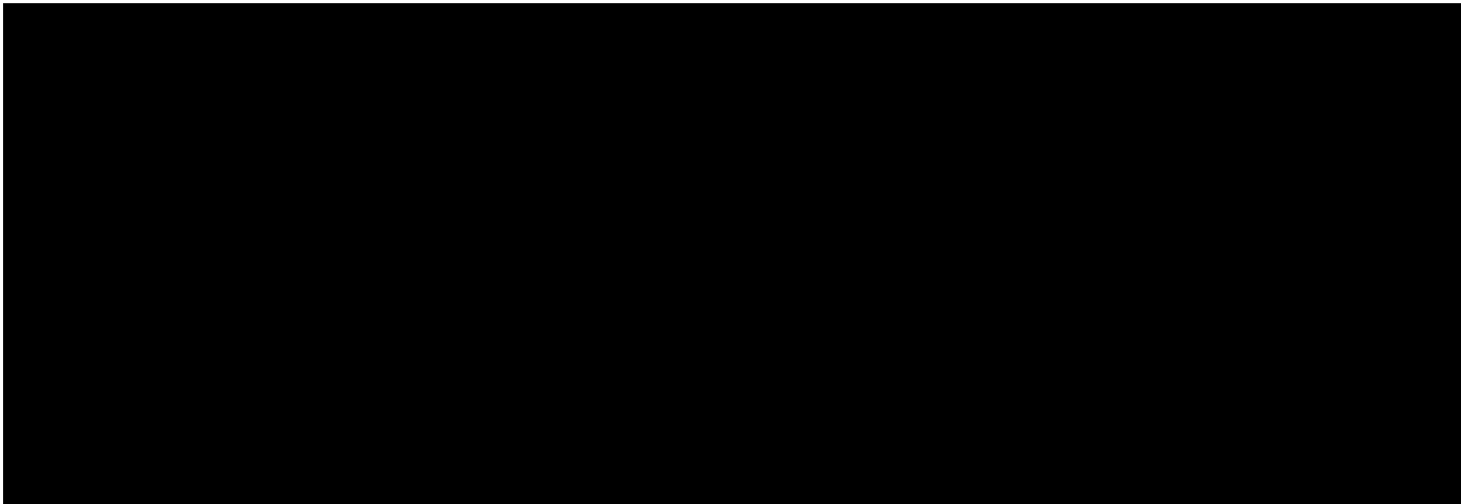




From: Pagham Parish Council [REDACTED]
Sent: 23 May 2018 10:53
To: Planning.Responses; David Easton
Subject: Further comments from Pagham Parish Council - P/134/16/OUT, P/140/16/OUT, P/6/17/OUT, P/25/17/OUT

Dear Sirs

Pagham Parish Council wishes you to consider the attached reports regarding the proposed large scale developments around Pagham numbered

P/134/16/OUT
P/140/16/OUT
P/6/17/OUT
P/25/17/OUT

We shall be submitting additional comments regarding the Landscape Character Assessment reports in due course.

Kind regards

Nicola

Nicola Swann
Clerk & RFO
Pagham Parish Council
[REDACTED]

**A BRIEF REPORT ON THE LAND AND ITS
POTENTIAL FOR HORTICULTURE IN PAGHAM
PARISH AND ITS SURROUNDING AREAS.**

**PREPARED FOR SUBMISSION TO ARUN DISTRICT
COUNCIL**

**BY PETER ATKINS B.Sc. (HORT. LONDON), MIOH
DALLYWOOD CONSULTANCY**

WHY LAND IN PAGHAM MUST BE PROTECTED FROM BUILDING DEVELOPMENT - OF ANY KIND!

CLIMATE:

The Channel coast of UK has the best climate for crop production. It regularly records the highest sunshine hours per week in the summer.

The area of coastline from Brighton to Bournemouth has the best light statistics in terms of intensity and freedom from pollution.

In the 60's and early 70's this coastal strip was designated by both growers and government as the best suited area for glasshouse crop production. Many large glasshouse developments were encouraged here by large government grants in order to exploit this natural benefit and at one time it was responsible for 10% of the salad production in the UK.

The reasons for the reduction in such cropping was the very rapid increase in oil prices in the 70's the heavy subsidy paid to Dutch producers by their government and the entry of Spain into the EEC.

MICRO-CLIMATE

The Manhood peninsula is particularly favourable due to its particular micro-climate created by the mainly South Westerly airflow and the influence of the land masses of The Isle of Wight and the South Downs immediately behind it.

These have a particular influence on lowering rainfall across the area, allowing many more days available to work the land.

The close proximity of the sea has a warming influence on the land and reduces the risk of frosts in the area allowing early production in spring, and later cropping in autumn. Snow although often visible on the Downs in winter rarely affects this lower area for more than an odd day.

The area of Pagham is particularly favoured by its situation on the leeward side of the prevailing wind and the body of tidal water known as Pagham Harbour which itself has a modifying effect on the climate.

SOILS:

The variation in soils across the area is great, as with many areas of alluvium deposition there are areas of sand, gravel, clay and loams.

This results in areas of extremely good land and much not so good. This latter consists of very cold wet clays or dry sands and gravels. Over the generations the good has been sorted from the bad and this latter has been used for development of towns and villages and other none horticultural production.

Much has been used for dairying and cereal production. The best land is now known for its potential and has been brought into production by large scale enterprising farmers able to benefit from the high fertility of these loam soils. Their extreme flexibility and fertility make them very valuable for crop production, however the % that is good is not large either in Pagham or across the whole of the UK

The National Soil Survey which was begun during the 2nd world war has been much refined over the last 70 years and the maps produced covering the whole of UK enable any parcel of land to be identified for its potential productivity.

The two grades most important to horticulture are grades 1 and 2.

Pagham is surrounded on two sides by grade 1 land (see the copy of the land classification map attached at the end)

WATER:

This essential raw material for intensive crop production is available from 2 sources. The springs rising at the base of the Downs which flows through the drainage rifes, and the ground water held in the gravel beds and sands of the sub-soil. The Peninsula was not always above sea level and was part of a pebble beach. There are large gravel deposits beneath the soils which allow excellent drainage of the top soil after heavy rain and aids the workability of these soils.

The water is clean and unaffected by pollutants from industry or households. By the judical use of water storage lagoons water supply is secured and maintained for the whole year.

LAND USE:

The knowledge that the area of Pagham is so good means that the actual fields are in high demand. High rentals per annum are paid for the use of these fields by farmers both local and further afield of the UK.

The full potential of this area is currently being exploited and used to produce crops that will not be produced to the quality and quantity in other parts of the UK.

The area has been an intensive horticultural production area for generations due to the characteristics listed above in this document.

Consequently the population contains a high number of very experienced and skilled workers. Such a source of staff for the horticultural industry is not repeated easily in other areas of the UK.

The largest employers of labour in this part of the county are being put at risk by losing the irreplaceable land. Productive capacity and flexibility means that sources external to the UK will need to be found.

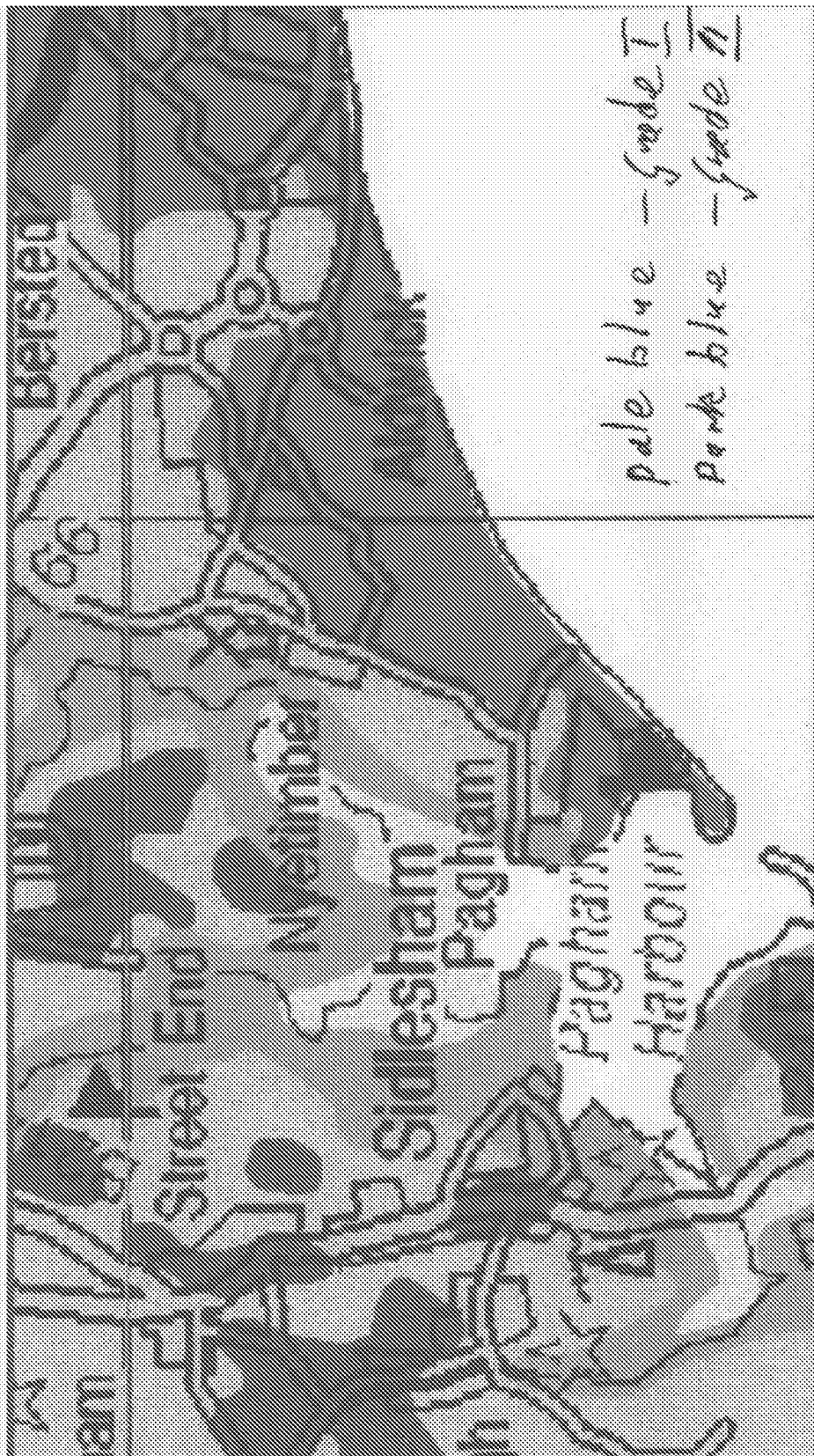
Importation of crops from abroad at a time of increasing world demand is not the best option especially as we leave the present source of much horticultural production namely the EU.

LAND CLASSES – AS DEFINED BY THE AGRICULTURAL LAND SURVEY

Grade 1 - excellent quality agricultural land. Land with no or very minor limitations to agricultural use. A very wide range of agricultural and horticultural crops can be grown and commonly includes top fruit, soft fruit, salad crops and winter harvested vegetables. Yields are high and less variable than on land of lower quality.

Grade 2 - very good quality agricultural land. Land with minor limitations which affect crop yield, cultivations or harvesting. A wide range of agricultural and horticultural crops can usually be grown but on some land in the grade there may be reduced flexibility due to difficulties with the production of the more demanding crops such as winter harvested vegetables and arable root crops. The level of yield is generally high but may be lower or more variable than Grade 1.

Peter Atkins B.Sc(Hort London)01 .02.2018



Why should planners reject the housebuilding applications for land surrounding the west and north sides of Pagham village?

1. Sunshine hours on the south coast are some of the longest in UK across a year. In an average comparison, BR of Eastern Counties Met. Data from Mepal and Bognor Regis Met. Data. 400 hours more are experienced in BR. (33% more)
2. Frost risk is very low in spring and autumn being influenced by the proximity to the sea. Comparing Met data once again the number of days less in BR compared to Mepal is 25/50 a reduction of (50 %).
3. Cooler summer temperatures again (due to seas' local influence), and warmer winter minimum temperatures This compares with Mepal Summer max av.14.1 ° C/14.5 ° C : Winter 8.0 °C/5.7 °C.
4. The rainfall is low due to the physical mass of the Isle of Wight and the near-by Downs hills. The annual rainfall is 725mm /573mm..Fewer days are lost to rain in summer, but the winter rainfall being heavier tops up the ground water.
5. The Downs act as a natural sponge to rainfall and supply water all year round to the coastal plain via springs which feed the ground waters' high water table and in turn feed farm reservoirs for summer cropping.
6. High natural water table assists deep rooted crops and ensures lower volume of water needed for shallow crops.
7. Soil classification is grades 1 and 2 (see soil map appendix.)
8. Historically this area has been an intensive Horticultural producer since Victorian times. So there is a built in skill set within the local population
9. Conclusion:- the above factors allow the land to produce heavy yields of high quality horticultural crops across a very wide range of crops.

10. The land and its environmental factors make this area some of the most versatile and productive in UK. To lose such flexibility is not in the national interest. The National planning policy framework states:

“Local planning authorities should take into account the economic and other benefits of the best and most versatile agricultural land. Where the significant development of agricultural land is demonstrated to be necessary, local planning authorities should seek to use land of poorer quality in preference to that of a higher quality”

11. Planning authorities must know that the protection of best and most versatile land is a long established planning consideration. In this case serious loss to food production is demonstrated by the points above.

12. Development outside of the built up area must always be considered as contrary to the Neighbourhood plan, which seeks to maintain only small extensions into the area outside of the built up boundary where there are small areas of land not used for agriculture.

AGRICULTURAL LAND CLASSIFICATION
Desktop Study

Pagham Parish Council

Pagham



Soil Environment Services Ltd
March 2018

Our Ref: SES/PPC/P/#1

Date: 28th March 2018

Client:

The Clerk to the Council
Pagham Parish Council
Pagham Village Hall
Pagham
Bognor Regis
West Sussex
PO21 4NJ

AGRICULTURAL LAND CLASSIFICATION
Desktop Study

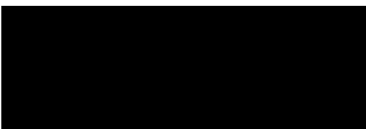
Pagham

A report prepared on behalf of ***Soil Environment Services*** by:



Rebecca Jordan BSc (Hons) MEnv
Environmental Consultant

Approved by:



Dr Robin S Davies BSc PhD MISOilSci
Managing Director

This report has been prepared by Soil Environment Services with all reasonable skill, care and diligence, within the terms of The Contract with The Client. The report is the property of The Client who can assign this report to any third party who will then be afforded the same assurances as detailed within the terms of the original Contract with The Client.

Soil Environment Services

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DRAWINGS

ALC/1	ALC grade
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APPENDIX A	Climatological data for agricultural land classification
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INFORMATION SOURCES

1. INTRODUCTION

A desktop Agricultural Land Classification Study (ALC)^{1,2} has been carried out on approximately 192 ha of land previously mapped as Grade 2 (MAFF (1983) 1: 250 000 map⁶) located at Pagham (Drawing ALC/1). The site is centred on OS Grid Ref. 489015, 98974.

Agricultural land is classified into the following grades according to the 1988 guidelines¹ and the 1996 draft guidelines²:

Grade	Description
1	Excellent quality agricultural land with no or very minor limitations to agricultural use.
2	Very good quality agricultural land with minor limitations which affect crop yield, cultivation or harvesting.
3a	Good quality agricultural land capable of producing moderate to high yields of a narrow range of arable crops or moderate yields of a wider range of crops.
3b	Moderate quality agricultural land capable of producing moderate yields of a narrow range of crops or lower yields of a wider range of crops.
4	Poor quality agricultural land with severe limitations which significantly restrict the range of crops and/or level of yields.
5	Very poor quality agricultural land with very severe limitations which restrict use to permanent pasture or rough grazing, except for occasional pioneer forage crops.

Previously mapped soil types have been used in accordance with the current guidelines to classify the land into one or more of the above grades.

2. METHODOLOGY

The classification is based on a desktop investigation to examine previously mapped soil types and to note the drift and solid geology. This included consultation from:

Soil Survey of England and Wales 1:250 000

British Geological Survey 1:50 000 solid and drift map.

Soils and Their Use in Eastern England. Soil Survey of England and Wales, Harpenden (1984).

Climatological data⁴ was used to determine the overriding site limitation and for interaction with soil parameters (Appendix A). The above information was cross referenced with geological surveys⁸, previous soil surveys and the national 1:250 000 series ALC survey⁷ relevant for this site to substantiate the findings. The ALC grade was then determined for this site and for the current study, and is detailed on Drawing ALC/1.

Other factors used for ALC grading, but which give no limitation at this site, are not discussed.

3. BASELINE CONDITIONS

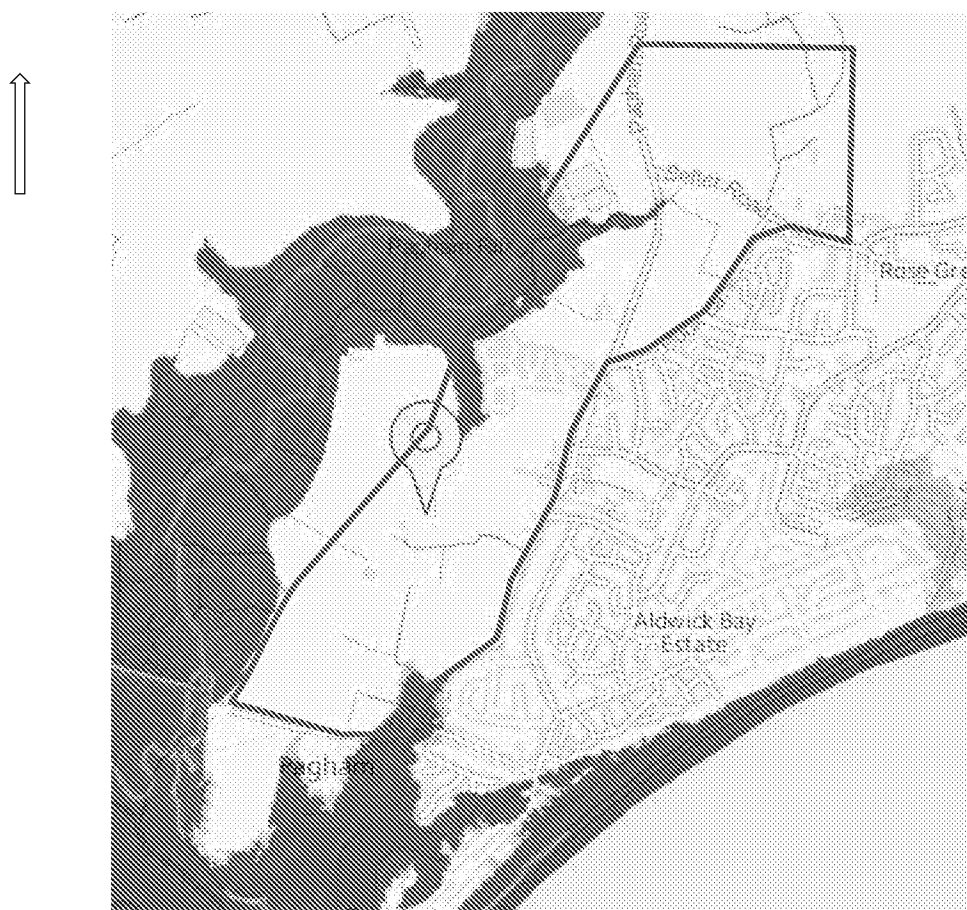
3.1. Climate and flooding

The climatological data (Table 1a) indicates average temperature, average rainfall and an average number of field capacity days for the region.

Table 1a Climatological information⁴		
Factor	Units	Value
Altitude AOD	m	6
Accumulated temperature	day°C (Jan-June)	1545.1
Average Annual Rainfall	mm	735.4
Field Capacity Days	days	148.9
Moisture Deficit Wheat	mm	121.5
Moisture Deficit Potatoes	mm	118.6

The site is assessed to have areas mapped as having a high flood risk (Functional Floodplain) which would affect the overall ALC grade⁷ in these areas.

Environment Agency Risk of Flooding from Rivers and Sea Map (1: 6667 scale, 2017)



For the purpose of this report, the terms used by the Environment Agency to quantify flood risk have been changed to match terms used by MAFF. This is to allow an agricultural classification grade to be determined for the site based on flood risk. The classifications have been found to correspond as follows:

- | | |
|--|--------------------------|
| - Environment Agency Zone 3a High Probability | - MAFF Frequent |
| - Environment Agency Zone 3b Functional Floodplain | - MAFF Frequent |
| - Environment Agency Zone 2 Medium Probability | - MAFF Occasional |
| - Environment Agency Zone 1 Low Probability | - MAFF Rare to Very Rare |

The total site area affected by the Zone 3a High Probability flooding is approximately 11.3 ha.

Table 1b. ALC Grade according to flood risk**WINTER Mid November to mid March**

ALC Grade	Frequency	Duration	Approx. Area affected (m ²)
1	rare	short	
2	rare	medium	
2	occasional	short	
3a	rare	long	
3a	occasional	medium	
3a	frequent	short	
3b	occasional	long	
3b	frequent	medium	113000
4	frequent	long	

SUMMER Mid March to mid November

ALC Grade	Frequency	Duration	Approx. Area affected (m ²)
1	very rare	short	NA
2	rare	short	NA
3a	very rare	medium or long	NA
3a	rare	medium	NA
3a	occasional	short	NA
3b	rare	long	NA
3b	occasional	medium	NA
4	occasional	long	NA
4	frequent	short or medium	NA
5	frequent	long	NA

MAFF Frequency definitions

very rare	< 1 in 15 y
rare	1 in 10 - 14 y
occasional	1 in 3 - 9 y
frequent	> 1 in 3 y

Duration definitions

short	< 48 hrs
medium	1 to 4 days
long	> 4 days

3.2. Soils, geology and topography

3.2.1. Soils

The site has previously been mapped as having soils of the *Park Gate association*^{4,5}. These soils are identified to be silty clay loam to depth.

Two previous agricultural land classifications have been undertaken on parts of the site, as part of the Arun District Local Plan, with the land mapped as Grades 2, 3a and 3b (May 1994 and March 1997, Reading Resource Planning Team).

3.2.2. Geology⁸

Superficial Geology

Majority of the site

1:50 000 scale superficial deposits description: *River Terrace Deposits (undifferentiated) - Sand, Silt And Clay. Superficial Deposits formed up to 3 million years ago in the Quaternary Period. Local environment previously dominated by rivers (U).*

North west of the site

1:50 000 scale superficial deposits description: *Raised Marine Deposits - Clay, Silt, Sand And Gravel. Superficial Deposits formed up to 3 million years ago in the Quaternary Period. Local environment previously dominated by shallow seas (U).*

1:50 000 scale superficial deposits description: *Raised Beach Deposits, 1 - Sand And Gravel. Superficial Deposits formed up to 3 million years ago in the Quaternary Period. Local environment previously dominated by shorelines (U).*

Bedrock Geology

1:50 000 scale bedrock geology description: *London Clay Formation - Clay, Silt And Sand. Sedimentary Bedrock formed approximately 48 to 56 million years ago in the Palaeogene Period. Local environment previously dominated by deep seas.*

3.2.3. Topography

The gradient present on the site is not severe enough to limit the ALC Grade.

4. FIELDWORK RESULTS

4.1. Descriptions of soil types

The soils across the site have been mapped as silty clay loams to depth. A summary of the features of the soil type are listed in Table 2 (as described in Soils and Their Use in South East England. Soil Survey of England and Wales, Harpenden 1984).

Table 2. Soil Type descriptions			
Profile	Soil types		
Description	Type 1	Type 2	Type 3
Horizon 1 (topsoil)	0-20 cm Brown (10YR 5/3) stoneless slightly calcareous silty clay loam, common fine ochreous mottles.		
Horizon 2 (subsoil 1)	20-35 cm Brownish grey (2.5Y 6/2) stoneless silty clay loam, many fine ochreous mottles; weak medium subangular blocky structure.		
Horizon 3 (subsoil 2)	35-60 cm Brown (10YR 5/3) stoneless silty clay loam, many medium ochreous mottles; medium subangular blocky structure.		
Horizon 4 (subsoil 3)	60-100 cm Brown (7.5YR 5/4) stoneless silty clay loam, very many coarse grey mottles; moderate coarse subangular blocky structure.		
Notes:			

4.2. Wetness class assessment

A wetness class assessment was conducted for the soil types (Table 3).

Table 3. Wetness Class Assessment				
Soil Type	Feature Assessed	Parameters	Findings	WC
1	Site conditions	Undisturbed/ disturbed	Undisturbed	II
		FCD	148.9	
	Potential Slowly Permeable Layer (SPL)	Horizon depth (cm)	60	
		Texture	ZCL	
		Structure	MCSAB	
		Biopores > 0.5 mm (%)	<0.5	
		Evidence of wetness	Grey Mottles	
	Potential Gleyed Horizon	Matrix colour	Pale and brownish – 10YR 5/3	
		Ped faces colour	Pale and brownish – 10YR 5/3	
		Mottles	Ochreous – 7.5YR	
		Depth to gleying (cm)	0-20	
	Figure reference in ALC guidelines – Table 13			
Key ZCL – Silty Clay Loam MCSAB – Moderate Coarse Subangular Blocky FCD – Field Capacity Days				
Notes:				

5. AGRICULTURAL LAND CLASSIFICATION

5.1. National 1:250 000 map grading

Grading on the MAFF (1983) 1: 250 000 map⁶ indicated **ALC Grade 2** across the site.

5.2. Current grading

This study has resulted in an Agricultural Land Classification of the following grades (Drawing ALC/2):

Table 4. ALC gradings and limitations		
Grade	Area (ha)	Limitation
1		
2		
3a	143.6	Type 1 soils - droughtiness
3b	11.3	High Probability flood risk
4		
5		
Non-agricultural land	37.1	Roads and buildings

5.2.1. Limitations

Type 1 soils – Droughtiness

The combination of profile soil textures and climatic factors results in ALC Grade 3a for Type 1 soils.

Flooding

Some areas of the site are in a High Probability (Functional Floodplain) flood risk area which limits these areas to ALC Grade 3b.

DRAWING ALC/1

ALC Grade

ALC Grade

-  Grade 3a
-  Grade 3b
-  Non Agricultural

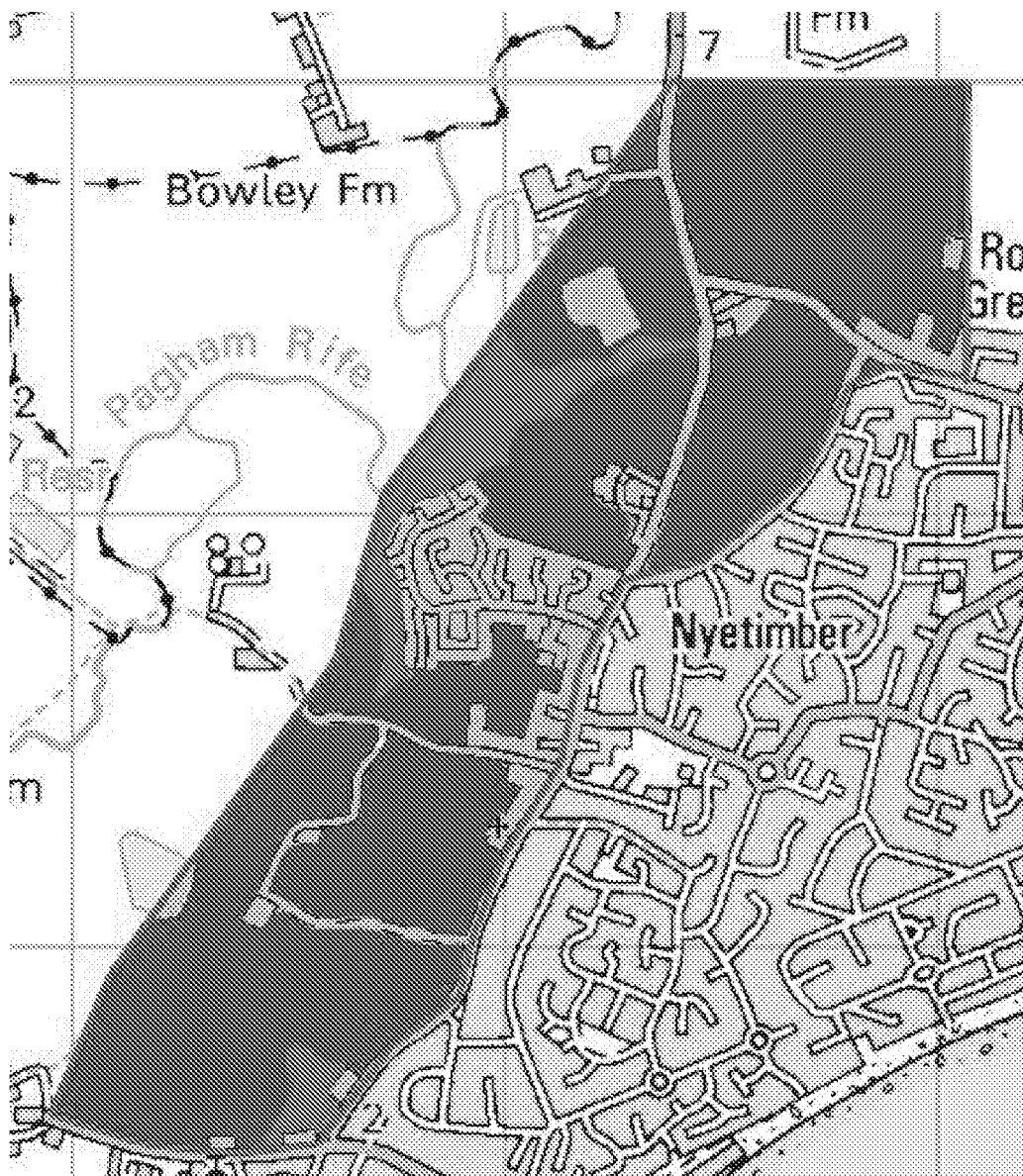
Soil Environment Services

Drawing Title: ALC grade

Drawing No.: ALC/1

Scale: 1: 20457

Date: 24/03/2018



APPENDIX A

Climatological data for *Agricultural Land Classification*

Agricultural Land Classification

- Met. Information & droughtiness

Data and adjustment calculations from: The Met. Office, *Climatological Data for Agricultural Land Classification* 1989.

Input data in box cells only, results in shaded cells.

Site name	Pagham
Site altitude =	6 m
Site GR	4890 989

Meteorological information for surrounding national grid reference points

	Easting	Northing	ALT	AAR	LR AAR	ATO	MDMWHT	MDMPOT	FCD
NW	4850	1000	5	740	0.6	1547	122	119	150
NE	4900	1000	4	740	0.5	1547	121	118	150
SW	4850	950	2	707	0	1552	125	123	142
SE	4900	950	0	704	0	1553	125	123	142

Altitude adjustment of surrounding meteorological information with respect to site.

Adjusted surrounding points

	AAR	ATO	FCD
NW	740.6	1545.9	150.1
NE	741.0	1544.7	150.1
SW	707.0	1547.4	142.0
SE	704.0	1546.2	142.0

Site adjusted meteorological information

	1 Dsg	2 Wg	Wp
NW	41.48494	0.000581	0.096150
NE	14.86607	0.004525	0.748750
SW	55.86591	0.000320	0.053019
SE	40.26164	0.000617	0.102081
Sum		0.006043	

Site	AAR	ATO	FCD
	735.4	1545.1	148.9

ALC according to climate

Grade **1**

Soil wetness class (drained)

Type 1 **II**
Type 2
Type 3

ALC according to wetness/climate/
texture

Type 1 **2**
Type 2
Type 3

Soil moisture deficit of surrounding points

	Cw	Cp	Adjusted	
NW	-0.4104	-0.5472	124.5896	122.45
NE	-0.275	-0.3636	120.7248	117.64
SW	-0.145	-0.191	121.8554	118.81
SE	-0.6156	-0.8208	124.3844	122.18

Site results for soil moisture deficit

MDMW	MDMPOT
121.5	118.6

Adjustment data for stone type and content

	Soil Type 1			Soil Type 2			Soil Type 3		
	Top	Sub1	Sub2	Top	Sub1	Sub2	Top	Sub1	Sub2
% volume	0	0	0	na	na	na	na	na	na
TAv for stone type	1	1	1	na	na	na	na	na	na
EAv for stone type	0.5	0.5	0.5	na	na	na	na	na	na
	Sub 3			Sub 3			Sub 3		
% volume	0	na	na	na	na	na	na	na	na
TAv for stone type	1	na	na	na	na	na	na	na	na
EAv for stone type	0.5	na	na	na	na	na	na	na	na

Droughtiness (moisture balance) determination for each soil type and restored profile

Moisture availability data for each texture from MAFF ALC Guidelines 1988

Moisture Balance (MB) = AP - MD for wheat and potatoes (adjusted for stones)

Horizon		Type 1		Type 2		Type 3	
		texture	water	texture	water	texture	water
TAvt - Topsoil water available (mm)		ZCL	19.00	0	0.00	0	0.00
LTt - Topsoil thickness (cm)		0	20.00	0	0.00	0	0.00
TAvs - Subsoil total available	1	ZCL	17.00	0	0.00	0	0.00
	2	ZCL	17.00	0	0.00	0	0.00
	3	ZCL	17.00	0	0.00	0	0.00
EAvs - Subsoil (SS) easily available	1	ZCL	10.00	0	0.00	0	0.00
	2	ZCL	10.00	0	0.00	0	0.00
	3	ZCL	10.00	0	0.00	0	0.00
LT50 - Thickness ss layers to 50cm	1	ZCL	15.00	0	0.00	0	0.00
	2	ZCL	15.00	0	0.00	0	0.00
	3	ZCL	0.00	0	0.00	0	0.00
LT120 - Thickness ss layers 50 to 120cm	1	ZCL	0.00	0	0.00	0	0.00
	2	ZCL	10.00	0	0.00	0	0.00
	3	ZCL	40.00	0	0.00	0	0.00
LT0 - Thickness ss layers to 70cm	1	ZCL	15.00	0	0.00	0	0.00
	2	ZCL	25.00	0	0.00	0	0.00
	3	ZCL	5.00	0	0.00	0	0.00
Total profile thickness for soil type cm		0	100		0	0	0

SOIL Droughtiness (moisture balance) results

Type 1

Grade

Results

AP wheat = 139.0
 Moisture balance wheat = 17.5 2
 AP potatoes = 106.0
 Moisture balance potatoes = 12.6 3a

AP wheat =
 Moisture balance wheat =
 AP potatoes =
 Moisture balance potatoes =

Notes

ALC Grade	Moisture Balance Limits	
	wheat	potatoes
1	30	10
2	5	-10
3a	-20	-30
3b	-50	-55
4	< -50	< -55

INFORMATION SOURCES

1. ***Agricultural Land Classification of England and Wales***. Guidance and criteria for grading the quality of agricultural land. MAFF. 1988.
2. ***Agricultural Land Classification of England and Wales***. Guidance and criteria for grading the quality of agricultural land. Second Revision MAFF. DRAFT May 1996.
3. ***Soil Survey Field Handbook***. Technical Monograph No.5. Soil Survey of England and Wales.1976.
4. ***Soil Map of England and Wales: 1:250 000***. Soil Survey of England and Wales, Harpenden.
5. ***Soils and Their Use in South East England***. Soil Survey of England and Wales, Harpenden.
6. ***Agricultural Land Classification Map*** 1:250 000. MAFF 1983.
7. ***Risk of Flooding from Rivers and Sea: 1:15 000***. Environment Agency
8. ***Geology of Britain Viewer***. Reproduced with the permission of the British Geological Survey ©NERC. All rights Reserved
9. ***Objector Site 7: Land North of Sefton Road, Rose Green, Bognor Regis; Arun District Local Plan Review***. Agricultural Land Classification ALC Map and Report, March 1997.
10. ***Site 20: Land between Pagham Road and Hook Lane, Bognor Regis; Arun District Local Plan***. Agricultural Land Classification ALC Map and Report, May 1994.

Pagham Parish Council – Objections to Applications P/134/16/OUT, P/140/16/OUT, P/6/17/OUT & P/25/17/OUT

Pagham Parish Council strongly objects to the above-mentioned development applications because of the transport related issues noted below, which clearly demonstrate the non-sustainability of these proposed major developments

Transport Related Issues

Large scale development of these sites, which are some of the most distant and difficult to access from the major transport routes such as the A27 and A259, would be unsustainable and lead to major delays to traffic on both the local and strategic road networks for the following reasons:

1. Outbound commuting is already identified in the Arun Local Plan as a significant issue in the area (*“Arun experiences high levels of out-commuting partly because employment opportunities are limited within the District. About one third of residents in employment commute elsewhere to work.”*). Hence building over 1200 houses in an area which has very few local employment opportunities can only lead to very large increases in numbers of people travelling to work in the major employment centres (Chichester, Portsmouth and Worthing) and beyond.
2. Access routes to the A27 are already very congested, both the Whyke Roundabout and the Lower Bognor Road roundabout are already officially categorised by Highways England as operating ‘over capacity’. A range of proposals from H.E. for major developments to try to ease congestion on the A27 had to be withdrawn, largely because of opposition from residents living to the south of Chichester who recognised that the plans would worsen the traffic situation for them and do little to improve through traffic.
3. Major congestion along the A27 Chichester Bypass is an established fact, with slow, stationary and queuing traffic affecting many of the sections during the major parts of the working day. The data supplied by H.E. suggests that it is the roundabouts that are the major cause of congestion and their expert has stated that *“... the current congestion/delay along the bypass is caused by the junctions in that they have insufficient capacity to cope with the link flows entering and leaving them.”* Therefore we have on record a professional expert stating that the roundabouts between the Fishbourne junction and Portfield roundabout cannot cope with existing levels of traffic. It goes without saying that adding additional traffic onto this section of the road network will further worsen the problem. In other words the road network between the said roundabouts is a valid reason to refuse all these proposed developments in Pagham.
4. The Arun Transport Study Stage 3 (Final Report) (part of Arun’s Local Plan submission) claims to have addressed the impact of the significant volumes of additional traffic from three of these major developments by relying on mitigations to the Whyke Roundabout and the Bognor Road Roundabout - which it is claimed will make the current level of congestion at these roundabouts ‘**no worse**’ than at present. Paragraph K of Policy H SP2 within the Local Plan requires that developments must *“address the off-site capacity requirements, that relate to that particular allocation identified in the Arun Transport Assessment and the local highway network”*.
5. Highways England have agreed that they are happy with the mitigations proposed to the Whyke and Bognor Road roundabouts – as long as developers make substantial financial contributions to this work. However, for these mitigations to be effective there **MUST** be the capacity on the link roads to accept the increased volumes of traffic leaving these roundabouts. In the case of the Whyke roundabout in particular, this is absolutely not the case – at the vast majority of times in the working day the eastbound carriageway between the Whyke and Stockbridge roundabout is solid with queuing traffic – this completely

- negates the improvements suggested at these roundabouts designed to increase the rate of flow at that roundabout. There are NO planned or funded mitigations to the Stockbridge Roundabout at this point in time, so changes to Whyke will be totally ineffective.
6. Furthermore H.E. have been unable to provide a link to details of the crucial traffic modelling covering the impact of the additional vehicles from these sites on the entire A27 Chichester Bypass from the Portfield Roundabout to the Fishbourne Roundabout. Highways England should have carried out this analysis themselves! Instead they just state that that “Systra, consultants for Arun District Council, have modelled the entire length of the A27 Chichester Bypass and the section of the A27 running through Arun District as part of their Saturn modelling work supporting Arun’s Local plan ...”. It is understood that this modelling work was sponsored by both Arun District Council (who do not in any case have responsibility for most of this section of the A27) in support of their proposed strategic allocations, and by some of the developers themselves. It cannot therefore be accepted as impartial, factual evidence. It needs to be reworked entirely by a combination of H.E. and Chichester District Council – who are the real stakeholders and will suffer most from the inevitable increased congestion.
 7. These applications all rely on proposed major enhancements to the key road junctions on this stretch of the strategic road network (A27 Chichester Bypass). However, our traffic consultant has advised that, even if funding would be offered by the developers, realistically it would be at least 7-10 years before all these junctions could be improved. Investigation work, planning, consultation, detailed design, liaising with external infrastructure companies such as utility companies, securing funding, and construction will all take considerable time. Pagham Parish Council would therefore insist that absolutely NO further major developments can be allowed to begin in Pagham until these key junctions between Fishbourne and Portfield have been improved and the expected improvements in traffic flow have been validated.
 8. With regard to local roads Policy T SP1 (Transport and Development) of the Arun Local Plan states that development should only be supported which “*Is designed to reduce the need to travel by car ...*” and also “*contributes towards new road schemes which improve north-south links between Bognor Regis and Littlehampton and the A27.*” The conclusion of the independent transport study commissioned by Pagham Parish Council was that there aren’t any viable options for essential improvements to the wider local road network, such as the B2166 and B2145 used to access the strategic network, to support the proposed development sites. It concluded that the cost of upgrading these routes would be far in excess of any funds that might be provided by developers, or indeed available from other sources. Indeed no significant improvements to these roads have been proposed as part of these applications with the exception of some changes to the dangerous junction of the Lower Bognor Road and Pagham Road which it is accepted cannot in reality be delivered as the necessary land is privately owned.
 9. The independent traffic analysis commissioned by Pagham Parish Council from a specialist transport consultancy (2020 Consultancy) confirmed that there is significant congestion on these local roads during rush hours, when it can sometimes take 45 minutes to reach the A27 (normally an 8 minute journey). It also identified that only 40% of the peak hour traffic attempting to reach Chichester and the A27 along local roads comes from Pagham village itself, the majority originating from Aldwick and Bognor town direction. The impact of the additional volumes of traffic will therefore have a significant negative effect on traffic from the wider Bognor Regis area, not just from Pagham itself.
 10. The existing population of Pagham is under 6,000 people so these major developments if approved will result in an increase of 50% or more of the current number of residents. As there is no station in Pagham it is certain that the majority of new residents would travel by car. The actual impact on traffic congestion would be even greater than this increase

suggests as a very high proportion of current residents (over 50% in some wards) are retired and do not normally commute to work or travel on local roads during rush hours.

11. Pagham Road is the single access from Pagham and surrounds towards Chichester to the strategic road network. It is a winding, undulating country lane, originally intended to serve a series of small rural farmsteads, and is already heavily used by large numbers of HGV articulated lorries serving the various major agricultural organisations along Pagham Road, including Barfoots of Botley who grow, process and deliver fresh produce direct to major supermarket chains. This business is heavily industrialised, with a massive processing, packing and chilling facility, generating around 12 HGV vehicle movements per hour which will increase significantly when their new larger plant comes into operation later this year. This mix of private cars, HGVs cyclists and pedestrians on this narrow winding road (without footpaths or cycle lanes) is sure to lead to further serious and fatal accidents – there has already been one tragic fatal accident in the last 6 months.
12. The proposed adjoining development of 2,500 houses in West Berstead (SD3) would also very significantly further increase the number of vehicles attempting to reach the A27 via local roads around Pagham, resulting in major congestion on major routes out of Bognor including those leading to the Whyke and Bognor Road roundabouts.

Batbox Ltd

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Phase 2 Bat Survey Report (Walked Transect Bat Activity Survey)

Site: Proposed Building Land
North of Sefter Road
Pagham
West Sussex

Client Pagham Parish Council
The Village Hall
Pagham Road
Pagham
Bognor Regis
W Sussex PO21 4NJ

Surveyors: D P King MEECW (NE Sc. Bat Lic. No. 2015-16001-CLS-CLS)
S L Wright (NE Sc. Bat Lic. No. 2016-24340-CLS-CLS)

Survey Date: 22nd April 2018

Report Date: 26th April 2018

Bat Emergence Check/Bat Detector Survey - Proposed Building Land, North of Sefter Road, Pagham, West Sussex - OS Grid Ref: SZ89917 99569

Executive Summary

Two surveyors from Batbox Ltd Bat Surveys returned to a site, north of Sefter Road, Pagham, West Sussex on 22nd April 2018, to carry out a dusk emergence check/bat activity survey. This followed their initial daytime assessment of the site, undertaken on 9th February, 2017. The surveys have been undertaken on behalf of Pagham Parish Council, who are concerned that a proposed housing development on the land would have a significant negative impact on bats and other wildlife.

Prior to the initial site daytime assessment, the surveyors reviewed the findings of ecological surveys (particularly in relation to bats), carried out previously on the site by ecologists from Aspect Ecology. Their ecologists undertook a desk study, building inspections and tree assessments in May 2016, following bat activity surveys which took place in 2014. During the 2014 activity surveys, bats of at least four species were recorded. In their assessment of the activity survey results, the site was described as of moderate value to foraging and commuting bats, at the local level. See Aspect Ecology Report.*

In February 2017, at the request of the Parish Council, Batbox Ltd surveyors checked two structures on the site and also undertook a walk-over of the site boundary. Some bat roosting/hibernating potential was noted in a timber scout hut and a WW2 'pill-box'. Commuting and foraging habitat was noted around the site margins.

Following the February survey, Batbox Ltd bat consultants concluded that there was some justification in the Pagham Parish Council view that some features of this site offer good wildlife habitat, which appears to be in short supply locally. The site is surrounded by large, open arable fields, with limited connectivity and by built-up residential areas. Features of note are the area of semi-improved grassland, bordered by tree-lines, hedgerows, drainage ditches and scrub and the WW2 pill-box. Batbox consultants recommended that further ecological surveys should be carried out to update information on bat activity on the site and that consideration should be given to opportunities for protecting the more significant wildlife habitat features from development.

The latest bat activity survey was undertaken early in the season, on a mild night which followed a spell of unseasonably warm weather. The survey comprised a daytime walkover on 21st April, followed by walked transects of the site on the evening of 22nd April.

Six bat species were recorded. Unsurprisingly, the greatest level of activity was from the two most common pipistrelle species (*Pipistrellus pipistrellus* and *Pipistrellus pygmaeus*) and it is likely that both species have maternity roosts very close to the site. The surveyors also recorded small numbers of passes from other species, including a single pass from a barbastelle (*barbastella barbastellus*) – a very rare bat with enhanced legal protection.

It is therefore concluded that bat activity on this site is relatively high, at least early in the bat activity season. Bats of six species were recorded, suggesting that this area is of local importance to bats, especially given its position surrounded by large arable fields and built up areas. It is recommended that further activity surveys are carried out, throughout the active season and that steps are taken to establish the relative abundance of bats and suitable bat habitat in the surrounding area. This would allow a better assessment of the importance of the site and the likely impact of the proposed development on the local bat population.

1. Introduction & Background

- 1.1 Two surveyors from Batbox Ltd Bat Surveys returned to a site, north of Sefter Road, Pagham, West Sussex on the evenings of 21st and 22nd April 2018, to carry out a dusk emergence check/bat activity survey. This followed an initial daytime assessment of the site, undertaken on 9th February, 2017.
- 1.2 The surveyors were acting on behalf of Pagham Parish Council, who are concerned that a proposed large-scale housing development on this land would have a significant negative impact on bats and other wildlife, recorded previously on the site.
- 1.3 Both surveyors hold Natural England Scientific Bat Licences. For surveyors' licence details, see report cover. Recommendations from the Bat Conservation Trust's 'Bat Surveys for Professional Ecologists: Good Practice Guidelines' (3rd edn)* were followed for the course of this survey.
- 1.4 The following background information is copied from the Batbox Ltd initial report, dated February 2017 with information taken from the Aspect Ecology survey report** *Aspect Ecology report – 'Ecological Appraisal', Project No. ECO-3697 'Land North of Sefter Road, Pagham, Bognor Regis' dated 07/12/2016*
 - 1.4.1 *Taylor Wimpey UK are proposing to build 250 new homes on the site, which consists of a large arable field, bordered by hedges, trees and drainage ditches and a smaller area of semi-improved grassland, also bordered by a tree-line, hedges, scrub and drainage ditches. It is understood that one bungalow and a timber scout hut, as well as a World War II 'pill-box' are to be demolished.*
 - 1.4.2 *An ecological survey of the site was carried out by ecologists from Aspect Ecology, on behalf of house developers, Taylor Wimpey UK Ltd, in 2014. Their desktop study included a Sussex Biodiversity Records Centre search for bat records from the area. Although no records of bats on or immediately adjacent to the site had been submitted, there were records of serotine (*Eptesicus serotinus*) brown long-eared bat (*Plecotus auritus*), grey long-eared bat (*Plecotus austriacus*) 45kHz pipistrelle (*Pipistrellus pipistrellus*) and 55kHz pipistrelle (*Pipistrellus pygmaeus*) within 3km of the site. A maternity roost of unidentified species (most likely pipistrellus) was recorded in 2012, approximately 450 to the south of the site boundary. Grey long-eared bats, two records of which were returned from sites within the 2km grid search area, are amongst the rarest bats in the UK. Aspect Ecology undertook a daytime survey of the site, as well as bat activity surveys. Their 2014 activity surveys were followed by an extended Phase 1 survey in May 2016. However, no bat activity surveys have been undertaken since 2014. The 2016 Aspect Ecology survey included a daytime search for evidence of bat use, of the bungalow (No. 80 Rose Green Road, Pagham) which is to be demolished if the proposed development goes ahead. The surveyors reported that the bat roosting potential of the bungalow and the timber scout hut, which will also be demolished, was negligible. Trees on the site were also assessed as having a negligible potential for bat roosting. It appears that the World War II pill-box was not checked for evidence of, or potential for bat use, during the Aspect Ecology bat surveys.*
 - 1.4.3 *The Parish Council is concerned that the destruction of some features on this site would represent a significant loss of wildlife habitat for the village, which is largely surrounded by large, open, arable fields of little wildlife value and areas of already dense housing. Although it is understood that the developers propose to minimise impacts on wildlife and create some new habitat, the Parish Council is concerned that the assessments carried out, to date, do not adequately address the impact of the potential loss of existing features. Features offering good habitat for wildlife include the pill-box, as well as the tree-lines, drainage ditches and hedgerows, which provide good connectivity for bats and other wildlife. Also of some considerable wildlife value is the area of semi-improved grassland and scrub, sheltered by tree-lines and hedgerows.*

- 1.4.4 As well as the large number of bat passes recorded over the site in 2014, Aspect Ecology ecologists also reported finding a small population of common lizard (*Lacerta Zootoca vivipara*), a moderate population of slow-worm (*Anguis fragilis*) and a number of farmland birds, such as bullfinch (*Pyrrhula pyrrhula*) and yellow-hammer (*Emberiza citrinella*).
- 1.4.5 Bat species recorded by Aspect Ecology surveyors in 2014 included large numbers of passes from common pipistrelle (*Pipistrellus pipistrellus*) and soprano pipistrelle (*Pipistrellus pygmaeus*), significant numbers of passes from noctule (*Nyctalus noctula*) as well as unidentified “big bats” and small numbers of passes from the rarer Nathusius’ pipistrelle (*Pipistrellus nathusii*). Over the Aspect Ecology survey period, bats were recorded commuting/foraging along the tree-line at the north of the site, along the tree-line at the west of the semi-improved grassland, close to the WWII pill-box and close to the scout hut.
- 1.4.6 The Parish Council is also concerned that no mention was made of any inspections of a 2nd World War pill-box on the site, which is proposed for demolition under the development plans. Aside from historical concerns, this type of structure can be used by hibernating bats. Accessible underground features such as this can be invaluable to local bats, particularly when situated on a sheltered tree-line/hedgerow and alongside a small water-way.
- 1.4.7 During the February 2017 daytime survey, Batbox Ltd surveyors checked the exterior of the scout hut for evidence of bat use, such as bat droppings on walls and on the ground below possible roost entrances, where accessible, although it should be noted that droppings left on the exterior of buildings, from summer roosting, are likely to have been washed away by wind and rain, by winter months. Binoculars were used to check features at higher levels. Potential bat roosting places and access points were noted and the surrounding habitat was assessed for the likelihood of bat activity.
- 1.4.8 A search of the World War II pill-box was carried out, using a torch to check crevices, etc. The potential for bat roosting and/or hibernating was noted.
- 1.4.9 A brief assessment was also made of trees and hedgerows surrounding the site and of the bungalow to be demolished under the terms of the proposal.
- 1.5 The results of the February 2017 Batbox Ltd bat survey were reported as follows:
- 1.5.1 *The Scout Hut (B1 on the Aspect Ecology report plans)*
The interior of the scout hut was not accessed during this survey. This timber structure was described as having a ‘negligible’ potential for roosting bats during the Aspect Ecology survey. However, Batbox Ltd surveyors noted a small number of features which might be used by roosting bats, including gaps under the gable end fascias and holes in the timber cladding, leading to cavities between construction materials. Although the potential for bat use might still be described as low, it is considered possible that bats will roost in the structure at some times during the year and it is advised that a bat emergence check should be carried out at an appropriate time, when bats become active.
- 1.5.2 *The World War II ‘Pill-box’*
This structure is in a sunken position close to the drainage ditch and is surrounded by small trees and scrub. Although attempts have been made to secure the entrance, fences have been damaged or moved and it is clearly subject to some disturbance. Bats have been discovered hibernating in pill-boxes, such as this one, which is in an ideal location for bat use. With some minor modifications (such as the fitting of a security door with bat access point and refuges for bats), this building could be enhanced for bat use. No bats were seen during this search, but it is considered possible that bats may be using the structure at some times during the winter months. It is recommended that this structure is protected and that appropriate advice is sought from bat specialists on enhancement measures.
- 1.5.3 *Trees and Hedgerows*
Trees, hedgerows and scrub on the site offer little bat roosting potential. However, the previous survey demonstrated that local bats, of several species, make extensive use of the linear features for

commuting and foraging. With the surrounding area comprising very large, arable fields - possibly subject to extensive pesticide use - and by areas of fairly dense housing, the western most part of this site is likely to provide a valuable foraging resource for local bats, as well as birds and reptiles. Because the previous bat activity surveys were undertaken several years ago, it is recommended that these surveys are repeated and updated.

1.5.4 The Bungalow (B2 on Aspect Ecology report plans)

This building was searched, internally and externally, for evidence of bat use in 2016, by Aspect Ecology ecologists, who found no evidence of bat use and stated that 'it is considered that this building offers no more than very minor potential for use as an occasional summer night roost by a low number of bats'. However, no bat emergence check has been carried out during the surveys and it is recommended that an emergence check is undertaken, at an appropriate time of the year, if this building is to be demolished under the development.

1.5.5 Overall Conclusions (Feb 2017)

In conclusion, Batbox Ltd bat consultants are in broad agreement with Pagham Parish Council that some features of this site offer good wildlife habitat, which is in short supply in the local area. Features of note are the area of semi-improved grassland, bordered by tree-lines, hedgerows, drainage ditches and scrub and the sheltered World War II pill-box, which offers bat hibernation potential. We would recommend that further ecological surveys are undertaken, during the summer months, to update information on bat activity on the site and that consideration is given to opportunities to protect the most significant wildlife habitat areas.

2. Dusk Emergence Check/Bat Detector Survey – Methodology

2.1 On the evening of 21st April 2018, surveyors from Batbox Ltd re-visited the site to establish suitable positions to watch for any emerging bats and to decide upon a route for walked transects.

2.2 The surveyors returned to the site on the evening of 22nd April. At dusk, bats' emergence time, the two surveyors were positioned as follows:

Surveyor 1: On the field junction close to the WW2 pill-box – D P King

Surveyor 2: To the west of the timber scout hut – S L Wright

The surveyors then patrolled the site boundaries, as shown on the attached plan.

2.2 The surveyors used Batbox Griffin time-expansion recorders to record bat echolocation calls and to identify any bats heard to species level, where possible. Recordings were made for later computer analysis with BatScan software. Prior to bats' emergence time, the surveyors used bat detectors to listen for pre-emergence 'chatter', sometimes heard from bat colonies before they leave their roosts.

2.3 The activity survey was undertaken on a dry, relatively calm and clear evening, following a warm and sunny day. The preceding week had been unseasonably warm, but temperatures had dropped following heavy rain on the night of the 21st. The temperature was 14°C at the start of the survey period. Although somewhat early in the season, conditions were considered to be suitable for bat activity.

2.4 The evening emergence check/bat detector survey started at 19:45. Sunset was at 20.08.

3. Evening Emergence Check and Bat Detector Survey – Results

- 3.1 Six bat species were recorded during this walked transect survey. The greatest level of activity was from pipistrelles, which were recorded throughout the survey period, foraging and commuting along tree-lines. The earliest pipistrelles recorded by Surveyor 2 were in the parking area near to the scout hut, where constant activity was heard. The bats started to arrive at this part of the site at around half an hour after sunset, seemingly from roosts nearby – possibly just to the south east of the site. These were both 45kHz pipistrelles and 55kHz pipistrelles. At the same time, Surveyor 1 recorded both 45kHz and 55kHz pipistrelles foraging along the open field boundaries. Pipistrelles were also very active, a short time later in the survey period, in the sheltered north west section of the ‘scout’ field. Surveyor 1 also recorded small numbers of passes from the following species: Nathusius’ pipistrelle, serotine (*Eptesicus serotinus*), long-eared bat (*Plecotus* sp.) and barbastelle (*Barbastella barbastellus*) – a very rare bat with added legal protection. These were recorded along the northern boundary of the open field. An unidentified bat, probably a long-eared bat, was seen but not recorded, close to the small stream beside the WW2 pill-box. Long-eared bats have very quiet echolocation calls and may be under-recorded during bat detector surveys.
- 3.2 Bats recorded are shown in the table below: (Note, where bat activity is continuous and considered most likely to be from the same individual bats, not all passes are recorded.)

Surveyor	Time	Species	Activity
Surveyor 1	20:39 - 20:49	55kHz pipistrelle (<i>Pipistrellus pygmaeus</i>)	Along south side of open field
Surveyor 1	20:45 – 20:56	45kHz pipistrelle (<i>Pipistrellus pipistrellus</i>)	Regular passes - Foraging along boundary behind industrial estate
Surveyor 1	21:01 – 21:02	45kHz pipistrelle	Several bats flying together along north boundary of open field
Surveyor 1	21:03	45kHz & 55kHz pipistrelle	5 x 45kHz & 55kHz pipistrelles foraging together over flood in SE field corner
Surveyor 1	21:06	45kHz pipistrelle	Foraging near gardens of houses on E side of field
Surveyor 1	21:08	55kHz pipistrelle	Social calls, E side of open field
Surveyor 1	21:08 – 21:11	45kHz & 55kHz pipistrelles	At N E corner of open field
Surveyor 1	21:10	Nathusius’ pipistrelle (<i>Pipistrellus nathusii</i>) with 45kHz & 55kHz pipistrelle	At N E corner of open field
Surveyor 1	21:14	Possible Nathusius pipistrelle	Along N side boundary of open field

Surveyor 1	21:16 – 21:21	45kHz pipistrelle	Along N side boundary of open field
Surveyor 1	21:22	Serotine (<i>Eptesicus serotinus</i>)	Distant pass, N side boundary of open field
Surveyor 1	21:23	Long-eared bat (<i>Plecotus sp.</i>) with 45kHz pipistrelle	Toward NE of N boundary of open field
Surveyor 1	21:24	Barbastelle (<i>Barbastella barbastellus</i>)	Toward NE of N boundary of open field
Surveyor 1	21:25	45kHz pipistrelle	2 x bats at NW of open field
Surveyor 1	21:25 – 21:31	45kHz pipistrelle & 55kHz	Passes on w side of 'scout' field
Surveyor 1	21:34	45kHz pipistrelle	Pass near scout hut
Surveyor 2	20:38 – 20:47	55kHz pipistrelle	V. regular passes – 5+ bats commuting and foraging around parking area near scout hut & site entrance
Surveyor 2	20:42	45kHz pipistrelle	Fairly regular passes, bat commuting and foraging around parking area near scout hunt & site entrance
Surveyor 2	20:48 – 20:59	45kHz pipistrelle	Occasional passes along east side of 'scout' field & regular passes in sheltered area at N of 'scout' field
Surveyor 2	21:02 – 21:06	45kHz & 55kHz pipistrelle	Flying around parking area
Surveyor 2	21:02	Probably long-eared bat	Seen, not recording near to WW2 pill-box
Surveyor 2	21:05 – 21:24	45kHz & 55kHz pipistrelle	Regular passes in clearing at N of 'scout' field

3.3 Bats Recorded during this Survey:

- 45kHz (or common) pipistrelle (*Pipistrellus pipistrellus*) is considered to be common and widespread in the UK.
- 55kHz (or soprano) pipistrelle (*Pipistrellus pygmaeus*) is also considered to be common and widespread in the UK. Pipistrelles are often found roosting in buildings, but may also roost in trees.

- Nathusius' pipistrelle (*Pipistrellus nathusii*) is infrequently encountered and was considered to be a vagrant species in the UK until recent years. It is now known to be a frequent migrant and sometimes resident.
- Long-eared bat (*Plecotus sp.*) The brown long-eared bat (*Plecotus auritus*) is considered to be common and widespread in the UK. The grey long-eared bat (*Plecotus austriacus*) is very rare and largely confined to the south coast of Britain. As yet, it is not possible to distinguish brown long-eared bats from grey long-eared bats by echolocation calls.
- Serotine (*Eptesicus serotinus*) This large bat roosts almost exclusively in buildings. Although relatively common in the south of England, the species is not considered to be widespread throughout the UK.
- Barbastelle (*Barbastella barbastellus*) is a rare woodland bat, It is included in Annex II (and IV) of the EU Habitats and Species Directive, and hence requires special measures for conservation including designation of Special Areas for Conservation.

4. Survey Constraints

- 4.1 This survey was carried out somewhat early in bats' active season. However, the emergence survey was undertaken in suitable weather conditions for bat activity, after a period of rising temperatures.
- 4.2 Only this single bat activity survey has been carried out on the site since the Aspect Ecology surveys in 2014.

5. Conclusions and Recommendations

- 5.1 Six bat species were recorded. Unsurprisingly, greatest activity was from the two most common pipistrelle species (*Pipistrellus pipistrellus* and *Pipistrellus pygmaeus*), which were recorded throughout the survey period, foraging and commuting along tree-lines. These bats started to arrive at the site at around half an hour after sunset, seemingly from roosts nearby. With significant numbers of individuals of both species, it is considered very likely that breeding colonies of each are gathering at their maternity roosts, very close to this site and that this site provides an invaluable foraging area for them. Maternity roosts are most likely to be at the south of the site, where larger aggregations of bats were recorded, early in the survey period.
- 5.2 Also recorded were small numbers of passes from the following species: Nathusius' pipistrelle, serotine (*Eptesicus serotinus*), long-eared bat (*Plecotus sp.*) and barbastelle (*barbastella barbastellus*) – a very rare woodland species. These bat passes were recorded towards the N W of the site and may have been foraging/commuting along the small, tree-lined stream which passes through the site.
- 5.3 It is therefore concluded that bat activity on this site is relatively high, at least at this early stage in the season. Bats of six species were recorded, with almost constant activity from fairly significant numbers of both the two common pipistrelle species. Although only a single dusk bat activity has been undertaken by Batbox Ltd, bats of four other species were identified foraging and commuting around the site during the evening, implying that this area is of local importance to bats, especially given its position surrounded by large arable fields and built up areas.

- 5.4 It is recommended that further activity surveys are undertaken to establish the level of use by bats throughout the active season. Although pipistrelles do not avoid lit areas and can be found feeding around street lamps, both long-eared bats and barbastelles are considered to be light-averse and therefore more sensitive to development.
- 5.5 Because barbastelles are very rare and have been the subject of radio-tracking studies in the south east of England, it is also recommended that a further desk study is carried out in order to establish whether the individual recorded, on this site, was using a known commuting route between roosts and foraging areas.
- 5.6 Comparison studies could also be undertaken, to ascertain the relative abundance of bats and suitable bat habitat in the surrounding area. This would allow a better assessment of the importance of the site and the likely impact of the proposed development on the local bat population. Consideration can then be given to opportunities to protect the more significant wildlife habitat features from development.

* Collins, J. (ed.) (2016) Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edn). The Bat Conservation Trust, London. ISBN-13 978-1-872745-96-1

** *Aspect Ecology report – ‘Ecological Appraisal’, Project No. ECO-3697 ‘Land North of Sefter Road, Pagham, Bognor Regis’ dated 07/12/2016*



Map of Proposed Site

Route of surveyor 1  Route of surveyor 2  Start point Svyr. 1  Start point Svyr. 2 

- ★ 45kHz & 55kHz pipistrelles (*Pipistrellus pipistrellus* & *Pipistrellus pygmaeus*) – (large stars, peak activity)
- ☆ Long-eared bat (*Plecotus* sp.)
- ✧ Barbastelle (*Barbastella barbastellus*)
- ☆ Serotine (*Eptesicus serotinus*)
- ☆ Nathusius pipistrelle (*Pipistrellus nathusii*)

Land North of Sefter Road, Pagham, West Sussex – Photographs



The timber scout hut and parking area (SW of site)



The small stream crossing the site



The open field and distant boundary to north



The entrance to the WW2 pill-box

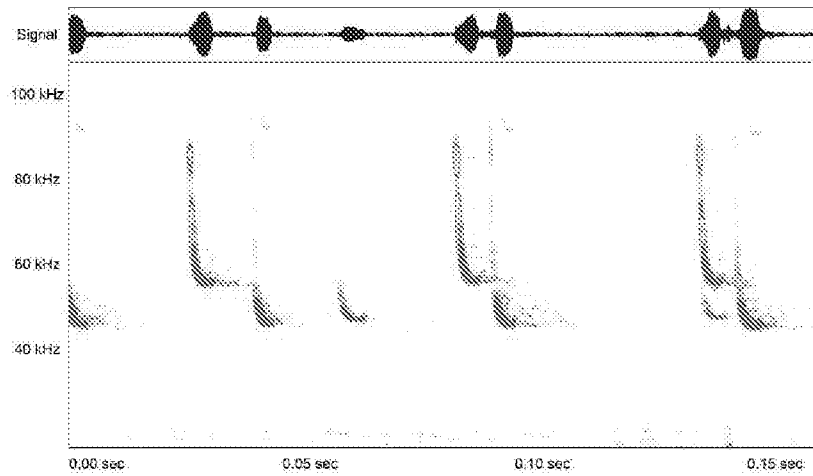


The sheltered area at north of the 'scout' field

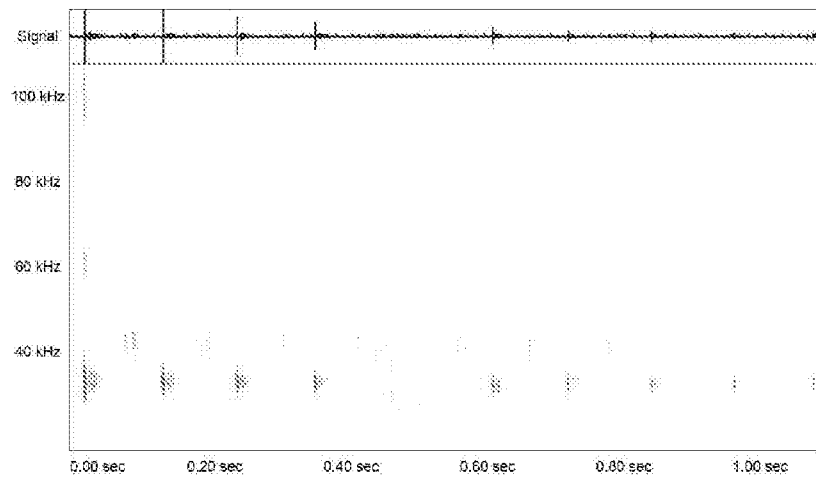


Trees & the semi-improved grassland in the scout field

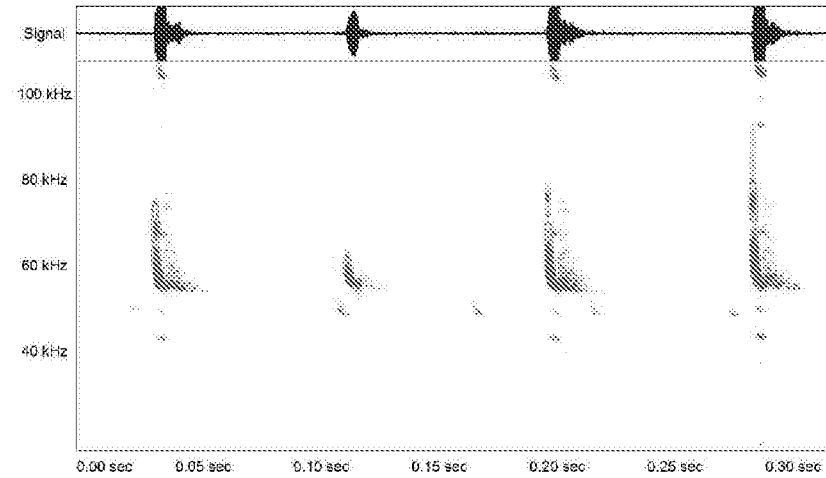
Land North of Sefter Road, Pagham, West Sussex – April 2018 – Bat Sonagrams



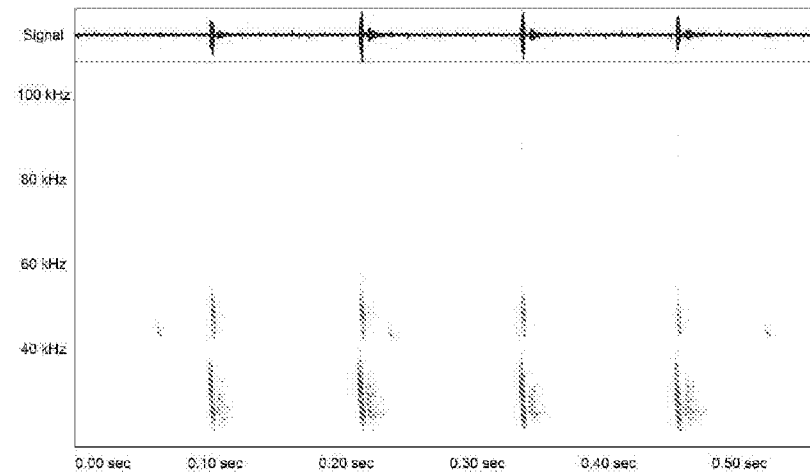
2 x 45kHz pipistrelle (*Pip. pipistrellus*) & 1 x 55kHz pipistrelle (*Pip. pygmaeus*)



Barbastelle (*Barbastella barbastellus*)



45kHz pipistrelle, 55kHz pipistrelle & Nathusius' pipistrelle (*Pip. nathusii*)



45kHz pipistrelle & long-eared bat (*Plecotus* sp.)

Review of housing site P 6 I7 OUT Hook Lane

09 April 2018

LANDSCAPE EVIDENCE BASE

ON BEHALF OF PAGHAM PARISH COUNCIL.



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LANDSCAPE COMMENTS

1. Introduction

The Terra Firma Consultancy have been instructed by Pagham Parish Council in April 2018 to prepare a critique and assessment of the landscape evidence given in the Landscape Visual Impact Assessments and Masterplan / Landscape Framework Strategies submitted by the applicant relating to one of four housing allocation sites situated along the northern edge of the settlement of Pagham, West Sussex.

2. Purpose of comments

This Statement is a technical report in support of Pagham Parish Council's Representations.

A statement has been prepared for each site basis and should not be viewed as a comparison or cumulative impact exercise.

The Statement concludes with an opinion on the implications for landscape character.

This statement sets out:

1. Introduction
2. Purpose of comments
3. Documents reviewed
4. A review of Landscape Character and context
5. Relevant LCA and LCT. Special qualities and sensitivities.
6. Site observations
 - Key landscape features – indicators of character, condition and value
 - Other considerations
7. Development Proposals
 - Landscape Capacity (Landscape Condition, value and sensitivity)
8. Impacts arising from development
 - LVIA Methodology
 - Implications for landscape attributes and views
9. Comment on masterplan design, mitigation proposals and extent of development
 - Predicted effects
 - Layout
 - Views
 - Mitigation
10. Summary / Conclusion

3. Documents reviewed

Outline submission

Landscape and Visual Impact Assessment prepared by Urban Wilderness (January 2017)
Landscape Masterplan Option A and B, drwg 167/P/003 rev D
Development Framework drwg 167/P/006 Rev D

Reference publications

Landscape character assessments of West Sussex and Strategy for the West Sussex Landscape (2003), West Sussex County Council,
Sussex Historic Landscape Characterisation (HLC), August 2010
Arun Landscape Study (2006) by Hankinson Duckett Associates (2006) and Landscape Character and Capacity and LCT figures.
Arun District Council landscape Character Plan (2006)
Arun District Adopted Local Plan (2003-11)
Emerging Arun Local Plan 2011-2031
SPG: Open Space and Recreation Standards, Arun District Council
Draft Pagham neighbourhood Plan (2014-2029)
Pagham Village Design Statement (PVDS), November 2007
Arun Green Infrastructure Study (AGIS)
Green Infrastructure Study and maps by parish (June and Nov 2012) by Arun DC, Arun District Council
Open Space sport and recreation study by PMP March 2009.

Other relevant documents

Provisional Regional Agricultural Land Classification map (AL007) by Natural England and TIN049 Technical Note.
RSPB Pagham Harbour Local Nature Reserve Management Plan (2013-2018)
Sussex Black Poplars Partnership, Sussex Wildlife Trust

4. A review of Landscape character and context

National, County and District level landscape character assessments relevant to this site are given below:

	Publication	Application P_6_17_OUT Hook Lane
National	National Character Assessment by Natural England	NCA 126 South Coast Plain.
County	Landscape character assessment of West Sussex, and Strategy for the West Sussex Landscape (2003), West Sussex County Council	LCA SC9 Chichester to Yapton Coastal plain
District	Arun Landscape Study – Landscape Character types (LCT)	- L2 Medium / small scale arable (covers the site). - The adjacent landscape is identified as L1b (large – scale open arable) to north and V5a (medium to large-scale rife landscape) to west.

County	Sussex Historic Landscape Characterisation (HLC), August 2010	- HLC Type: Informal fieldscapes; modern field amalgamation; post medieval to modern. Abundant. Modern field rationalisation or amalgamation is identified by 50% or more of lost boundaries, creating large fields. Fields often retain some of the historic characteristics of the enclosed form they originated from; this is often evident from the external boundaries. - In NW corner Settlement; HLC Type historic dispersed, small farmstead / cottage; post medieval and woodland regenerated scrub.
District	Arun Landscape Study – Sensitivity, Landscape Value	- Landscape Structural Zone Analysis Zone 1. LCA 6 Rose Green Coastal Plain: Landscape Sensitivity = Slight. Landscape Value = Slight.
District	Arun Landscape Study – Landscape Character Area (LCA) and its Landscape Capacity (based on sensitivity and landscape value)	<i>LCA 6 Rose Green Coastal Plain - landscape capacity is high. 'Rose Green Coastal Plain (LCA 6). Open arable landscape on coastal plateau adjacent to existing settlement, hard edge, no intervisibility with Chichester'.</i> This is a landscape character area of low sensitivity and low landscape value which, from a landscape perspective, could accommodate significant allocations of development, subject to having regard for the setting and form of existing settlement and the character and sensitivity of adjacent landscape character areas.
Local	Green Infrastructure network for Pagham Parish. Arun DC	- Green Infrastructure corridor (GIC) and within Strategic Gap and West Bognor Regis GI Corridor. - No Key GI assets present.

5. Relevant LCA and LCT - Key Characterises and sensitivities

i. County Level: Landscape Character appraisals

Reference documents: Landscape character assessment of West Sussex, and Strategy for the West Sussex Landscape (2003), West Sussex County Council. Landscape character assessment identifies 42 unique areas across West Sussex and provides land management guidelines for each character area. The site falls within SC9 Chichester to Yapton Coastal plain.

SC9 Chichester to Yapton Coastal plain
Description This Character Area extends from Chichester in the west to the edge of the Arun Valley in the east, and around Bognor Regis to the south. Over time a large part of this area has been reclaimed from the sea, and remains below the current high spring tide level. It comprises a mainly flat, open landscape crossed by meandering rife. Dominated by highly productive arable fields and modern farm buildings, it has a fragmented hedgerow and hedgerow tree pattern. The spire of Chichester Cathedral is a widely visible feature.

Key landscape characteristics and sensitivities

- Low lying flat open landscape.
- Meandering rife and straight drainage ditch systems, with associated unimproved grassland and edged by reed beds.
- A low density of hedgerows and hedgerow trees with occasional shelterbelts.
- Scattered, historically nucleated villages with mixed building materials of flint, brick, half timber and stone.
- Large farmsteads along roads, and on dead-end tracks.
- Long views to Arundel, the Downs and to the distinctive spire of Chichester Cathedral.
- The relatively open character of much of the area allows long views so that village church towers are important landmarks in views.
- The urban fringes associated with Bognor are particularly obvious.
- Important medieval churches with spires which distinguish this otherwise flat landscape.
- Large regular fields, mostly the product of Parliamentary enclosure.

Key visual characteristics and sensitivities

- Key views to the South Downs, Chichester Cathedral
- Fragmentation and loss of hedgerows and connections between hedgerow and woodland.
- Replacement of mature treescape.
- Changes in drainage patterns.
- Development on settlement edges of Bognor
- Loss of distinction between different settlements due to urban expansion.
- Changes in transport infrastructure due to urban development pressures.

Key Landscape issues

- Urban development pressures, especially in the gaps between settlements
- Major road improvements.
- Loss of mature elm trees in the 1970's and 1980's due to Dutch Elm disease.
- Loss of floodplain and wet woodland due to changes in agricultural drainage practices.
- Loss of tree and hedgerow cover from agricultural intensification since World War II.
- Management and possible realignment of sea defences due to predicted sea level rises will have significant implications for landscape over the coming decades.

Guidelines for Development

- Create a new, large scale tree and hedgerow framework which complements the open intensively farmed landscape, whilst maintaining significant views of Chichester Cathedral, the South Downs and local features.
- Maintain and strengthen field boundaries such as hedgerows and shelterbelts.
- Link up existing remnant hedgerows and tree lines to re-establish coherent field boundaries and wildlife corridors.
- Encourage a full tree survey of the area with a view to conserving and managing existing feature tree groups and individuals.
- Establish landscape management plans for urban edges, notably Bognor Regis, to enhance the distinction between the urban and rural landscape.
- Restore and strengthen the landscape of the gaps between settlements.
- Encourage landscape enhancements around villages and on their approaches.
- Establish new vegetation features by the planting of hedgerows and tree clumps in field corners and along roadsides, especially those approaching settlements.
- Encourage the planting of shelter belts around horse paddocks, using native species, to give visual and wildlife benefits.
- Promote sympathetic design of new road schemes, particularly associated with transport infrastructure for Bognor Regis.
- Restrict extensive areas of tree planting to poorer quality agricultural land.
- Maintain and enhance the landscape and biodiversity of rifes and other existing habitats. Reprofile banks and encourage more diverse flora by lengthening clearance cycles.
- Enhance the visual prominence of rifes through the establishment of waterside vegetation features.
- Maintain, restore and enhance floodplain woodland and associated species, including native black poplar, where appropriate.

ii. District Level: Landscape Character appraisals

Reference documents: Arun Landscape Study, Technical Appendices Table A: Landscape Character Assessment Hierarchy, Table B: Local Landscape Character Types. Arun District Council commissioned this study in 2006 to assess the physical and environmental constraints on development of green field land in the District with a view to identifying the capacity of the Arun District landscape to accommodate future development.

LOCAL LANDSCAPE CHARACTER AREA: No. 6 Rose Green Coastal Plain

County Landscape Character Area: C1 Chichester to Shoreham Coastal Plain
C. Lower Coastal Plain
C1. Chichester to Shoreham Coastal Plain

Wider Context

- Low-lying flat, open landscape
- Meandering rifes and straight drainage ditches
- A low density of hedgerows and hedgerow trees with occasional shelterbelts
- Large-scale arable farming and market gardening
- Scattered, historically nucleated villages with mixed building materials of flint, brick, half-timber and stone.
- Large farmsteads along roads and on dead-end tracks
- Long views to the Downs and to the distinctive spire of Chichester Cathedral

Description
Arable fields bisected by B2166. Heavy urban influence from Bognor which abuts to the south.
Key landscape characteristics and sensitivities
Large open arable field with insignificant boundary vegetation. Paddocks in corners of fields adjacent to Bognor.
Key visual characteristics and sensitivities
None given
Key settlement characteristics and sensitivities
None given
Landscape Sensitivity
SLIGHT for reasons below: • Inherent Landscape Qualities (intactness and condition): Open arable, no Landscape features. • Contribution to distinctive settlement setting: Agricultural fields abut hard urban edge. • Inconsistency with existing settlement form / pattern: On coastal 'plateau', adjacent to settlement. • Contribution to rurality of surrounding landscape: Open, urban edge • Contribution to separation between settlements: No intervisibility with Chichester.

iii. Local Level Landscape Character appraisals

Reference documents: Arun Landscape Study, Table C: Local Landscape Character Areas – Summary Description. Site specific and local level given based on the WSCC SC9.

GROUP L: COASTAL PLAIN LCT L2 Medium small scale arable
Description
Intensive arable farmland
Key landscape characteristics and sensitivities
Medium-small fields across relatively flat or gently undulating landform Field boundaries include ditches, fencing, hedges
Key visual characteristics and sensitivities
Greater sense of enclosure as compared with large-scale arable farmland (L1)
Key settlement characteristics and sensitivities
None given

6. Site Observations

The site is 17.2 ha in size and lies along the north of Nyetimber / Pagham. The site is enclosed on three sides by roads. To the east of the site and housing overlooking Hook Lane defines the settlement edge, beyond which the small scale field pattern edged by mature hedgerows and field trees gives a sense of enclosure. This sense of enclosure, continuous hedges and irregular field pattern extends to the west and north.

The site contains many features that contribute to the landscape defined in the NCA 126 South Coast Plain and LCA 6 Rose Green Coastal Plain.

While the national, broad scale assessment of the NCA 126 South Coast Plain gives a good indication of the wider character its relevance is limited. For smaller sites that involve

developments of the type proposed it is more instructive to consider the specific attributes that define the landscape character at a more localised level.

Fieldwork has indicated that landscape sensitivities and development considerations contained within two other assessments: LCA SC9 Chichester to Yapton Coastal plain and LCT L2 (Medium / small scale arable) should be considered.

iv. Key Landscape features - indicators of character, condition and value

The following key characteristics of landscape character have been noted on the site, and against which the landscape and visual effects should have been judged.

The key attributes are:

Land use

- Evidence of past livestock grazing and productive arable production.

Field pattern

- Medium-small agricultural field pattern. Similar in size and character to fields extending to the north.
- Internally crop / grassland dominates with structural vegetation absent.
- Field pattern reinforced by hedgerow boundaries
- Single ditch crossing the site forms an integral part of the field system and wider drainage system linked to Pagham Harbour.

Soils

- Grade 2 (very good) agricultural land.
- Heavy clay prone to waterlogging

Topography and Drainage

- Generally flat between 5-6m AOD. A single ditch crosses the site.

Trees and vegetation

- Along Hook Lane the hedge boundary treatment becomes fragmented with a mix of post and barbed wire fencing and traditional Sussex rail fence the dominant (and visually permeable) treatment.
- Along the grass verge of Pagham Road, mature hedge and field trees creates a sense of enclosure and contribute strongly to the lanes distinctive rural character.

Views

- Limited and distant views of the South Downs hills to the north from footpath on Hook Lane.
- Along Pagham Road the continuous, well maintained vegetation provides a high degree of enclosure to two sides of the site, limiting views across the landscape to the west.

Access - Public Rights of Way and adopted footpaths

- Footpaths across the site are absent. A single highway adopted footpath runs parallel to the site boundary along Hook Lane. No public access (other than a layby on Sefter Road) exists around the site boundary to the north and west.
- A footpath along the edge of the caravan site a short distance to the south, enables residents close to Hook Lane and Nyetimber to easily access open countryside.
- This limited footpath network is likely to result in a limited number of public places from which the site and development will be visible from.

Listed Buildings and Cultural Heritage Assets

- No listed buildings present on the site. The site does not contribute to the landscape setting to any listed buildings, Scheduled monuments or Registered Parks and Gardens.

v. Other considerations

Influence of adjacent / sensitive landscape character areas (Pagham Harbour Local Nature Reserve)

- The site does not meet the reserve boundary, however the boundary of the reserve (compartments 6.10 and 6.13) and boundaries of Pagham Harbour SPA, SSSI and Ramsar are within close proximity to the site and within walking distance.

7. Development proposals

Development of Land North of Hook Lane Pagham:

Outline application with some matters reserved for construction of up to 300No. new homes, Care home of up to 80No. beds, D1uses of up to 4000sqm including a 2 form entry Primary School, formation of new means of access onto Hook Lane & Pagham Road, new pedestrian & cycle links, the laying out of open space, new strategic landscaping, habitat creation, drainage features & associated ground works & infrastructure. This application is a Departure from the development plan.

i. Landscape Capacity

Definition:

'Landscape capacity is defined as the extent to which a particular area or type of landscape is able to accommodate change without significant effects on character; or overall change in landscape type. It reflects the inherent sensitivity of the landscape itself and its sensitivity to the development in question; and the value attached to the landscape, or to specific elements within it'. Arun Landscape Study.

In relation to this study:

- *a medium, low or negligible rating for landscape capacity indicates that development would have a significant and detrimental effect on the character of the landscape as a whole and, or, on the setting to existing settlement or outstanding assets within the District.*
- *A rating of Medium/High or High/Medium identifies a landscape character area with the capacity for limited development, in some areas, having regard for the setting and form of existing settlement and the character and sensitivity of adjacent landscape character areas.*
- *High or very high capacity identifies landscape character areas of low sensitivity and low landscape value which, from a landscape perspective, could accommodate significant allocations of development, subject to the same caveats set out above for landscape character areas with High/Medium capacity.*

Based on other appraisal findings we would not agree with the Landscape Capacity Study and LVIA that this landscape character area is of low sensitivity and low landscape value which, from a landscape perspective, could accommodate significant allocations of development.

The relevant point here is that development should *"have regard for the setting and form of existing settlement and the character and sensitivity of adjacent landscape character areas."* This is dealt with below.

ii. Landscape Condition

We would agree with the LVIA that the overall landscape condition is 'fair' based on the criteria for landscape condition (Table 2 9). Some sign of erosion of character and management evident.

iii. Landscape Value

There is a concern over the lack of justification given regarding the LVIA establishing landscape value, which in turn determines the overall landscape sensitivity.

Landscape value is defined in the LVIA based on GLVIA (20013, p80) states:

"...the relative value that is attached to different landscape by society, bearing in mind that a landscape may be valued by different stakeholders for a whole variety of reasons....Landscape or their other component parts may be valued at the community, local, national or international levels."

The weight of local opinion and values attached to this landscape (and specifically the site) is clearly given within the Pagham Village Design Statement (PVDS). The value attached to this landscape and place by the local community and its characteristic features, such as trees, places to sit and enjoy the surroundings and local walks that may not be immediately obvious.

Whilst the site lacks a landscape-related designation and listed buildings, this does not necessarily mean the site (and LCA) is without value. To use only 'rarity of landscape' and designations as a basis for determining value and not give sufficient weight to the strength of opinion of the local population.

Pagham Village Design Statement (PVDS) indicates this is a landscape and field that is highly valued by the local community. The PVDS identifies (para. 3.16 and 3. 23) the landscape (and specifically including the site) is highly valued. The site therefore appears to form part of a locally valued landscape worthy of protection under NPPF paragraph 109. Combining a higher landscape value with 'fair' landscape condition would have a notable effect on the overall judgement of sensitivity.

The ability to appreciate the wider views and field by local residents on a daily basis should be given further consideration. The Low landscape value should be questioned.

iv. Landscape Sensitivity

For the reasons given above in determining landscape value it is not possible to entirely agree with the statement indicating the site, its immediate surroundings and that of LCA 6 is of low sensitivity.

8. Impacts arising from Development

Based on a review of the development reports, illustrative masterplans, frameworks and Landscape Visual Impact Assessment (LVIA), our thoughts and comments are as follows:

i. LVIA Methodology

The assessment methodology and criteria for determining the effects and the resulting level of significance is at times difficult to understand (relying on judgements not fully explained), however in general the appraisal is produced in-line with GLIVA guidance. The lack of a ZTV to inform the extent of representative viewpoints is in this instance less of an issue. Views of the site are generally limited, but with views to the north. There is a lack of information given regarding the landscape opportunities and constraints. A link between this and the masterplan layout should be more evident, to justify decisions being taken.

The appraisal refers to the key characteristic NCA 126 and in particular LCA 6 identified within the Arun landscape Study. However there is a missing reference to West Sussex County Council's landscape character assessments of SC3, SC4 and SC9 and LCT L2 which all contain useful guidance on landscape key characteristics, value, and sensitivities.

ii. Implications for landscape attributes and views

- a) Maintaining 'open' farmland, a characteristic attribute of the Strategic gap - Development would undermine the physical and visual separation of settlements.
- b) Views of the South Downs hills and important building landmarks - The masterplan layout does not preserve the view to the north, a key characteristic of LCA 6 and SC9. The development layout will entirely remove the open-field views and countryside setting of Hook lane.
- c) Providing access into the site will necessitate the removal of the hedge along Pagham Road to accommodate visibility splays and potential new signage increasing urbanisation along what is a rural and attractive route, border on both sides by mature hedges. The magnitude of this effect has received limited mention and may be greater than appreciated.
- d) The coastline provides feeding grounds for internationally protected populations of waders and wildfowl. (p6). Arable fields provide vital feeding grounds and any subsequent loss of fields and grazing, particular within SSSI influence zones would be detrimental and considered in the consideration of landscape value.
- e) NCA 126 (SE03) identifies the need for development to '*reduce the amount of nutrients entering the harbour of Pagham; and that new development should seek to incorporate the best possible waste reduction measures including Sustainable Drainage Systems (SuDs)*'. Two eco-system services dominate; that of regulating water quality, diffuse pollution which has the potential if not dealt with on site through filtration and SuDs measures to affect the internationally protected Pagham harbour, and the need for provide on-site flood storage capacity. The concern is the attenuation areas shown in the masterplan appear to be more 'indicative' and not convincing in terms of the actual spatial requirement and practicalities.

Therefore the magnitude of effects given in the LVIA are not entirely a true reflection as cannot be accurately determined until further detail on the extent and treatment applied to hard surfacing, roads and path is provided.

The complete alteration to the characteristic drainage network seen throughout LCA 6 will be lost, albeit provided in a different guise with benefits to biodiversity and GI outweighing the loss to landscape character.

- f) NCA 126 acknowledges grassland and hedges as a vital resource vital to a landscape character dominated by crop production. The presence of this habitat and any loss on the site should be reflected in the landscape value and magnitude of change and mitigation measures incorporated. It is doubtful that this has been recognised.
- g) Whilst the masterplan seeks to reinforce and restore missing attributes of landscape character NCA 126 in line with opportunities to improve the landscape (SE04), developing the site is against its a key principle, that of “restoring the traditional field patterns of the rural peninsular, through the replacement of lost hedgerows and improvement to the condition of existing hedgerows through replanting gaps”.
- h) Within this NCA the proportion of grade 2 agricultural land is 25%, second only to urban use. Grade 2 and good quality soils are found predominantly to the east of Chichester harbour and is a contributing factor in the character of this farmed landscape. Although it's a small area the productive nature should still be a factor and recognised. Any loss of this valuable resource should be avoided.
- i) Development will include stripping and storage of topsoil and minor re-profiling on contours. Both operations have the potential to completely alter and damage (if not handled correctly) the natural soil resource, landform and drainage. All attributes of the landscape character.
- j) The tranquillity of this landscape is a notable key characteristic. Tranquillity mapping by CPRE indicates the site has a moderate to high level tranquillity. The increase in traffic movements and noise generated by additional houses and public facilities will have a detrimental effect on perception of a 'quiet, countryside edge'.
- k) PVDS indicates residents have concerns over any development that would result in loss of privacy arising from high density developments. The influx of a new population and the generated vehicle movements created by any development on the site would greatly alter the perception of the countryside, the tranquillity and add pressure to the footpath network and roads leading to Pagham harbour. The lack of connections possible, from a site bounded by roads on all three sides further compounds the ability of the masterplan to deliver alternative, safe walking and cycle routes. For the majority of residents the need to drive from the site will inevitably increase vehicle movement and have a degree of impact on the quality and tranquillity of adjacent Landscape Character Areas.
- l) Relating to the opinion that there will be 'no impact on the wider LCA' (6.45). We would strongly disagree with this statement. The LVIA then goes on to contradict itself by stating *“with regard to impacts at a local level, the character of the LCA will change around the site”, “the existing hedge planted to the north and west limits inter-visibility of the site to the wider landscape”* and as a result *“whilst the character of the site will change the effects of this change on the wider LCA will be limited”*.

Saying the site is invisible and therefore that the development has no effect on landscape character, in this case LCA 6 and NCA126 makes this judgement flawed. The effect on landscape character is not only restricted to whether a site can or cannot be seen. The presence or absence of inter-visibility is only one of the many factors under consideration.

9. Comment on Masterplan design, mitigation proposals and extent of development

Even in areas which are judged of high to medium landscape capacity it is generally acknowledged that their development should still be carefully considered to ensure new development is sensitively integrated in to the wider landscape, ensuring the protection of key landscape characteristics, features and positive views. The relationship between new development proposals and existing settlement patterns is especially important to consider, ideally demonstrating a landscape-led approach and using appropriate mitigation measures to reduce adverse effects as far as practically possible.

The guidance and policy 3 targets taken from the Draft Pagham Neighbourhood Plan (2014-2029) identified in the LVIA are particularly pertinent. We are not convinced that the density of development and extent of green infrastructure in the masterplan meets with the target stating “a significant proportion of any major development should have a feeling of space and a sense of place in the wider landscape, rather than being an extension of urban sprawl” (p17)

i. Predicted landscape effects

Extracted from the LVIA:

- *NCA 126 is of low landscape value and low sensitivity (para. 9.6). Combined with a low magnitude of change and Minor Adverse impact (not significant). The development results in an overall Low Adverse magnitude of change at regional level and a Moderate Adverse magnitude of change at local level.*
- *LCA 6 is low landscape value and low –medium sensitivity. Combined with a Minor to Moderate Adverse magnitude of change equates to a Minor Adverse impact (not significant).*
- *The site is of low landscape value and low sensitivity. Combined with a high magnitude of change equates to a Moderate Adverse impact. The impact of development on landscape character is no more than Slight to Moderate Adverse. (para.9.7)*
- *Overall impacts on landscape character and resources are considered to be of slight adverse significance, once new planting has established. (para . 9.2)*
- *This landscape is considered to have the capacity to accommodate change of the type proposed and to assimilate this development into the landscape with only minor effects in the longer term(para.9.12)*
- *“Only a small part of NCA 126 affected and no key characteristics will be lost” (6.44)*

The summary put forward in the LVIA summarises the landscape impacts at year 0 as a High magnitude of change, leading to **Moderate Adverse** effect. This would be reduced to Minor

Adverse (not significant) by year 15. The impact on the key characteristics of LCA 6 is a negligible impact and overall development will have no effect on the wider NCA 126.

Elsewhere in the LVIA it mentions the alteration imposed by this development on the key characteristics and individual attributes of the site specific, local and national character areas would be '*no more than Slight to Moderate Adverse or less after new planting*'). This contradicts the 'negligible and no effects' comment made above.

ii. Comment

From Fieldwork and reviewing the landscape character appraisals we believe the above statements makes light of the effects on individual and cumulative attributes that contribute in defining the landscape character of NCA 126, LCA6 and SC9.

We also believe the impact of development on landscape character will be greater than Moderate Adverse for the following reasons:

- a) It remains unclear in the report how the 'low sensitivity to change' has been arrived at for NCA 126. This judgment appears to have been made without a given source of published evidence.
- b) It should be acknowledged that the development would result in the loss of a typical arable field, which is a key characteristic and erosion of the wider LCA 6 character.
- c) The appraisal does not identify fully all of the landscape attributes potentially affected by the development, and the magnitude of change incurred. Key characteristics of the WSCC SC9 Chichester to Yapton Coastal plain character area and LCT L2 have not been referred to within the appraisal.
- d) It is not clear from the LVIA if the assessment findings have taken into consideration and appraised the development against other key landscape characteristics, such as:
 - The sense of 'openness' and rural aspect overlooked by the settlement edge,
 - the change to the linear drainage network that is a feature of the characteristic field pattern
 - the alteration of the flat topography,
 - The loss of valuable resources such as productive, quality soils
 - The potential impacts to the tranquillity of SC4 Pagham Harbour resulting from increased visitor footfall and car journeys to and from the site.
- e) The possible in-direct consequences arising from surface water run-off and pollutants entering the drainage system is a concern. It remains unclear if the development proposals will affect adjacent character area of Pagham Harbour.
- f) The specific effects on tranquillity and light pollution arising from the introduction of new highway infrastructure, street signage and street lighting associated with residential and school sports / public buildings has not been specifically mentioned. This should ideally be included in the initial appraisal, with potential issues and predicted impacts designed out within the layout before further forms of mitigation are applied.

- g) It is impossible to agree with the opinion that the scale and type of development could be assimilated into the landscape with **only minor effects in the longer term**.
- h) The proposed increase in tree cover added internally with the masterplan is not in keeping with the character of the area.
- i) The judgement that only minor effects will exit over the long term relies heavily on the assumption that the extent of mitigation planting included within the masterplan, especially the new boundary planting and semi-mature trees will protect the landscape character indefinitely. Large trees for instant impact can be difficult to establish without high levels of input and cost (hence establishment has been known to fail). To ensure any mitigation planting is effective measures through the planning process suitably worded conditions covering maintenance and replacement planting covering the 15 year period (and agreement who would be responsible post construction) would need to be seriously considered.

iii. **Layout - protecting features of Landscape character**

- j) Quality of design and layout - The layout of the development ignores the development criteria set out in the PVDS which calls for a development layout that contributes in a positive way to the overall street scene. The masterplan proposals seek to create a complete separation between the existing settlement edge and the new development along Hook Lane.

No integration or relationship with the road has been made and any adverse visual effects, particular seen from the east is wholly reliant on mitigation planting which is ephemeral, unlikely to be in character, difficult to establish and prone to pressures to remove over longer term. The use of architectural devices and aspect of good urban design should be considered.

- k) The high density of the proposed residential layout and limited external space given to individual properties does not match the surrounding residential setting. This intensification of the existing settlement edge character would be completely altered and noticeable when arriving from the north, south and east.
- l) One of the key characteristic features of the LCA and NCA is the low levels of tree cover across the *“open, exposed coastal plain”*. It goes on further to describe *“in between development and transport links, is a farmed landscape of large open fields with few trees and hedgerows”* (p7). The scale of indicative tree planting within the masterplan is unlikely to be a realistic strategy. Such planting cannot be guaranteed to remain in place opening up views of buildings. Altering the layout to provide more space around the boundaries could ensure new planting intended for screening / mitigation purposes could be well established and retained over the long-term. This might be a better approach?
- m) The masterplan does do not give an indication of the planting strategy or the type of tree species under consideration. The introduction of non-natives and inappropriate species

with the potential to escape the domestic setting and impact on the management of sensitive sites and LNR would be a concern.

- n) The proportion of the site given over to green infrastructure is lower than would be expected, however its inclusion would improve the GI landscape condition and address the ambitions of the Arun Green Infrastructure Plan (2012).

iv. Layout – visibility

The fieldwork, assessment methodology and identification of viewpoints within the LVIA appears sound. The high sensitivity rating applied to assessing the visual effects involving residents and walkers on the public rights of way and footpaths is to be expected.

Statement of Common ground:

- It is apparent that places from which the development may be visible are indeed restricted to positions close to the site, given the limited footpath network.
- Views over open land to the west (PVDS) from Hook Lane are severely limited by hedges and trees along Pagham Road verge and site boundary.
- Protection of views that contain Chichester cathedral (identified as a key feature of the West Sussex landscape character area SC9) are not relevant to the angle of views found.

v. Layout - appreciation of landscape character and place.

Views of the South Downs hills are a point of interest and notable feature on the horizon to the north, contributing to appreciation of the surrounding landscape character (of SC9). The placement of the tallest proposed buildings (restricted to 11m) and housing (9.5m restricted height) will remove this important view which contributes to the sense of place.

For the public walking along Hook Lane and Footpath 114 the ability to appreciate views across countryside leads to a perception of rural character which is in direct contrast to the settlement edge.

The 'Development criteria' set out in the Pagham Village Design Statement (PVDS) specifically makes reference to this point and opinion is clear; that *"the open fields west of Pagham Road and those abutting Hook are considered especially sensitive and valued areas"* and the need to *"maintain open-field views and the countryside setting at Hook Lane"* Development of this site would go against strong local opinion.

Regarding views from Sefter Road (illustrated by viewpoint 1) the predicted magnitude of change (arising from development) is indicated as a little lower than expected based on fieldwork.

The assessment findings for views from illustrated viewpoints 2, 3, 6, 7 and 8 are as expected. No further comment required.

vi. Layout – Addressing views

The following explanation given under Significance (2.19-2.21) *"any residual Moderate to Major and Major effects are considered to be significant during operation of the development whilst only major effects, as a result of their temporary nature, are considered significant during construction"*.

The LVIA summary (7.10 and 9.3) finds from Hook lane (viewpoints 4 and 5) the predicted visual effects are Moderate to Major Adverse significance during operation of the development (and hence 'significant'); with the medium to high adverse magnitude of change experienced during construction, thought to be reduce to Moderate Adverse (not significant) with new planting along the boundary.

This is reflected in the subsequent comment made in relation to viewpoint 5 Hook Lane, which recognises not only the effect on *"the proposed housing would create a significant change in view, diminishing the visibility of the site, the view to the South Downs and the overall character of the Place. This view, while taken from the bench, is representative of the change in view experienced by most residents along Hook Lane"*. We would argue that the magnitude of change would be greater and would result in a major adverse effect, rather than a moderate effect.

From viewpoint 4 Hook Lane, looking north the magnitude of change arising from either masterplan option is likely to be higher than moderate indicated. It is more likely to be a major adverse effect for residents and walkers based on the arrangement and height of buildings in close proximity to the site boundary, based on residents living on the settlement edge having a higher than usual expectation of being able to access and interest in the countryside on their doorstep.

- The masterplan indicates the entire field of view, scale and type of view composition and features will be completely and permanently altered.
- The loss of farmland (the site) and the long-distant views towards the South Downs hills;
- and intervening farmland reduces the perception and experiential qualities associated with a sense of space, being on the edge of settlement looking outwards into rural countryside and the strategic landscape 'gap'.

For drivers and residents traveling along Hook Lane on a daily basis the perceived change from rural with views across open field will be a sense of enclosure on both sides caused by the introduction of new urban elements and proposed semi-mature tree planting will continue to increase from year 1 onwards.

The LVIA concludes views of the proposed development would be well screened from north and west. We are in agreement with this opinion, however we consider the conclusion relating specifically to the predicted impact of development on views from Hook Lane and footpaths (identified as Moderate to Major Adverse with residual effect reduced to Moderate Adverse by year 15 is much lower than it will likely to be in reality.

The LVIA findings conclude *'the magnitude of visual change as experienced by visual receptors as medium adverse (Table 3 p9) when development is viewed as a whole'* but then does not go on to clearly identify how this relates to significance in Table 4: Significance of change to landscape and Visual Receptors e.g. Major, Moderate, Minor or Negligible.

From our fieldwork and review of the masterplan we believe the predicted visual effects relating to this settlement edge and for residents and members of the public will be greater than the outline submission indicates, erring more towards the Major Adverse (and significant) rating given in table 4 and visual effects during both construction and operation. Based on the LVIA methodology given, the resulting visual effects would be considered significant and *'very important in the decision making process'*.

vii. Layout – appropriate mitigation proposals?

The LIVA acknowledges there is scope for the layout and architectural design to be altered to mitigate visual effects.

The mitigation measures outlined in Section 8. indicates new housing heights would be restricted to two storeys (9.5m) across the site and other facility buildings restricted to 11m. Both will remove the public's ability to appreciate the long-distant views looking north. Repositioning the public open space as a means of retaining views the length of the site north-south and repositioning the larger, taller buildings within the site layout might be a more appropriate form of mitigation.

The master plan indicates a high percentage of trees internally and the provision of a 10-20m buffer with new hedging and semi-mature trees planted along the site boundary facing Hook Lane and housing. This raises two concerns, firstly the scale of tree planting does not match or reflect the local landscape character described earlier and secondly the visual effect arising from the introduction of the viewing mound into an essentially flat, landscape appears not to have been mentioned as part of the visual appraisal.

The inclusion of a viewing mound (assuming this is proposed to mitigate the acknowledged loss of long-distant views seen from the public domain) is an unnecessary feature and is not in keeping with the flat landscape character. Mitigation measures might be better addressed by revision to the internal layout. It is unlikely that a viewing mound placed inside the development would deliver any form of public benefit.

10. Summary / Conclusion

i. Landscape character

For all of the reasons given above the loss of important views and the overall perception of the site in defining the local countryside setting on the edge of a well-established, lower density settlement would result in an adverse impact on the landscape character.

Further justification regarding to what extent the opinions set out in the PVDS have been considered and how these have been addressed and resolved within the masterplan layout should be requested from the applicant.

ii. Visual

Based on our fieldwork and professional judgment the adverse, long-term and permanent visual effects, particularly when viewed from Hook Lane and overlooking residential properties cannot be adequately mitigated. The long-term effectiveness of the mitigation measures proposed cannot be guaranteed beyond the first 5 years post construction.

iii. Overall conclusion

It is our opinion that a high proportion of the relevant key characteristics of the landscape character would not be protected by the proposed masterplan and density of development. The wider landscape character is highly unlikely to remain intact with significant levels of loss e.g. quality soils, views of the South Downs, alteration to drainage and field pattern, habitat, albeit balanced by new boundary hedge planting and protection of Pagham Lane's enclosed character.

We believe the proposed development as it stands will have a direct, adverse and significant landscape impact on all of the key landscape characteristics that contribute to the wider landscape character.

