Appendix F

AGRICULTURAL LAND CLASSIFICATION IMPACT ASSESSMENT AND THE SEQUENTIAL TEST

Fenndyke Solar Farm, Sutton St James, Lincolnshire. UK

September 2014

Submitted on behalf of Fenndyke Solar Limited

Prepared By: BE Renewables Limited

Hesketh Mount. 92-96 Lord Street. Southport PR8 1JR





DOCUMENT CONTROL SHEET

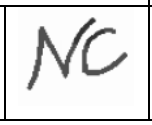
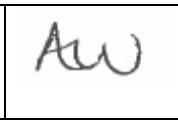
PROJECT TITLE: Fenndyke Solar Farm

REPORT TITLE: Agricultural Land Classification Impact Assessment and the Sequential Test

VERSION: 1

STATUS: Final

REPORT DATE: September 2014

PREPARED BY		DATE	CHECK BY		DATE	APPROVED BY		DATE
NC		September 2014	AW		September 2014	RA		September 2014

CONTENTS

1. INTRODUCTION: 4
2. THE PROPOSALS: 4
3. AGRICULTURAL CIRCUMSTANCES: 5
4. ASSESSMENT OF THE ALC: 8
5. SUMMARY ASSESSMENT OF DEVELOPMENT ON EXISTING AND FUTURE AGRICULTURAL LAND USE: 9
6. THE SEQUENTIAL TEST: 13
6.1 Background 13
6.2 Methodology Sequential Test: Alternative Site Search Assessment 13
6.3 The Assessment 14
6.3.1 METHODOLOGY 14
6.3.2 SEARCH AREA 18
6.3.3 SCORING MATRIX 19
6.4 Review of Development Zone Sites 20
6.5 Other Technologies 22
6.6 Conclusion 22

1. INTRODUCTION:

BE Renewables Limited (BERL) on behalf of Fenndyke Solar Limited are proposing to develop a solar photovoltaic (PV) power farm of ~17.55 Mega Watts peak (MWp) known as 'Fenndyke Solar Farm' (referred to in the document as the 'project', 'site', 'development' or the 'proposal').

The ALC Impact assessment and Sequential Test has been prepared to support the re-submission of a planning application for the development of a solar photovoltaic (PV) farm to generate electricity, which will be fed into the National Grid (NG).

The revised site is comprised of three fields each field of an approximate land area and corresponding installed capacity as indicated;

FIELD NUMBER	AREA (HA)	CAPACITY (MWP)
1	~9.62	8.8
2	~5.94	5.43
3	~3.63	3.32
Total	~19.2	17.55

Energy calculations indicate that the site has a maximum installed approximate peak power capacity for 17.55 MWp sufficient to generate an estimated 16,708 MWh/annum;

The Agricultural Land Classification (ALC) Impact Assessment and Sequential Test considers the impact of the proposed solar farm development. The project will be on approximately 19.2 hectares (ha) of current arable farming land located in the parish of Sutton St. James in Lincolnshire, approximately 1.6km west of the village of Sutton St James. The National Grid Reference (NGR) for the centre of the site is TF375172 (Appendix 1 Rev 1 – Site Location Plan).

This report considers the impacts of the proposed development on the natural resource of agricultural land, the farm business and the adjoining agricultural land. The agricultural assessment is desk-based, the landowner who farms the land was interviewed and provided his comments regarding his farming practices and land use.

2. THE PROPOSALS:

The proposal is to develop a solar farm. The development includes the installation of solar photovoltaic (PV) modules, installed on raised legs such that much or the majority of the land that is currently used for arable farming can remain in farming production harvesting silage and providing a valuable seasonal low density sheep grazing land resource. The land management during the operational phase of the solar farm is a key component of the Biodiversity and Habitat Management Plan (Appendix 11 – Rev 1) submitted alongside the planning application.

3. AGRICULTURAL CIRCUMSTANCES:

DEFRA[1] provide a useful resource for information regarding agriculture and the land use and food production. Information is also available Lincolnshire County Council's website[2]. Via these data-source information is available for yearly agriculture performance reports, these figures consider the UK's self-sufficiency position in food production. The food production to supply ratio is commonly referred to as the self-sufficiency ratio, which is calculated as farm-gate value of raw food production divided by the value of raw food for human consumption. The figures for 2013 reveal that the UK was 60% self-sufficient for all its food requirements and 73% for indigenous foods;

UK SELF-SUFFICIENCY IN FOOD 2007-2013[3]							
	2007	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**
% OF ALL FOOD	60	60	59	61	63	62	60
% OF INDIGENOUS TYPE FOOD	73	73	72	76	78	77	73

Within the UK DEFRA offer advice on the distribution, at a strategic levels of the differing % of the ALC areas, these are shown below;

ALC GRADES FOR THE UK	
DEFRA GRADE	**% FOR ENGLAND**
Grades 1 and 2	16.9
Grade 3	48.2
Grade 4	14.1
Grade 5	8.4
Non-agricultural	5.0
Urban	7.3
Total	**100.0**

Approximately 71% of all land within England is used for a variety of agricultural purposes;

- The total land use for agriculture in England in 2013[4] was recorded, by DEFRA as 17,300,000 Ha.
- The use of the land at Fenndyke Solar Farm is negligible approximately 0.0001% of the total land used for agricultural purposes in the UK.

- DEFRA also record that in 2013 the total area in the UK under arable crop was 4,502,000 Ha.

[1] Agriculture in the UK - 2013
[2] Essex CC website
[3] DEFRA (Agricultural in the UK) 2013 Table 14.1
[4] DEFRA (Agriculture in the UK) 2013 Table2.1

- The proposed use of the land at Fenndyke Solar Farm is negligible approximately 0.00043% of the total land used for growing arable crops in the UK.

Agriculture plays a major role in shaping South Holland's character. The soil is one of the District's primary resources. Land use is predominantly arable with intensive cultivation on high quality soils. Turkey farming and flower & plant production also feature. Approximately 80% of the land is of Grade 1 standard, with the remainder of either Grade 2 or 3a[5].

The area of South Holland is within the National Character Area (NCA) 46 'The Fens' and Natural England have defined the ALC for this region and this is shown in Table 4 below;

AREA OF ALC GRADE WITHIN THE FENS[6]	
ALC GRADE	**AREA (Ha)**
1	167,489
2	164,006
3	32,945
4	7,788
5	0
Non Agricultural	3,686
Urban	5,689

Whilst such land is considered a national resource for the future; soil quality will be a major issue whenever a switch from agriculture is considered. The South Holland District Council (SHDC) Local Plan recognises the rarity of Grade 3b and hence the importance of the Fenndyke site as the preferred development site for the proposed solar farm. The use of this Grade 3b land is a **negligible** 0.058% of all Grade 3, including both Grade 3a and Grade 3b land within The Fens.

As Grade 3b land the area of the proposed development avoids the use of any significant areas of 'best and most versatile' (BMV) land and so it is appropriate for selection as a preferred site for development of a solar farm (Please refer to Chapter 6: the Sequential Test).

The effect of using the proposed land area for the development of a solar farm will be **negligible** and the effect of using the land will be **slightly beneficial** as it will be;

- retained for a mixed agricultural land use,
- is for a temporary period not exceeding 25 years,
- it provides efficient use of the limited non-BMV land,

[5] http://www.sholland.gov.uk/localplan/text/02_plans.htm
[6] National Character Area Profile 46 The Fens Table:26.

- it does not result in taking land out of permanent agricultural use.

As an additional land management measure, seasonal grazing of sheep and harvesting silage is proposed. The opportunity to harvest silage is to develop a sustainable land management plan that will enhance the bio-diversity of the fields, both within the solar farm and beyond the boundary of the solar farm development. The effect of this additional land management measure of the proposed development should be seen as **moderately beneficial.** This is as a result of the diversification of land management, increasing the bio-diversity and ecological value of the land.

Agriculture is an important aspect for the Lincolnshire's wider economy and represents the largest single land use the proposed solar farm is therefore suitable for supporting the farming economy because of its considerable importance in terms of its role in safeguarding the environment and rural economy.

The applicant has explained the site is currently in an agricultural use, producing arable crops. The site is part of a successful and long-established farming business the development of the solar farm and its beneficial integration with the ongoing agricultural land use should be seen as **moderately beneficial** in terms of farm diversification and **moderately beneficial** in supporting the rural and local economy.

Historically the farming enterprise has produced a variety of differing crops and pursued a variety of different farming activities. These changes are often market driven and like every business farming needs to remain competitive and current with regard to new farming initiatives to survive in what is now a global farm commodity market.

The proposed development of the solar farm will enhance the sustainability of the existing business and secure the longer-term future of the current farm enterprise. Farm diversification to support a strong rural economy is encouraged both in the Local Development Plan and the publication National Planning Policy Framework (NPPF), and so the proposed solar farm should be seen as positive development within the community with regard to providing a sustainable and prosperous rural economy. Maintaining this land within a mixed use will avoid the land being used for some permanent development that could potentially result in a moderately adverse development on the agricultural land and result in the permanent loss of the land for food production.

There are variety of differing farm diversification schemes that take land use away from food production which are in conflict with the desire to retain land in food production for the UK. Examples of land use that result in the loss of land for food production are:

- Growing energy crops for biomass and anaerobic digestion pants;
- Land entering a variety of environmental, management schemes; and
- Growing commercial forestry etc.,
- Construction of caravan sites

Correctly sited and designed solar farms provide an integrated land use and Fenndyke Solar Farm should be seen as an exemplar project which will result in a **neutral or slightly beneficial** impact without the loss of any significant BMV Land. The land is put to more efficient land use through the grazing of sheep, the

generation of renewable energy and the increase in bio-diversity and ecology through proactive land management to encourage the establishment of important wildlife species.

The development of the solar farm is temporary, for a limited period of 25 years and hence there is no permanent loss of land for any future food production use.

4. ASSESSMENT OF THE ALC:

The area of the proposed solar farm was surveyed to establish the ALC of the land and this is subject to a separate Survey and Analysis Report (Appendix A – Rev 1).

The conclusions of the report are shown in Appendix G – ALC Coverage;

- It shows that the proposed site is located within three fields.
- The majority of the land within each field is Grade 3b.
- Land that is not farmed i.e. is within the verge or ditch embankments or used for access or for any non-farming activity is defined and described as other.

ALC grade classifications do not often follow the 'man-made' defined field boundaries and this results in it being very common for one field, regardless of its size, to contain areas large or small, differing higher or lower ALC grades of land.

Please note: In practice, most farmers will accommodate the variation of ALC land grade by farming the land to meet the lowest ALC grade.

For each of the three fields – the tables below shows the percentage of each differing ALC grade of land;

FIELD 1 - ALC %		
ALC	**AREA M^2**	**% AREA (TO NEAREST %)**
1	0	0%
2	19,202.9	20%
3a	9,923.3	10
3b	67,070.1	70
4	0	0
5	0	0
Totals	95,196.3	100%

FIELD 2 ALC %		
ALC	**AREA M^2**	**% AREA (TO NEAREST %)**
1	0	0%
2	0	0%
3a	4,228.7	7%
3b	55,151.9	93%
4	0	0%

5	0	0%
Totals	59,380.6	100%

FIELD 3 ALC %		
ALC	**AREA M^2**	**% AREA (TO NEAREST %)**
1	0	0%
2	5485.3	15%
3a	7227.7	20%
3b	23604.5	65%
4	0	0%
5	0	0%
Totals	36,317.5	100%

5. SUMMARY ASSESSMENT OF DEVELOPMENT ON EXISTING AND FUTURE AGRICULTURAL LAND USE:

The current land use is for harvesting arable crops, this will change on the development of the solar farm to that of harvesting silage and seasonal grazing of sheep which is an important contribution to a valuable land management aid during the operational stage of the solar farm. There is therefore no change with the land staying in an agricultural land use, yet this efficient use of the land resource is **slightly beneficial**.

The proposal supports ongoing farm diversification and contributes to a strong sustainable rural economy. The proposed development is **moderately beneficial**.

The proposal makes and provides a significant contribution to the reduction of greenhouse gases, adding to the UK's efforts to meet the UK Government's climate change objectives. The proposal will make an important **moderately beneficial** contribution.

The development will provide an important opportunity to support and strengthen the rural economy and farm diversification and is therefore seen as **moderately beneficial**.

The project also provides an opportunity to strengthen and sustain an agricultural business within the local community that provides an important and well-established local amenity and should therefore be seen as **slightly beneficial**.

The proposal also provides for the enhancement of the bio-diversity and species rich habitat creation that will increase the importance of the ecology and this is seen as **moderately beneficial**.

There is no irreversible loss of agricultural land and this is therefore seen as **neutral.**

The results of the assessment are shown below:

ALC AND PROPOSED SOLAR FARM AT FENNDYKE FARM						
IMPACT ON;	**MODERATELY ADVERSE**	**SLIGHTLY ADVERSE**	**NEGLIGIBLE**	**NEUTRAL**	**SLIGHTLY BENEFICIAL**	**MODERATELY BENEFICIAL**
Existing land use			✓			
Efficient use of land resources					✓	
Use of BMV agricultural land loss from food production				✓		
Improving soil structure and ALC					✓	
Irreversible loss of agricultural land				✓		
Increased use of land in support of food production					✓	
Sustaining the rural economy						✓
Supporting farm diversification						✓
Reduction in greenhouse gas emissions						✓
Public amenity use and value					✓	
Enhancement of bio-diversity and ecology						✓

In conclusion the overall assessment of the effects of the proposed development with regard to the use of the land and the development of the solar farm will result in an appropriate development that is **moderately beneficial** with no significant adverse effects.

In line with the NPPF, Greg Barker (the then Minister of State) at the Department of Energy & Climate Change issued his Solar PV Strategy letter, dated 22nd April 2014. This letter enshrined several guiding principles:

1. *support for solar PV should ensure proposals are appropriately sites, give proper weight to environmental considerations such as landscape and visual impact, heritage and local amenity, and provide opportunities for local communities to influence decisions that affect them*	The applicant has followed throughout the application submission documents that throughout the site assessment process considerable weight has been given to the above environmental considerations. The site has been recognized during the planning application process that it has a low visual impact and no identifiable impact on aspects of ecology, heritage, local amenity and has throughout the application provided opportunity for local communities to influence the decisions that affect them, with the

	applicant taking note and providing appropriate mitigation where this can be provided within the design of the scheme.
2. *it is important that the planning concerns of local communities are properly heard in matters that directly affect them*	The applicant has engaged throughout the process with the general public and attended several public consultations and meetings, receiving their support and comments of objection. There is widespread local support for the scheme that has been evidenced by the submission of a local resident support petition. The applicant has discussed the Community Benefit Fund (CBF) that is proposed for the development, outlining how this may provide benefit to the local community.
3. *the need for renewable energy does not automatically override environmental protections*	The site has been selected to avoid overriding environmental protections and the site is outside of any noted environmental protection area and this has resulted in this site being selected in preference to other sites within the area.
4. *great care should be taken to ensure heritage assets are conserved in a manner appropriate to their significance, including the impact of planning proposals on views important to their setting*	The site has been selected to avoid heritage assets and thereby ensure that the development has a negligible effect upon any heritage asset or views important to their setting.
5. *proposals in National Parks and Areas of Outstanding Natural Beauty, and in areas close to them where there could be an adverse impact on the protected area, will need careful consideration*	The proposed development is not within any National Park or Areas of Outstanding Natural Beauty, or in addition to any area that may be a sensitive areas as defined by the EIA Regs.
6. *protecting local amenity is an important consideration which should be given proper weight in planning decisions*	The development has considered the local amenity. Through the development of the solar farm there is an opportunity to improve some of the surrounding landscaping and the bio-diversity of the local area. Please refer to LVIA in the Environmental Report for more details.
7. *The policy with regard to large-scale solar farm development on agricultural land is further clarified by reference to paragraphs 111 and 112 of the NPPF:* *Para 111: Planning policies and decisions should encourage the effective use of land by re-using land that has been previously developed (brownfield land), provided that it is not of high environmental value.* *Para 112: Local authorities should take into account the economic and*	The applicant has prepared the submission having completed a sequential test of sites within a zone, a development zone established to reflect the location of the grid connection location, the point of connection, the route of connection, the capacity available and the risk of interactivity within the grid connectivity. This has been supplemented by undertaking detailed ALC surveys on a number of sites within the area of Sutton St James this site is selected as it has been established that the majority of the solar development is on land of Grade 3b i.e. not BMV and thereby complies with NPPF policies 111 and 112.

	other benefits of the BMV agricultural land. Where significant development of agricultural land is demonstrated to be necessary, local planning authorities should seek to use areas of poorer quality land in preference to that of a higher quality.	

The sequential test shows that Fenndyke Solar Farm is the preferred development site.

6. THE SEQUENTIAL TEST:

6.1 Background

The European Directive 2009/28/EC[7] deals with the promotion and use of energy from renewable sources. The Directive sets mandatory targets for the share of renewable energy to be obtained from renewable sources for each European Member State. The target for the United Kingdom is to equal or exceed 15% of gross final consumption of energy from renewable sources by 2020.

The UK Government has, in turn, published a family of documents presenting a set of measures that would enable the UK to meet its 2020 target. The National Renewable Energy Action Plan for the United Kingdom expressly encourages the delivery of renewable energy schemes.

It identifies that solar has the potential to form a significant part of the renewable energy generation mix and believes that the solar market can bring forward a total of 20GW by 2020. The current level at the start of 2014 is 2.5GW. LCC should favourably consider renewable energy schemes (at least until such time its local renewable energy target has been reached).

6.2 Methodology Sequential Test: Alternative Site Search Assessment

BERL on behalf of the applicant investigated the suitability of this site and numerous alternative sites for solar development. Fenndyke Solar Farm meets the key technical requirements for selection as an appropriate site for the development of a solar farm.

As part of the sequential test for the identification of a solar farm BERL on behalf of the applicant undertook the following assessments:

STEP ONE	Discussions and assessment of suitable grid connection locations, and Assessment of grid capacity and fault contributions that may result in any constraint to as future grid connection Review of Western Power Distribution (WPD) 'heat maps' Application and confirmation for budget grid connection capacity and costs for possible connection to WPD
STEP TWO	Location mapping of potential grid connection locations High-level sensitivity mapping for site constraints mapping within 3 km development zone area around each identifiable connection point Identification of landowner(s) Assessment of each development area. Preparation of GIS Constraints map for the preferred development zone Investigation of site availability and suitability with the preferred development zone Selection of preferred zone of development
STEP THREE	Submission of ENA Grid Application Form(s) Discussions of development with landowner(s)

[7] http://ec.europa.eu

	Final selection of the site for development of a solar farm within the preferred development zone.

6.3 The Assessment

6.3.1 METHODOLOGY

Step One

WPD have advised that there are significant grid connection and capacity constraints throughout the East Midlands and Lincolnshire, the area of their operating license. Based upon available information and our responses to a variety of enquiries to WPD the preliminary grid connection and capacity review identified areas of their distribution network that were unlikely to be able to accommodate embedded generation for several years and highlighted areas in other locations that were able to accommodate some embedded generation capacity. The area of the proposed development in the area of Sutton St James was one of only a few locations that they indicated would be able to accommodate a grid connection within a reasonable time frame, without excessive reinforcement, would have available capacity and not be interactive.

The assessment concluded that the power grid through the East Midlands is close to capacity and that further large-scale development of embedded generation was going to be heavily constrained. Further the information provided by WPD indicated that several of the potential areas for development would only be possible with significant financial investment in the grid infrastructure, such that the development of a solar farm or potential other renewable energy project would not be financially viable. Hence the grid connectivity and availability became a primary limiting constraint.

Step Two

The output for Step Two can be viewed in the preparation of the 'Development Zone Constraints' map - Appendix F(i).

This assessment concludes that the preferred development area and the development site is within the area of Sutton St James and the site area of Fenndyke.

Step Three

Fenndyke site was selected as the preferred site due to it being the preference site amongst all those that were reviewed and that the site provided the least constraints in comparison with others during the Sequential Test.

The Sequential Test

This report summarises the site selection process to provide confirmation that there are no alternative preferred sites available to accommodate the development proposal within the administrative area of South Holland District Council (SHDC). Please see Appendix F (i) alongside this report.

More specifically, given the information with regard to the constraints regarding the grid capacity and connection availability, the site search was quickly narrowed down to an area of search around Sutton St James.

The site selection process is guided by development control considerations laid out through the relevant national and local planning policy guidance together with the operational needs and requirements of the development proposals, these are presented below;

OPERATIONAL AND DEVELOPER CONSIDERATIONS GUIDING LOCATIONARY REQUIREMENTS OF DEVELOPMENT PROPOSAL		
NO.	**ISSUE**	**AMPLIFICATION**
1	Suitable location which benefits from sunlight intensity levels.	The whole of Lincolnshire is recognised for acceptable levels of solar irradiance. These levels of solar irradiance will ensure that selected sites will receive sunlight suitable for generating power. Provided that the sites satisfy the following key matters; Sites must be of suitable topography slope and free from structures and trees that could create unacceptable levels of shading.
2	A site with suitable grid connectivity.	Connectivity to the grid is an essential material consideration. Capacity at substations throughout Lincolnshire is heavily constrained and we were made aware of these constraints and impacts through our investigations and discussions with WPD. As a result of these assessments we were left with the conclusion that sites in the SHDC region were the most probable to be granted an acceptable grid connection offer. Further investigations and applications to WPD showed that there was only one substation around Sutton St James region that we were advised could accommodate the embedded energy generation of the solar park. The lack of suitable connection points is not uncommon and is a major block to the UK achieving its legally binding renewable energy targets and therefore makes this proposed development even more important. The investment in new infrastructure for the sub-station upgrade cost plus the costs of the grid connection cable installation is a key input to establishing the required size of the development site and capacity of the solar farm. On receipt of this information the applicant established a development zone study area for further investigation of suitable site locations for hosting the solar farm. Our initial grid connection investigations indicated that a capacity of between ~20 MW could be accommodated via this substation.

		Other sites and locations were considered and progressed, these other opportunities resulted in offers being interactive and others being too constrained as a result of upstream upgrade requirements and costs.
3	A site of a suitable shape, orientation and size that can accommodate the development proposal.	Circa ~20 Ha is the typical site area requirement to accommodate generation of up to 20 MWp of ground mounted solar scheme. This size requirement only applies when the site is characteristically clear of obstructions (or can be made clear of obstructions) and benefits from a level or gentle sloping topography. Importantly:- Where potential sites are subject of physical obstructions which cannot be removed (such as public footpaths, historical field boundaries, woodland, rivers, streams, highways etc.) the site area requirements can be significantly increased. Additionally, a site positioned within the rolling countryside that may present over-shadowing as a result of the topography, would require a greater development footprint. Hence a combination of both the physical and topographical constraints would further increase the area requirements; The fragmentation of the development site would have an adverse effect towards a scheme's viability and deliverability. Furthermore, it would significantly increase the size of the development footprint. Accordingly, the focus is on delivering a single scheme as opposed to several smaller schemes which collectively total c. 20 MWp. Two or three separate sites cumulatively delivering 20 MWp would by unviable since each scheme would generate additional infrastructure and create unviable costs associated with grid connection and easements over land etc.; and create high levels of uncertainty over which the applicant would not have any control. The preference is for a site with a southerly aspect, however we did not overlook northerly aspect site locations. However, the outcome of selecting a site with a northerly, aspect would be the need to increase the overall footprint of the scheme as a result of the operational need to increase the distance between the arrays in order to avoid unacceptable overshadowing of the solar modules.
4	A suitable location which is served by appropriate highway infrastructure	Appropriate highway infrastructure is a material consideration due to the HGV traffic trips generated during the construction period, ensuring that the site can be accessed without extensive transport effects that may create a 'severance'.
5	A suitable site which is available for the duration of the development proposal	The site must be available for the duration of energy generation and preference is for a site within a single ownership. This will give confidence to applicant, local community, developer and local planning authority that the scheme can be delivered.
6	Site Specific allocation	Consideration should be given to the planning vision for the site as presented within the extant and emerging development plan.
7	Flood Risk	Inappropriate development in areas at risk of flooding should be avoided by directing development away from areas at highest risk, but where

		development is necessary, making it safe without increasing flood risk elsewhere.
8	Sensitive human receptors	This criterion requires an assessment of how the proposed development would relate to potentially sensitive human receptors on the site and in relation to neighbouring land uses including proximity to residential dwellings.
9	Landscape and visual considerations	The landscape and visual effects of energy projects will vary on a case by case basis according to the type of development, its location and the landscape setting of the proposed development. For example, the pre-development landscape setting may be industrial in nature with a predominance of vertical features, or it may be dominated by individual developments of lesser scale. Or the landscape may be rural and greenfield.
10	Sensitive areas as defined by the EIA regs	The EIA regulations define sensitive areas as including land notified under section 28(1) (sites of special scientific interest) of the Wildlife and Countryside Act 1981(21); a National Park within the meaning of the National Parks and Access to the Countryside Act 1949; the Broads; a property appearing on the World Heritage List kept under article 11(2) of the 1972 UNESCO Convention for the Protection of the World Cultural and Natural Heritage; a scheduled monument within the meaning of the Ancient Monuments and Archaeological Areas Act 1979; an Area of Outstanding Natural Beauty a European site within the meaning of regulation 8 of the Conservation of Habitats and Species Regulations 2010(27) within the meaning of the National Parks and Access to the Countryside Act 1949; the Broads; a property appearing on the World Heritage List kept under article 11(2) of the 1972 UNESCO Convention for the Protection of the World Cultural and Natural Heritage; a scheduled monument within the meaning of the Ancient Monuments and Archaeological Areas Act 1979; an area of outstanding natural beauty a European site within the meaning of regulation 8 of the Conservation of Habitats and Species Regulations 2010(27).
11	Previously developed land and non-Best and Most Verstile Agricultural Land	Re-using of previously developed land for new development can make a major contribution to sustainable development by reducing the amount of countryside (agricultural land) and undeveloped greenfield land that needs to be used. Based on this definition, this criterion involved consideration of whether a site could properly be categorised as previously developed land or whether it remained undeveloped (i.e. agricultural / greenfield site). The sites were also categorised in terms of their ALC grading

Accordingly, the purpose of the alternative site search is to assess potential sites throughout the administrative area against the following criteria;

- Site size (capability of accommodating circa 20 MW of solar panels);
- Topography (flat or gently sloping sites);
- Land availability and ownership;

- Capability of grid connection;
- Proximity to road network (A suitable location which is served by appropriate highway infrastructure);
- Local Development Plan and Policy
- Site Specific Allocation;
- Flood Risk;
- Landscape and Visual Considerations;
- Sensitive areas as defined by EIA Regulations; and
- Previously developed land/current land use
- Grade of ALC

6.3.2 SEARCH AREA

Due to the site specific requirements to achieve connection via the DNO's substation, a search area within the administrative area of SHDC, concentrating in the area of Sutton St James has been established.

The search area is shown at Appendix F(i). The area of search was set as a reasonable distance from the pint of grid connection and the DNO's infrastructure.

Individual sites within the search areas have been assessed (Section 6.4). The sites assessments accord with the scoring matrix for each site following the site sequential test.

6.3.3 SCORING MATRIX

To enable comparison of all the search areas; a numeric system of scoring has been applied;

Site Name/Reference													
Constraint Matrix	Score	-5	-4	-3	-2	-1	0	1	2	3	4	5	Constraint Matrix
Single site opportunities	0						0						Multiple site opportunities
No Grid Connection	0						0						Available grid connection
Grid connection interactive	0						0						Grid connection not interactive
Unsuitable topography	0						0						Suitable topography
Land unavailable	0						0						Land available
Inadequate highway access	0						0						Adequate highway access
3rd party land required for access	0						0						No 3rd party land required for access
Available land area too small	0						0						Available land area acceptable
In sensitive area as defined by EIA Regs	0						0						Not in sensitive area as defined by EIA Regs
Ecology registered importance -ve	0						0						Ecology no registered importance +ve
Land within high flood risk area	0						0						Land within low flood risk area
Agricultural Land Class 3a≥ -ve	0						0						Agricultural Land Class ≤ 3b +ve
Non-availability of private supply agreement	0						0						Availability of private supply agreement
Risk of cumulative impact	0						0						No risk of cumulative impact
No onsite power use and demand +ve	0						0						Onsite power use and demand +ve
Landscape and visual concerns -ve	0						0						No landscape and visual concerns +ve
Green belt	0						0						Not Green belt
Green field	0						0						Previously developed land
Shadowing from trees or buildings	0						0						No shadowing from trees or buildings
High security risk	0						0						Low security risk
Low Irradiance	0						0						High Irradiance
Sum of constraints	**0**	0	0	0	0	0	0	0	0	0	0	0	
		REJECTED					**?**	**ACCEPTABLE**					
		-100	>-75	>-50	>-25	>-10	0	<10	<25	<50	<75	0	

6.4 Review of Development Zone Sites

On behalf of the applicant BERL considers that it has reviewed alternative development sites, both for ground based solar on 'greenfield, previously developed land and brownfield' locations. These reviews have concluded that there is no more suitable site than the application site Fenndyke and therefore the application is compliant with the NPPF and the Local Planning Policy as well as the recent guidance from Ministers.

Constraint Matrix Fenndyke	Score	-5	-4	-3	-2	-1	0	1	2	3	4	5	Constraint Matrix
Single site opportunities	2								1				Multiple site opportunities
No Grid Connection	5											1	Available grid connection
Grid connection interactive	5											1	Grid connection not interactive
Unsuitable topography	4										1		Suitable topography
Land unavailable	5											1	Land available
Inadequate highway access	4										1		Adequate highway access
3rd party land required for access	4										1		No 3rd party land required for access
Available land area too small	5											1	Available land area acceptable
In sensitive area as defined by EIA Regs	5											1	Not in sensitive area as defined by EIA Regs
Ecology registered importance -ve	4										1		Ecology no registered importance +ve
Land within high flood risk area	3									1			Land within low flood risk area
Agricultural Land Class 3a≥ -ve	4										1		Agricultural Land Class ≤ 3b +ve
Non-availability of private supply agreement	0						1						Availability of private supply agreement
Risk of cumulative impact	4										1		No risk of cumulative impact
No onsite power use and demand +ve	-3			1									Onsite power use and demand +ve
Landscape and visual concerns -ve	3									1			No landscape and visual concerns +ve
Green belt	5											1	Not Green belt
Green field	0						1						Previously developed land
Shadowing from trees or buildings	5											1	No shadowing from trees or buildings
High security risk	4										1		Low security risk
Low Irradiance	4										1		High Irradiance
Sum of constraints	72	0	0	-3	0	0	0	0	2	6	32	35	
		REJECTED					?	ACCEPTABLE					
		-100	>-75	>-50	>-25	>-10	0	<10	<25	<50	<75	0	

Fenndyke has scored the highest in the qualitative matrix assessment of all sites within the area of study and is clearly identified within Appendix F (i) as a suitable development area; it is therefore our preferred development site.

Significantly the site has a viable and adjacent grid connection. The proposal is an important sustainable project, in accordance with the NPPF and the Local Development Plan and hence is a **major beneficial** sustainable project.

The proposal does not result in the irreversible loss of any BMV land. The impact is **neutra**l.

The proposal supports ongoing farm diversification and contributes to a strong rural economy. The proposed development is **positive**.

The proposal makes and provides a significant contribution to the reduction of greenhouse gases, adding to the UK's efforts to meet the Governments climate change objectives. The proposal will make a **positive** contribution.

ALTERNATIVE SITES - REASONS FOR DISCARDING:

SITE REFERENCE	LOCATION	REASONS FOR DISCARDING
TLD 003	Sutton St James	• Discontinued as a result of the impact upon residential properties and proximity to the urban fringe • Sites were available with lower ALC grade of land
TLD 005	Lincoln/Norfolk borders	• Interactive grid offer • Landscape and visual impact • Sites were available with lower grade of ALC
TLD 008	Sutton St James	• Site selected as a potential preferred site for progression
TLD 004	Shepherds Gate	• EIA REG constraints and land designations • Overhead power lines • Sites were available with lower grade of ALC
Other sites		• Rejected at outset due to grid constraints
BROWNFIELD AND/OR PREVIOUSLY DEVELOPED LAND (PDL)		Within the area of Sutton St James, BERL on behalf of the applicant, reviewed the availability of development on brownfield land or PDL. Despite the desire and intent of the applicant no single source of brownfield or PDL has been identified within the area that is appropriate for development. A review of available brownfield sites shows: • The sites are of insufficient area and would require multiple brownfield site developments to meet the generation capacity of Fenndyke • The grid capacity if not available to a single source point of connection and the connection infrastructure would be significant • The sites are in 'urban' areas and have already been ear-marked for potential permanent development i.e. housing or other • The land is or would not be available for development as a solar farm as a result of emerging other development interests
DEVELOPMENT OF SOLAR ROOF-TOPS		A review of development on roof-tops has been undertaken and is continuing. Roof-top development of solar PV is an example of the flexibility of the technology, over other renewable energy generation. However, the roof-top development opportunities are considerably smaller than that proposal for Fenndyke. The capacity of roof top installations is on average less than 500kW and the agreements with the variety of interested parties and the length of term sought for the operation of the installed solar modules, i.e. 25 years – this often exceeding the expected occupation or use of the building or facility. Many industrial roof-top occupiers and building owners are reluctant to commit to a long-term solar installation as a result of the need to retain flexibility and adaptability of the building and roofs so that they can accommodate and meet the changing needs of the business. Within the area of Sutton St James there is a lack of large industrial roof-tops for sizeable development of rooftop solar schemes.

SUMMARY:

On behalf of the applicant BERL considers that it has reviewed alternative development sites, both for ground based solar on 'greenfield, brownfield and pdl' locations. These reviews have concluded that there is no more suitable site than the application site Fenndyke and therefore the application is compliant with Paragraphs 111 and 112 of the NPPF, Local Planning Policy and recent guidance from Ministers.

6.5 Other Technologies

Many renewable energy and embedded generation schemes have constraints that dictate a very specific criteria for their development. Onshore wind farms are large infrastructure development that can in some location cause significant visual intrusion and some significant landscape impacts to both landscape character and designated sites. For this reason wind farms are often found in more rural areas remote from urban areas where grid connection is often further away than what would typically be accommodated for a solar farm.

Similarly any biomass generation would require detailed consideration of the fuel source, fuel delivery requirements particularly as a large number of daily fuel/feedstock deliveries will need to be received and hence transport and road/rail and sea infrastructure will need to be adequate for these needs.

Hydro, landfill gas are two technologies that require a specific location and the suitability of this location with regard to other constraints, whether these be methane gas for the landfill or water, weir and acceptable fishery consideration etc., for the hydro development.

Solar is a very low visual intrusive development capable of accommodating on an appropriate site a variety of geophysical and land form constraints. Key to the site selection is the ability of a site to be in close proximity to a grid connection, for the other forms of renewable energy this is less of a constraint, as either the source of the fuel or the environmental impact, or both would create a higher development constraint.

6.6 Conclusion

Following the grant of planning permission it is Fenndyke Solar Limited's intention to develop, operate and retain the site for the 25 year lifetime of the solar farm.

Ground based solar PV generation projects are amongst the most competitive sources of renewable energy and can be quickly deployed and decommissioned. Their occupation of the land is temporary and the construction infrastructure has no long-term significant impact on the use of the land compared with the alternative technologies of onshore wind, biomass, land-fill gas and anaerobic digestion. Ground based solar PV projects

deliver a reliable income stream through generation of renewable energy (ground mounted solar) represents a sound strategy for Fenndyke Solar Limited.

According to Government statistics released on Thursday 31st July 2014 the UK generated almost 15 per cent of its power from renewable sources in 2013, an increase of almost one third from 11.3 per cent in 2012. Ed Davey, the energy secretary, said the figures showed that '*the Government's investment in renewable energy is paying off. This massive investment in green energy is accelerating, with 2013 a record year, with almost £8 billion invested across range of renewable technologies. Having a strong UK renewable sector helps to reduce our foreign imports of energy, improving our energy security, as well as helping us tackle climate change and creating new hi-tech green jobs'*.

Energy prices are increasing and the UK increasingly has to import energy from overseas to meet demand, thereby increasing costs and reducing energy security. There are various options for the generation of renewable energy, including solar, wind turbines, bio-fuels and waste to energy. Solar is the preferred option for Fenndyke Solar Limited. The balance between the significance of any effect to the benefits of the renewable energy generated through the solar farm compared to other renewable energy technologies strongly favours solar PV generation for the development at Fenndyke Solar Farm.

Whilst the development is proposed on fields that currently cultivate arable crops, the land is not graded as BMV. The use of the land for agricultural activity will continue. The use of the land for pasture will improve the soil structure and soil characteristics resulting in an improvement in both the soil structure and characteristics over time.

The applicant has shown that this project does not result in any adverse impact upon the existing land use. The solar farm is a temporary development for 25 years and unlike many developments does not result in the permanent loss of land for food production of a different type. The solar farm requires a short duration construction and decommissioning period and should the need arise during the 25 year operational period then the solar farm could be removed and the land put into a more traditional agricultural land use.

The Sequential Test Site Assessment and Development Zone Constraints Map demonstrates that there are no suitable, viable or available alternative sites in the study area that are capable of accommodating the development proposal. Therefore there is no satisfactory alternative the selected site is the 'preferred site' which has been chosen as it provides development on:

1. Land which is selected using the lowest ALC grades available within the area of search
2. The land has no environmental value as recognised by a landscape, wildlife, historic or archaeological designation

3. The land has been selected in preference to other land as a result that it has lower environmental value than other sites and the land meets with preferable assessments with regard to the ability to develop the site without creation of significant harmful effects.
4. The land is NOT permanently taken out of the agricultural land use as the development is for a temporary period of time.

The proposed development has been designed in accordance with the objective of the promoting sustainability through good design, meeting the following objectives;

1. The principles adopted within the design have been reflected in the content of the Design and Access Statement.
2. The design is inclusive and has placed people at the heart of the design process listening to their comments and needs and providing design solutions in a flexible manner to achieve a design that provides an environment that is convenient and enjoyable to use for everyone.
3. The design promotes the effective and efficient use of the land. It maximises use of these resources for production of renewable energy, avoidance of waste and maintaining the existing amenity and leisure activities.
4. The design has accommodated and provided measures that will protect, enhance and increase the bio-diversity and ecology within the development area, producing important wildlife habitats for native species of wildlife and flowers that will encouraged and maintained throughout the operational period of the solar farm.
5. The visual appearance has been developed to reflect comments during the design process from a wide variety of sources, amending the design to achieve a low visual impact solution that has been recognised at public consultation meetings. The development is well situated and is of an appropriate scale in relationship to its surroundings.

In conclusion under Paragraph 98 of the NPPF:

'When determining planning applications, local planning authorities should:

- *Not require applicants for energy developments to demonstrate the overall need for renewable or low carbon energy and also recognise that even small-scale projects provide a valuable contribution to cutting greenhouse gas emissions; and*
- *Approve the application if its impacts are (or can be made) acceptable…'*

The proposed solar farm at Fenndyke is compliant with the above policy. The use has a negligible impact on the loss of this land within the context of ALC and their areas within

Lincolnshire and the UK, the proposed development should be considered positively and favourably.