

## **\_Method**

Twenty- five businesses and not-for-profit organisations (NFPs) in the area around the PD were contacted by e-mail during one week in September 2023 and invited to complete an anonymous electronic survey using Survey Monkey™. Seventeen responses were received, a 68% response. The survey, methodology and results are described below.

It is clear that these businesses and NFPs perceive the PD as having an adverse effect on their enterprise and on their staff, in both physical and mental health terms. Stress is the condition most expected to affect employees, which in turn will be damaging to physical health and to business.

### **Survey sent electronically**

This short survey is simple and should take no longer than 3-5 minutes to complete. Your response will be anonymous. Please refer to the SHH privacy policy on our website:

<https://www.savehoneyhill.org/privacy-policy/>

1 - What is the activity sector of your enterprise?

- Retail
- Hospitality
- Farming
- Technology
- Finance
- Consultancy
- Education
- Other.....

2 - Where does your enterprise operate? Please tick all that apply:

- Horningsea
- Fen Ditton
- Quy
- Teversham
- North Cambridge
- Other.....

3 - What aspects of the construction phase could affect the operation of your enterprise?

Please tick all that apply:

- Noise
- Traffic
- Dust/air quality
- Access
- Lighting
- Vibration
- Other.....

4 - What aspects of the operational phase could affect the operation of your enterprise?

Please tick all that apply:

- Odour
- Visual impact
- Noise
- Traffic
- Dust/air quality
- Access
- Lighting
- Vibration
- Other.....

5 - What aspects of the construction phase could affect your own or your employees', clients', or pupils' mental or physical health? Please tick all that apply:

- Noise
- Traffic
- Dust/ air quality
- Access
- Lighting
- Vibration
- Other.....

6 What aspects of the operational phase could affect your own or your employees', clients', or pupils' mental or physical health? Please tick all that apply:

- Odour
- Visual impact
- Noise
- Traffic
- Dust/ air quality
- Access
- Lighting
- Vibration
- Other.....

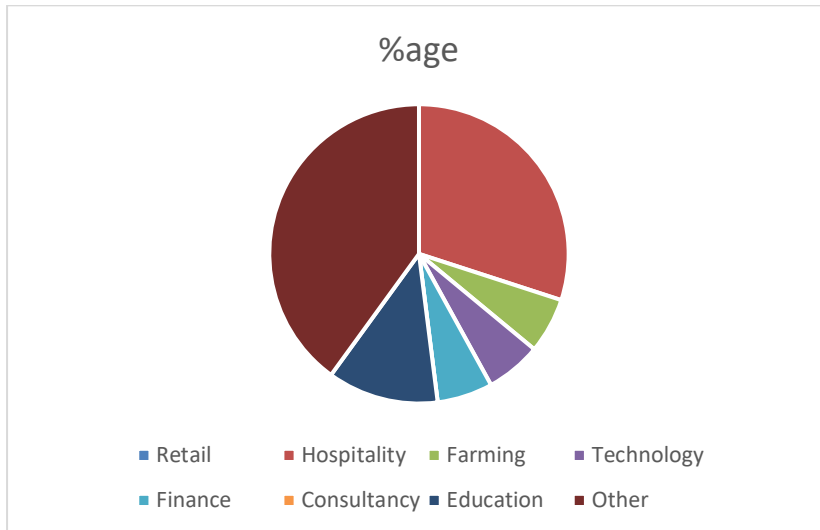
7 If any of you, your employees, clients, or pupils are especially vulnerable, which conditions could most likely be affected? Please tick all that apply:

- Asthma/ respiratory conditions
- Stress
- Mobility issues
- Auditory
- Cognition
- Other.....

**Survey results**

**Q1 Activity sector**

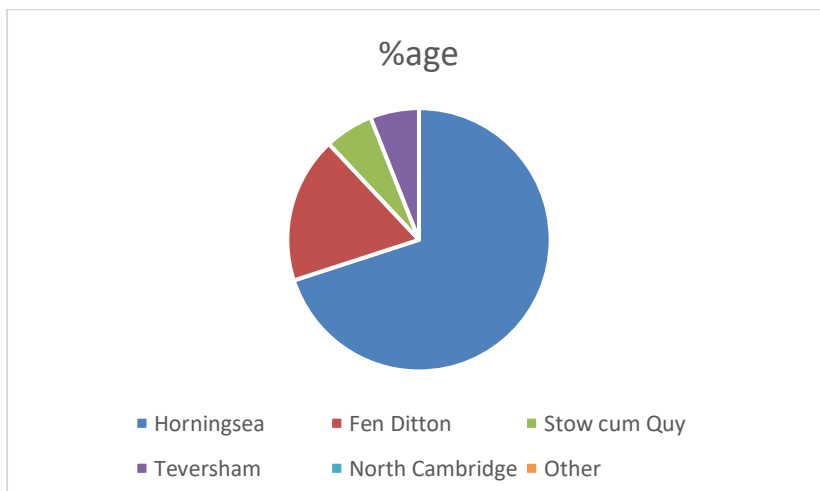
17 responses



**Other activities** (7 responses; 40%): Parish Council; Camping & glamping; Bespoke leatherwork; Musician/writer; Property management; Church; Entertainment.

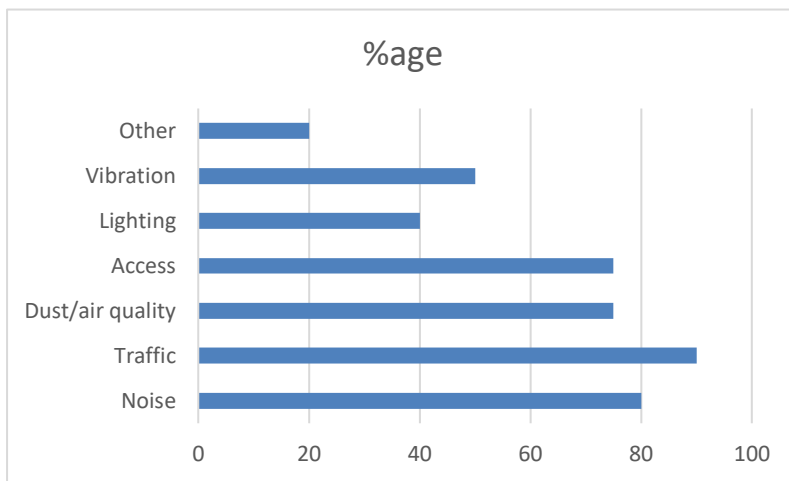
**Q2 Location**

17 responses



**Q3 Effect of Construction phase activities on enterprises' operation**

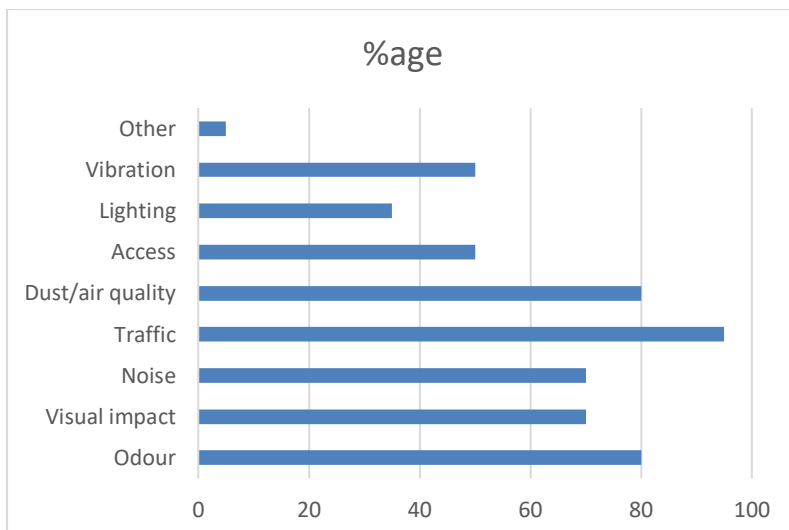
17 responses



**Other effects** (3 responses): Dig up fields for Waterbeach pipeline; impact on public decision to visit Horningsea and this business; build on green belt destroy whole vibe of countryside.

**Q4 Effect of operational phase on enterprises' operation**

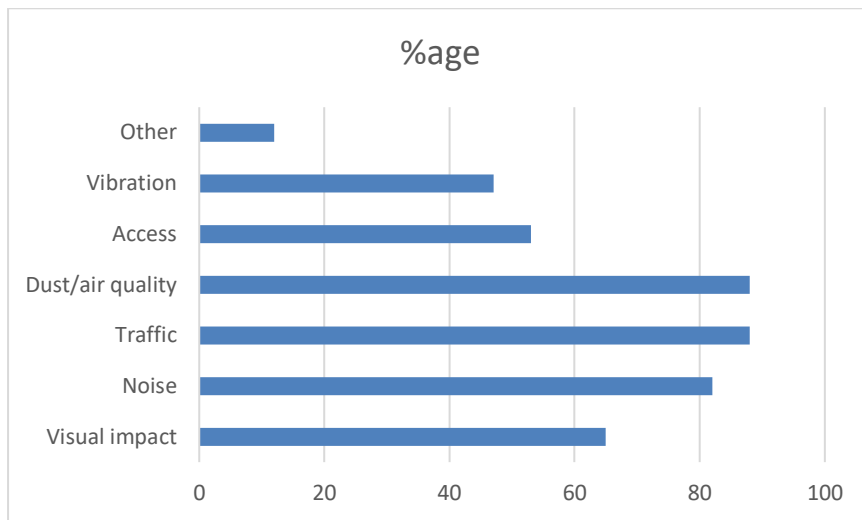
16 responses; 1 skipped



**Other effects** (one response): The nature of the operation will affect reputation of the area and will alter public's view.

**Q5 Construction phase effects on staff health and wellbeing**

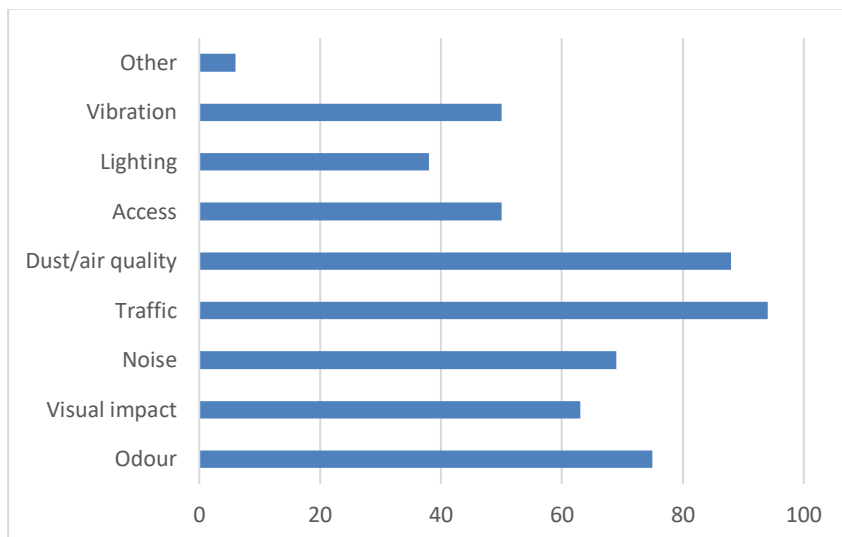
17 responses



**Other effects** (2 responses): Impact on local wildlife and loss of trees & hedges concerns local people; Unknown air quality issues, increased risk of traffic-related incidents, a generally less pleasing place to be due to noise and odour.

**Q6 Operation phase effects on staff health and wellbeing**

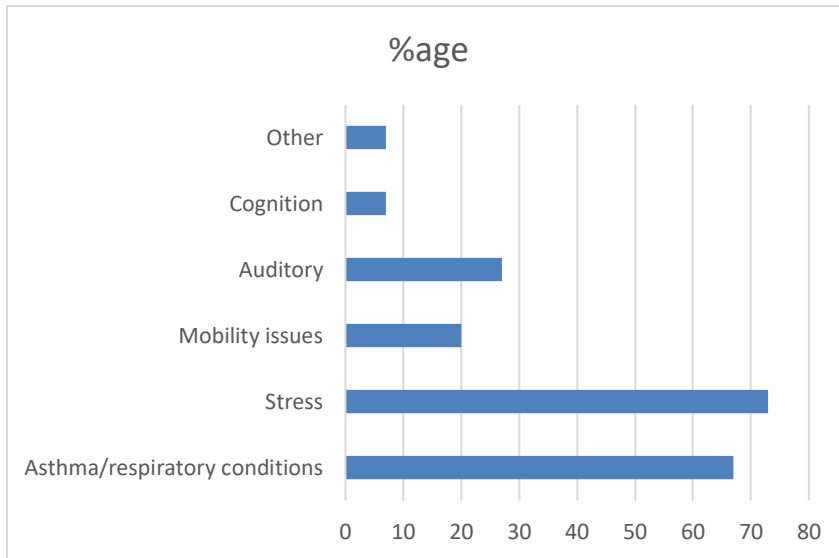
16 answered 1 skipped



**Other** (1 response): Concern on loss of wildlife, sense of place, distrust of private corporation’s commitment to mitigate.

**Q7 Conditions most likely to be affected.**

15 answered; 2 skipped



**Other effects** (1 response) Increased, unwanted traffic through area will cause general distress. Emergency services further hampered in responding and attending incidents.



# Greenhouse Gas Emissions Accounting for the Demolition of the Existing Cambridge Waste Water Treatment Plant

Outline Study

Alice Bennett

André Cabrera Serrenho

November 2023

Alice Bennett is a PhD Researcher and Dr André Cabrera Serrenho is an Assistant Professor, both at the Department of Engineering of the University of Cambridge. The authors have experience in Civil Engineering and Carbon Emissions Accounting.

This report was commissioned by Save Honey Hill Group. Under the terms of this commission, the authors have gathered and presented evidence entirely independently.

## Executive Summary

The existing Cambridge Waste Water Treatment Plant (also known as Cambridge Water Recycling Centre, CWRC) is intended to be decommissioned. This process involves the demolition of existing structures and the remediation of the ground to enable the use of the surface for building development. This assessment estimates the total greenhouse gas (GHG) emissions that would be associated with the complete demolition of the existing site and any required ground decontamination and remediation.

The CWRC has a capacity of 215,000 population equivalent and occupies a 40-ha site in the northeast of Cambridge [1-2]. The CWRC consists of over 50 buildings and structures, including a few decommissioned tanks from a previous upgrade (Figure 1 and Table 2). Using a combination of satellite imagery, published documents related to CWRC and planning documents for similar works, the authors have estimated the expected impact of these activities to be approximately  $3 \pm 1$  kt CO<sub>2</sub>e. Most of this impact (>80%) is expected to be due to heavy machinery and large equipment required for demolition. Table 1 provides a detailed breakdown of expected emissions by stage. The methods used to obtain these estimates are described in the sections below.

**Table 1.** Summary of estimated greenhouse gas emissions for each stage of the decommission process. All values shown have been rounded to the nearest 100 t CO<sub>2</sub>e or to no more than two significant figures, as appropriate.

Stage	Method	GHG Emissions (t CO <sub>2</sub> e)	Share
Decommissioning of site	See section A	13	0.5%
Demolition of structures	See section B	2200	80%
Material processing	See section C	150	5.5%
Ground remediation	See section D	400	14%
<b>Total</b>		<b>2800</b>	



**Figure 1.** Satellite image of the CWRC site. Source: Google Earth, October 2023.

**Table 2.** Description of structures on site to be decommissioned and demolished, based on desktop study using Ref. [1], pp. 61, 198.

<b>Number in Figure 1</b>	<b>Type of structure</b>	<b>Description</b>
1	Building	Offices
2	Building	Offices
3	Building	Pumping Station
4	Building	Inlet Pumping Station
5	Building	Sludge Treatment
6	Building	Sludge Treatment
7	Building	Stream B Redundant – Unknown
8	Tanks	Stream B Redundant – Unknown
9	Building	Stream D - Secondary Treatment
10	Building	Stream D - Secondary Treatment
11	Building	Stream C - Secondary Treatment
12	Tanks	Primary Treatment Tanks (Sedimentation) streams A&B
13	Containers	Containers
14	Tanks	Redundant Filter Beds
15	Tanks	Redundant Filter Beds
16	Tanks	Storm Tanks
17	Tanks	Substantial Underground Tanks
18	Storm Lagoon	Storm Lagoon
19	Tanks	Stream D - Aeration Tanks
20	Tanks	Stream D - Secondary Treatment Tanks
21	Tanks	CHP Plant
22	Tanks	Stream C - Secondary Treatment Tanks
23	Tanks	Stream C - Aeration Tanks
24	Tanks	Decommissioned Concrete Structure
25	Tanks	Intake Chambers
26	Tanks	Sludge Handling and Treatment
27	Tanks	Sludge Handling and Treatment
28	Building	CHP Plant
29	Tanks	CHP Plant
30	Tanks	CHP Plant
31	Tanks	Redundant Stream B Tanks
32	Building	Stream B Redundant – Unknown
33	Building	Stream C Active – Unknown
34	Tanks	Stream C Secondary Treatment
35	Tanks	Sludge Handling and Treatment

## Methods

Existing documentation that described the decommissioning of Deephams STW in Enfield [3] provided a basis for most estimates presented in this report. Deephams STW is a similar site to CWRC but with a larger capacity. Deephams STW was upgraded between 2013 and 2019 and this involved the phased demolition of the existing works and the construction of the new works [4]. Each phase of this demolition corresponded to a similar capacity as the CWRC, since that site has always remained operational. The Environmental Statement for Deephams STW [5] included a noise impact assessment due to the heavy machinery required (construction plant) for the various stages of the work. These could be compared to the work proposed at CWRC to estimate the construction plant required. This was combined with fuel consumption data to estimate GHG emissions. Offsite material movements, commuting, and movement of plant to site have not been included in this analysis.

### A. Decommissioning

This estimate has been included in the carbon assessment undertaken by Anglian Water for the Development Consent Order application for the replacement works (5.2.10 ES Volume 2 Chapter 10 Carbon) [6]. No further work was completed for this section in this analysis.

### B. Demolition

A publicly available document relating to the CWRC relocation [1] provided detail into possible decommissioning and demolition plans, including timelines to achieve demolition of sectors of the site. These timelines (pp. 205-208 of ref [1]) were used in conjunction with the plant assumed as described in the table 14.3 of ref [5] to estimate the construction plant usage. This information enabled the estimation of the time and number of plant required. Table 3 shows the summary of estimated plant use and emissions for the demolition of buildings, large structures, roads and hardstanding.

**Table 3.** Summary of plant use and emissions for demolition.

<b>Plant Hours</b>	<b>Fuel use (kL)</b>	<b>Energy (TJ)</b>	<b>GHG emissions (t CO<sub>2e</sub>)</b>
46,000	870	31	2200

### C. Material Processing

The emissions associated with processing the demolition debris were estimated by assuming that the majority of materials processed from the structures would be concrete. The mass of debris expected has been found by estimating the volume of the buildings and structures using satellite imagery to estimate the footprint and height of each structure, followed by an industry standard

method to calculate the mass of material from the volume. This volume was then used to estimate the length of time the concrete crushing plant would be required as shown in Table 4.

This approach underestimates emissions, as it neglects any deep underground structures that contain additional material that requires processing. However, only one structure was described as having significant underground components in the supporting information of ref. [1] (shown as number 30 in Figure 1). Movement of material offsite have not been included in this analysis.

**Table 4.** Summary of material processing estimates.

<b>Component</b>	<b>Unit</b>	<b>Value</b>
Volume of materials	m <sup>3</sup>	134,000
Density of concrete	kg/m <sup>3</sup>	2,400
Mass of concrete	kt	300
Crusher capacity	t/h	350
Time to process	h	920

#### D. Ground Remediation

The documents provided by Anglian Water [2] state an unknown level of ground contamination at CWRC. However, details of previous surveys located predominately in the northeast of the site suggest low levels of contamination (Ref. [1], pp. 200-204). For this reason, a conservative estimate of 20% of the site area has been assumed to require excavation, and 10% of the excavated material was assumed to require remediation. This is the same as stated in Ref. [1] based on the existing surveys of the site. The remaining 90% of excavated material is assumed to be reinstated while additional material is required to achieve a 600mm capping level across the site. This estimate only accounts for the plant movements to excavate and replace material, and it does not include any emissions associated with the decontamination process or transport of material to and from the site. Table 5 shows a summary of the emissions relating to ground remediation estimated for CWRC.

**Table 5.** Summary of plant use and emissions for ground remediation.

<b>Plant Hours</b>	<b>Fuel use (kL)</b>	<b>Energy (GJ)</b>	<b>GHG emissions (t CO<sub>2e</sub>)</b>
9,400	150	5,400	400

## References

- [1] Cambridge City Council, "CNFE HIF Scheme - Key Assumptions," 2018, Accessed: Oct. 22, 2023. [Online]. Available: [https://assets.publishing.service.gov.uk/media/63bc3b8fd3bf7f263af42641/RFI4113\\_Appendices.pdf](https://assets.publishing.service.gov.uk/media/63bc3b8fd3bf7f263af42641/RFI4113_Appendices.pdf)
- [2] Anglian Water, "Environmental Statement Appendix 2.3: Outline Decommissioning Plan," 2023, Accessed: Oct. 22, 2023. [Online]. Available: <https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/WW010003/WW010003-001147-5.4.2.3%20ES%20Volume%204%20Chapter%202%20Appendix%202.3%20Outline%20Decommissioning%20Plan.pdf>
- [3] LONDON BOROUGH OF ENFIELD PLANNING COMMITTEE, "Deephams Sewage Works Upgrade Planning Ref: 14/02612/FUL," 2014, Accessed: Oct. 22, 2023. [Online]. Available: <https://governance.enfield.gov.uk/documents/s48541/14-02612-FUL%20Planning%20Committee%20Report%20V2.pdf>
- [4] Thames Water, "Deephams." Accessed: Oct. 22, 2023. [Online]. Available: <https://www.thameswater.co.uk/about-us/investing-in-our-region/deephams>
- [5] Thames Water, "Environmental Statement: CHAPTER 14 – Noise and Vibration: Appendices." Accessed: Oct. 22, 2023. [Online]. Available: Ref: 14/02612/FUL, Document Type: Environmental Statement, Drawing Number: Appendices 14-15, <https://planningandbuildingcontrol.enfield.gov.uk/online-applications/>
- [6] Anglian Water, Cambridge Waste Water Treatment Works Relocation "Environmental Statement: Chapter 10: Carbon," 2023, Accessed: Oct. 22, 2023. [Online]. Available: <https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/WW010003/WW010003-000610-5.2.10%20ES%20Volume%202%20Chapter%2010%20Carbon.pdf>

**Save Honey Hill****Written Representations: Appendix C Design Critique****Introduction**

Although opposed to the relocation in principle SHH has said, throughout its resistance that, should consent be obtained, it will continue to seek resolutely a design which best suits the communities it represents.

This is a shortened version of an earlier critique, aiming to cover the same issues in a more economical and concentrated way.

Here we use the Applicant's stated Design Objectives as a framework against which to order our points. We intend to cover almost all of these in this one arrangement.

The Design Objectives are taken from AW's latest Design and Access Statement (Document AW 7.6, AS168 dated October 2023 pp 179-181)

Words in italics are direct quotes from the Applicant's text and the numbering is also theirs.

This critique has been written by two former principals of nationally known architectural practices, members of SHH, long term residents of Horningsea and Fen Ditton respectively. As well as many years in mainstream practice they have also taught design in university schools of architecture in Cambridge, London and Oxford.

**1.0 VALUE****1.2 *'optimise land take to deliver the diverse range of Project Objectives'***

- a) In our view there is excessive reliance on tree planting to achieve screening and this uses more land than is necessary and takes many years to have its full effect. Also, members of SHH do not consider that space around the new plant will be regarded as a recreational amenity and would prefer to see it largely retained in agricultural use.

**1.3 *'layout of the plant to be well ordered and efficient... largely determined by the functional and process needs'***

- a) Obviously, the plant needs to work efficiently but more pressing, given the sensitivity of the location, is that there should be an inventive approach to the engineering so that its visual impact is minimised and odour containment is the best achievable. It would appear that standard equipment is simply being grouped in an orderly manner within the enclosure's confines.

**1.4 *'Pursue a sustainable approach ... eg energy performance, carbon reduction etc'***

- a) Targets and how they are to be achieved either by design or in operation are insufficiently defined.



- b) The carbon cost of modifying existing sewers and abandoning, decommissioning, demolishing, decontaminating, active and redundant parts of the existing plant needs to be recognised and defined as a massive initial deficit, before the carbon costs of replacement and associated temporary measures are added to it.

## 2.0 VISUAL IMPACT

### 2.1 *'Mitigate the negative visual impact- through appropriate new planting and land forms'*

- a) SHH points out that, as this is an agricultural landscape, present planting in the form of hedges and rows of trees is linear, forming the edges of tracks, the old railway line and large fields in an irregular way and a great variety of directions.
- b) This produces a series of screens, often thin, providing a layering of backdrops, with one often seen through another.

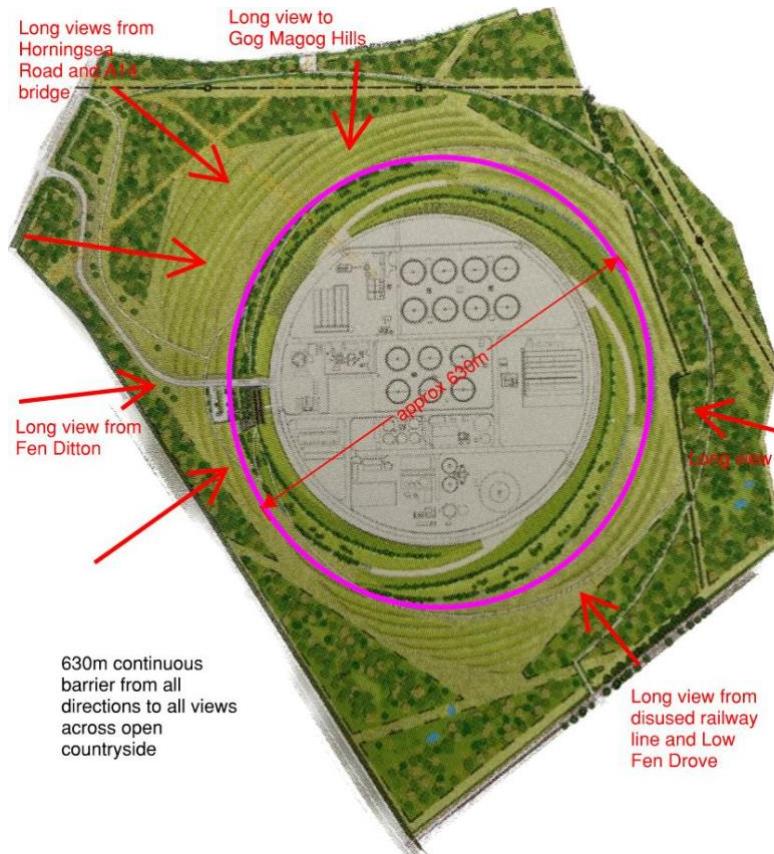


Fig 1: Layered landscape study: view towards Horningsea from Snout Corner



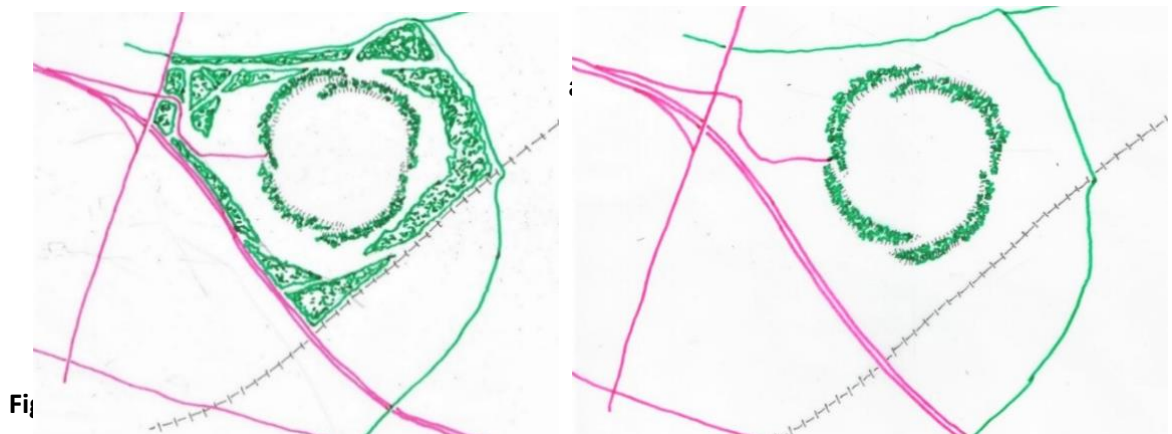
**Fig 2: View towards Anglesey Abbey**

- c) This allows long distance views eg towards the Gogs and Anglesey Abbey.



**Fig 3 : Interruption to long views.**

- d) The intensive block of tree planting proposed on and all around the bund which in turn is surrounded by further blocks of trees constitutes a large agglomeration and an incongruous element in this landscape.



- d) It is unfortunate that a site has been chosen whose geology only allows for limited sinking of structures, although bringing the transfer tunnel under the river has to ignore that restriction at one point. We contend that the moving of 160,000 cubic metres of soil in a 360 degree encirclement of overlapping arcs is unnecessarily wasteful and underachieving. This amount of soil could be positioned between the site and Horningsea, Biggin Abbey and Fen Ditton, raising the height of the existing ridge of Honey Hill.

## 2.2 'Retain and enhance existing landscape features'

- a) By raising the ridge line many of the structures could be readily concealed from adjoining communities and principal routes, greatly reducing reliance on planting. This result could be enhanced if the existing dead ground east of the brow, provided by the 4-5 metre fall between the ridge and Snout Corner, was added to the concealing effect of the raised ridge.

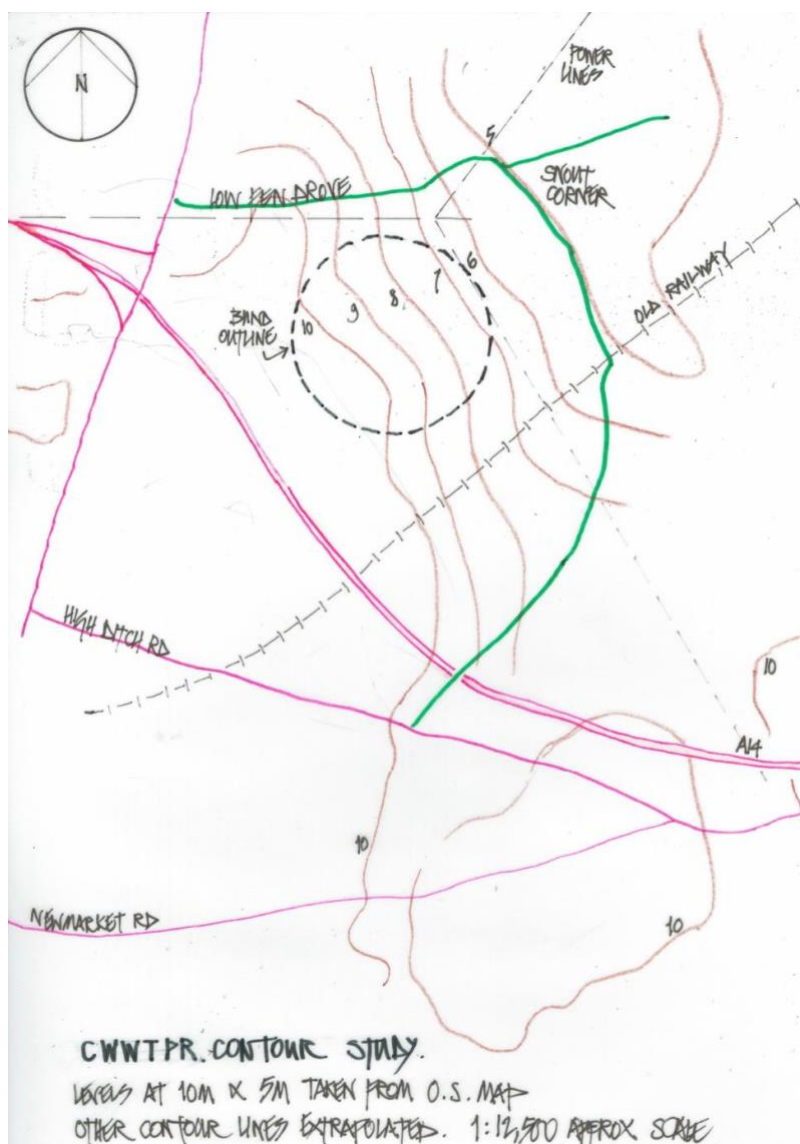


Fig 5: Contour Study

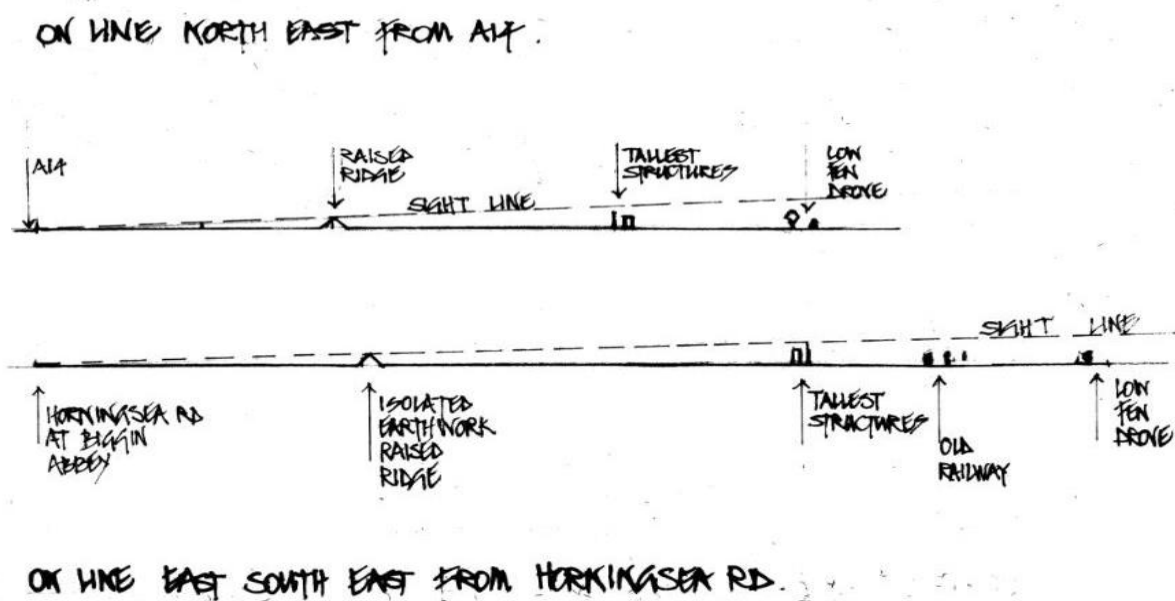
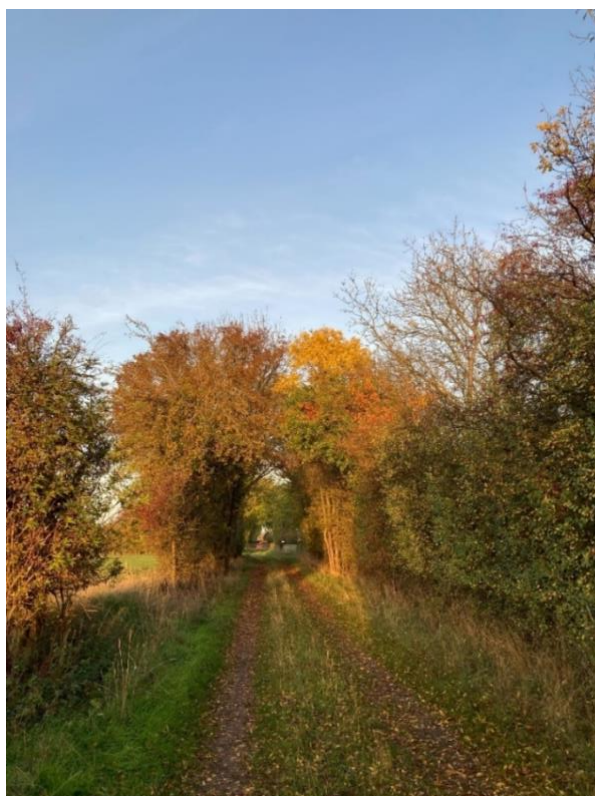


Fig 6: Alternative layout : cross sections

- b) Further, existing well established and substantial screening, provided by the trees flanking Low Fen Drove Way between the former level crossing and the derelict black barn could be used to screen the site from the east. The remnants of hedgerows beside the disused railway could also provide ready-made and readily thickened screening from the southeast.



### **Fig 7: View of tree belt along Low Fen Drove Way**

#### **2.4 'locate the tallest structures ..to minimise visual impact'**

- b) Given the circular enclosure, its concealing effect on tall structures is most achieved if these are located centrally. However, the tallest i.e. the digester towers, the boiler chimney and flare stack are all located close to the south boundary. That makes them unnecessarily conspicuous to traffic on the A14 and to residents along High Ditch Rd and Horningsea Rd, Fen Ditton.

#### **2.6 'Minimise visual effects at night from lighting'**

- a) With much of construction storage, preparation and assembly being carried out on the land between Horningsea Rd and the site over a period of 3-4 years nighttime lighting for working and security purposes will be very unwelcome and disturbing. It would be better if this area were located east of the bund.
- b) When in operation the plant's lighting should only be 'on' when necessary, positioned at as low a level as possible and directed towards the ground. Lighting within buildings should not be visible from outside the enclosure.
- c) This avoidance of light pollution is in the interests of local communities and wildlife.

#### **2.7 'Consider potential effects on heritage assets'**

- a) Ideally the plant should not be visible in the same view as Biggin Abbey, and the Conservation Areas of Horningsea, Baits Bite Lock and Fen Ditton, as it will do nothing to enhance their settings only to detract from them.

### **3.0 COMMUNITY**

#### **3.1 'Respond to consultation feedback from local communities'**

- a) The consultation sessions, as represented by the workshops held from time to time and the displays of information in village halls were invariably not constructive dialogues but AW's statements of intent. When for instance it was clear that the widely preferred provision of a dedicated access off the A14 was not going to be pursued there was little explanation of the reasoning behind this. No record of discussions with the Highways Agency was presented and no comparison of costs between access options. When asked why ideal solutions were not adopted AW said that no infrastructure projects would be realised if such solutions were pursued.
- b) The workshop sessions were all 'virtual' meetings which inherently inhibit discussion and participation.
- c) The rejection of numerous sites other than the shortlisted three was not explained in any detail even though SHH argued from the outset that given the international standing of Cambridge and the long-established value of its limited Green Belt there was a case for positioning the plant much more remotely.

- d) The selection of Honey Hill from a shortlist of three was also subject to cursory justification. Given that this site had earlier been selected for the relocation (2008's abandoned project) and was the only one not subject to flooding, enough to make it the uncontested front runner.
- e) Also not discussed were the aspirations, subsequently apparent, of Trinity College to extend its Science Park and the Police Authority to build its new Cambridge headquarters in the Green Belt, in the vicinity of the Butts Lane, Milton site, which had come second in the selection process.
- f) Later the so called 'rotunda' design was introduced as AW's preferred solution and it was only much later that alternative design solutions, which had been rejected, were reported on. There was no opportunity given to take part in this comparative study when it mattered.
- g) The advice given by the Design Council and latterly by the Cambridgeshire Quality Panel was not shared as the design for the plant evolved.
- h) There was never any discussion as to why the engineering of the plant must be the way it is. There was occasional reference to designing structures to contain odour, but these were never explained.
- i) Comparative costs, say between different sitings, plant layouts and routes for access were never shared.
- j) SHH seemed always to be at odds with AW's most basic objectives in the design of the plant. We were always in favour of a 'secret world' being achieved whereas AW were always inclined to 'create a strong identity'.



**Fig 8 : Hidden world – early sketch**

- k) Sometimes the absence of information on drawings gave a clue to the differences in priorities between AW and the host communities. For instance, the aerial views of the developed site shown on p109 of the DAS shows no buildings in the vicinity. The

elevational study of the planted bund on p118 does not show the structures beyond and the effect of this screening.

- l) SHH was keen that the parts of the plant most likely to cause offence be sited equidistant from the communities which stood to be affected. AW said this was not an objective.



Fig 9: Map of key distances

### 3.2 'minimise odour through layout and equipment'

- a) Although AW (p94 of DAS, AS 168) is able to locate significant odour emitters at the centre of the enclosure the most significant emitters are located in the southern

sector close to Fen Ditton and the bigger community of Marleigh. SHH have asked all along that the positioning of emitters be kept as close as possible to the centre.

- b) Although not identified as a principal source of odour the storm storage facility, which can give off odour because of the turbulence of its influx, is positioned in the northwest sector closer to Horningsea.
- c) Odour contour diagrams (DAS p95) indicate the degree to which odour spread should be managed. No further reassurance, by say the explanation of structures which will contain and treat odours, is provided.

### **3.3** *'consider the holistic impact on Fen Ditton and Horningsea'*

- a) Because the remoteness of the plant from these two historic communities is inadequate, the traffic added to the B 1047 between them is harmful and avoidable, the immediate landscape formed by generations of previous inhabitants is being abused, the recreational amenity of an important part of their surrounding Green Belt is being spoilt and odour containment is not guaranteed we consider that the design process has been insufficiently holistic.
- b) Also, the design of the engineering elements of the plant should have been considered more holistically in conjunction with how to screen them in a manner that closely suits the landscape as well as how to provide discreet occupied facilities.

### **3.4** *'public use' balanced against 'landscape, character, environment and ecology'*

- a) There has been little or no enthusiasm amongst members of SHH, or the communities which it represents, for creating a recreational destination about the plant. Preference would be for the retention of as much agricultural activity as possible with non-farmable areas given over to enhancing biodiversity. New paths through that area are not essential and the further interconnection of existing paths would be preferred.
- b) SHH contends that priority should be given to better screening the plant from adjacent communities avoiding dependence on the slow growth of trees, whilst finding landscaping arrangements more in keeping with the existing.

### **3.5** *'minimise ... noise and vibration'*

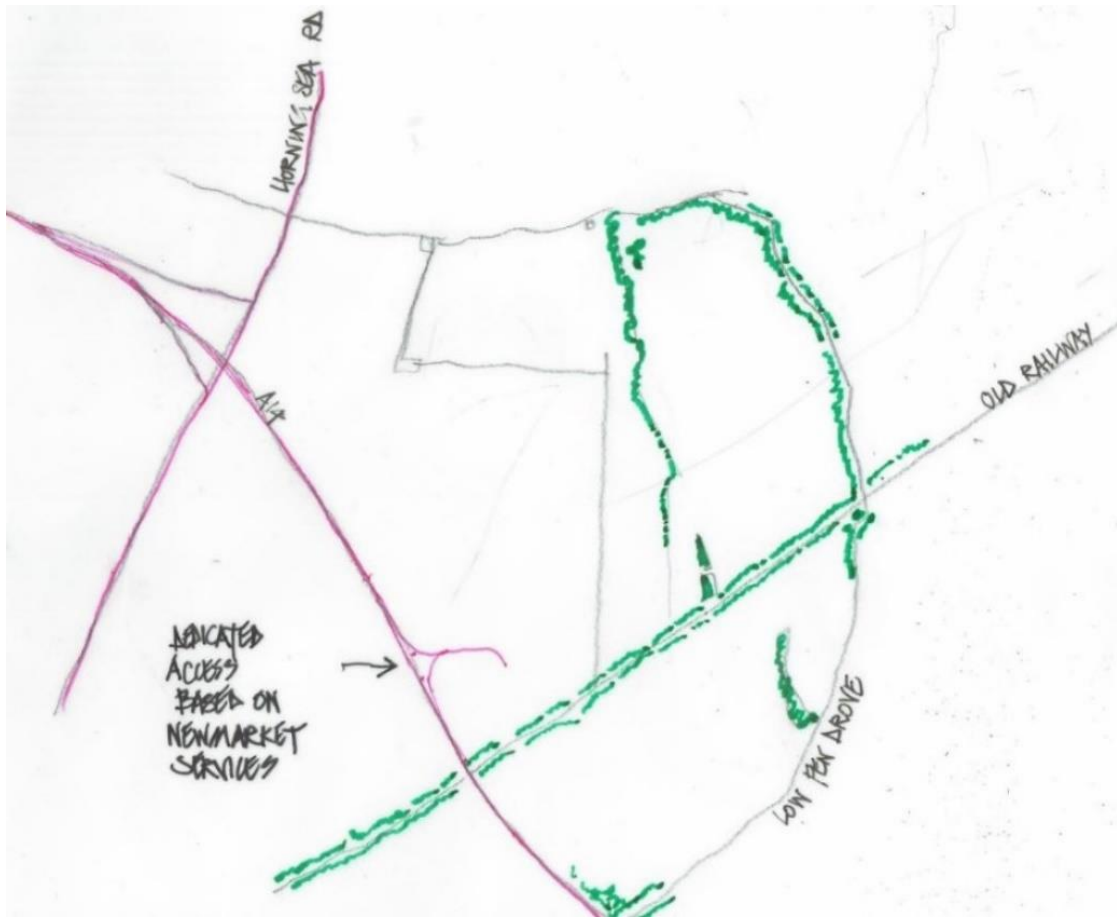
- a) As with other aspects of the design there is no clear statement of what standards of nuisance avoidance should be achieved or how.
- b) Clearly the more remotely from communities the noisy or vibrating activities of the plant are located the less a nuisance will occur.
- c) As mentioned at **2.6** above it would be preferable if the site's preparation, assembly and storage areas were located on the east side of the plant during the 3-4 years of construction, ideally with dedicated access off the A14.

## **4.0** **CONNECTIVITY**



#### 4.1 *'maintain and enhance safety (of) ... networks (vehicular, pedestrian, equestrian, cycling)'*

- a) SHH favours this but believes the best way to do this is to have a dedicated vehicular access off the A14, which in turn can be made a safer highway at this point.

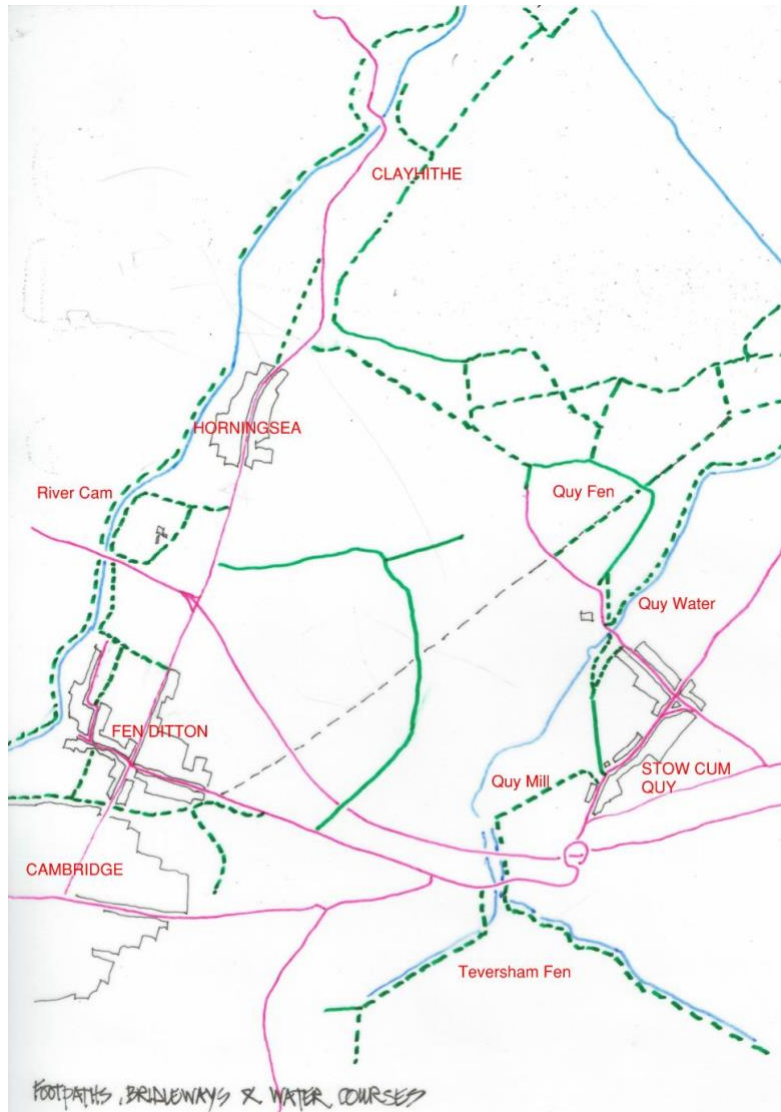


**Figure 10: Existing Hedges and Tree belts**

- b) When the B1047 was connected to the A14 in the mid 1970s the villagers of Fen Ditton were very concerned about the increase of traffic. The envisaged 5,000 vehicles per day was soon exceeded and a weight limit was introduced. Most of the vehicles involved in constructing the plant and servicing it in operation will exceed this limit.
- c) The routes to and from Fen Ditton school, taken by parents and children, have been the subject of much safeguarding in recent years. The cycle route from Horningsea past the school is used by a number of its pupils and this route will be crossed by all the additional heavy vehicles employed in the construction and operation of the plant.

#### 4.2 *recreational amenity .... providing new connection routes*

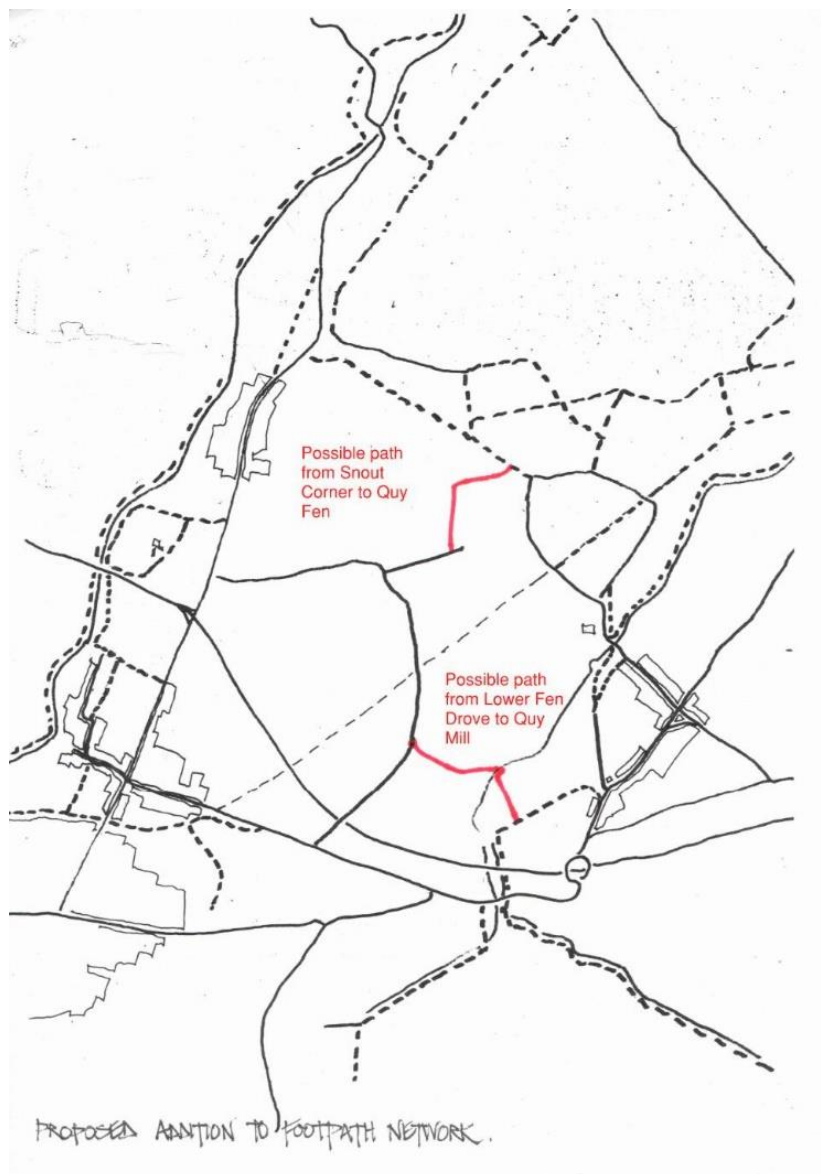
- a) Mindful of the impending increase in the residential population in the adjacent quarter of the city, SHH favours improving links to and enhancing the network of fine recreational routes available.



**Fig 11: Existing recreational routes and water courses**

- b) The return to bridleway status of the disused railway track between Low Fen Drove and Station Rd Quy is no particular achievement as many people currently have the landowner's permission to use this route.
- c) The routes proposed across the area adjacent to the plant are similarly not to be greatly valued as they only shorten the route currently provided by Low Fen Drove Way and pass through an area which will not be considered salubrious.

- d) Preferable would be an arrangement with the landowner to allow permitted pathways along existing tracks from Snout Corner to Allicky Farm connecting to Quy Fen and from the southerly end of Low Fen Drove linking round to Quy Mill and Stow-cum-Quy village.



**Fig 12 : Proposed new path ways (shown in red)**

**4.4 'Consider the impact of additional traffic and transport on existing networks.'**

- a) The process of treating imported sludge, currently carried out at the present plant at Cowley Road does not have to be relocated in the Green Belt or at the proposed relocated plant. This would reduce the amount of apparatus needed on this site, and the amount of traffic the site will generate in operation.

- b) The remaining operational traffic and all the traffic associated with the plant's construction could be more safely and less obtrusively accommodated using a dedicated access off the A14 east of the plant.
- c) To assist this, part of the process could be to do away with the three lay-bys, in close proximity to the site which provide a resting point for long distance east bound HGVs. These vehicles could share the access to the plant, be provided with a lorry park and use the slip roads which would allow designated traffic to leave and rejoin the two-lane arterial road in a much safer way than the lay-by's presently allow.



**Fig 13 : Potential Direct Access from A14**

## 5.0 LANDSCAPE AND BIODIVERSITY

### 5.1 *'Create a strong identity ...a recreational resource.'*

- a) In sections 1.2,2.1 ,3.1 and 3.4 above, SHH has stated its resistance to AW giving the relocated plant a strong identity, preferring it to be discreet and as far as possible concealed by and blending in with the landscape. We regard the circular form as grandiose and simplistic. If the earthmoving achieved half the circumference and more than twice the height and took advantage of falls in the land many more of the structures could be screened from nearby communities without having to wait for trees to grow.
- b) We have also said, in the sections referred to, that we do not see a recreational facility being worthwhile or popular. Areas allocated to enhancing biodiversity are very acceptable, but we would prefer the loss of agricultural land to be reduced. The

footpaths proposed across the site would be welcome but would not be as highly valued as links to more sought-after routes.

## 5.2 'Minimise negative visual impact'

- a) It will take many years for tree planting to reduce the negative visual impact. The fragmented circular bund makes a limited contribution to achieving concealment.
- b) The images issued by AW in February 2022, during the third stage consultation, including views from inhabited areas., were shocking and depressing.



Fig 14: AW view provided of proposed facility

## 5.3 'rotunda earthwork – provides nearly equal visual mitigation in the round'

- a) SHH argues that as there is no overlooking from settlements to the east for nearly 180 degrees there is no need for an embankment in the round.
- b) Also, substantial existing lines of trees and hedgerows, beside a long length of Low Fen Drove and on either side of the old railway line, can be utilised to provide immediate screening from the east which can be gradually augmented. By far the greatest demand for concealing the plant comes from the opposite direction, from residences and businesses and those journeying along the busy roads.

## 5.4, 5.5 'planted screen on the earthwork bank ' and ' secondary screening .. woodland belts and blocks'

- a) This agglomeration of tree planting, all of it slow to achieve its purpose, will, for example, form a block of trees almost a kilometre wide when seen from the north.

The screening function of the outer elements appears to be to conceal the inner screening on the bund. This duplication with broad blocking of long views is inconsistent with the nature of the existing landscape. The duplication of screening would likely be unnecessary if the embankment was made taller on a carefully chosen line. (see **2.1** above)

- b) Existing tree and hedgerow screening could be brought more into play to provide readymade screening over a considerable arc from other directions. (see **5.3**)

**5.6, 5.7, 5.8, 5.9** ***'increase biodiversity – mosaic of habitats – ecological features – user friendly landscape surrounding the plant'***

- a) SHH supports these objectives in principle particularly where special habitats are being provided and where the provision of new conditions are to relate to the National Trust's vision for Wicken Fen. However, the regional Wildlife Trust's plans for nature corridors, issued in conjunction with Cambridge Past Present and Future, in March 2021, does not rely on any contribution from the Honey Hill area of the landscape.
- b) Therefore, there is a case for retaining as much agricultural use as possible in the interests of national food security.

**5.10** ***'improve access to the countryside'***

- a) The points made at 4.2 above apply here, in brief, the links proposed are of limited value. It would be better if links beyond the site could be provided, connecting to Quy Fen and Quy itself, as long as farmers' interests could be protected.

**5.11** ***'welcoming entrance to the Gateway building'***

- a) SHH in pursuit of discreet solutions considers that all facilities should be concealed within or beyond any embankment and the Gateway building does not need to advertise its presence. It can be welcoming once it is arrived at.

**6.0** **CHARACTER**

**6.1, 6.2** ***'colour texture and finishes- colour palette responsive to landscape'***

- a) In the absence of more effective and early screening and given that no alternative to tall and bulky structures has been devised SHH encourages the use of camouflaging, particularly against the sky. This has become common practice with large structures, notably distribution warehouses. However considerable skill and subtlety is required to get the right effect, otherwise the results can be visually crude. Camouflaging to match the landscape is similarly demanding. Morrisons' headquarters beside the M5 at Bridgewater being a sad attempt.

**6.4, 6.5** ***'establish a sense of place and community for the workforce – consider the needs of ...visitors'***

- a) SHH acknowledges the vital role that those running the plant will play and encourages the designers to provide the best working environment. It accepts that the plant is an

essential piece of infrastructure vital to society's well-being. We can see the value of providing an educational service to visitors. However, our preference remains for discreet and inconspicuous design solutions.

## 7.0 CLIMATE

### 7.1, 7.2, 7.3 *'zero carbon' – 'embodied and operational carbon' – 'potable water demand'*

- a) At item **1.4.** above we stress that a starting point for such assessments is a thorough and fair calculation of the carbon deficit incurred by abandoning the existing plant.
- b) Calculations of what is to be achieved need to be made entirely clear against recognised standards, over a committed and worthwhile timescale. To be self-sufficient in energy generation and use is commendable but only to be expected.
- c) Although the bund has limited ability to screen the structures it clearly provides a solar hemisphere on which to beneficially locate solar panels. These should only be located on inward facing banks.

### 7.4, 7.5, 7.6 *'robust and resilient water recycling process – tunnel sizing'*

- a) Targets need to be fully explained with a clear design horizon stated. If state of the art engineering solutions are not being adopted the reason for their absence should be justified.
- b) Given the inability to separate most rainwater from sewage and increasing severity and frequency of storms as the climate changes, the risk of contaminating the River Cam with a surcharge of untreated effluent becomes greater. It needs to be demonstrated that this risk will be successfully managed. If the capacity of the transfer tunnel assists with the storage of excess in times of heavy rainfall, then there is a case for lengthening the tunnel to add to that capacity and make the plant more remote.

### 7.8 *'finishes' to be 'durable'*

- a) Long life and avoiding replacement are important contributors to reducing carbon emissions.

### 7.9 *'use materials efficiently, limiting unnecessary materials and reducing waste.'*

- b) This again ties in with reliability. However, there is a huge opportunity to use low carbon materials but this might involve a radical redesign of fundamental processes as the conventional apparatus which AW appear to be proposing in their engineering is heavily dependent on concrete, steel and plastic. Low carbon versions of these materials are in the infancy of their development and as a result have not achieved affordability.

### 7.10, 7.11, 7.12 *'certification schemes for energy use ... sustainable commuting and vehicular use'*

- a) SHH entirely supports these good practices, but they do not constitute aspects of the design which concern us.

## 8.0 SAFETY & SECURITY

- a) SHH has no issues with measures taken to make the operation of the plant as safe and secure as possible, as long as they are inobtrusive and cause no nuisance. Our biggest concern would be that some failure in safety might lead to an industrial accident affecting adjacent communities. Also, that some failure in security might lead to acts of violence and sabotage.

#### **FURTHER OBSERVATIONS.**

- a) SHH is not confident that the design process has been sufficiently inspired to meet the challenge of building in the Green Belt just beyond a city with an international reputation for the quality of its environment and as a centre of innovation and excellence.
- b) We do not think enough factors have been taken into account in the present synthesis. The result is a scheme which is inadequate in a number of ways.
- c) We consider the design should combine the following simultaneously : elegance ,legibility , economy ,sensitivity to the landscape , ecological harmony ,minimal operational nuisance to neighbouring communities and passers-by , environmental protection, minimal impact on the Green Belt , functionality ,concealment , community preferences and high aesthetic standards.
- d) Such a major development of a complex facility in a sensitive location requires the design and design iterations to be assessed and compared against many and varied criteria to discover the most efficient and advantageous synthesis.
- e) The combining of the full range of criteria in optimal ways should be tested using the full range of tools and processes developed in recent years for design analysis..





**Fig 15: Devils Dyke near Newmarket. Linear banking**



**Fig 16: Devils Dyke near Stetchworth**

- f) We consider the circular form chosen gives false confidence. It achieves very little whilst looking formally impressive. To function best as a screen it needs the tallest structures to be placed centrally. It does not allow parallel bands of apparatus to be of equal length . It confines these bands, which may need to grow lineally. Where the orthogonal grid on which the apparatus is laid out meets the perimeter there is inevitable waste. The bund is often far from or below key viewing points and although it can eventually be augmented by trees as a screen the designers feel it should be surrounded by a further enclosure of such planting . If the embankment were not in the round it could be made higher where it matters and rely on existing screening and its continuing growth ,to provide barriers from other directions.
- g) To take inspiration from the 'ripple' concept illustrated by AW , can readily be challenged by a counter comparison to a large impact crater. Also the suggestion that it might be strong odour that is radiating out is surely to be avoided.

To have a 600m diameter bank covered with trees and subsequently surrounded by further blocks of planting results in a massive closing down of otherwise distant views.

Local earthworks such as Devils Dyke and Fleam Dyke together with the Roman lodes are straight and linear.

To consider a prehistoric hill fort a suitable model is misguided as it is not only alien to the fenland setting but needs hills to work.

Moreover this is not a true circle but has developed into a series of detached arcs . Therefore to call it a rotunda is also misguided.

- h) There seems to have been a lack of exceptional vision in arriving at the design, despite the efforts of the expected guidance of the Design Council and the unexpected auxiliary guidance of a regional design panel.
- i) We illustrate infrastructure projects where visionary designers have succeeded in placing major structures in sensitive landscapes in an inspiring way and question why such a result is not being achieved here.



**Foster & Ptrs**



**Amanda Levette Architects**



**3D Reid**



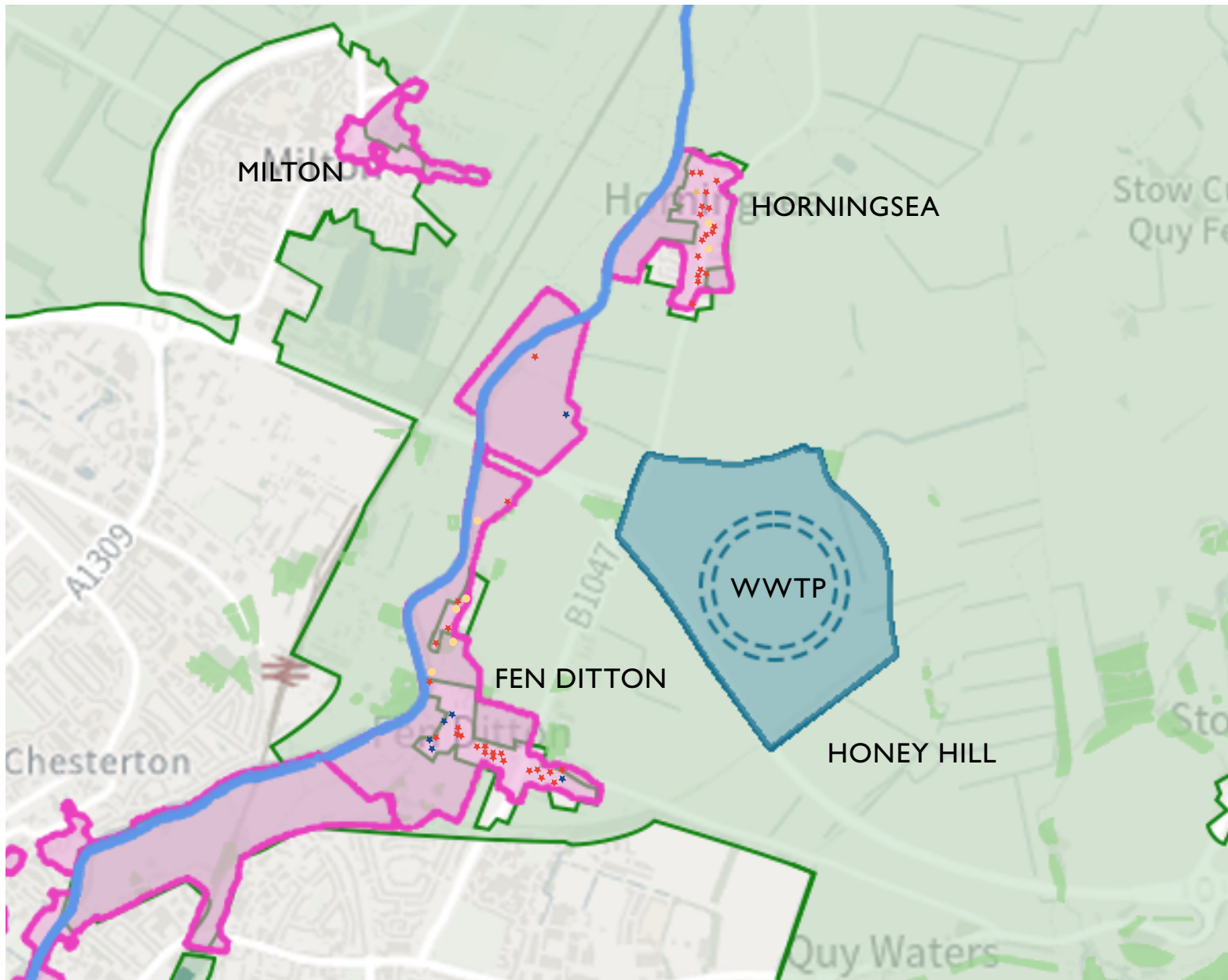
**Foster & Ptrs**

**Fig 17: Examples infrastructure projects showing high quality design**

**Save Honey Hill**

**November 2023**

Fig I. Proposed Development, Green Belt, Conservation Areas & Listed Buildings – Fen Ditton & Horningsea

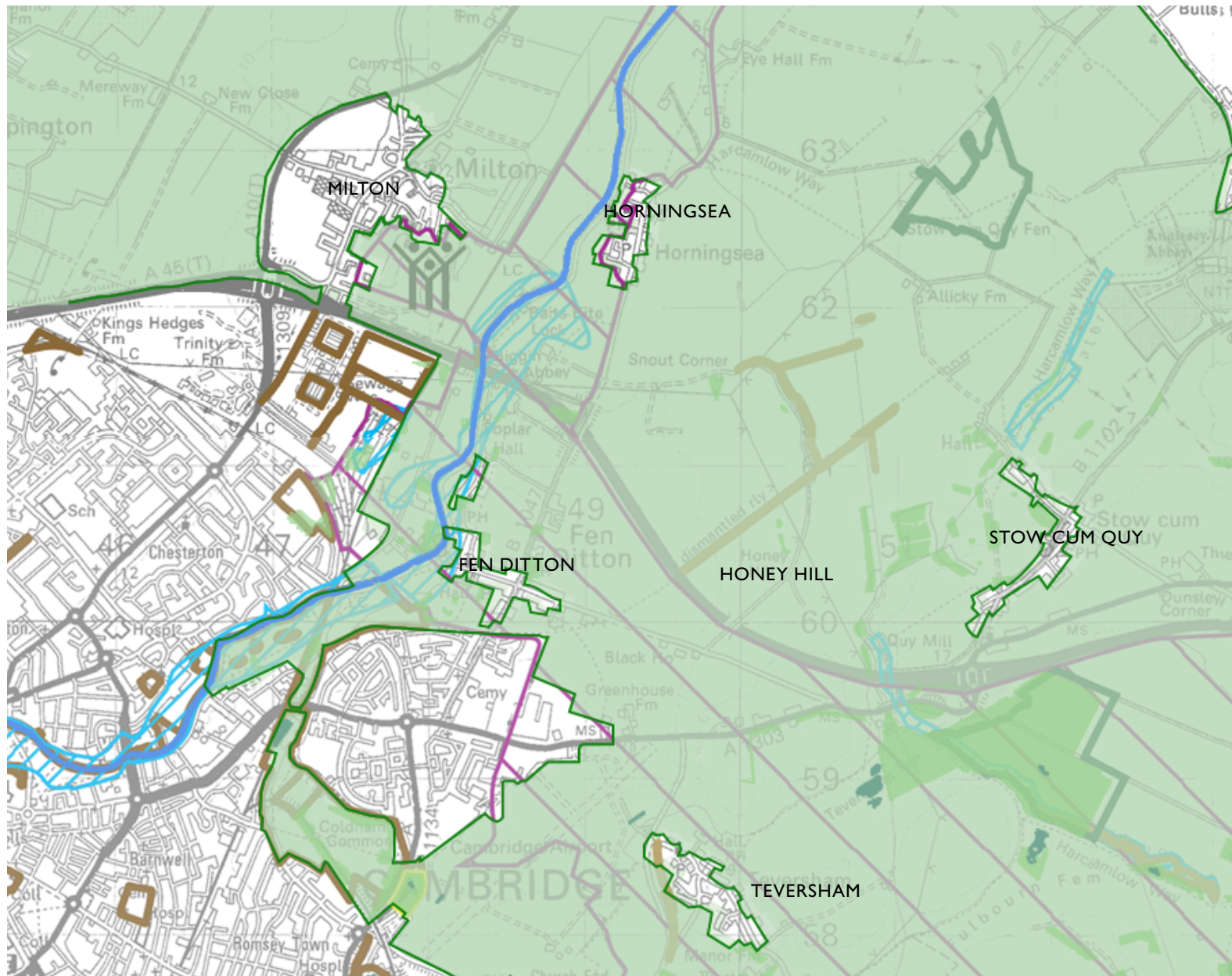


Key

- S/NEC  
North East Cambridge
- S/CE/SS/3(1a)  
Land North of Newmarket Road,  
South Cambridgeshire
- S/CE  
Cambridge East
- S/CE/R47  
Land North of Cherry Hinton,  
Cambridge
- Waste Water Treatment Plant  
(WWTP)
- Green Belt
- Enhancement of the Eastern Fens
- Gog Magog and Chalkland fringe
- North Cambridge Green Space
- Grade II\* Listed
- Grade II Listed
- Locally Listed
- Conservation Area

Green belt map reproduced from <https://maps.cambridgeshire.gov.uk/?tab=maps>; Conservation Areas reproduced from <https://www.scams.gov.uk/planning/search-by-map>; Heritage Assets reproduced from <https://infrastructure.planninginspectorate.gov.uk/wp-content/uploads/projects/WW010003/WW010003-000633-5.3.13%20ES%20Volume%203%20Book%20of%20Figures%20Historic%20Environment.pdf>  
<https://maps.3cshareservices.org/portal/apps/webappviewer/index.html?id=ad4388668ec04c3fb5913a31cb800790>

Fig. 2 Green Belt 2002

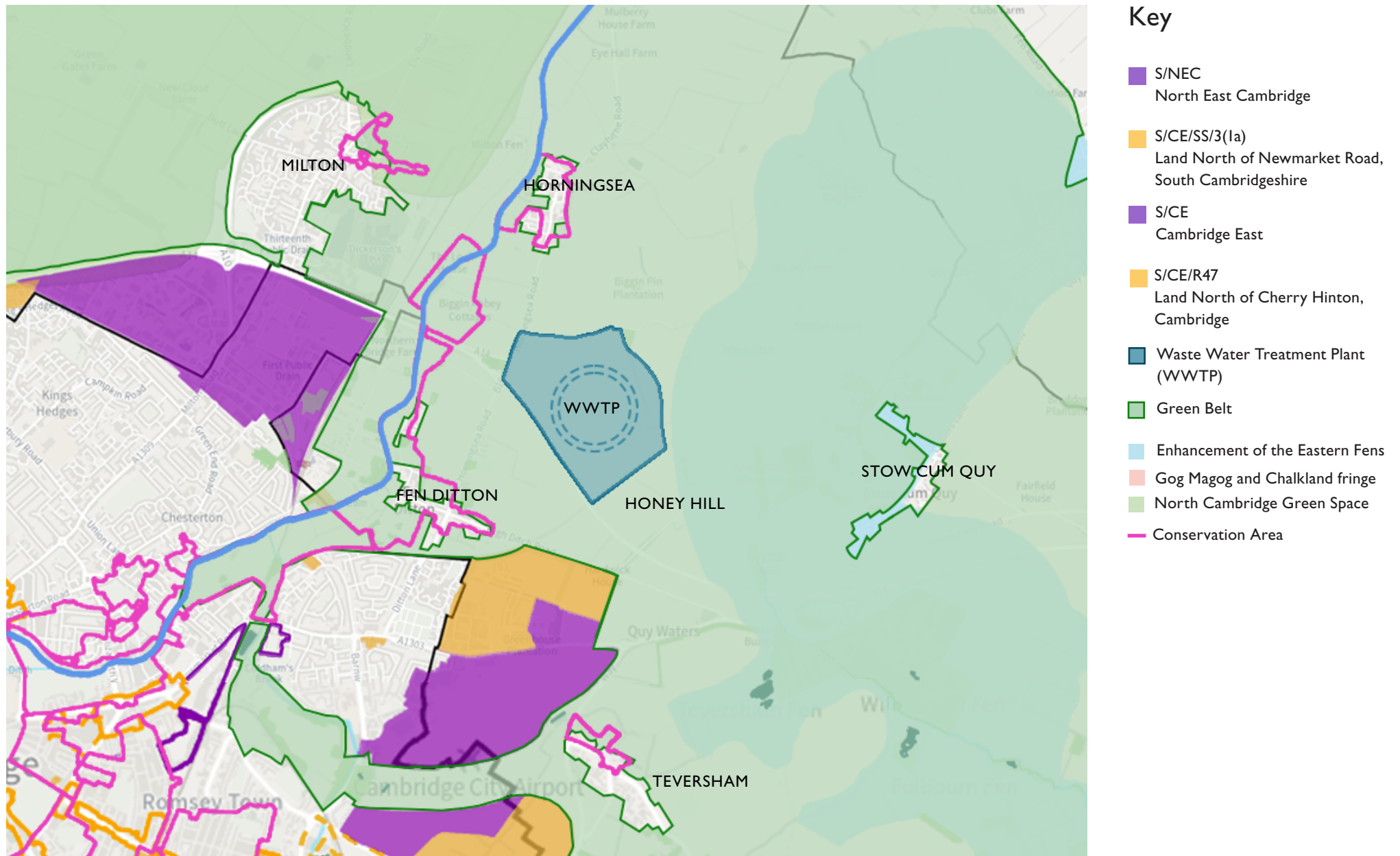


Key

- S/NEC  
North East Cambridge
- S/CE/SS/3(1a)  
Land North of Newmarket Road,  
South Cambridgeshire
- S/CE  
Cambridge East
- S/CE/R47  
Land North of Cherry Hinton,  
Cambridge
- Waste Water Treatment Plant  
(WWTP)
- Green Belt
- Enhancement of the Eastern Fens
- Gog Magog and Chalkland fringe
- North Cambridge Green Space
- Grade II\* Listed
- Grade II Listed
- Locally Listed
- Conservation Area

Green belt Map reproduced from Cambridge Green Belt Study (September 2002) [https://www.scambs.gov.uk/media/6480/1641\\_05.pdf](https://www.scambs.gov.uk/media/6480/1641_05.pdf)

Fig. 3 Cumulative Development – Proposed Development, Major Sites Proposed and Underway  
(listed buildings not shown)



Key

- S/NEC  
North East Cambridge
- S/CE/SS/3 (1a)  
Land North of Newmarket Road,  
South Cambridgeshire
- S/CE  
Cambridge East
- S/CE/R47  
Land North of Cherry Hinton,  
Cambridge
- Waste Water Treatment Plant  
(WWTP)
- Green Belt
- Enhancement of the Eastern Fens
- Gog Magog and Chalkland fringe
- North Cambridge Green Space
- Conservation Area

Green belt map reproduced from <https://maps.cambridgeshire.gov.uk/?tab=maps>; Site allocations reproduced from Greater Cambridge Local Plan: First Proposals, November 2021 <https://maps.3csharedservices.org/portal/apps/webappviewer/index.html?id=ad4388668ec04c3fb5913a31cb800790>

## 1 Introduction

The Written Representation of Save Honey Hill Group (SHH 04) supplements the issues raised in our Relevant Representation submitted 18 July 2023 (RR-035) and in oral submissions at ISH 1 and ISH 2, summaries of which have been provided in documents SHH 12 and SHH 13.

## 2 The following is a Summary of SHH 04 Written Representations.

### 2.1 Section 3. Principles of Development. This includes response to Applicant's further legal

**Submissions as covered by Applicant at ISH 2 in relation to S104 and S105.** It cites the outcome of *EFW Group Limited v Secretary of State for Business, Energy and Industrial Strategy [2021]* in that a s.35 direction is incapable of turning a project into an NSIP and that the National Policy Statement on Waste Water does not have effect for development below the threshold of an NSIP.

**The inclusion of office space for non-operative staff is questioned. Retention at site was not properly assessed. There is failure to correctly define the project for the purposes of the ES and therefore failure to assess all the likely significant effect on the environment.**

2.2 **Section 4. Need for Relocation. The applicant has conceded that the project does not exceed the S29 threshold and concedes there is no presumption in favour of development consent and need must be demonstrated. There is continued uncertainty of the Emerging Local Plan scope due to the delay in public consultation on the draft exacerbated by the water resources issues. The Applicant has agreed that the NPS does not support enabling development, i.e. redevelopment of the current site for housing. Successful on-site upgrades of other WWTPs and the 2015 upgrade of the current site negate the stated need to move.**

2.3 **Section 5. Assessment of Alternatives. This highlight inadequacies in the applicant's assessment of alternatives and lack of consideration of retention at the current site.** The site selection study boundary was not expanded to consider other areas, including those to the south of Cambridge to serve areas of planned and recent development. **The search for sites was seriously compromised by the use of blanket 400 m cut off.**

2.4 **Section 6. Compliance with National and Local planning policy. The proposal is not compliant with the** adopted South Cambridgeshire District Council or Cambridge City Council Local Plans **2018.** The Applicant's interpretation of Minerals and Waste Local Plan is questioned. The proposal conflicts with NPPF policy not to approve development of Green Belt. Very little weight should be attached to the Emerging Greater Cambridge Local Plan and North East Cambridge Area Action Plan as summarised at oral submission to ISH2. There are doubts on the delivery of NECAAP.

2.5 **Section 7. Green Belt.** This demonstrates inappropriate industrial and office development,

- parking, and access roads on the Green Belt, the cumulative effects involved and the consequential substantial harm contrary to NPPF. The PD would be contrary to Cambridge Green Belt Purpose which aims to maintain and enhance the quality of its setting. The settings and character of the three villages will be impacted as will the rural approach to Cambridge.
- 2.6 Section 8. Design, Engineering and Landscape. Assessment of sizing, capacity and landscaping is included. Limitations of planting as mitigation are described together with the inadequacies of screening the mass of structures visible due to height. The Applicant has failed to include the whole of bio methane export facilities, e.g. grid connections and regulatory provisions. These, and corridors and means of connection to national grid are included in dDCO comments submitted to the applicant.
- 2.7 Section 9. Carbon. The Applicant needs to provide an assessment of current site carbon emissions, current site and Waterbeach WWTP demolition and remediation assessment and updates to ES carbon assessment. Assessment needs to be made of the carbon associated with additional plant at the Phase 2 expansion. Emissions arising from construction and pumping operation for the Waterbeach pipeline should also be included. A report by Cambridge University Engineering Department assesses the Greenhouse Gas emissions associated with demolition and remediation at the existing site. It is appended at SHH 06
- 2.8 Section 10. Environmental impacts and mitigation. This includes the impact on biodiversity, Health and mental well-being and the historic environment. It questions the Applicant's assessment of impact on local businesses and community groups. **The impact of construction and operational lighting, and of operational odour are included.** There are concerns about increased visitor pressure on, and the need for condition monitoring at Quay Fen SSSI.
- 2.9 Section 11. Funding. The adequacy of the funding grant by Homes England through Housing Infrastructure Forward Funding and the integrity of the cost estimates are questioned. Analysis of enabling costs and overall grant (derived from FOI requests) for both £167 million and £227 million budget is provided. The likely build cost of inflation is included.
- 2.10 Section 12. Planning balance. Further appraisal of Applicant's claim on site specific benefits is given. SHH holds there is non-compliance with development plan and NPPF and limited weight should be given to the release of land for housing. The emerging GCLP and NECAAP are in an early stage of production with doubts about the scale of development achievable due to constraints such as water resources. It is noted that serious harms to Greenbelt, landscape and historic environment are now recognised in the Planning Statement.
- 2.11 Section 13. DCO Powers and Provisions. These were considered at ISH 1. A detailed request

for amendments (SHH011) has been requested of the applicant. These include substantive changes to the order, e.g., reducing heights of tallest plant and changing limit of deviation and powers to deviate.

### **3 Appendices**

The following have been sent with, and form part of, SHH Written Representation:

SHH 05 Appendix A Health Survey Methodology & Results

SHH 06 Appendix B Demolition Carbon Report by Cambridge University Dept. of Engineering.

SHH 08 Appendix C Design Critique

SHH 09 Appendix E Additional Reference Documents

SHH 10 Appendix D Mapping Diagrams (for reference at Sections 7.5 and 7.5.1)

SHH 11 Appendix F Summary