POWERFUEL

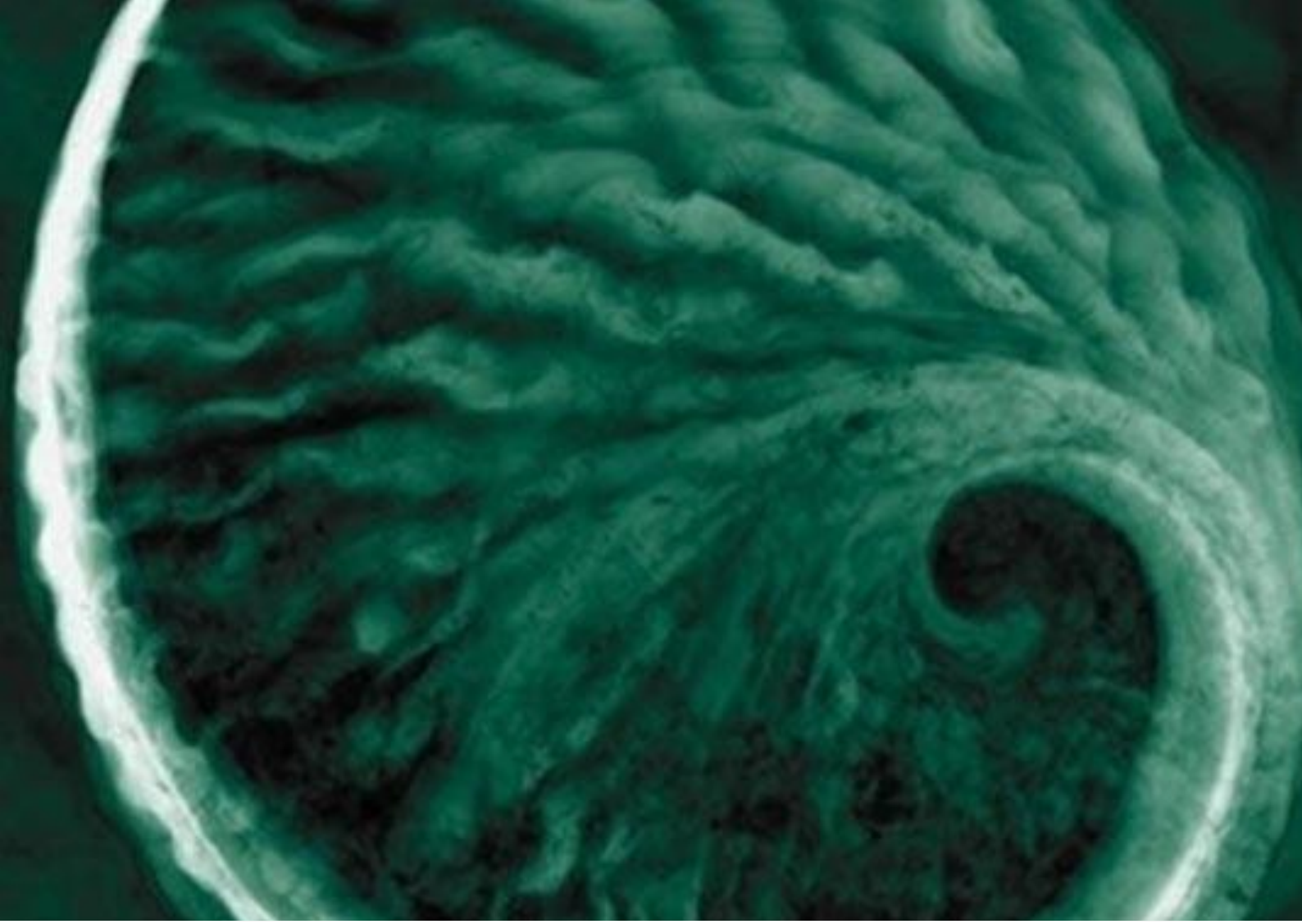
# Portland energy recovery facility

Environmental statement
Addendum
Appendices



5.2

## Health impact assessment addendum



# Health Impact Assessment – Reg 25 Addendum

Portland Energy Recovery Facility

08 July 2021

Project No.: 0552187

*The business of sustainability*

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**Signature Page**

08 July 2021

# Health Impact Assessment – Reg 25 Addendum

## Portland Energy Recovery Facility

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## Acronyms and Abbreviations

| Name | Description |
|---|---|

# 1. INTRODUCTION

## 1.1 Background

Powerfuel Portland Ltd. submitted a planning application for a proposed Energy Recovery Facility (ERF) on the Isle of Portland, Dorset on 3rd September 2020. Following review of the application and consideration of consultation responses, Dorset Council have requested additional information and clarification in relation to the proposal. The request was received on 30th April 2021. The Council considers that some of the information requested below constitutes further environmental information and, where this is applicable, it is requested in accordance with Regulation 25 of the Town and Country Planning (Environmental Impact Assessment) Regulations 2017 (as amended) and Section 62(3) of the Town and Country Planning Act 1990.

Environmental Resources Management (ERM) has been commissioned to update the Health Impact Assessment (HIA) in line with this request, providing the following.

- Additional detail responding to issues in respect of potential benefits or impacts upon public health as a result of changes in air quality. In particular, this should address outstanding issues raised by Public Health Dorset.
- Further consideration and information in respect of relevant health related issues raised through representations on the first consultation as appropriate.

The method for undertaking the updates to the HIA is in line with Section 2 of Technical Appendix G of the submitted Environmental Statement, as well as the principles outlined in the Mental Wellbeing Impact Assessment published by the National MWIA Collaborative (England) in May 2011[1], as described in the following sub-section. This has included assessing how the population's characteristics influence wider determinants, including equity and social justice, and what positive or negative impacts the proposed development will have on the core protective factors for mental wellbeing.

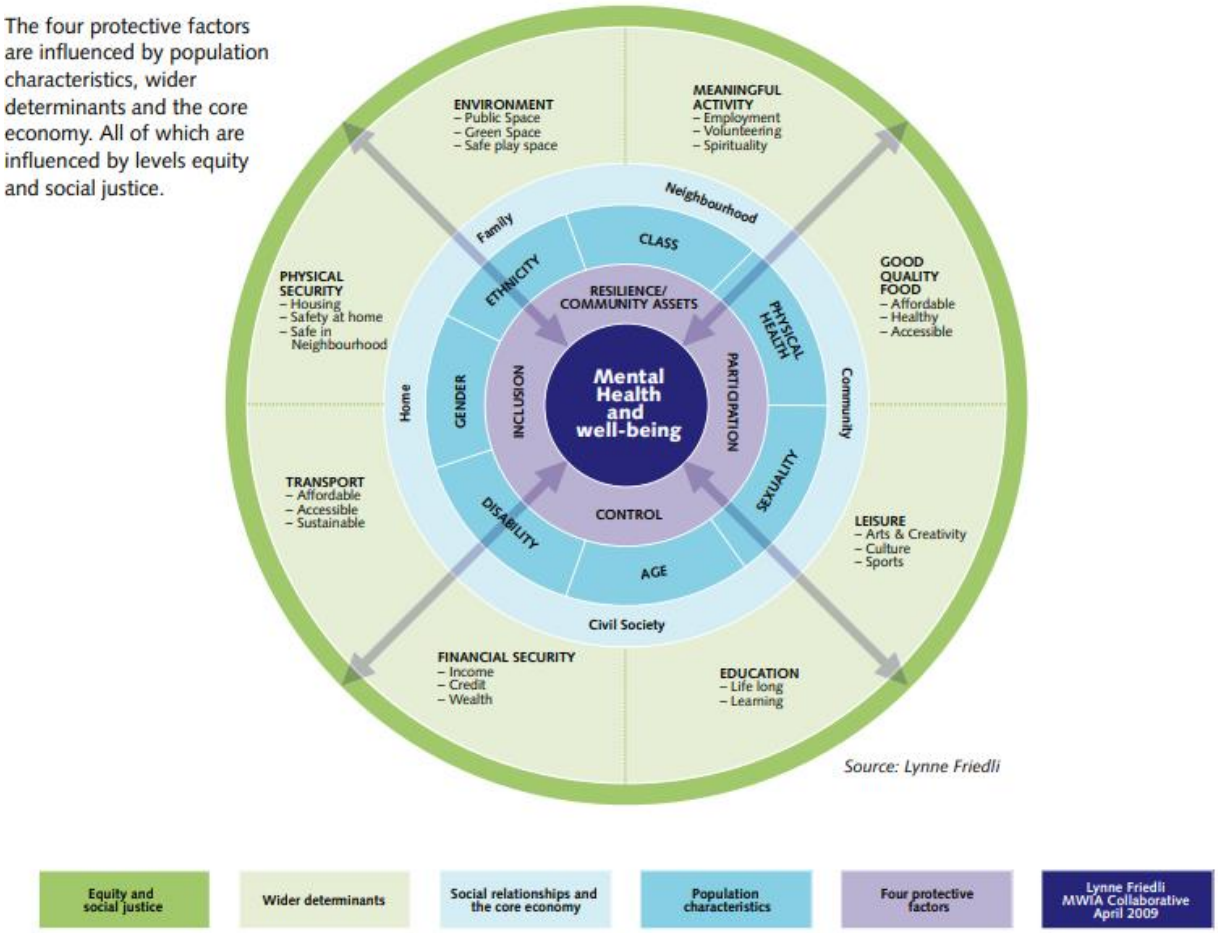
A standalone MWIA was not considered to be appropriate. However, the principles of the MWIA have informed this health impact assessment addendum, specifically where the consideration of the local communities' mental wellbeing has been assessed.

## 1.2 Mental Wellbeing Impact Assessment

The Mental Wellbeing Impact Assessment (MWIA) enables people and organisations to assess and to improve a policy, programme, service or project in order to ensure that it has a maximum equitable impact on people's mental wellbeing. It was published in 2011 by the National MWIA Collaborative (England). The MWIA toolkit provides an evidence-based framework for improving wellbeing through commissioning processes, project and service design and delivery, community engagement and impact assessment. The main output of a MWIA is a "set of evidence based recommendations" specifically designed to influence planners, funders and those delivering proposals. These recommendations are specifically designed to maximise potential positive impacts and to minimise potential negative impacts. There are a number of dimensions of mental wellbeing that can be influenced by different aspects of a person's life. These factors should be considered when assessing the mental wellbeing impact, as shown in Figure 1.1.

[1] National MWIA Collaborative (England) (2011) Mental Well-being Impact Assessment. Available at: https://q.health.org.uk/document/mental-wellbeing-impact-assessment-a-toolkit-for-wellbeing/?bp-attachment=MentalWellbeingImpactAssessmentAtoolkitforwellbe.pdf

**Figure 1.1 A dynamic model of mental wellbeing for assessing impact**




## 1.3 Scope and Structure of this report

The remainder of this addendum report is structured as follows:

- Section 2: Consultation Responses & Stakeholder Engagement;
- Section 3: Community Profile;
- Section 4: Literature Review;
- Section 5: Impact assessment; and
- Section 6: Recommendations.

The objective of this document is to address the key health stakeholder's expectations that the community and wider public have a full understanding of the assessment of health and wellbeing, and to provide reassurance to the local community through addressing key concerns. It should be read in conjunction with the original HIA in technical appendix G of the ES.

A non-technical summary has also been published.

# 2. CONSUTLATION RESPONSES & STAKEHOLDER ENGAGMENT

## 2.1 Consultation Responses

Dorset Council received consultation responses on the assessment of health and wellbeing from a number of stakeholders, including Public Health England, Public Health Dorset and Weymouth and Portland Primary Care Unit.

A meeting was held between ERM and Public Health Dorset (26th February 2021) to discuss their feedback and better understand their expectations.

The responses were analysed and key issues raised by stakeholders included the request for further consideration of the following topics, which will be addressed in the remainder of this document:

- Overview of the mental health and wellbeing of the local population, and any potential differential or disproportionate impacts which may arise;
- Overview of existing health inequalities within the local population, and any potential differential or disproportionate impacts which may arise; and
- Overview of any potential impacts to Her Majesty's Prison (HMP) The Verne and the resident 'static' inmate population.

## 2.2 Engagement with Stakeholders

Due to the COVID pandemic, ERM did not have the opportunity to engage with key health stakeholders in 2020. However, as Public Health Dorset (PHD) is now happy to facilitate engagement, it has provided ERM with recommendations as to stakeholders with whom to engage.

ERM, on behalf of Powerfuel Portland Ltd., will contact the key health stakeholders identified by PHD, to inform them of the upcoming consultation, share the updated assessment and non-technical summary, and invite them to respond either through the official Reg. 25 request and/or by inviting them to a feedback session as part of extended consultation. These key health stakeholders are:

- Public Health Dorset;
- Weymouth and Portland Primary Care Network & Patient Participation Group;
- HMP The Verne; and
- Island Community Action (suggested by PHD).

If additional stakeholders are identified during consultation, these will be subsequently contacted and engaged.

# 3. COMMUNITY PROFILE

## 3.1 Overview

Assessing the profile of the community is an important component of a HIA, as it informs the understanding of how those communities may be susceptible to potential health impacts and benefits arising from the Proposed Project. There is evidence to suggest that community characteristics such as ethnicity, deprivation and social and demographic structures can influence how susceptible is a population is to external changes. Analysing the profile of a community can help to identify communities, or sub-sections of communities, who may be differentially or disproportionately impacted by the Proposed Project and support the identification of how best to avoid, minimise or mitigate such impacts.

## 3.2 Mental Health and Wellbeing

Public Health England publishes data on the percentage of patients/residents, aged 18 and over, who have been diagnosed with depression and those with long-term mental health problems (all ages).

According to Public Health England's Public Health Profiles,[2] there are six GP practices in the Weymouth and Portland area:

- Cross Road Surgery, Weymouth;
- Royal Crescent Surgery, Weymouth;
- Royal Manor Health Care, Portland;
- The Bridges Medical Centre, Weymouth;
- The Dorchester Road Surgery, Weymouth; and
- Wyke Regis & Lanehouse Surgery, Weymouth.

Table 3.1 presented these figures for the different surgeries in Weymouth and Portland, as well as the comparative figures for Dorset and England. All GP surgeries in the area have a higher percentage of patients recorded with depression in 2019/2020, compared with Dorset and England as a whole.

The Bridges Medical Centre recorded the highest incidents of depression, followed by Wyke Regis & Lanehouse Medical Practice. Furthermore, a higher percentage of patients reported long-term mental health problems when compared to Dorset in five out of the six GP surgeries, and when compared to the English average in four out of the six GP surgeries. The highest percentage of patients reporting long-term mental health problems was in Cross Road Surgery, followed by Royal Manor Health Centre (situated on the Isle of Portland).

[2] Public Health England (2020) Public Health Profiles: GP practices within 5 miles of Weymouth. Available at: https://fingertips.phe.org.uk/search/depression#page/8/gid/1/pat/166/par/E38000045/ati/7/are/J81068/iid/848/age/168/sex/4/cid/4/tbm/1

## Table 3.1 Prevalence of Depression (18+) and Severe Mental Illness (all ages)

| GP / Area | % of patients reporting long-term mental health problems (all ages) (2020)[3] | % of patients recorded with depression (ages 18+) (2019/2020)[4] |
|---|---|---|
| Cross Road Surgery | 14.26 | 13.50 |
| Royal Crescent Surgery | 10.97 | 14.70 |
| Royal Manor Health Care | 11.58 | 15.18 |
| The Bridges Medical Ctr. | 11.21 | 22.13 |
| The Dorchester Rd Surgery | 6.29 | 13.24 |
| Wyke Regis & Lanehouse Medical Practice | 10.00 | 18.78 |
| **Dorset** | **9.99** | **11.59** |
| **England** | **10.55** | **11.56** |

Public Health England also presents data around self-reported wellbeing.

Table 3.2 presents the data for people with high anxiety scores. The data are only available at a county, regional and national level[5]. As illustrated, Dorset has a higher percentage of the population reporting high anxiety scores compared with the regional and national figures.

[3] Public Health England (2020) Public Health Profiles: Depression. Available at: https://fingertips.phe.org.uk/search/depression#page/0/gid/1/pat/166/par/E38000045/ati/7/are/J81068/iid/848/age/168/sex/4/cid/4/tbm/1

[4] Public Health England (2020) Public Health Profiles: Long-term mental health problem. Available at: https://fingertips.phe.org.uk/search/mental%20health#page/0/gid/1/pat/166/par/E38000045/ati/7/iid/90581/age/1/sex/4/cid/4/tbm/1/page-options/car-do-0

[5] Public Health England (2020) Public Health Profiles: Anxiety. Available at: https://fingertips.phe.org.uk/search/anxiety#page/0/gid/1/pat/6/par/E12000009/ati/102/iid/22304/age/164/sex/4/cid/4/tbm/1

**Table 3.2 Self-Reported Wellbeing – People with a High Anxiety Score**

| GP / Area | % Reporting High Anxiety Scores (2019/2020) |
|---|---|
| Dorset | 22.4 |
| South West Region | 21.1 |
| England | 21.9 |

## 3.3 Vulnerable Groups

There a number of characteristics of people/communities that can contribute to health inequalities. These include vulnerable sections of society, or 'inclusion health' groups. Inclusion health has been used to define a number of groups of people who are not usually well provided for by healthcare services, and have poorer access, experiences and health outcomes. The definition encompasses people who are homeless and rough sleepers, vulnerable migrants (refugees and asylum seekers), sex workers, prison inmates and those from the Gypsy, Roma and Traveller communities[6]. For the purpose of this updated assessment, the community profile has been updated with available data, specifically information relating to homeless and rough sleeper populations, prison inmates, and traveller communities.

### *3.3.1 Homelessness*

The Ministry of Housing, Communities & Local Government (MHCLG) published statistics on the rate of those defined as being homeless and in priority need per 1000 households in the population. The data for the six Dorset district and borough councils, presented annually from 2008-09 to 2016-17,[7] are presented in the figures below.

[6] NHS (2019) Definitions for Health Inequalities. Available at: https://www.england.nhs.uk/ltphimenu/definitions-for-health-inequalities/

[7] Dorset Council (2018) Homelessness in Dorset: Review of Evidence. Available at: http://moderngov.dorsetcouncil.gov.uk/Data/272/201807041000/Agenda/Homelessness%20appendix.pdf

Figure 3.1 suggests that there has been a steady increase in the rate of households accepted as homeless and in priority need over this nine-year period. Over the last three years, the rate in Weymouth and Portland has been higher than elsewhere in the county. In recent years, there has also been a greater tendency for some of the Dorset districts to exceed the overall figure for the South West. This has been the case in Weymouth and Portland, North Dorset, and Purbeck in three of the last four years.

Figure 3.2 shows that in the last three years Weymouth and Portland had the highest number of households accepted as homeless and in priority need.

**Figure 3.1 Homeless Acceptances per 1000 Households**

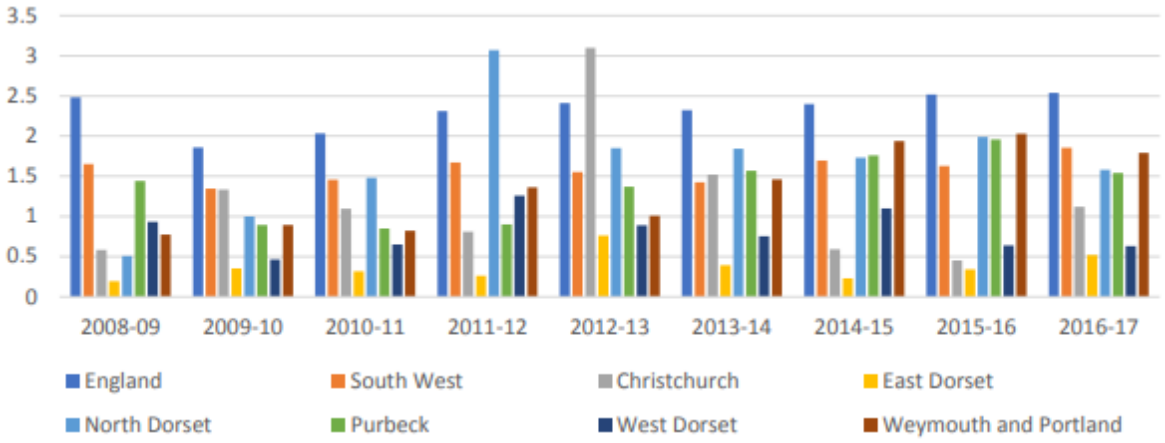



**Figure 3.2 Number of Households Accepted as Homeless and in Priority Need**

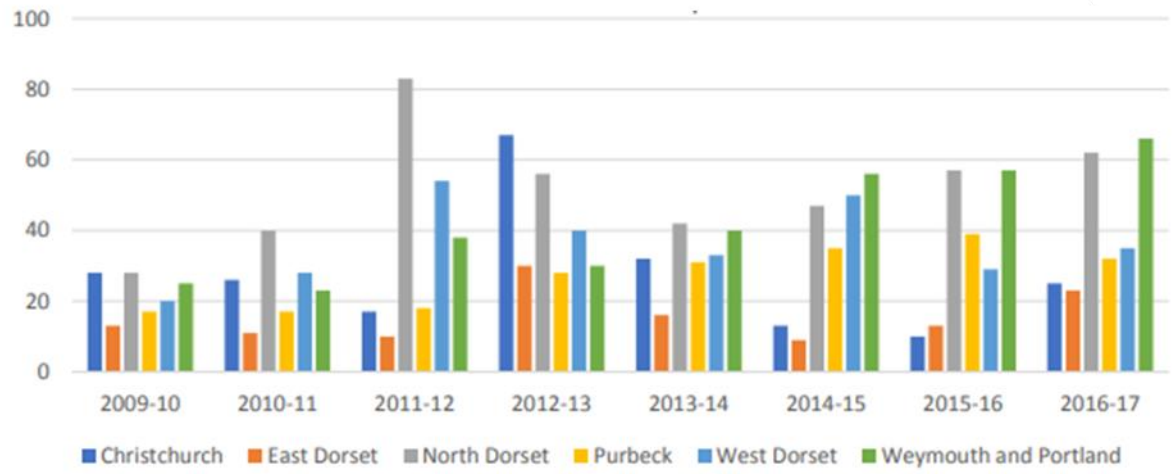
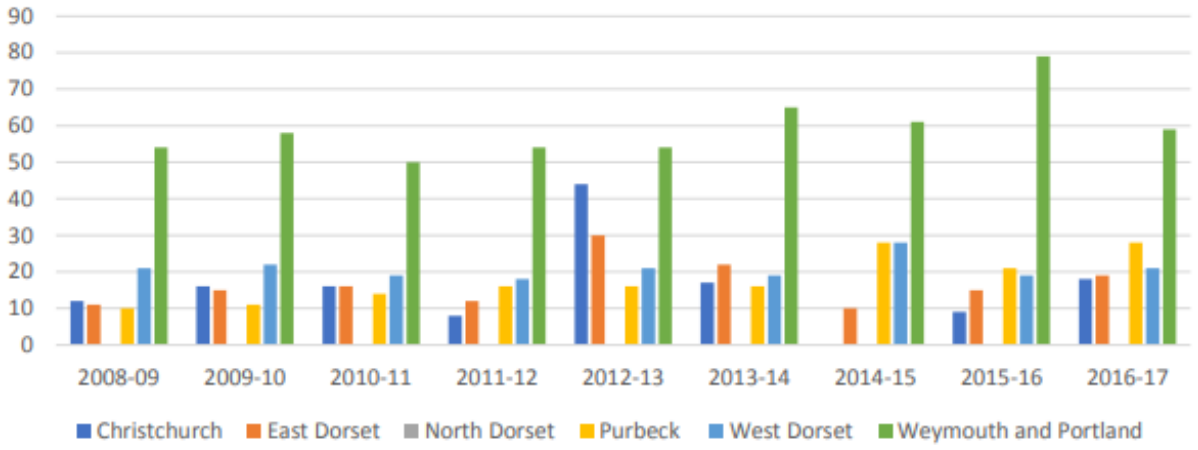


Figure 3.3 shows the number of households that, once accepted as being in priority need, were residing in temporary accommodation in each area. As can be seen, Weymouth and Portland consistently has far more households living in temporary accommodation, whether leased by the local authority, or bed and breakfast. Mainly, this is because there is more temporary accommodation available in Weymouth and Portland than there is in West Dorset or North Dorset, and the Dorset Councils Partnership (DCP) is therefore more likely temporarily to rehouse homeless people in that borough, regardless of where they presently reside.

**Figure 3.3 Number of Households in Temporary Accommodation**




### *3.3.2 'Rough Sleepers'*

The Ministry of Housing, Communities & Local Government (MHCLG) publishes a statistical release on the annual single night snapshot of the number of people sleeping rough in local authorities across England,[8] see Table 3.3.

**Table 3.3 Total Number of People Sleeping Rough (2020)**

| | Dorset | South West Region | England |
|---|---|---|---|
| **Total** | **16** | **354** | **2,688** |
| **Gender** | | | |
| Male | 15 | 294 | 2,277 |
| Female | 0 | 55 | 377 |
| Unknown | 1 | 5 | 34 |
| **Nationality** | | | |
| UK | 15 | 310 | 1,922 |
| EU (Non-UK) | 1 | 30 | 472 |
| Non EU | 0 | 6 | 128 |
| Unknown | 0 | 8 | 166 |
| **Age** | | | |

[8] MHCLG (2021) Statistical Data Set: Live Tables on Homelessness. Available at: https://www.gov.uk/government/statistical-data-sets/live-tables-on-homelessness

| | | | |
|---|---|---|---|
| Under 18 | 0 | 0 | 1 |
| 18-25 | 0 | 19 | 138 |
| Over 26 | 15 | 314 | 2,349 |
| Unknown | 1 | 21 | 200 |

### 3.3.3 HMP The Verne

The majority of prisoners in England and Wales self-identify as male, but the number of inmates from minority and ethnic groups, women and older prisoners has rapidly risen (Haris, Hek and Condon 2006).[9]

HMP The Verne is approximately 430m to the South West of the Site at the top of a steep slope. HMP The Verne is a Category C Adult males' prison, with capacity for 580 inmates. Those incarcerated at the prison are serving either a life sentence or a sentence of 4 years or over. The Independent Monitoring Board (IMB) published data on the age profile and ethnic background of the inmates at HMP Verne in 2019[10]. These totals differ, although the IMB provided no explanation for this discrepancy. Tables 3.4 and 3.5 below show that the largest age group within the inmate population is those aged 50-59, whilst the majority of inmates identify as 'white'.

The HM Inspectorate of Prisons reported in June 2020 that HMP The Verne was found to be safe, with low violence and self-harm. Few prisoners reported feeling unsafe and when violence or antisocial behaviour did occur, incidents were investigated and victims received good support. 97% of prisoners reported that most staff treated them with respect. However, healthcare provision was less positively reported. The health services team was considered to be under-resourced and unable to meet the needs of the population[11].

[9] Harris F, Hek G and Condon L (2006) Healthcare needs of prisoners in England and Wales: the implications for prison healthcare of gender, age and ethnicity, *Health and Social Care in the Community* 15 (1) 56-66

[10] IMB (2019) Annual Report of the Independent Monitoring Board at HMP The Verne. Available at: https://s3-eu-west-2.amazonaws.com/imb-prod-storage-1ocod6bqky0vo/uploads/2019/11/Annual-report-Verne-18-19-for-circulation-.pdf

[11] Justice Inspectorate (2020) HMP The Verne – safe and respectful prison for sex offenders which should improve activity provision. Available at: https://www.justiceinspectorates.gov.uk/hmiprisons/media/press-releases/2020/06/hmp-the-verne-safe-and-respectful-prison-for-sex-offenders-which-should-improve-activity-provision/

**Table 3.4 Age Profile**

| Age Range | Number | Percentage |
|---|---|---|
| 21-29 | 50 | 11 |
| 30-39 | 74 | 15.75 |
| 40-49 | 102 | 21 |
| 50-59 | 121 | 26.25 |
| 60-69 | 84 | 17.75 |
| 70+ | 51 | 9.25 |
| **Total** | **482** | **100** |

**Table 3.5 Ethnic Background**

| | Number | Percentage |
|---|---|---|
| White E/W/S/NI | 329 | 69 |
| White other | 16 | 4 |
| Asian | 27 | 6 |
| Black British Caribbean | 26 | 5.25 |
| Black British African | 18 | 4.25 |
| White Gypsy/ Irish Traveller | 16 | 3.25 |
| Mixed Black/ White Caribbean | 8 | 1.5 |
| Other | 38 | 6.75 |
| **Total** | **478** | **100** |

### *3.3.4 Ethnic Groups*

As stated in the community profile in Technical Appendix G of the submitted Environmental Statement, the majority of the population of Weymouth and Portland self-identify as White British (97.34%). The table below illustrates the ethnic groups of Weymouth and Portland's population compared with county and national numbers as per the 2011 Census. More up-to-date data were not available. As can be seen, the Gypsy, Traveller and Irish Traveller group makes up only 0.07% of the population. This is a smaller proportion than for Dorset (0.13%) and England (0.1%).

## Table 3.6 Ethnic Groups (2011)

| | Weymouth and Portland | Dorset | England |
|---|---|---|---|
| White | 63,432 | 403,762 | 45,226,247 |
| Gypsy / Traveller / Irish Traveller | 48 | 555 | 54,895 |
| Mixed / Multiple ethnic group | 653 | 3,400 | 1,192,879 |
| Asian / Asian British: Indian | 97 | 737 | 1,395,702 |
| Asian / Asian British: Pakistani | 21 | 151 | 1,112,282 |
| Asian / Asian British: Bangladeshi | 93 | 525 | 436,514 |
| Asian / Asian British: Chinese | 173 | 943 | 379,503 |
| Asian / Asian British: Other Asian | 256 | 1,477 | 819,402 |
| Black / African / Caribbean / Black British | 321 | 924 | 1,846,614 |
| Other Ethnic Group | 73 | 431 | 548,418 |
| **Total** | **65,167** | **412,905** | **53,012,456** |

Source: Census 2011

While Gypsy, Roma and Traveller people tend to be absent from many surveys and other data collection methods, there are enough evidence sources to give a good picture of the inequalities that the Communities face. The 2011 census for England and Wales revealed that 14% of Gypsy/Travellers described their health as “bad” or “very bad”, more than twice as high as the white British group. Furthermore, Gypsy and Traveller people are less likely to be satisfied with access to a GP than white British people (60.7% compared to 73.8%) and are also less likely to be satisfied with the service they receive (75.6% compared to 86.2% for white British). Gypsies and Travellers also have the lowest rate of economic activity of any ethnic group, at 47%, compared with 63% for England and Wales overall.[12]

[12] Parliament UK (2019) What we know about inequalities facing Gypsy, Roma and Traveller communities. Available at: https://publications.parliament.uk/pa/cm201719/cmselect/cmwomeq/360/report-files/36005.htm

## 3.4 Health Inequalities

Health inequalities are categorised as unfair and avoidable differences in health across the population, and between different groups within society[13]. Health inequalities arise because of the conditions in which we are born, grow, live, work and age. These conditions influence our opportunities for good health, and how we think, feel and act, and this shapes our mental health, physical health and wellbeing.

In Technical Appendix G of the submitted Environmental Statement, Section 4 presents the community profile used during the initial assessment and this will be drawn upon as part of this update, as well as some additional profile data presented in the previous section. The profile is useful in highlighting 'hot spot' areas of high inequality which may be more susceptible to health impacts and benefits. The characteristics prevalent in Weymouth and Portland that contribute to health inequalities include the following.

- Demographic – 46% of the population are aged 50+; the proportion of residents within the area in the age groups between 0-44 years is statistically lower than the national average, reflecting an older population resident in the areas; only 2.5% of the population identify as belonging to an ethnic minority group, which is a much smaller proportion compared with the population of England, where ethnic minorities represent around 15%. The population is significantly more ethnically homogenous than the national average and inequalities may be experienced by those from ethnic minority groups.
- Deprivation - The north of Portland tends to experience higher deprivation than the south, with the four northernmost lower super output areas (LSOAs) ranked within the most deprived 25% of LSOAs in the country; the most deprived LSOA in Portland is ranked within the most deprived 10% of LSOAs in the country for income, employment, education, skills and training, and health and disability.
- Employment and Economic Activity – Unemployment in Weymouth and Portland is amongst the highest in Dorset; employment in the area is dependent on three main sectors Accommodation & Food Services, Health and Retail (52.8%); in 2017 (the last year for which information is available at the local level) Weymouth and Portland had an average annual gross earning of £27,180 which is significantly lower than Dorset (£30,042), the South West region (£31,645) and England more widely (£36,076). Higher levels of unemployment, coupled with below average earnings, contribute to pockets of high socio-economic deprivation in the area.
- Physical and mental health and well-being - A study into the global burden of disease in the Weymouth and Portland area for 2020 reported in its key findings that adult depression was significantly higher than the national average for all GP practices within Weymouth and Portland, as was the prevalence of hypertension (high blood pressure); rates of diabetes, hypertension and incidence of certain cancers are significantly above what is expected of the national average, as are hospital stays for self-harm and hospital admissions for heart attacks. Hospital admissions for injuries for under 5s and under 15s are also significantly higher.
- Crime levels - Weymouth and Portland experiences more recorded crimes compared with surrounding areas and with the wider Dorset area in 2015/16, adjusted for population size; the total number of crime incidents per 1,000 people was 69.4 for Weymouth and Portland, compared with 40.8 for the Dorset DCC area and 67.8 in England and Wales.
- Vulnerable groups – The Isle of Portland has two prisons, HMP The Verne and Grove Young Offenders Institute, accounting for around 580 people as a 'static' population; Weymouth and Portland had the highest number of households accepted as homeless and in priority need, compared to other Dorset districts and boroughs, as of 2017. The rate of households accepted as homeless and in priority need was also higher in Weymouth and Portland than elsewhere in

[13] NHS – Definitions for Health Inequalities. Available at: https://www.england.nhs.uk/ltphimenu/definitions-for-health-inequalities/#:~:text='-,Definition%20of%20Health%20Inequalities,%2C%20live%2C%20work%20and%20age.

the country, in 2017. Gypsy, Traveller and Irish Traveller groups are present in Weymouth and Portland accounting for 0.07% of the population (in 2011).

# 4. LITERATURE REVIEW

## 4.1 Healthcare in Prisons

The UK Government states that inmates or prisoners are eligible for and should receive the same standard of healthcare and treatment as all other members of the population. Treatment is free, but has to be approved by a prison doctor or member of the healthcare team. A prisoner can refuse treatment. However, the healthcare team may choose to give treatment if the prisoner is not capable of making decisions themselves (for example, they have a mental health condition)[14].

However, in the past concerns have been raised about serious inadequacies in the prison health system in terms of standards of care, and variations in quality and delivery of health services (Harris, Hek and Condon 2006). More recently, in 2018, the House of Commons Health and Social Care Committee concluded that the UK Government is failing in its duty of care towards people detained in England's prisons[15]. The protection of health and wellbeing of prisoners is, therefore, an ongoing issue and challenge across the nation.

### *4.1.1 Mental Health and Vulnerable Prisoners*

Global studies of prisoner health suggest that they experience high levels of mental illness. Mental illness is well-recognised as an increasing problem in the prison system, with some research suggesting that 89% of prisoners have depressive symptoms and 74% have stress-related symptoms, many of which are not diagnosed until incarceration (Söderlund and Newman 2017).[16]

Prisoners are a vulnerable group, with multiple complex health needs and worse health outcomes relative to the general population worldwide. High rates of pre-existing mental disorders, suicide and self-harm are a concern, and research suggests there are links between poor mental health, suicide, and self-harm, and reoffending behaviour (Hewson, Shepherd, Hard and Shaw 2020).[17]

Her Majesty's Prison Service and the Department of Health reported in 2001 that 90% of prisoners experienced a diagnosable mental illness, substance misuse issues or both.[18] Staff are trained to spot prisoners at risk of bullying, suicide or self-harm.[19]

Whilst mental health continues to be a serious problem across the prison estate, the IMB reported that this has not been a major issue at HMP The Verne.[20] Residents who threaten self-harm are placed on an ACCT (assessment care in custody teamwork). They are carefully monitored (hourly if necessary) and frequently reviewed by a multi-disciplinary staff team until it is felt safe for the ACCT to be closed.

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[14] Gov.UK – Prison Life; healthcare in prison. Available at: https://www.gov.uk/life-in-prison/healthcare-in-prison#:~:text=Prisoners%20get%20the%20same%20healthcare,with%20by%20the%20healthcare%20team.

[15] House of Commons (2018) Health and Social Care Committee – Prison Health. Available at: https://publications.parliament.uk/pa/cm201719/cmselect/cmhealth/963/963.pdf

[16] Söderlund J and Newman P (2017) Imporving Mental Health in Prisons through Biophilic Design, *The Prison Journal* 97 (6) 750-772

[17] Hewson T, Shepherd A, Hard J and Shaw J (2020) Effects of the Covid-19 pandemic on the mental health of prisoners, *The Lancet Psychiatry*, Volume 7 568-570.

[18] Public Health England (2016) Rapid review of evidence of the impact on health outcomes of NHS commissioned health services for people in secure and detained settings to inform future health interventions and prioritisation in England. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/565231/Rapid_review_health_outcomes_secure_detained_settings_.pdf

[19] Gov.UK – Prison Life; Vulnerable Prisoners. Available at https://www.gov.uk/life-in-prison/vulnerable-prisoners

[20] IMB (2019) Annual Report of the Independent Monitoring Board at HMP The Verne. Available at https://s3-eu-west-2.amazonaws.com/imb-prod-storage-1ocod6bqky0vo/uploads/2019/11/Annual-report-Verne-18-19-for-circulation-.pdf

### 4.1.2 Covid-19

A number of factors in the prison system contribute to a higher risk of transmission of infectious diseases, including overcrowding, delays in diagnosis and treatment, limited access to water, soap or clean laundry.[21] Two prisoners to a cell is standard, as is limited access to hygiene facilities and showers. Kothari et al (2020) reported that prisoner care may worsen during the Covid-19 pandemic due to prison officer quarantine and sickness.[22]

The UK Government published guidance for preventing and controlling outbreaks of Covid-19 in prisons. Guidance included periods of isolation for those with symptoms of Coronavirus, reminders to wash hands more frequently with soap and water for at least 20 seconds, regularly cleaning objects and surfaces that are touched regularly, the use of PPE for staff and where appropriate, staff should follow social distancing guidelines (when not performing duties requiring close contact). In the event of a suspected outbreak of Covid-19 in a prison, the prescribed place of detention leader is required to refer to the local health protection teams in line with outbreak control plans that are in place for all infectious diseases.[23]

Prisoners, many of whom are physically vulnerable, will have understandable worries about infection, resulting in high anxiety and increased need for support (Kothari et al 2020). Suspension of jury trials and delays to court hearings in many countries, including the UK, have increased the time spent on remand for many prisoners. Remand is a period in which offenders are especially vulnerable and often ruminate about legal outcomes and have distress, uncertainty, and anxiety about their future. These emotions could be intensified by the unpredictability of the COVID-19 pandemic (Hewson, Shepherd, Hard and Shaw 2020).

The BBC reported that, as of the 25th of February 2021, more than 120 inmates at HMP The Verne had Covid-19, whilst some prison officers were also self-isolating.[24]

## 4.2 Anxiety in Populations Living in Close Proximity to Waste Management Facilities

Waste management facilities have characteristics that are associated with high opposition and social conflict (Petts 1994).[25] For the public, waste management facilities are associated with dread and unknown risks (Lima 2004).[26] The perception of risk associated to an incinerator, or waste management facility, near a place of residence, and a low sense of control and knowledge of the threat could induce psychological and physiological stress responses. Lima hypothesises that living near an installation perceived as dangerous can enhance the stress of those exposed (even when it is not proved that the installation has adverse direct health consequences).

A systematic review of literature for waste incinerators and health was undertaken following community groups expressing concerns around health impacts for proposed incinerators in

[21] World Health Organisation (2014) Prisons and Health. Available at: https://www.euro.who.int/__data/assets/pdf_file/0005/249188/Prisons-and-Health.pdf

[22] Kothari R, Forrester A, Greenberg N, Sarkissian N and Tracy DK (2020) Covid-19 and prisons: Providing mental health care for people in prison, minimising moral injury and psychological distress in mental health staff, Medicine Science and the Law 0 (0) 1-3

[23] Gov.UK (2021) Guidance: Preventing and controlling outbreaks of COVID-19 in prisons and places of detention https://www.gov.uk/government/publications/covid-19-prisons-and-other-prescribed-places-of-detention-guidance/covid-19-prisons-and-other-prescribed-places-of-detention-guidance

[24] BBC News (2021) Covid outbreak at Dorset prison affects more than 120 inmates. Available at: https://www.bbc.co.uk/news/uk-england-dorset-56199201

[25] Petts J (1994) Effective waste management: Understanding and dealing with public concerns. *Waste Management and Research* (12) 207–222

[26] Lima ML (2004) On the influence of risk perception on mental health: living near an incinerator, *Journal of Environmental Psychology* (24) 71-84

Australia.[27] Seventeen eligible studies examined waste incinerator impacts on a range of other health outcomes. Adverse health effects, including on overall mortality and burden of disease, cardiovascular, respiratory, metabolic, dermatologic, childhood developmental delay and mental health were absent or insignificant. Only one study investigated stress levels secondary to the fear of occupational exposure to dioxins among municipal solid waste incinerator workers, which was lower than the general stress experienced by office workers.[28]

However, it should be noted that there have been few studies to date which focus on this issue of mental wellbeing in relation to waste incinerators and definitive studies on the link between waste incineration and health are difficult to conduct due to the diversity of pollutants emitted, and the complex nature of mental health and wellbeing.

[27] Tait, P.W., Brew, J., Che, A., Costanzo, A., Danyluk, A., Davis, M., Khalaf, A., McMahon, K., Watson, A., Rowcliff, K. and Bowles, D. (2020), The health impacts of waste incineration: a systematic review. Australian and New Zealand Journal of Public Health, 44: 40-48. https://doi.org/10.1111/1753-6405.12939

[28] Nakayama O, Ohkuma K. (2006) Mental health status of municipal solid waste incinerator workers compared with local government office workers. Ind Health. 44(4):613–18.

# 5. IMPACT ASSESSMENT

The assessment of health and wellbeing draws upon the findings of the wider relevant technical assessments, in order to assess the cumulative effects on health and wellbeing, during both construction and operation of the Proposed Project. This assessment draws upon the wider technical assessments of Air Quality, Noise, Landscape, Seascape and Visual, and Local Economy. Social Capital and Accidents and Trespass have not been included as they are already covered in the original HIA.

The assessment considers the potential effect on health and wellbeing for three key sub-sections of the community, namely:

- Those experiencing poor mental health;
- Those experiencing health inequalities; and
- Inmates at local prisons, in particular HMP The Verne.

A second prison, HMP The Grove (a male adult/ young offenders institution) is also located on the Isle of Portland, 2km (1.24miles) South East of the Proposed Project. For the purposes of this assessment, it is assumed that the proximity of HMP The Verne renders it a more significant receptor in terms of potential impact and has been assessed as such.

## 5.1 Air Quality

As part of the Planning Application for the Portland Energy Recovery Facility, Fichtner undertook the Air Quality Assessment and ERM undertook a Human Health Risk Assessment (HHRA). Both assessments considered emissions from the ERF and traffic generated by project on roads in Portland, along Chesil beach and in Weymouth.

A key element of the ERF project is provision by the plant of shore power for shipping in Portland Harbour. Currently, ships in Portland Harbour run their on-vessel diesel engines to provide electrical power whilst in dock. Under the shore power scheme, ships will take power supply provided by the ERF and will shut down their engines, with a consequent reduction in emissions. The Air Quality Impact Assessment and Human Health Risk Assessment have been updated to take into account the net change in emissions due to the use of shore power and these updates are considered in this addendum.

The location of HMP The Verne, approximately 430m to the south west of the proposed development, was identified as requiring further consideration of the impact of exposure to emissions from both construction and operation of the development to the ‘static’ inmate population.

The updated assessment obtained information on existing air quality by collating the results of automatic monitoring carried out on behalf of Defra and monitoring undertaken by the former Weymouth & Portland Borough Council. Chapter 4: Air Quality of the Portland Energy Recovery Facility Environmental Statement provides more information on the baseline in section 4.20, 4.21 and 4.49.

### *5.1.1 Potential Impacts during Construction*

#### *HMP The Verne*

During the construction period, a number of vehicles will be required for construction works. The assessment assumed that the maximum HGV movements would occur during piling operations, which are likely to take place for between six and nine months. During this time, a maximum of 37 deliveries are predicted to be required.

Due to the location of the prison away from the route that will be used by construction traffic, it is not expected that the inmate population will be affected by emissions associated with the construction vehicles.

### 5.1.2 Potential Impacts during Operation

#### HMP The Verne

For annual mean $NO_2$ in all residential areas, the impact is assessed to be less than 0.5% of the Air Quality Assessment Levels (AQAL). AQALs are defined in the Air Quality chapter as the collective term for the Ambient Air Directive target and limit levels, Air Quality Strategy objectives, and Environmental Assessment Levels which are set at levels well below those at which significant adverse health effects have been observed in the general population and in particularly sensitive groups. An increased level of impact has been assessed at HMP The Verne, where impacts will be between 0.5% and 1.5% of the AQAL; this does not take into account the benefits that the shore power scheme provides, which are outlined below. In this area, the baseline concentration is likely to be similar to the background concentration, meaning that the predicted environmental concentration (PEC) will be well below 75% of the AQAL. The effects will therefore be negligible and not significant. Chapter 4: Air Quality of the Portland Energy Recovery Facility Environmental Statement does not state any further potential impacts from other pollutants during the operation phase that are likely to occur at HMP The Verne.

#### Shore Power Scheme

The ES qualitatively explained that the results presented in the submitted Air Quality assessment were worst-case, as they did not account for the offset of emissions from shipping which would be connected to shore power. These ships would otherwise be using on-vessel generators, with associated emissions. Therefore, additional modelling has been undertaken which quantifies the impact of emissions from those ships which would be connected to shore power provided by the ERF – i.e. those ships whose on-vessel generator emissions would be displaced as a result of the proposed development.

For particulate matter, there is a net benefit associated with the proposed development at all monitoring points. This is because the impact of emissions from the on-vessel generators, which would no longer be needed, is higher than the impact of emissions from the ERF. For nitrogen dioxide and sulphur dioxide, there is a net benefit for the majority of the area, Where there is a net increase, this is extremely small and therefore not likely that there will be any measureable decrease in the local communities' health, or exacerbate existing health inequalities.

The HHRA concluded that the exposure of the population to particulate matter will decrease as a consequence of the plant providing shore power and offsetting existing emissions from ships in port. Using the same method used to calculate years of life lost in the original HHRA, this results in a gain of 2.0 years of life distributed across the exposed population. The result averaged over the exposed population gives a gain of approximately 32 minutes per person per year, or 16.5 hours gained throughout the 30 year lifetime of the plant. There will also be a decrease in exposure to nitrogen dioxide. These decreases in exposure will lead to a negligible improvement in the health of the local population. Whilst this is not significant, and the changes in health would not be discernible in the population, there is a net improvement due to the reduction in shipping emissions. Unlike particulate matter and nitrogen dioxide, for sulphur dioxide there is a negligible negative impact, albeit this is not significant. During the estimated 30 year operating period, there will not be an additional case for any of the health outcomes considered. When those health outcomes that are common for $PM_{10}$, $NO_2$ and $SO_2$ are considered together, the overall effect on health is beneficial.

### *Health Inequalities and Mental Wellbeing*

Public concern regarding the health impacts of waste disposal facilities has mainly focused on concerns around the impact of incineration on air quality and the risk this may pose to nearby residents. Public Health England has published a position statement on the impacts on health of emissions to air from municipal waste incinerators. This concluded that 'modern, well managed incinerators make only a small contribution to local concentrations of air pollutants. It is possible that such small additions could have an impact on health but such effects, if they exist, are likely to be very small and not detectable'. There is also currently no evidence directly linking waste disposal facilities to negative health effects and therefore one may conclude that the likelihood of the proposal development intensifying current health inequalities is low.

Nonetheless, there is an understanding that members of the public may express concerns around their mental wellbeing and the exacerbation of anxiety as a result of the perceived air quality risk. Therefore, it is important that engagement and ongoing communication is undertaken with local communities, including sharing information around the pollutant levels from the stack to reduce anxiety associated with the proposed development. A local liaison group will be established, which will meet on a regular basis to discuss the operation of the ERF and any potential issues or queries from members of the local community. It will provide a forum for community stakeholders to be informed and consulted regarding site operations and procedures.

## 5.2 Noise

The previous Noise assessment was undertaken during the Covid-19 lockdown period, which prevented a baseline survey from being undertaken at that time. It was likely that any survey undertaken during that period would be unrepresentative of more typical conditions due to the general reduction in economic and commercial activity. Therefore, following the partial lifting of lockdown restrictions, a baseline sound survey was undertaken in April 2021 and the assessment updated accordingly. The baseline sounds levels were taken at four locations: HMP The Verne; Wyke Regis (Castle Cove area); Wyke Regis (south); and Residences at East Weare Road, Leet Close, and Beel Close.

The Noise Impact Assessment reported representative baseline sound levels. A logging sound level meter was installed and data collected were considered to be representative of the sound levels experienced at HMP The Verne. The data can be found in Table 1 of the BS4142 Noise Impact Assessment Report.

### *5.2.1 Potential Impacts during Construction*

The maximum number of additional vehicle movements is expected to be up to 37 HGV deliveries (74 HGV movements in total) and 22 staff cars (44 staff vehicle movements in total) per day. Additional road traffic during construction would lead to a temporary increase in noise, but the duration and magnitude of effect are such that the effect is assessed as not significant change in level. It is also unlikely to have significant impacts on HMP The Verne as construction traffic will not use the road networks near the prison.

Construction noise is anticipated as a result of site clearance, excavation, foundations construction and superstructure construction (including steelwork). The noise assessment stated that construction noise will be controlled and best practicable means of working used, such that there will be no significant effects. HMP The Verne is approximately 430m to the South West of the site, at the top of a steep slope, which may provide some natural noise mitigation. Furthermore, construction noise will be controlled and best practicable means of working used such that there will be no significant effects on local residents and businesses. Including HMP The Verne.

Working hours defined in the framework CEMP are assumed to be Monday-Fridays 07:00-19:00; Saturday 08:00-13:00, and no noisy working on Sunday and Bank Holidays (other than special works subject to prior agreement with the local authority). These hours are subject to confirmation with Dorset Council. It is important that engagement and ongoing communication is undertaken to reduce anxiety associated with construction activity, including the establishment of a hotline or contact point to report noise disturbance.

### *5.2.2 Potential Impacts during Operation*

The predicted rating sound emissions from the proposed ERF do not exceed the measured background level at the assessed receptors, indicating that any effect of sound from the ERF would be not significant. The baseline has been established during the period in which Covid 19 restrictions are being lifted. Some economic activity may have been lower than was typical prior to the pandemic. Any effect that this would have on the assessment would be to lead to a cautious assessment ie an over-prediction of impacts and effects.

The main sources of operational noise will be RDF unloading, the flue stack, turbine hall and the air-cooled condensers. The air-cooled condensers are the main significant source but would be screened from HMP The Verne and the closest residential properties to the west by the ERF building.

The provision of electricity to docked ships will require two 15MW transformers and containerised converters (to provide 60Hz AC) and include cooling fans. These will be designed such that the overall noise emission from the proposed scheme will comply with the environmental noise emission requirements.

Operation of the facility is expected to require up to 80 HGV movements per day on the public highway. Some waste materials will arrive by ship and be unloaded at the harbour. There is expected to be a relatively small number of such deliveries and noise levels would be of similar level and character to existing ship movements at the port. Therefore, these activities are expected not to cause any significant effect from noise.

It is recognised that consistent heightened noise levels can affect the health of local people, with impacts including stress, annoyance and a decreased sense of wellbeing. Noise from the operation of the proposed scheme can and should, therefore, be controlled through the design of the building envelope, such that noise emissions would not lead to a significant effect on health and wellbeing.

## 5.3 Traffic and Transport

Chapter 11: Traffic and Transport of the Portland energy recovery facility Environmental Statement provides information on the existing baseline traffic flows. This information can be found in table 11.3.

### *5.3.1 Potential Impacts during Construction and Operation*

The potential typical maximum number of daily deliveries each way is likely to be experienced during piling operations, when 37 trips are anticipated each way. In order to ensure a worst-case, the assessment has been based on up to 80 two-way movements. Both total vehicle flows and HGV flows are predicted to increase by less than 2.5% during operation of the proposed development on all road, even in the worst case scenario of 100% of deliveries to the site being made by road. Vulnerable groups in society will be affected most by the increase in traffic levels. Those such as young children and the elderly may experience negative health impacts. The elderly may experience annoyance from increased noise, whereas young children are at higher risk of road accidents and health impacts associated with potential air pollution.

The low percentage increases in traffic associated with the construction and operation of the Proposed Project means that the potential for increased collisions is assessed to be negligible, and therefore the risk to health is low, and not expected to be significant.

There is an understanding that the risk to health of the local communities, particularly those of an older demographic, which characterises the area, or those experiencing health inequalities, may rise due to the increased presence of HGV's on the local road network. However, both total vehicle flows and HGV flows are predicted to increase by less than 2.5% as a result of the proposed development on all road links modelled, even in the worst case scenario of 100% of deliveries to the site being made by road. An additional 80 HGV movements a day equates to an average of one additional HGV every 15 minutes. As a result, negligible effects that will not be significant are predicted on severance, driver and pedestrian delay and pedestrian amenity on all road links. The construction contractor will also be responsible for liaising with the local community to ensure there is awareness of when and what HGVs will be required by road, and to identify any constraints or mitigation required to address the specific needs of the community. This forms part of the framework CEMP.

In light of the proposed mitigation, it is not expected that the impacts from the proposed development will exacerbate the mental health issues or current health inequalities within the local communities.

## 5.4 Landscape, Seascape and Visual

The location of the proposed development is an industrial port, and the landscape, seascape and visual effects assessment concluded that the landscape is able to accommodate a large change without undue consequences.

There are sea views from the edge of the cliffs on the eastern boundary of HMP The Grove and HMP The Verne, including views of the Dorset coast. The landscape assessment concluded that the area is able to accommodate a medium change without undue consequences arising on the condition or quality of its defining characteristics. The landscape receptor was therefore judged to be of medium/ low sensitivity.

### *5.4.1 Potential Impacts during Construction*

The construction of the proposed development will require a large degree of activity and disturbance from the movement of machinery and the introduction of construction elements will alter the landscape setting. As the proposed location is an industrial port, where there is already constant activity, and the construction period will be short term for a temporary period, the assessment concluded that potential effects to the populations' health and wellbeing is not significant.

Construction will bring new elements to the landscape. However, the landscape and visual assessment concluded that this will be barely perceptible, and localised to a very small area along the ridgeline of the cliffs south of The Verne. The construction of the upper parts of the building and stack will be visible and there may be some noise associated with the construction.

The visual presence of industry can lead to feelings of dissatisfaction, as well as stress, anxiety and concern. In this case, the assessment concluded that construction effects will be short-term, temporary and partially reversible and is unlikely to have significant effects on the mental health and wellbeing of inmates.

### *5.4.2 Potential Impacts during Operation*

The proposed development will develop a currently derelict site at the Industrial Port. The proposed development is large in scale. However, the design of the building has been carefully considered and a high quality building is proposed. Therefore, the assessment concluded that negative effects on the population health and wellbeing are unlikely.

The landscape and visual assessment concluded that, upon completion, there would be some inter-visibility with the site from HMP The Verne. The effects of the proposal will be localised to a very small area along the ridgeline of the cliffs south of The Verne. The landscape effects at completion will be long-term and beyond 25 years. The degree of effect is assessed to be slightly adverse but

not significant. Therefore, this assessment concludes that negative effects on the population health and wellbeing generally, and in respect of the inmate population at HMP The Verne, are unlikely.

## 5.5 Local Economy

Following consultation with Public Health Dorset, there is a requirement to provide more detailed considerations of the likely impacts on physical and mental health and wellbeing of the local population, and the potential of the proposed development exacerbating existing health inequalities. As noted in Section 3.3, a person's employment and economic activity can influence their health and well-being and contribute to health inequalities.

The Community Profile provided in Section 3 of this Health Impact Assessment – Reg 25 Addendum and Section 4 of the Health Impact Assessment provides an insight into the existing community, including specific areas of sensitivities, susceptibilities and inequalities. The Community Profile demonstrated broad alignment with the national picture on many factors, including employment structure and economic activity, home ownership and car and van ownership. Self-rated health is also broadly in line with the national average. There are a number of specific health indicators where the Weymouth and Portland area performs notably worse than the national average. Rates of diabetes, hypertension and incidence of certain cancers are significantly above what is expected of the national average, as are hospital stays for self-harm and hospital admissions for heart attacks. Hospital admissions for injuries for under 5s and under 15s are also significantly higher. Dorset also has a higher percentage of the population reporting high anxiety scores compared with the regional and national figures. Disparities exist within the Weymouth and Portland locality, and Weymouth and Portland includes some of the most deprived areas within the UK.

### *5.5.1 Potential Impacts during Construction and Operation*

In Technical Appendix F2 of the submitted Environmental Statement, a detailed assessment of the economic effects of the scheme is presented. It outlines that, during construction, a total of a total of 566 direct and indirect full-time equivalent (FTE) jobs are expected to be either created or supported across the UK. Of these, 276 will be in the Weymouth and Portland area (Level 1) and Dorset, Bournemouth, Christchurch and Poole (Level 2). An additional 38 (approximately) should also be supported via testing and commissioning, but the whereabouts of these jobs is not yet known. During operation, the ERF is expected to create at least 30 directly employed FTE permanent jobs. The economic impact assessment concluded, after the actions of leakage, displacement and the multiplier, the original minimum 30 gross direct jobs that are created in Portland ultimately lead to the generation of some 110 net additional jobs in all.

Health benefits will accrue for the duration of the employment and would be of most benefit to those currently experiencing socio-economic deprivation, economic inactivity or unemployment within the area. Opportunities to target employment opportunities within these sections of the community should be capitalised upon wherever possible. In addition to income and enhanced socio-economic status, health benefits such as delayed mortality, decreased illness, and improved wellbeing will be experienced by those employed during the operation phase and will be of longer-term benefit. This could contribute to elevating some of the current health inequalities present in the area.

The Project has been assessed to generate significant socio-economic benefits as a result of the creation of employment in the local area. The health and wellbeing benefit this accrues to local communities can be maximised through local procurement policies and enhancing access to employment opportunities for those who are economically inactive or those on less favourable employment terms.

# 6. RECOMMENDATIONS

Ongoing engagement with local communities and wider stakeholders will be undertaken to minimise potential effects on health and wellbeing arising from anxiety over the proposed construction and operation activities. This is of particular importance given the characteristics of the demographic being of an above average older profile, and the high levels of depression and anxiety noted within the wider community. Advance visibility, engagement and ongoing liaison should mitigate against potential increases in anxiety arising from project related activities.

Mitigation measures will be integrated into building design, the CEMP and construction management planning to reduce potential effects on health and wellbeing. This will include the publication of the CEMP, the adoption of a hotline or alternative contact mechanisms and advance notification of proposed construction works, amongst other measures.

In advance of construction, specific engagement will be undertaken with HMP The Verne, to minimise potential effects on health and wellbeing. In particular, this will address those arising from anxiety over the proposed construction activities.

The Project will be subject to strict regulatory controls and the requirement for ongoing monitoring of various activities at the site. To reduce potential anxiety, consideration should be given to periodic publication of environmental monitoring data which local communities, and wider stakeholders, can access via the Project website.

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