.</p> <p>A Construction Traffic Management Plan (CTMP) will take into account the findings of the Transport Assessment in relation to mitigation and will set out a strategy for vehicle movements during construction. This will include appropriate routes for construction vehicles and will ensure that wherever possible construction vehicles move to and from the site outside of peak times.</p>
<p>Lighting</p>	<p>Local Residents  Construction workers</p>	<p>Lighting levels to allow construction in dark. Construction activities may require some working after dark, depending on the stage of the build. In these instances, floodlighting may be required to protect the safety of construction workers.</p> <p>Construction core hours do extend into hours of darkness in the morning and evening. However, the site is also likely to be lit after dark for security purposes.</p>	<p>The CEMP to be produced in support of the planning application will detail the proposed lighting strategy to be implemented on the site during construction.</p>

Local employment opportunities	Local residents	Construction of the project will contribute to the local economy by creating some new local jobs during the construction phase and the impacts of construction on the local economy, for instance through the supply chain and services to support workers. The ES will contain a detailed socio-economic assessment of the proposed development and cumulative effects.	<p>The Socio-Economic Technical Paper of the ES will assess the impact of the construction phase of the proposed development in terms of employment created.</p> <p>The project presents an opportunity to improve skills in the local resident population for example by providing training on specialist construction skills.</p>
Healthy workplaces	Construction workers	Construction sites have a number of health and safety risks which could lead to injury.	<p>The site compound will include areas that are heated, sheltered, provide restrooms and places to make food, hot and cold drinks.</p> <p>Site workers will be required to abide by site rules and regulations and will receive a formal induction prior to undertaking or participating in any work on the site.</p>
Air quality	<p>Construction workers</p> <p>Local residents</p> <p>Local employees</p> <p>Children and young people</p> <p>Older people</p>	There are no Air Quality Management Area's in the vicinity of the site however, the site has the potential to create issues in relation to air quality during construction as a result of dust and emissions on existing businesses and local residents.	<p>The air quality ES technical paper assesses the effect of construction on air quality for example with regard to emissions from construction traffic and dust created. It sets out mitigation measures for example Construction Non-Road Mobile Machinery (NRMM) machinery will be mitigated by a specification of minimum NRMM emission requirements.</p> <p>The CEMP will incorporate the mitigation measures identified in the air quality ES technical paper.</p>

<p>Acoustics</p>	<p>Existing buildings and uses</p> <p>Existing employees</p> <p>Local residents</p> <p>Young children</p> <p>Elderly people</p> <p>Construction workers</p>	<p>The site has the potential to create issues in relation to noise and vibration on existing businesses and local residents.</p>	<p>The impact of acoustics will be assessed in the relevant ES technical paper. It will set out mitigation measures in relation to construction noise and traffic noise as a result of the construction phase. In addition, the impact from construction vibration will be mitigated by suggesting measures such as limiting piling activities and utilising low vibration plant techniques.</p> <p>Mitigation measures will be implemented through the CEMP.</p>
<p>Land contamination</p>	<p>Local employees</p> <p>Local residents</p> <p>Young children</p> <p>Elderly people</p>	<p>No existing contamination is anticipated within the Site. Control measures will be put in place to avoid any new contaminants being introduced to the Site during construction, so that no new contamination that represents a risk either to Site users of the wider environment is present.</p>	<p>The impact of the development in relation to land contamination will be assessed in the Geology and Ground Conditions ES technical paper. The mitigation measures it sets out such as identifying appropriate fuel storage location and stockpile management plans will be implemented through the CEMP.</p>
<p>Waste</p>	<p>Landfill sites</p> <p>Local waste treatment facilities</p>	<p>The construction phase of the proposed development will result in the generation of waste from construction activities.</p>	<p>The impact of waste generation will be assessed in the relevant ES technical paper and will set out appropriate mitigation measures..</p> <p>A Site Waste Management Plan will be produced in support of the planning application. This document will provide a structure for waste management throughout the whole process. It will identify and monitor the type and amount of waste arisings and provide waste management options. It will be reviewed regularly by the on-site construction manager to ensure that it is up to date.</p>

Flood Risk	Construction workers	Planning Policy Wales Technical Advice Note 15 – Development and Flood Risk (TAN15) (WG, 2004) Development Advice Map 2009 classifies the site as being located within Flood Zone C1. Flood Zone C1 is defined as, “Areas of the floodplain which are developed and served by significant infrastructure, including flood defences”.	A Drainage Strategy will be produced in support of the planning application providing flood mitigation measures.
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**Table 8.1: Construction Impacts**

## Operational Impacts

	Key population groups	Potential Effects	Proposed Mitigation or Actions
Promoting walking and cycling	Local residents Local employees	The proposed development may affect the provision of walking and cycling routes.	A Travel Plan will be developed for the site to encourage employees make sustainable travel choices, using public transport, walking or cycling wherever possible.
Safety	Young children Older people People with mobility issues or disabilities	The proposed development will be accessed by vehicles. There are therefore potential effects relating to safety of cyclists and pedestrians utilising the site during operation.	The Traffic and Transport ES technical paper will consider safety of the surrounding highways and public transport infrastructure network and suggest appropriate mitigation.
Access to public transport and connectivity	Young children Older people People with mobility issues or disabilities People on lower incomes Unemployed people	The proposed development will potentially increase the number of people accessing the site for employment. The proposed development may therefore affect access to public transport and existing public transport infrastructure.	The Traffic and Transport ES technical paper will assess the existing and proposed access to public transport infrastructure. A Travel Plan will be developed for the site to encourage employees make sustainable travel choices including the use of public transport.
Education	Young people Children Adults with few/no qualifications.	There are opportunities for apprenticeships or other educational opportunities associated with employment which may arise as a result of the proposed development.	The ES socioeconomic technical paper will provide information on the potential for educational opportunities associated with the proposed development including workplace-based training.
Open space	Children and young people Families Older people People with disabilities or mobility issues Local residents Local employees	Access to open space provides opportunities for play, recreation and leisure. Studies have shown the access to open space benefits local people in relation to mental illness and satisfaction with local areas.	The site is allocated as a strategic development site therefore loss of the green space has been considered as part of the planning policy making process. Mitigation for the loss of greenspace has also been considered this process.

Biodiversity	Protected species Local wildlife	<p>Development can impact upon biodiversity and habitats. Biophilia is the connection between animals and humans, and the retention of wildlife habitats and proximity to urban areas has been shown to prevent mental illness, encourage physical activity and general happiness levels.</p> <p>The operational period of the development will impact the biodiversity value of the site and potentially on nearby designated habitat sites.</p> <p>The nearby River Dee is a designated nature conservation site comprising a Special Areas of Conservation (SAC), and local wildlife site. The River Dee is a Site of Specific Scientific Interest (SSSI).</p>	The ecological ES technical paper will assess the impact of the Proposed Development on biodiversity and provided appropriate mitigation measures to reduce potential impacts as a result of the Proposed Development
Views and landscaping	Local residents Local employees	The proposals will impact on views and landscaping in relation to the surrounding context.	The townscape and visual impact ES technical paper will assess the impact of the proposed development in relation to key views and landscape. It will propose appropriate mitigation measures to reduce impacts on views and landscaping.
Crime	Young people and children Older people Local residents Local employees	Crime levels or fear of crime can have negative effects on local people of all ages. This may mean people do not leave their homes often to engage within their local area, there is a lack of investment and people move out of the area.	<p>The Proposed Development will be considered by the Police as a consultee during the determination of the planning application. The proposals will be reviewed by the Police to ensure that opportunities have been considered for designing out crime and anti-social behaviour.</p> <p>The design and access statement which will be produced in support of the application will consider the design of the proposals in relation to designing out crime.</p>

Traffic management	Children and Young People Local residents Local employees	Poor traffic management can lead to accidents, increased use of the private car and make walking or cycling less attractive.	The Traffic and Transport ES technical paper will assess the existing highways infrastructure surrounding the site. It will consider the impact on public transport users and increases in traffic as a result of the proposed development.  Suggested mitigation measures may include proposed infrastructure improvements and mitigation packages, pedestrian/cycle linkages and encouragement of sustainable transport modes through the Travel Plan.
Lighting	Children and young people Older people Local residents Local employees	Lighting can ensure that people feel safe after dark and to continue to use sustainable modes of travel rather than rely on the private car. Lighting also prevents opportunities for crime.	A lighting impact study will accompany the planning submission showing mitigation measures to create a safer environment though potential new lighting, preventing opportunities for crime.
Local employment opportunities	People on a low income Economically inactive Unemployed /workless People living in areas of exhibiting poor economic indicators People who work from home Local residents Local employees	Access to a range of employment opportunities an ensuring a variety of employment locations and job roles is essential for the growth and long-term prospering of the local economy.	The socio-economic ES technical paper will assess the anticipated creation of employment opportunities as a result of the Proposed Development. The Proposed Development is will have a direct positive impact on employment and livelihood of the local population.
Healthy workplaces	Existing and proposed employees	Employee health and wellbeing is impacted by their working environment.	Healthy workplaces will be implemented as part of the design process for the proposed development.
Air quality	Local residents Local employees Young children Elderly people People with existing health issues	The redevelopment of the site has the potential to create air quality issues as a result of the construction and operation of new buildings.	The air quality ES technical has assessed the operational impact of the development and set out appropriate mitigation measures.

Acoustics	Local residents Local employees Young children Elderly people	The proposed development will likely include the provision of new plant and machinery which could generate noise.	The impact of the development in relation to operational noise levels will be assessed in the acoustics ES technical paper and will provide mitigation against noise impact. For example, appropriate specification of façade and roof constructions to provide adequate sound insulation levels may be considered.
Land Contamination	Local residents Local employees Young children Elderly people	No existing contamination is anticipated within the Site.	The impact of the development in relation to operational land contamination will be assessed in the Geology and Ground Conditions ES technical paper which will provide mitigation measures to be implemented during the operation phase of the Proposed Development.
Waste	Local residents Local employees Young children Elderly people People with existing health issues	The proposed development will provide new buildings on the site which will generate waste over their lifetime.	A site waste management plan will provide a structure for waste management for the Proposed Development. It will identify and monitor the type and amount of waste arisings and provide waste management options in accordance with the waste hierarchy.
Flood Risk	Local residents Local employees Young children Elderly people	Planning Policy Wales Technical Advice Note 15 – Development and Flood Risk (TAN15) (WVG, 2004) Development Advice Map 2009 classifies the site as being located within Flood Zone C1. Flood Zone C1 is defined as, “Areas of the floodplain which are developed and served by significant infrastructure, including flood defences”.	A Drainage Strategy will be produced in support of the planning application providing sustainable drainage/flood management mitigation for the Proposed Development.
Overheating	Local residents Local employees Young children Elderly people People with existing health issues	The site will provide new buildings on the site which could be at risk of overheating depending on their detailed design.	TBC

Sustainability	Local residents Local employees Young children Elderly people People with existing health issues	The site will erect new buildings as part of the proposed development. The erection of new building will have an impact on the environment.	A sustainability statement accompanying the planning application will support the creation and development of healthy and sustainable places and communities.
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**Table 8.2: Operational Impacts**

## 9. Summary of Impact

9.1. This Health Impact Assessment (HIA) Scoping Report has been prepared by Cundall on behalf of Industrie Cartarie Tronchetti (ICT) UK Limited and Crag Hill Estates Ltd (CHEL) for a planning application comprising of the following proposals:

9.2. The impact of the Proposed is shown in Table 9.1 below:

Health Determinant	Potential Health Impact	Summary Comments
Construction	Positive	<p>The Proposed Development will benefit those people living within the immediate area as as additional employment will be created.</p> <p>The Proposed Development will provide training opportunities (as noted in the Socio-Economic ES Technical Paper). Furthermore, the construction will have a positive impact on the local economy.</p>
Active Travel and Connectivity	Positive	<p>The proposed development will provide infrastructure improvements and mitigation packages, pedestrian/cycle linkages and encouragement of sustainable transport modes through the Travel Plan, reducing levels of adult and child obesity and providing mental health benefits associated with exercise.</p>
Access to public services and infrastructure	Negligible	<p>The Proposed Development will not alter Access to public services and infrastructure in any way. Furthermore, places and cultural significance will not be impacted upon by the proposed development.</p>
Open and green spaces	Negligible	<p>The Site currently comprises managed grassland. There are few green spaces in the immediate vicinity of the site.</p>
Healthy foods	Positive	<p>The lack of proposed hot food takeaway uses assists in ensuring no additional access to hot food takeaways for existing or future residents is created by the Proposed Development.</p>

Community safety	Positive	The construction phase of the development may give rise to some anti-social behaviour, as construction sites can sometimes attract this. The Proposed Development when completed will provide areas of natural surveillance in order to help reduce existing levels of crime. Extensive engagement has been carried out with the local community with regards the Proposed Development
Equality and social cohesion	Positive	This ES Technical Paper identified positives as a result of the Proposed Development. These include the provision of employment and training opportunities, therefore providing a benefit in terms of equality and social cohesion.
Employment and economy	Positive	The Socio-Economic Technical Paper (Technical Paper 6 of this ES) shows that during the construction phase the net additional employment created by the Proposed Development will be approximately 508 FTE jobs in Flintshire, 945 FTE jobs in the wider impact area and 794 FTE jobs for Wales.  Furthermore, the construction will have a positive impact on the local economy. The Socio-Economic Technical Paper 6 of this estimates that the Proposed Development would generate a net additional GVA of around £92.6m for Flintshire, £90.0m for the wider impact area and £98.4m for Wales.
Environmental Hazards	Negligible	The Proposed Development will not alter the climate or natural hazards.
Climate Change	Negligible	The Proposed Development will not alter the climate or natural hazards.

**Table 9.1: Summary of Findings**

## 11. Conclusion

11.1. This Health Impact Assessment (HIA) has been prepared by Cundall on behalf of ICT UK Ltd for a planning application comprising of the following proposals:

*Full Planning Application for erection of Paper Processing Mill to produce and manufacture tissue paper (B2, B8 use class) with ancillary B1a office space; associated servicing and infrastructure including car parking, HGV parking and vehicle and pedestrian circulation; noise mitigation features; earthworks to create development platforms; creation of drainage features including a new outfall to the River Dee; water treatment plant; and landscaping.*

11.2. Whilst there is currently no statutory requirement to undertake HIA's in the UK, its role and value have been endorsed or highlighted in a range of policy and strategy contexts. This HIA has been produced to inform consultation with Flintshire County Council.

11.3. The HIA has been carried out in order to identify the impacts of the proposed development on the health and wellbeing of the nearby population, consider health inequalities, and identify opportunities for mitigation and enhancement measures to improve health outcomes.

11.4. The HIA has assessed the impact of the proposed development on the following health determinant categories:

- Construction
- Active Travel and Connectivity
- Access to public services and infrastructure
- Open and green spaces
- Healthy foods
- Community safety
- Equality and social cohesion
- Employment and economy

- Environmental Hazards
- Climate Change

- 11.5. The findings of the HIA show that the proposals will deliver a number of positive impacts in relation to health as demonstrated in Table 9.1.
- 11.6. Positive impacts identified include the impact of employment on health due to long term impact and perception of the local population. The proposed development will provide infrastructure improvements and mitigation packages, pedestrian/cycle linkages and encouragement of sustainable transport modes through the Travel Plan, reducing levels of adult and child obesity and providing mental health benefits associated with exercise.
- 11.7. The Proposed Development will not alter the climate or natural hazards.
- 11.8. No negative impacts on health are anticipated to arise as a result of the Proposed Development.

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