Design and Access Statement

Prepared for

Installation of Solar Panel System to Private Dwelling

Located at

17 South Street, Barnetby Le Wold, North Lincolnshire

Document Details

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Revision	-
Written by	DMH
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Contents

1.0 The Proposal

The development proposal is to install a Solar Panel system onto the rear elevation of the main house and extension roof of 17 South Street, Barnetby Le Wold, North Lincolnshire. No 17 South Street is a Grade 2 listed building, listed as a Farmhouse and first listed in 1985. List entry Number: 1103679.
The property stands on the Southern edge of the village on the South side of South Street, with neighbouring properties to East & West. The front of the property looks onto the properties on the North side of South Street. The rear of the property backs onto open fields.

The property is a private dwelling and the proposed Solar Panel installation is to provide a sustainable electricity source for the property, with any excess electricity being supplied back into the national grid. The property does not currently generate any electricity onsite and is supplied by the Nation Grid / Electricity Supplier. The property owner is keen to generate his own electricity by sustainable means as well as benefit from reduced energy bills and any Feed in Tariff which may be applicable.

Photographs of the property are included in Appendix A of this document.

2.0 Design Principles and Concepts

In designing the Solar Panel installation care has been taken to ensure several robust key design principles have been used to form the design concept and the finished scheme. These key principles are outlined below:

- The Solar Panel system design must have as little impact on the Architectural Aesthetic of the existing building and any surrounding properties as possible.
- The Solar Panel installation design for the property should preserve the original building's special architectural and historic interest.
- The Solar Panel installation design should cause as little modification to the historic buildings structure as possible.
- The Solar panel system should not be visible or impact on any of the elevations which can be viewed from South Street.

3.0 Application of the Design Principles

The National Heritage Listing for 17 South Street describes in detail various features for both identification purposes, but also to form the reasons for its designation as a Grade two listed building. A copy of the listing entry is included in Appendix B.

The majority of these features relate to the Front Elevations and the details of window arrangements, soffits, and facia boards and roofing materials. The Farmhouse has had an extension added at some point since the date it was originally built. This extension is clearly identified because as it is built in a red brick rather than the yellow of the existing house. The extension does include window designs which are in keeping with the original building. However at some point post the extension being built, work has been carried out using materials which are not

in keeping with those used on the original building. The main area where these can be identified are the use of flat interlocking concrete tiles on the extension roof, and the addition of an aluminium patio sliding door. These deviations from the original buildings material pallet have resulted in the rear elevation being of significantly less architectural importance than the North, East and West elevations, which are all visible from South Street.

The proposed design of the Solar Panel installation is such that all the panels will be fitted to the South Elevation, (rear elevation) on the roof of the main house and the extension. Since the South Elevation is already of less architectural importance than the rest of the property and the National Heritage Listing information does not make reference to rear of the building, it is felt that the proposed location of the Solar Panel installation will not have a significant impact on the Architectural Aesthetic of the building.

The National Heritage Listing makes reference to the front elevation and its symmetrical layout and historical architectural design of the windows, door and facia boards. It was identified in the design stage of this scheme that the special architectural and historic features of the North, East & West Elevations should be preserved and the Solar Panel installation should no impact on these elevations. As such the Solar Panel Installation has been located on the South Elevation which is of less significance architectural value due to previous works described above.

A key design principle was to ensure that the installation was designed so that it would have as little impact on the historic structure and construction materials as possible. With this in mind it is proposed that the Solar Panel support structure should use a Vario 1 Pan tile fastener, (see Appendix C), which will fix to the existing rafters and is designed specifically for Pan tile installations. The use of this fastener will mean the existing Pan tiles can remain in place and no additional flashing is required. Once the Pan tile fasteners are located several SolidRail Light 37, (see appendix C), will be connected to the Pan Tile fasteners to provide adequate support for the Solar Panels to be installed. The whole installation sits above the roof tiles with the only structural load being transferred through the Pan Tile fasteners. The use of this method of installation ensures that the original building fabric is not permanently removed or damaged to allow the installation. It would also allow the Solar Panel system to be removed from the building once the system has reached the end of its usable life.

4.0 Application of design principles & the special architectural or historic importance of the building

The Solar Panel installation has been designed to be installed in a way which will ensure that the special architectural or historic importance of the building is not damaged by its installation. The system will not be visible by the public and will not affect the North, East & West elevations which are of principle architectural importance and are the most original facades of the building.

5.0 Application of design principles & the particular physical features of the building that justify its designation as a listed building.

As described above No. 17 is listed as a Farmhouse and particular attention is the listing description is made the front elevations and details. The proposed scheme is located wholly to the at the rear of the building. This section of the building is not mentioned in the National Heritage Listing and has been subject to works using materials which are not the same as the original historic construction materials used on the building. The proposed design does not involve the removal of any significant features such as window arrangements, soffits, and facia boards roofing materials and chimney stacks. These will all remain in place. Care has been taken to ensure that there are no changes to the elevations which face South Street.

The proposed works will not require the permanent removal of any of the building fabric. The Solar Panel system will sit above the historic building fabric and will not damage any part of the building structure.

As the proposed works are located at the rear of the building which is not described in the National Heritage Listing, and the works are to an architecturally less significant area of the building it is felt the current design will not have a negative effect on the particular physical features of the building which justify its designation as a listed building.

6.0 Application of design principles & the building's setting.

The proposed development will not result in any increase in the building footprint. The Solar Panel system will not be visible by the public from South Street. The Solar Panel system will also not have an impact on the amount garden surrounding the property. As such it is felt the Solar Panel System will not have a negative effect on the building's setting.

7.0 Access Design Policy

The listed building is a private dwelling and the development proposed is not required to be disabled friendly by either the local development documents or the Building Regulations. The design of the proposed Solar Panel installation does not intend to alter the access arrangements to the building. The external access point will be located in the same position as it currently is. The external pathway to the front and rear doors will remain the same. Internally all doorways will remain the same.

8.0 Access & the special architectural or historic importance of the building

As there is no proposed change to the access of the building both internally and externally it is felt there will be no detrimental effect on the special architectural or historic importance of the building.

9.0 Access & particular physical features of the building that justify its designation as a listed building

As the access width and location will remain the same, and as detailed above the architectural design has taken into account the particular physical features of the building that justify its designation as a listed building, it is felt there will be not impact on these features by the proposed access as designed.

10.0 Access & the building's setting

As there is no proposed change to the access of the building externally it is felt there will be no detrimental effect on the buildings setting.

11.0 Consultation

The Listed Building is a private dwelling with no access to the public. As such there is no requirement for public consultation and none has been undertaken. Consultation was undertaken with the Heritage Officer representing North Lincolnshire Council, for this scheme at the property. The Author has not been made aware of any perceived access issues which were raised during this consultation. The section of the Building Regulations which addresses access does not apply to installation of Solar Panel systems to domestic dwellings and the owner of the property has no specific access requirements.

12.0 Specific Access issues addressed

There were no specific access issues identified within the design process. It was felt the current access arrangements are appropriate for the building and its proposed use. As such no work was undertaken to address any access issues.

Appendix A

Front Elevation

Side Elevation

East Elevation showing the extension

Rear Elevation showing concrete roof tiles and Aluminium Patio Door.

Appendix B

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List entry

Back to results Refine your search Start new search Printable Version Help with searching

List entry Summary

This building is listed under the Planning (Listed Buildings and Conservation Areas) Act 1990 as amended for its special architectural or historic interest.

Name: No name for this Entry

List entry Number: 1103679

Location

17, SOUTH STREET

The building may lie within the boundary of more than one authority.

County	District	District Type	Parish
	North Lincolnshire	Unitary Authority	Barnetby Le Wold

National Park: Not applicable to this List entry.

Grade: II

Date first listed: 19-Dec-1985

Date of most recent amendment: Not applicable to this List entry.

Legacy System Information

The contents of this record have been generated from a legacy data system.

Legacy System: LBS

UID: 165908

Asset Groupings

This list entry does not comprise part of an Asset Grouping. Asset Groupings are not part of the official record but are added later for information.

List entry Description

Summary of Building

Legacy Record - This information may be included in the List Entry Details.

Reasons for Designation

Legacy Record - This information may be included in the List Entry Details.

History

Legacy Record - This information may be included in the List Entry Details.

Details

BARNETBY LE WOLD SOUTH STREET TA 00 NE (south side) 9/6 No 17 19.12.85 GV II Farmhouse. Early C19. Yellow brick in Flemish bond. Pantile roof. L- shaped on plan: 2-room central entrance-hall front with kitchen wing to rear right and outshut in angle. 2 storeys, 3 bays; symmetrical. Panelled door beneath overlight in pilastered doorcase with cornice and hood, flanked by 16-pane sashes in flush wooden architraves with sills and stucco cambered arches. First floor: unequal 9-pane sashes in similar surrounds, with narrower window above entrance. Plain wooden eaves board. Raised and tumbled brick gables. End stacks.

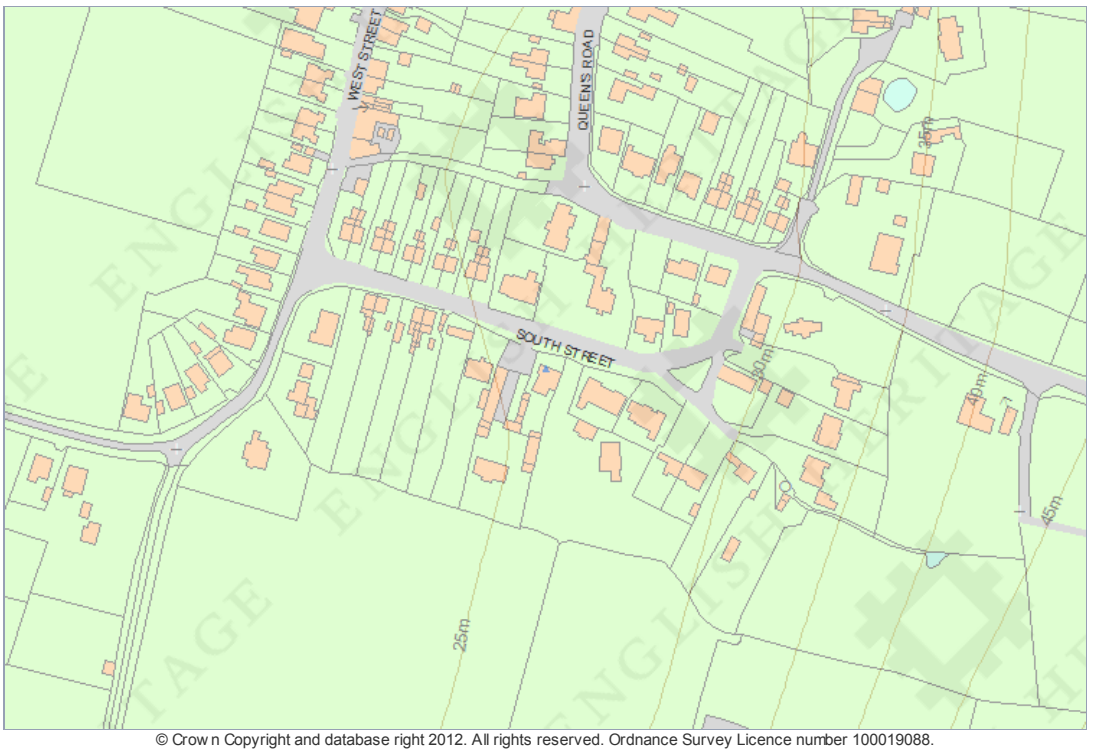
Listing NGR: TA0586309172

Selected Sources

Legacy Record - This information may be included in the List Entry Details

National Grid Reference: TA 05863 09172

Map



The above map is for quick reference purposes only and may not be to scale. For a copy of the full scale map, please see the attached PDF - 1103679.pdf

This copy shows the entry on 21-Feb-2014 at 01:46:08.

Back to results

Appendix C

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K2 SYSTEMS **ROOF ATTACHMENTS**

Roof Fastener for Pan Tile

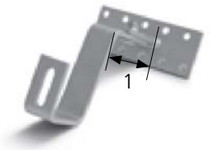
Base plate	Bracket	Height under bracket	Roof lath height*	Overall height approx.
150 x 60 x 5 mm	30 x 6 mm	47 mm	30 mm	133 mm
180 x 80 x 4 mm	35 x 6 mm	38 mm	24 mm	124 mm
180 x 80 x 4 mm	30 x 6 mm	42 mm	28 mm	127 mm
180 x 80 x 4 mm	30 x 6 mm	47 mm	30 mm	133 mm
180 x 80 x 4 mm	35 x 6 mm	47 mm	30 mm	150 mm
180 x 80 x 4 mm	35 x 6 mm	38 mm	24 mm	150 mm
180 x 80 x 4 mm	30 x 6 mm	57 mm	40 mm	144 mm
180 x 80 x 5 mm (Alpin)	40 x 8 mm	47 mm	30 mm	121 mm

*Provided that the tile thickness is between 12 and 15 mm, Material: Stainless steel (1.4016) welded both sides

Portoghese

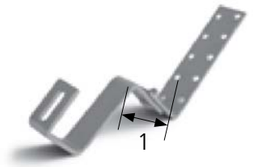
Base plate:	150 x 60 x 5 mm
Height under bracket:	30 mm
Bracket:	30 x 5 mm
Overall height:	approx.135 mm
Material:	Stainless Steel (1.4016)

Spanish tile roof, rafters or concrete



Base plate:	150 x 60 x 5 mm
Height under bracket:	approx. 108 - 137 mm,
Bracket:	35 x 6 mm
Overall height:	approx. 190 - 220 mm
Material:	Stainless Steel (1.4016)

Spanish tile roof, purlins

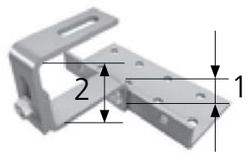


Base plate:	201 x 50 x 5 mm
Height under bracket:	approx. 100 - 129 mm,
Bracket:	35 x 6 mm,
Overall height:	approx. 180 - 210 mm
Material:	Stainless Steel (1.4016)

Vario 1

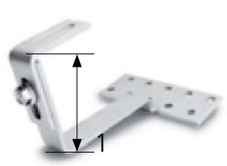
1. Bracket:	min. 55 max. 90 mm
Base plate:	150x60x5 mm
Bracket:	30x6 mm
Height under bracket:	43 mm
Overall height:	approx. 112-145 mm
Material:	Stainless Steel (1.4016)

Vario 2



1. Bracket:	min 47 max 59 mm
2. Bracket:	min 57 max 97 mm
Base plate:	140x55x5 mm
Bracket:	30x6 mm
Height under bracket:	47-59 mm
Overall height:	approx. 105-155 mm
Material:	Stainless Steel (1.4016)

Coppo



1. Bracket:	min. 106 max. 136 mm
Base plate:	150 x 60 x 5 mm
Bracket:	30 x 5 mm
Height under bracket:	18 mm
Overall height:	approx. 137-167 mm
Material:	Stainless Steel (1.4016)

Roof Fastener for Flat Tile

Bracket:	40 x 6 mm
Height under bracket:	33 mm
Overall height:	approx. 122 mm
Material:	Stainless Steel (1.4016)

Roof Fastener for Flat Tile (double roofing)

	for 30 mm timber batten (only usable for flat tile)
Width:	150 mm
Height under bracket:	33 mm
Overall height:	approx. 103 mm
Material thickness:	2 mm
Material:	Stainless Steel (1.4301)

Roof Fastener Slate

Bracket:	40 x 250 x 6 mm
Overall height:	70 mm
Material:	Stainless Steel (1.4301)

K2 stainless steel roof fastener can be combined with the SolidRail range of rails. The connection to the rail is performed with a hammer head bolt in to the underside of the rail.

K2 SYSTEMS **MOUNTING RAILS**

SolidRail UltraLight 32

Span width:	130 cm
Height:	32 mm
Length:	6,10 m
Weight:	0,7 kg/m
Material:	Aluminium

SolidRail Light 37

Span width:	145 cm
Height:	37 mm
Length:	2,10 | 3,43 | 4,35 | 5,40 6,10 m
Weight:	0,85 kg/m
Material:	Aluminium

SolidRail Medium 42

Span width:	200 cm
Height:	42 mm
Length:	2,10 | 3,43 | 4,35 | 5,40 6,10 m
Weight:	1,3 kg/m
Material:	Aluminium

SolidRail XL 140

Span width:	690 cm
Height:	140 mm
Length:	6,00 m
Weight:	4,96 kg/m
Material:	Aluminium

CrossRail 36

Span width:	160 cm
Height:	36 mm
Length:	4,20 | 6,10 m
Gewicht:	0,96 kg/m
Material:	Aluminium

SolidRail Alpin 60

Span width:	260 cm
Height:	60 mm
Length:	6,10 m
Weight:	1,7 kg/m
Material:	Aluminium

SolidRail LS 85

Span width:	445 cm
Height:	85 mm
Length:	6,00 m
Weight:	2,95 kg/m
Material:	Aluminium

SolidRail L 85

Span width:	450 cm
Height:	85 mm
Length:	6,00 m
Weight:	3,368 kg/m
Material:	Aluminium

CrossRail 48

Span width:	210 cm
Height:	48 mm
Length:	6,10 m
Weight:	1,24 kg/m
Material:	Aluminium

CrossRail 62

Span width:	290 cm
Height:	62 mm
Length:	6,10 m
Weight:	2,03 kg/m
Material:	Aluminium

CrossRail 90

Span width:	450 cm
Height:	90 mm
Length:	6,10 m
Weight:	3,07 kg/m
Material:	Aluminium

The K2 SolidRail range of rails is connected to the relevant K2 substructure with the hammer head bolt at the underside of the rail. The CrossRail range of rails can be completely installed from above with the K2 CrossHook and Climber. Rail connector sets are available for all K2 rails.

Example calculation of UK:
Definition of axes: I = geometrical moment of inertia; W= axial section modulus | Span width: The rail span follows from an 85 percent utilisation in the elastic-plastic calculation to K2 standard conditions. The K2 standard conditions for span calculations consist of:
Height above sea level: 100 m | Roof pitch: 30 ° | max. Snow load 0,650 kN/m² (equiv. UK Snow Load Zone IV) | max. Wind Load 1,05 kN/m² (equiv. Wind Speed 22,7 m/s) | Distance to Shoreline: >10000 m | Terrain Category: Rural Area | Building height: max. 10 m | Rail as continuous beam (3 fields) | Central Roof Area | Weight of Solar Module: 20 kg | Solar module: 1650 x 810 mm.
Regardless of the specified standard conditions, all K2 rails can generally be used in all snow and wind load zones. All aluminum profiles are made of AL EN AW 6063 T66.