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Project Shepherd Huts: Lower Town, St Martins

Illustrative; typical design proposal

Project Summary

- The project intends to locate 2 X 9 meters shepherd's huts in the lower field of the Apple Tree Cottage Land Holding in Lower Town, St. Martins.
- The project follows the successful location of a shepherd's hut in the Vineyard, Higher Town St Martins and recognises the planning requirements for new tourist accommodation defined in the Local Plan 2021.In turn the new policies within the plan also define requirements that accord with, the AONB, SSSI, Archaeological and other wildlife and ecological statutory and local considerations.
- The successful application for 2 shepherd's huts in the vineyard follows an earlier successful application for a shepherd's hut located to the west of Green Lane above Middle Town, as referenced in the successful vineyard application.
- This project acknowledges these pathfinder submissions from the successful applicants and the Council's responses and requirements ahead of the approval notification. This application is therefore modelled on those early applications submitted and is compliant with the IOS Council's latest Local Plan, adopted by full Council, on 25th March 2021.
- It is intended that they shall be 'off grid' huts with minimum impact on the local environment and an aspiration to be 'net zero' in terms of carbon footprint. This will be supported using regenerative power sources, water harvesting, recycling and an acknowledgement of the impact of freight by use of a solar charged, electric quad for island transportation, and an 'offset levy' on shipping and transport costs to contribute to local environmental projects.
- It is hoped the huts will become an island reference point for others interested in the new technologies, how they function and contribute to the aspiration for carbon neutral emissions.

Site Location: Lower Town St Martins. Grid Reference SV 91522 16069 Elevation 6mts above sea level

Project Application and Plan for 2

Shepherd Hut Holiday Lets: Lower Town, St Martin's

Comprising:

Planning Statement

1. **Shepherd Hut Design Concepts**
    a. Shepherd Hut Planned Construction Specifications
    b. Exterior
    c. Interior
    d. Technical Specifications
2. **Site Location & Access Statement**
    a. Site Location
    b. Visual Impact
        i. **Existing viewpoints**
        ii. **Enhanced environmental improvements**
    c. Access
    d. Known & Related Archaeological Sites
3. **Other Matters of Immediate Consideration**
    a. Local Designations that Pertain
    b. Local Policies
    c. Other Related Issues
4. **Associated Plans (Submitted as separate documents also)**
    a. Elevations
    b. Floor and Roof
    c. Build Location
5. **Unique Contribution**
        i. Carbon neutral and environmental challenges

Planning Statement

Submitted after the adoption the Isles of Scilly Local Plan (adopted 25/03/2021)

- The proposal is for the construction of 2 Shepherd's Hut Holiday units within the landholding of Apple Tree Cottage, Lower Town, St Martin's, Isles of Scilly. Each unit would provide holiday accommodation for 2 adults.
- The application is designed to increase the availability of good quality accommodation on St Martins that will encourage visitors for a longer season during periods when the weather is less predictable, particularly for those interested in Spring horticulture, Autumn ornithology and the Cosmos Dark Skies Project. By their nature and design the Shepherd's Huts also cater for the increasing number of visitors interested in the 'off grid' and 'carbon neutral' movements. This application is submitted with reference to the new Isles of Scilly, Local Plan and is discussed in detail further below.
- The huts would measure 9.0m x 2.8m and are 3.4m high at the arc of the roof. Given the proposed location, the closest buildings are the timber barns situated further north of the site along the access lane. The proposal for external larch cladding will match those existing buildings and will blend, in terms of colour and texture, to the immediate surroundings.
- Each unit would have an internal floorspace of 25 m^2. Each roof surface is made from curved, dark grey corrugated metal sheeting. The shepherd huts are pre-engineered and transported as a kit to enable ready erection on site with a minimum of waste and need for extraneous materials. The huts have a pre-treated wooden frame, mounted on a primed and painted steel chassis with steel wheels, to reduce on site requirement for the use of chemicals and paints during the construction process. This reduces both the environmental impact and excess waste materials. Required ground works would be for 8 concrete squares to provide support for each hut's 8 wheels. Access to the site is via an existing tractor track and requires no additional ground works or preparation.
- Internal facilities and space are designed to provide a comfortable living environment that would support extended seasonal vacations during periods of less clement weather. Each hut would have 1 double bedroom, shower room and composting toilet cubicle. In addition, a modern kitchen workspace with small utility room for the location of services, header tank and domestic storage for utilities and tools. It is intended to have either a solar powered underfloor heating system or a small solar powered air pump. In the first instance, appliances will be multi fuel source to allow for breakdowns in what is a robust, but emergent technology, to ensure holidays are not abruptly brought to a close by solar failure.

- Water will be harvested, both as rain and grey water. Rainwater will be triple filtered and UV treated for pumping to a header tank and then finally filtered through a 'Big Berkey'® gravity system equipped with Black Berkey® Purification Elements that remove greater than 99.999% of viruses and greater than 99.9999% of pathogenic bacteria. It also removes protozoa, trihalomethanes, inorganic minerals, heavy metals, pharmaceuticals, pesticides, VOCs, petroleum products, per fluorinated chemicals, rust, silt, sediment and even radiologicals. An existing potable water source, available on site will be used to support shortfalls or any occasion when water tests indicate a drop in water quality.
- Grey water will be recycled via a tank and filtration system for use in the small solar powered washing machine and eventually re-filtered and used for the small hydroponic and raised beds for catch crop salads used to support the experience of an 'off grid' holiday experience.
- The use of a composting toilet minimises the use of water and the need for 'black water' waste management on site, whilst providing high quality compost for trees and vegetation at the end of a 1 year cycle.
- Provision of a soakaway for grey water (shower, washing machine and sink) and rainwater would only be used in instances of prolonged or extraordinary storm rainfall where the capacity of on-site storage may be overwhelmed. There are no boreholes within the curtilage of the proposed site or within 100 meters.
- The proposed siting of the shepherd's huts provides good screening from footpaths and tracks, the roads and existing dwellings/businesses. The entrance and access to the proposed huts is along a wide and level track. It is intended to enhance the screening by the planting of local elm and pittosporum hedges (walls) at the eastern entrance to the site and to the north stone wall (hedge) to provide improved shade and screening as the site matures.
- The proposed location for the units is currently a sand blown, disused flower field approximately 0.3 of an acre in size. The introduction of some small, raised vegetable beds and a small hydroponic garden will be further enhanced with the planting of flower beds, a small water feature for wildlife, local trees and some fruit trees., that will serve as a nature wall between each hut affording some privacy to each set of visitors.
- It is intended to place bat boxes in the small, wooded area to the west of the site to encourage a colony of breeding bats.
- External to the shepherd's huts will be a small decking area for sitting and eating al fresco whilst enjoying the garden area, spotting and recording daytime fauna and 'bat spotting' in the evenings. The decking serves as a manageable fire escape route through the bedroom window in the event of emergency
- The related site plan, attached to the application, shows the proposed siting of the huts within the existing field
- The plan provides detailed commentary to show compliance with the Local Plan polices in Section 3 of this document.

1: Shepherd Hut: Design Concepts

a.Shepherd Hut Planned Construction Specifications

- The design of the proposed shepherd's huts is basic, yet sturdy, built of Larch shiplap timber around a strong ribbed wooden carcass mounted on a steel chassis, supported on steel wheels. The shiplap timber will blend into the environment of trees and hedges and provide visual continuity with the barns located a few meters away on the access lane. Shiplap timber has several advantages over the alternative metal clad designs. Chiefly, the façade may be easily repaired in the future, should it suffer storm or other damage, by the replacement of individual wooden strips. Damaged wood is easily recycled through shredding. Metal panels, by contrast, may no longer be available in a size to match. Damaged metal panels are not readily recycled and may become a waste management issue. The longevity of the barns located along the lane are testimony to the ability of such structures to withstand the sometimes harsh environment found on these islands.

- Roof is a standard coated, curved corrugation, form. Steel has been found the best surface to support water harnessing for filtration and cleansing for potability as little adheres to the surface by way of lichen, for example, that may enter the filtration system resulting in blockages. Any damage is more readily repaired and is not in a visual eyeline.

- The carcass is wrapped in a breathable waterproof membrane prior to cladding and the internal sections insulated after internal plumbing and wiring are installed. The interior finish is pine tongue and groove boarding finished in a sympathetic colour scheme. All apertures are wooden and double glazed.

- Bathroom, kitchen and service facilities are all proven, top performing, low carbon footprint appliances and fittings.

Specifically:

- Concrete slab footings for wheels, 30x30x15cms laid above MOT Class 1 substrate
- Steel wheels and chassis support treated cross members and insulated and treated OSB floor panels above an additional waterproof membrane
- Ribbed carcass built from 3X2 treated timber
- Larch shiplap cladding screw fixed over breathable dampproof membrane
- Sheep's wool, earth wool, cork and recycled wood are used as the primary wall and roof insulants being more environmentally friendly and efficient

1: Shepherd Hut: Design Concepts

a. Shepherd Hut Planned Construction Specifications

Shepherd Hut Planned Construction Specifications (continued)

- Outer walls clad with Larch shiplap to blend with existing barns on situated along the shared access track
- Windows are timber double-glazed set either side of the entrance doors providing light to the bedroom and kitchen. Additional single windows are located in the toilet and bathroom to provide light and ventilation. A further single narrow north facing awning will be positioned to enable through ventilation to the main room and periods of non-occupancy. The windows would be predominantly south facing providing ample light and views of the garden area but sheltered by the pittosporum trees to the south of the plot.
- The timber double glazed doors provide the entrance to the huts and will be outward opening to avoid restrictions to internal floor space and provide stronger resistance to the prevailing strong southerly winds of late summer, autumn and winter.
- The curved roof is made of dark grey corrugated metal sheet panels with a small overhang to provide drip clearance and water harvesting into guttering which diverts to potable quality water butts.
- Wooden steps and a small platform provide access to the hut and space for the swing of the outward opening doors.
- An enclosed double-bed room with south facing window and views to the garden.
- The toilet room contains a proven Separett® waterless, composting toilet (Villa 9020 model) which discharges through the floor into removable collection container. This conforms to Building Regulations 2010, Part G 4.19;

'Chemical toilets or composting toilets may be used where: a. suitable arrangements can be made for the disposal of the waste either on or off the site; and b. the waste can be removed from the premises without carrying it through any living space or food preparation areas (including a kitchen)'

The toilet has an automatic concealing screen and a 12vDC fan to vent the odours from the facility, whilst speeding the drying of the waste material. Urine is separated and collected in a different receptacle for disposal in a septic tank. Solid waste would be kept in a composting receptacle located in the wooded section of the field, to the west of the huts, where, after an appropriate time (9-15 months), it may be used to fertilise the trees and the various flower beds. Whilst the under hut storage has the capacity for 30-40 days waste storage, the containers will be refreshed on a weekly basis; by the owners, not the visitors.

A men's urinal will be placed in the toilet facility to reduce the risk of urine leakage through the screened area of the Separret® toilet bowl due to the differing ergonomics of male and female urination positions.

- A kitchen area including a sink with running hot and cold water; an induction hob; and a work surface/food preparation area. The kitchen will be provisioned with:
    - Filtered potable fresh water
    - Instant water heater
    - Multi fuel cooking facilities
    - Multi-function 'Instapot®' cooker
    - Microwave
    - A multi fuel fridge/freezer
    - Suitable recycling and waste disposal units
- A separate shower facility shall be connected to the instant water heater and grey water disposal facility. This room will have some capacity for hanging laundry on wet days
- A small multi voltage 12vDC/230 vAC twin tub washing machine will utilise the filtered grey water from the sink and shower waste in the first instance. It will then pump to a further grey water receptacle for secondary filtration to provide water for the garden and hydroponic growing containers. Grey water in excess of horticultural requirements may require a small soak away located at a convenient site to the north of the huts. The use of grey water is well researched in terms of health and efficient waste management of water. Recent research papers are attached as appendix 2 & 3
- It is planned to locate a small 'service facility' located between the two huts on the north side. The service facility will contain the water butts and other required utilities for both huts. There is an ample supply of previously excavated rocks and boulders in the field that can be used to build a suitable dry wall to screen the service facility. This wall will, in turn, be planted with local elm and pittosporum to eventually grow and screen the wall itself and appear a normal feature of the locality.

- Lighting throughout the huts will be 12vDC LED
- DC power will be 5, 12 and 24vDC to service various low voltage appliances and mobile devices
- 240vAC will be via a standard 3.5KV solar supply system through conventional inversion
- Internet will be provided via low voltage 'ee® mobile sim modem' providing 4G unlimited connectivity
- Flooring will be wood effect tile planking with solar powered underfloor heating. Tiling will be more durable in a sandy environment and conducts the heat more effectively than wood.
- Internal walls are pine tongue and groove, sympathetically coloured and allowing the ready fixing of internal shelving and décor. At this point it is worth noting that the larch shiplap will be marked to identify panels that may be easily removed to gain access to plumbing or wiring runs should an exigency arise in the future. This will preserve the interior from major and costly disruption.
- There will be a small utility area to locate the internal water connections, and house electricity consumer units and safety devices
- A range of internal cupboards, wardrobe and small storage units will provide additional capacity for the guests to keep their possessions
- Internal fittings will be completed with an extending dining table, folding chairs, comfortable seating area and curtains

The following sections illustrate typical designs and finishes to assist visualisation of the design concepts.

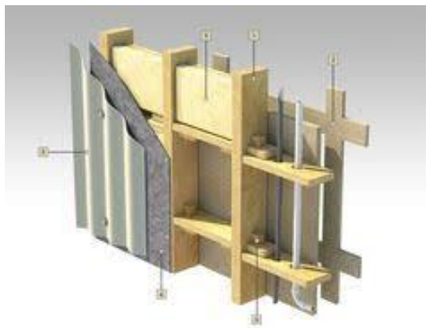
1: Shepherd Hut: Design Concepts

b. Exterior Design

 	Typical chassis construction for the shepherd's huts. Steel framed and steel wheels, coated, primed, undercoat and painted black in colour.
 	Typical carcass construction showing floor and ribs mounted a chassis and the basic form and structure of the roof curvature.

1: Shepherd Hut: Design Concepts

b. Exterior Design

 	Typical roof profile and overhang to accommodate guttering and water harvest facilities on site.
 	Typical weatherproof membrane prior to cable and plumbing insulation & typical insulation cross section for carcass prior to tongue and groove internal fitment.

1: Shepherd Hut: Design Concepts

b. Exterior Design

	Painted exterior of a typical shepherd's hut that is sympathetic to its surroundings, whilst contrasting the frames and cladding.
	Natural larch shiplap finish that is in keeping with the barns located along the access track to the shepherd's huts. Profiles such as these blend easily with the tree and hedge surroundings.

1: Shepherd Hut: Design Concepts

c. Interior Design Finishes and Features

Typical floor plan showing separate double bedroom, living, kitchen and bathroom areas.

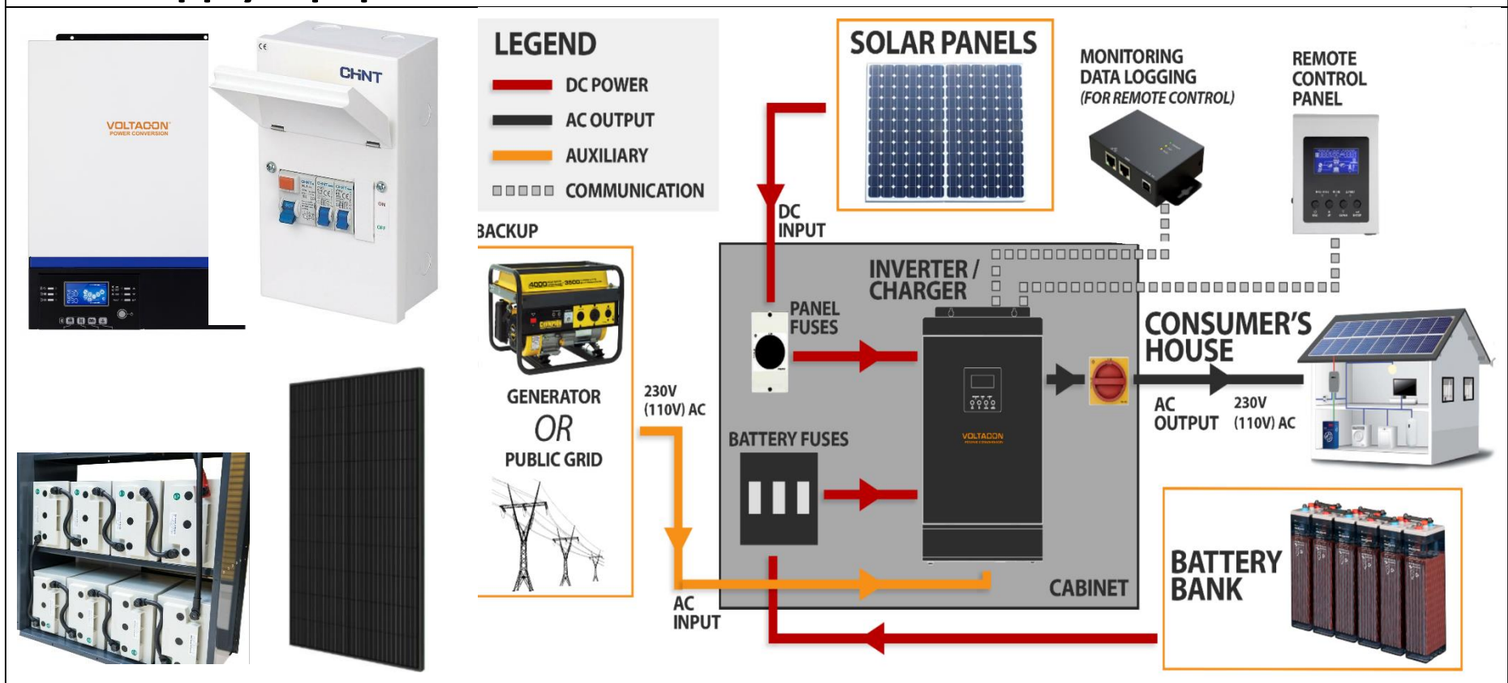
Typical shepherd hut kitchen layout with utilities including microwave.

Typical interior showing the Separret® toilet, shower base and folding table and chairs for the living area.

1: Shepherd Hut: Design Concepts

d. Technical Specifications

This section of the document illustrates the likely deployment of equipment to service the shepherd's huts in order to provide a low carbon off grid holiday experience for the visitors, as well as the minimal impact on existing island resources. All the equipment proposed is tried and tested and used globally in similar circumstances. They are proven to be both efficient and reliable as well as conforming to environmental standards expected of new technologies that support low consumption and low emissions and low production of waste.

Solar Supply Equipment	Comment
	The solar power for each hut will be a 3.5 Kva system with battery storage, inverter/control panel, consumer unit, isolator and safety cut off RCCD. The power is via 10X 330w solar panels of latest efficient design and deep cycle GEL batteries with a 25 year life span to reduce risk of high turnover of difficult waste materials for disposal. The schema opposite shows a typical means of connectivity and distribution.

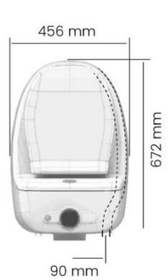
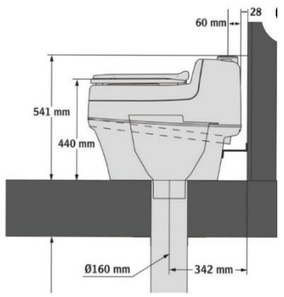
1: Shepherd Hut: Design Concepts

d. Technical Specifications

Water: Harvesting, Filtration, & Grey Waste Management	**Comment** Rainwater is harvested from the roof, front and back.
	The distribution and use are as follows: 1)Water is dual filtered and debris and leaves removed to the grey water tank at 4, whilst the clear water enters the potable quality water tank at 1 2) Water is pumped to the hut header tank via a 3 stage carbon filter that produces drinking quality water 3)Water for the sink and hot water pass directly from the header tank. Drinking water is further filtered through the Berkely Bear system at, 3 to produce 99.99% pure water devoid of all harmful bacteria and other metals and chemicals. 4)Grey wastewater enters the butt at 4 5)Grey water passes through a particle filter to the washing machine 6)Grey water then enters the final grey water butt 7)Grey water is finally used for the vegetable beds and hydroponic circulation (see section 2.c.ii below).

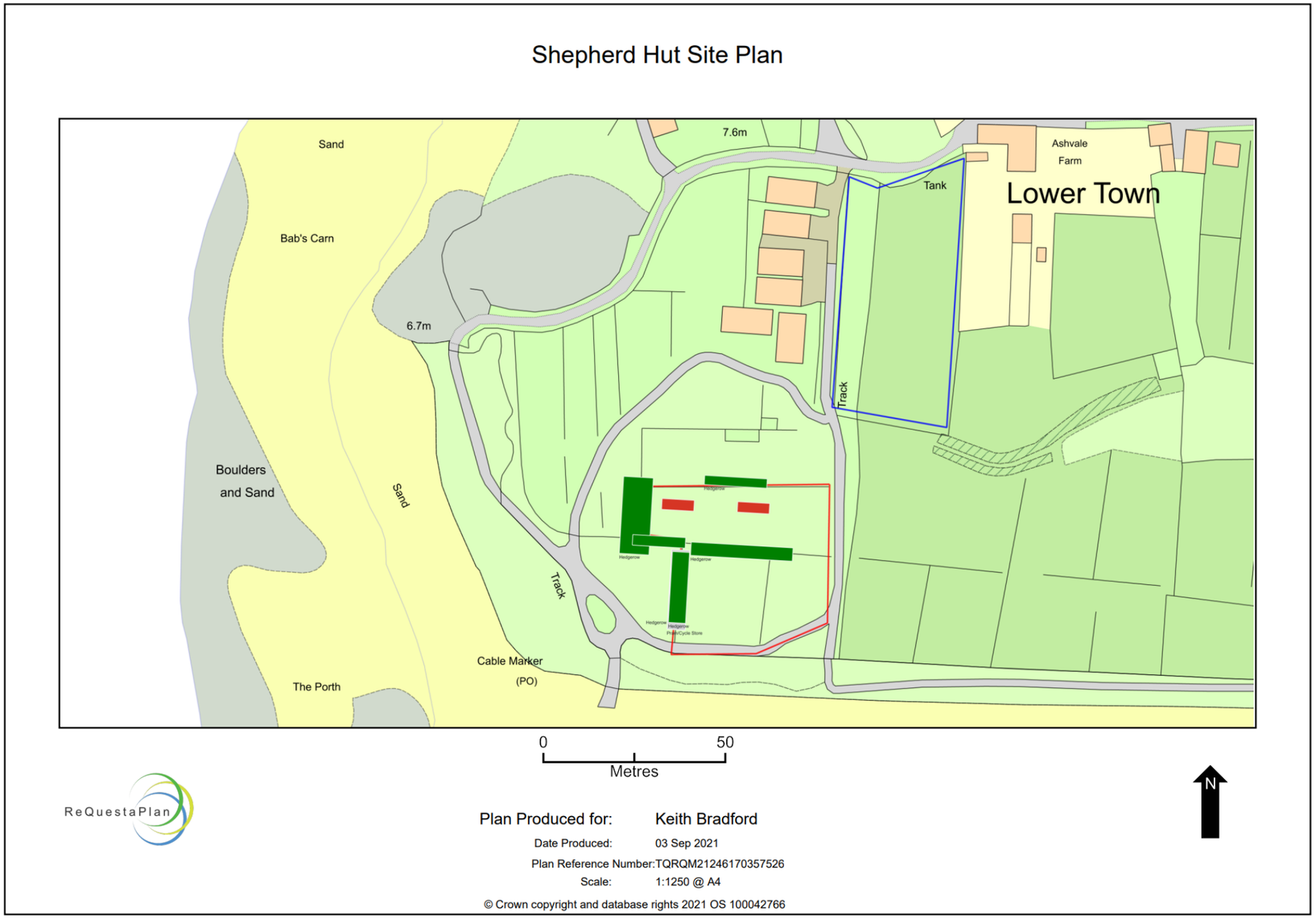
1: Shepherd Hut: Design Concepts

d. Technical Specifications

Composting Toilet, Shower & Waste Disposal	Comments
      	Separret 9020 is one of the world's most widely used compositing toilets. It provides efficient urine and solid waste separation to self-contained receptacles. The waste is passed through the building floor and wall negating the need to carry waste through the building in accordance with building regulations. Fluid waste will be disposed of through the existing septic tank whereas the solid waste will be stored in a compositing vessel for use in late winter/early spring on the flower beds and to mulch the trees. The Separret® 9020 has a 12vDC fan that directs air across the waste matter to dry it rapidly and reduce odours which are vented through a screened duct at the rear of the huts. The toilets use 0% water. The pumped shower will be restricted to 25 litres of water over a 5 minute period to reduce waste. All soaps will have 0% environmental negative impact.

2: Shepherd Hut: Site & Access

a. Site Location



2: Shepherd Hut: Site & Access

a. Site Location

Illustration of Location	Location of Viewing Points
	
Showing the site location relative to Apple Tree Cottage and its relationship to the Barns located along the access track	Images below show the lack of visibility to the site apart from the access opening that will be planted to pittosporum and elm for shielding.

2: Shepherd Hut: Site & Access

b. Visual Impact: i Site Location Views

View A from outside Faye Page Jewellery shop on the main road overlooking the golf course towards the tree boundary of the proposed site.
The trees are mature and to a height of some7 to 10 meters shielding the site and huts from view.

View B the access to the proposed site is an open view. On all other aspects the site is screened by mature pittosporum and elm trees. It is intended to plant elm and pittosporum along this aspect to provide a mature screen to the site over a number of years.

View D is from the southwest at the top of the beach access slip. A mature hedge of tall pittosporum and a mixed wooded area to the west of the proposed site completely shield the location from view.

View C is from the southeast at the start of the sandy lane from which side the proposed site is completely shielded by mature pittosporum and separated by an additional field, scrub and self-seeded grass and bulbs

2: Shepherd Hut: Site & Access

b. Visual Impact: Site Location Views

The shepherds' huts have a footprint of 9mts X 2.8 suiting the rectangular profile of the field and allowing for a small recreational space in front of each hut with the addition of the proposed environmental enhancements discussed later in the proposal.

The northern boundary stone wall will be further planted with pittosporum to provide additional shielding and the return the original field boundary along its length to the small, wooded area to the west of the field.

The field is an old bulb filed that has become sand blown and overgrown through lack of cultivation. The vegetation is a mix of grasses, bracken, bramble and residual narcissus clumps.

2: Shepherd Hut: Site & Access

b. Visual Impact: i Site Location Views

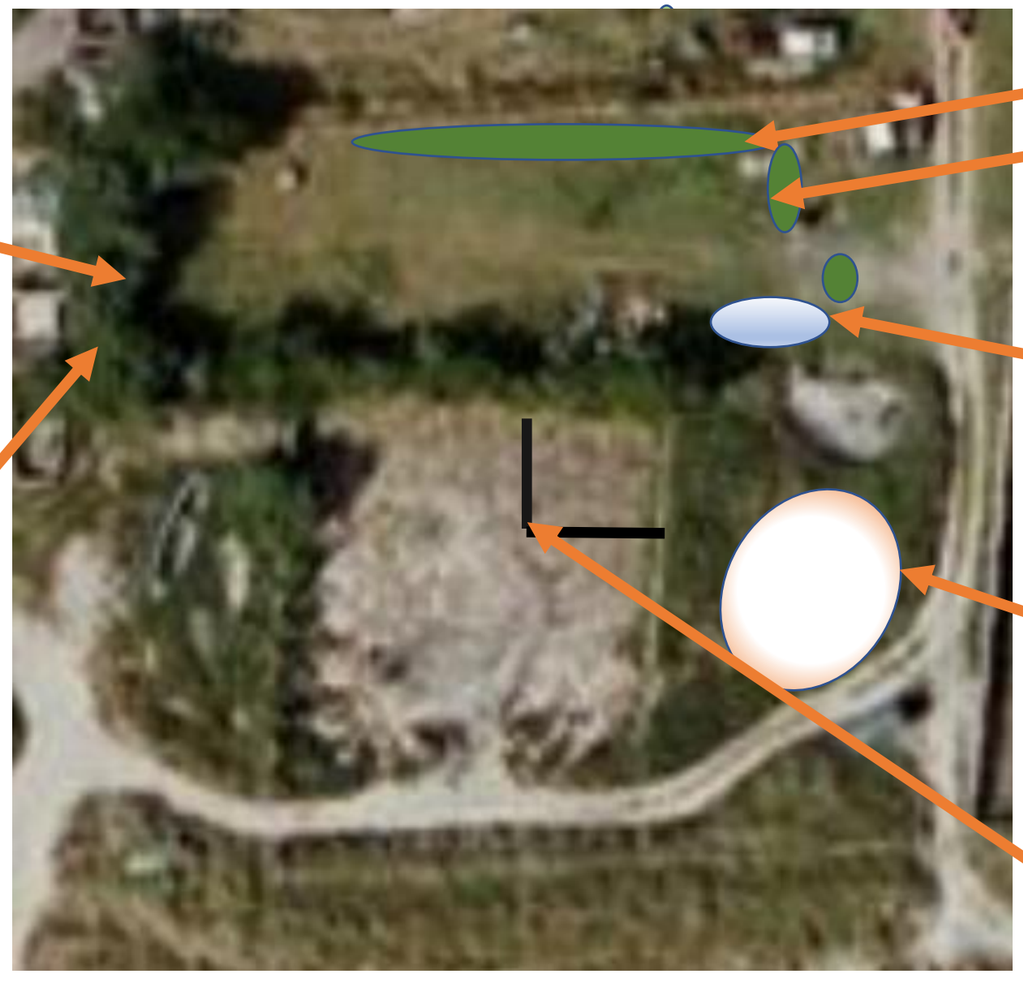
Prospective view (impression) with huts in situ:

2: Shepherd Hut: Site & Access

b. Visual Impact: i i Environmental Improvements

It is intended to improve the general environment of the proposed site with the objective of widening the diversity of fauna at this location. Until the mid-1980s, Lower Town had a considerable bat population which declined rapidly as derelict buildings were brought back into use and the introduction of more modern agricultural practices that reduced the insect population. It is intended to provide bat boxes in the small, wooded area to the west of the proposed site, with the addition of a freshwater pond to encourage amphibians and attract more insects.

Roosting and nursery boxes located in the trees to encourage roosting and a bat colony to establish



Pittosporum and elm planted to fill gaps in the hedge and provide screening and more nesting places for birds.

Fresh water pond to encourage amphibians and insects to colonise the site. Fed from the harvested rainwater overflow

Corner field recovered from scrub and landscaped with suitable local flowers to encourage diverse insect populations.

Small drystone wall to screen the solar panels.

2: Shepherd Hut: Site & Access

c. Site Access

Access to the site is along a wide existing lane that has served the barns for the past 30 years and is wide enough for tractor and, importantly, the fire service appliances. The site itself has a 20 metre opening that presents no restriction to any form of vehicular traffic. It is the only 'open' aspect to the site and would be subject to Elm and Pittosporum planting to provide appropriate screening of the huts.

Access along the north/south barn lane

The red line is the direction and location of the access lane enabling fire appliance and tractor access to the site. The lane is firm and compact from the road to the site and readily accommodates tractor and other vehicular traffic from time to time. Beyond the proposed site the lane becomes sand blown.

Access to the site

The site is some 30 metres wide and open along this length with a redundant gate. Frontage to the lane is currently used as a temporary boat store. The site is level and firm providing good traction to vehicles and a firm underfoot for pedestrians. The site is above the 5-metre critical flood level and has never been subject to flood in living memory.

2: Shepherd Hut: Site & Access

d. Known & Related Archaeological Sites

General policy and guidance for the conservation of the historic environment are contained within the National Planning Policy Framework (NPPF: Department for Communities and Local Government 2018).

Paragraph 189 States:

"In determining applications, local planning authorities should require the applicant to describe the significance of any heritage assets affected, including the contribution made by their setting. The level of detail should be proportionate to the assets' importance and no more than is sufficient to understand the potential impact of the proposal on their significance. As a minimum the relevant historic environment record should be consulted and the heritage assets assessed using appropriate expertise where necessary."

In submitting this proposal, we are fortunate in that a recent 2018 survey, conducted for a proposal by the Karma hotel, included a detailed list of the known historic sites in the region of Lower Town. Additionally, the Isles of Scilly Local Plan has produced Island Policy Maps that also indicate the designations of various areas of the island including those areas deemed to be of historical importance. Both recent sources show that the proposed site has no such designation associated and no known finds in the immediate vicinity. It does not overlook, nor obtrude, into any of the areas so designated and therefore should not detract from, or cause damage to the historic environs. It is not planned to excavate the site beyond the setting of the concrete slabs to support the hut wheels as described above.

Those historic sites closest to the proposed site includes an area of area of Archaeological Constraint detailed below and shown on the relevant map.

2: Shepherd Hut: Site & Access

d. Known & Related Archaeological Sites

Located to the west of the proposed site are:

1. THE PORTH - Post Medieval boat house. Old photographs show boathouses (gig sheds) at The Porth; there are now no remains. Post Medieval
2. THE PORTH - Post Medieval quay A ruined quay, revealed after sand shifted during the severe storms of January 1990. Post Medieval
3. LOWER TOWN - Post Medieval kelp pit. A group of four kelp pits eroding out of the dune face southwest of Lower Town. Post Medieval

Located to the north and east of the proposed site are:

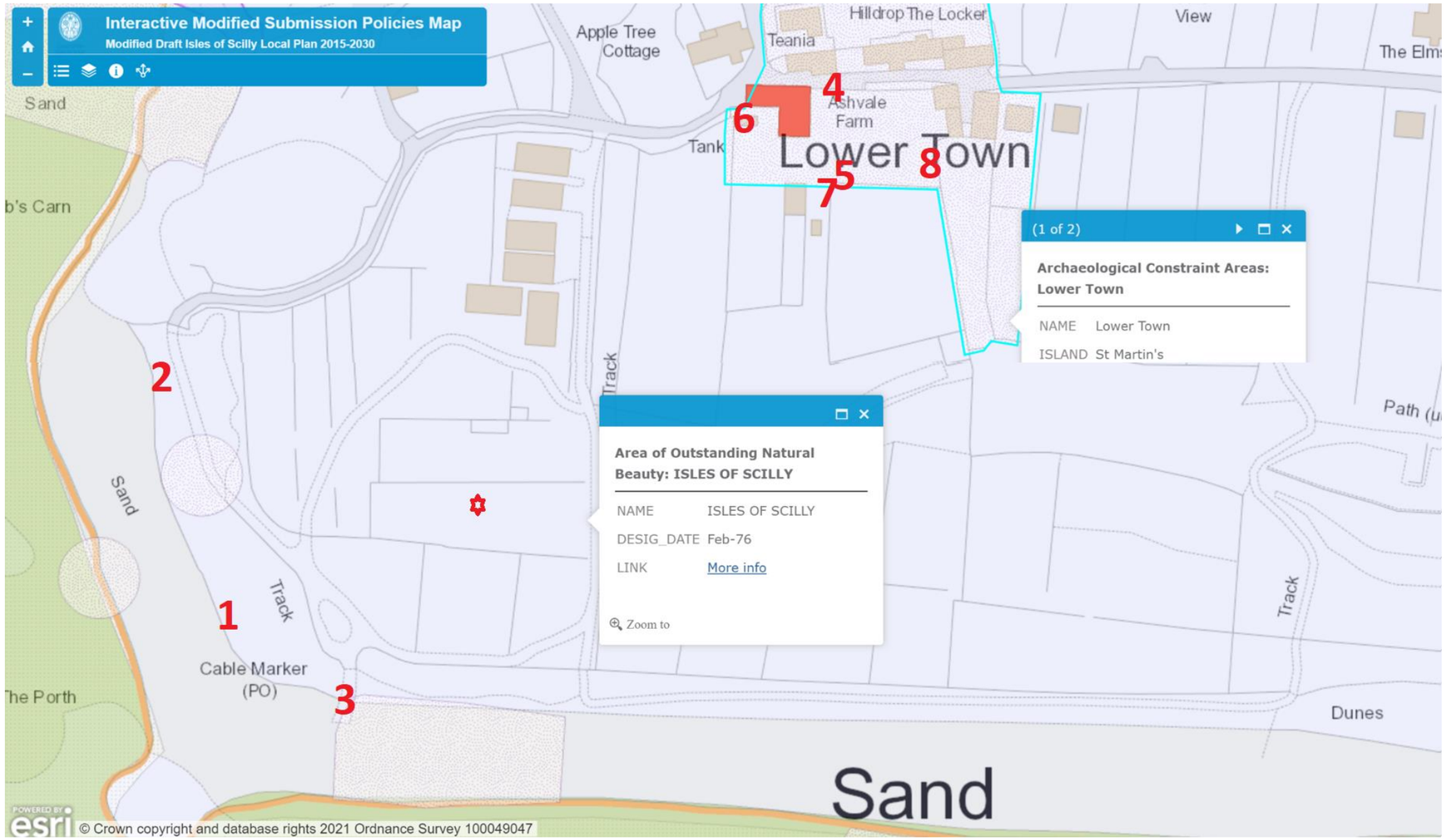
4. ST MARTINS - C19 farmhouse. A mid-C19 farmhouse incorporating older elements. Post Medieval
5. LOWER TOWN - Early Medieval settlement. The site of a C10-C16 settlement indicated by the discovery of a midden, a grave and pottery on the south side of Lower Town. Early Medieval
6. LOWER TOWN - Prehistoric findspot.t A flint scraper found in the roots of an up-turned tree after a winter gale in 1979. Prehistoric
7. LOWER TOWN - Neolithic lithic scatter, Bronze Age lithic scatter. A concentration of flints recovered from fields at Lower Town during SWEB trenching. Prehistoric
8. LOWER TOWN - Post Medieval well. A stone-lined well, visible on the surface as a square setting of granite slabs with granite lintels. Post Medieval

Credit Karma application and SOUTH WEST ARCHAEOLOGY LTD. REPORT NO. 181107

2: Shepherd Hut: Site & Access

d. Known & Related Archaeological Sites

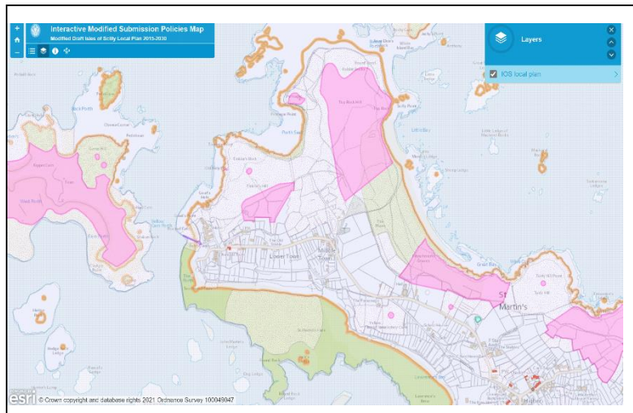
Local Plan Policy Map showing current designation of the proposed site and the sites of historic interest as detailed above. ✸ Indicates the proposed site.

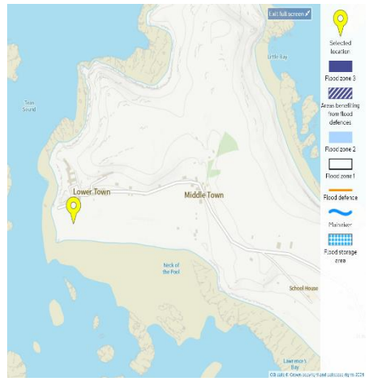


3: Shepherd Hut: Other Matters of Consideration

a. Local Policies that Pertain

The statements that follow relate to the current Isles of Scilly Local Plan (2021) and related Policy Maps, Government Agencies, other NGO's and interested bodies.

<table>
<tr>
<td> 

The Isles of Scilly Policy Map for St Martins was consulted to determine the various designations that are identified, or associated, with the proposed site for this planning application</td>
<td> 

The Environment Agency (EA) Flood Map for assessment of planning applications was also referenced in addition to the Policy Map. This shows the proposed site to be Flood Area 1, low risk. In addition, as a site under 1 Hectare, it is deemed that no further assessment is required for a planning application. The assessment is shown as appendix 1 to this application.</td>
</tr>
<tr>
<td>The Local Plan identifies a number of regulations, policies and agencies that have a bearing on planning applications. These are then clarified as a series of aims and objectives by the Council for the community at large. Those which have a bearing on this application are:

National Planning Policy Framework (NPPF)
Area of Outstanding Natural Beauty (AONB)
Archaeological Constraint Area (ACA)
Heritage at Risk (HAR)
Historic Environment Records (HER)
Sites of Special Scientific Interest (SSSI)
Special Areas of Conservation (SAC)
Special Protection Area (SPA)
Wildlife and Protected Species; Biodiversity Action Plan (BAP)
</td>
<td>The Local Plan is a forward-looking document that addresses the current needs of the community and those in the immediate future. The Local Plan is not restricted to the immediate environment of Scilly, in as much as it pays particular attention to the risks to the global environment posed by the challenges of global warming, pollution and carbon footprints. The global aspiration to reduce carbon and the UK's target to be carbon neutral during the next 3 decades can only happen if all communities take steps to address these issues. The aims and objectives of the Local Plan give guidance as to how that may be achieved and what is expected of planning applications in meeting those aspirations. The following section shows how we intend our project to support these aims and objectives.</td>
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3: Shepherd Hut: Other Matters of Consideration

b. Local Plan

Policy, Aims and Objectives	Planning Application: Statement of Alignment
POLICY SS1 Principles of Sustainable Development (1) Development proposals will be permitted where they make a positive contribution to the social, economic and environmental needs of the Isles of Scilly in a manner that does not compromise the ability of future generations to meet their own needs and to enjoy the islands outstanding environment, by: • a) conserving and enhancing the outstanding natural, built and historic environment; • b) locating, designing and constructing development where it makes a positive contribution to reducing the islands' carbon footprint and consumption of natural resources; • c) improving accessibility and creating a network of safe and well-connected routes by integrating measures that encourage and promote walking, cycling and electric vehicles as part of any new development wherever opportunities allow; • d) promoting the value of biodiversity, geodiversity and soils, including the potential contribution from natural capital and ecosystem services; • e) taking into account the long-term implications of climate change and rising temperatures for flood risk, coastal change, water supply, biodiversity and landscapes. • g) generating and sustaining economic activity	This proposal aligns with the aims and objectives of SS1 by: • a) Not intruding on any historic site whilst being built and designed as a rustic building in materials that will blend both with the immediate environment and those buildings most closely sited, the timber barns to the north of the proposed site. • b) The huts are designed to be carbon neutral with water harvesting and solar power production. Water recycling will reduce the consumption per person well below the target of 110 litres per day. • c) The access road is used by tractors and petrol fuelled quads. The huts will be serviced by a 4 wheel drive electric quad and small trailer. The quad will be recharged using solar power and provide a test sample for other islanders interested in trying the new technology. • d) Biodiversity will be encouraged by the improvements to the site, increase in plants, flowers and the introduction of a small freshwater pond and the placement of Bat Boxes in the adjacent wooded area. • e) The proposal is for new technologies that demonstrate the substantial impact on the environment through regeneration of power, the reduction in water demands and the improved management of waste, including human waste. • g) The huts will increase the opportunity for extending the tourism period into periods of less predictable or clement weather. This is particularly the case for those interested in an 'off grid' experience when the weather may make options such as camping undesirable.

3: Shepherd Hut: Other Matters of Consideration

b. Local Plan

Policy, Aims and Objectives	Planning Application: Statement of Alignment
POLICY SS2 Sustainable Quality Design and Place-Making a) Development will not be permitted if it is considered to be of poor or unsustainable design. New development must be of a high-quality design and contribute to the islands' distinctiveness and social, economic and environmental elements of sustainability by: • a) respecting and reinforcing the character, identity and local distinctiveness of an area whilst not stifling innovation, and with the scale, density, layout, height, mass and materials responding positively to the existing townscape, landscape and seascape setting; • b) ensuring that development does not dominate or interrupt important public views, key landmark buildings or significant cultural and heritage features; • c) making efficient use of the land whilst respecting the character of the site and surrounding area and neighbouring land uses; • d) safeguarding the amenity of individuals and properties by creating a high-quality environment that addresses issues of privacy, overlooking, overshadowing, overbearing impacts and unreasonable noise and disturbance; • f) ensuring that buildings can easily be altered and adapted to meet changing social and economic conditions and are resilient to climate change, providing opportunities for achieving measurable net gains in biodiversity by ensuring that natural and semi-natural features are created and enhanced as integral elements of the design, • g) providing opportunities for achieving measurable net gains in biodiversity by ensuring that natural and semi-natural features are created and enhanced as integral elements of the design, through the provision of features such as bird and bat boxes, and by incorporating measures that support the removal of any threats to the islands' biodiversity;	**This proposal aligns with the aims and objectives of SS2 by:** • a) The use of the proposed site will be innovative in its use of and management of harvested and renewable resources whilst blending into the existing building and landscape profiles. • b) The scale of the huts will not dominate the surrounding area, will be below the tree line and, where required, elm and pittosporum will be planted to enhance the screening • c) The land impact will be minimal with negligible shallow excavation for the concrete wheel support slabs. Other landscaping will entail planting of local flowers and erection of low stone dry walls for screening of utilities and water butts. • d) The huts will not overlook anyone's premises or dwelling. There are no machines in use to generate power. The site is intended to be a tranquil location in harmony with nature and the surrounding environment. • f) The huts are compliant with all requirement so f this objective. The wooden facia is easily changed and repaired with natural products. The environment around the huts will be managed so as to create an improved environment to encourage Bats and, local birds and other fauna to thrive in the grounds. • g) Biodiversity and the attraction of Bats and birds is a major feature of the design. As the average Bat consumes up to 3000 insect per day the addition of a small freshwater pond should increase the insect population on site.

• k) minimising the consumption of resources by requiring sustainable construction and design by: ○ I. incorporating high standards of energy efficiency and maximising opportunities for the micro-generation of renewable, low-carbon and decentralised energy, and where appropriate plugged into the Smart Grid;17 ○ II. incorporating passive design measures for heating, cooling, ventilation and natural light, to reduce overall energy demand and improve energy efficiency; ○ III. using natural resources more prudently, including the use of locally sourced, recycled or low-carbon materials in construction where they are available and represent a viable option; ○ IV. reducing pressure on water resources and increasing re-use by incorporating effective water management measures, including Sustainable Urban Drainage Systems, green roofs and water-saving devices, and rain/grey water collecting and recycling facilities; and ○ V. providing appropriate vermin-proof waste and recycling storage appropriate for the scale of development proposed, and provision for kerbside waste and recycling collections consistent with the islands' waste management practices.	• K) ○ I) Renewable energy via solar power is the core power element of the hut design ○ II) The huts will be powered, lit and heated using renewable energy ○ Ill) In addition the huts will use double glazing to all apertures to reduce heat loss, whilst the walls and roof are fully insulated with a range of highly efficient materials including earth wool and sheep wool' ○ lV) Water is harvested and recycled with support from a local borehole in times of drought as necessary. ○ V The black waste composting and food recycling receptacles will be the 'hot composting' variety that speeds the process of composting and significantly reduces the attraction to vermin. Both black and food waste will also take shredded cardboard and paper in the process, thus assisting in the waste management procedures on the site. Huts will have 300 litre hot composting bins for both black and food waste that can, in due course, be recycled for tree and flower bed mulch.
• (2) Development proposals that involve the construction or conversion of buildings will need to be supported by a statement of Sustainable Design Measures (SDM) and a Site Waste Management Plan (SWMP)	• 2 SDM. The shepherd's huts have been specified at 1 above. The basic design being a timber carcass with Larch Lap and galvanised roof has a life expectancy of 40-50 years. The structure is readily maintained where damage may be sustained and water based, environmentally approved wood preservative can be applied from time to time as required. The design of the huts is concerned at every stage to comply to latest standards and targets for conservation and preservation of the environment, locally, nationally and globally. • SWMP A separate document is attached to this application that deals with 3 stages of the development. ○ Construction & waste ○ Day to day habitation & waste ○ Local recycling procedures and export of waste as required

3: Shepherd Hut: Other Matters of Consideration

b. Local Plan

Policy, Aims and Objectives	Planning Application: Statement of Alignment
POLICY SS8 Renewable Energy Developments (1) Except for proposals for onshore wind energy generation, development proposals for renewable energy that contribute towards creating sustainable island communities, including the implementation of projects that form the Smart Islands programme, and any other community programme or project that seeks to reduce greenhouse gas emissions and move towards a carbon neutral island environment, will be supported where they: • b) conserve the scenic beauty, landscape, seascape, cultural heritage or historic environment of the islands, including any cumulative and intervisibility impacts; • c) protect and enhance biodiversity and the maintenance of wildlife populations such as sea birds; • d) they provide environmental enhancement and community benefits wherever possible; • e) they would not have a significant adverse effect on the amenity of local residents in terms of noise, dust, odour, reflected light, traffic or visual intrusion; • g) they contribute directly to energy conservation. b) Proposals should include details of associated developments, including ancillary buildings and transmissions lines, which should be located below ground where possible in order to reduce the visual impact. Where appropriate, planning permissions will be subject to conditions that require the implementation of a satisfactory restoration scheme following decommissioning of the equipment and apparatus.	**This proposal aligns with the aims and objectives of SS8 by:** • b) There will be no discernible negative impact on the environment and screening to the eastern aspect will completely remove the profile of the huts from view. The solar panels are low profile and would be screened behind a low 80cm stone wall • c) There will be no encroachment on trees and habitat for birds other than the placement of Bat boxes in the wooded area to the west of the proposed site. • d) There is an educational aspect for the schools and local community that is explained in Section 5 of this document below. • e) There will be no adverse effects from this development • g) A key element of this proposal is energy conservation, regeneration and a drive towards 0% carbon footprint target achievement. 2) There are no proposals for ancillary buildings. The additional works associated with this proposal are: • A stone wall between the huts to the north side to screen the water buts and ancillary service features. This in turn will be screened by elm and pittosporum planting over a 3-5 year period • A small stone wall located in the field to the south of the proposed site located to screen the solar panels that power the batteries • A small scale trench, 15 cms deep, to convey the 12/24 vDC electrical supply to the huts and inverter, back filled with the spoil • Soakaway for surplus, overfill, filtered grey water that is recycled for hydroponic planters and vegetable beds.

3: Shepherd Hut: Other Matters of Consideration

b. Local Plan

Policy, Aims and Objectives	Planning Application: Statement of Alignment
POLICY SS10 Managing Movement (1) Development that has the potential to generate vehicular movements and car parking will be permitted provided that: a) provision is made to support and promote the use of sustainable transport such as walking, cycling and electric vehicles, where appropriate; b) it does not have an adverse impact on the function, safety and character of the local highway network; c) an appropriate level of off-street cycle and car parking and electric vehicle charging is provided, taking into account the scale and type of development and the accessibility of the location to facilities and services.	**This proposal aligns with the aims and objectives of SS10 by:** • a) The huts will not have ready access to any form of transport other than foot, apart from the conveyance by the owners of the guest's luggage from the quay. This will be by an electric, solar charged, quad bike with trailer. • b) The use of electric vehicles may have a positive effect on the St Martins Road. Electric vehicles are smaller, less wide and environmentally friendlier through the absence of engine noise and polluting gases. There is growing interest on the island in these vehicles and it is hoped that having a working example to inspect and trial may encourage others to adopt this mode of transport, where appropriate, in the future. • c) The vehicle will utilise the existing garage and solar charging facilities

Policy, Aims and Objectives	Planning Application: Statement of Alignment
POLICY OE1 Protecting and Enhancing the Landscape and Seascape 1) Development will only be permitted where it aligns with the statutory purpose of of Outstanding Natural Beauty (AONB), and therefore conserves and enhances the islands' landscape, seascape and scenic beauty. Development must take into account and respect: a) the distinctive character, quality, scenic beauty and sensitivity of the landscape and seascape; c) other qualities, such as important features and views, dark skies and tranquillity, having regard to the AONB Management Plan;	**This proposal aligns with the aims and objectives of OE1 by:** • a) The intention of the proposal is to position a rustic building within the landscape as sympathetically as possible ensuring it blends with the adjacent barn buildings. • c) The Dark Skies feature will be respected fully by this proposal. A minimum of downward facing low level, 0.5w, motion activated, LED solar lights will mark the pathway to the hut steps within the plot only. On nights with a new moon and cloud cover it is very dark at this location. Each hut will be provided with a torch for visits to the Seven Stones and Hotel etc during such nights. Motion detector lights will be set at 15 second illumination.

3: Shepherd Hut: Other Matters of Consideration

b. Local Plan

Policy, Aims and Objectives	Planning Application: Statement of Alignment
POLICY OE2 Biodiversity and Geodiversity (1) Development proposals will be permitted where they conserve and enhance biodiversity and geodiversity, giving particular regard to ecological networks and areas with high potential for priority habitat restoration or creation, and should: • c) Contribute to the restoration and enhancement of existing habitats and the creation of wildlife habitats and linkages between sites to create and enhance local ecological networks; • e) Be required to contribute to the protection, management and enhancement of biodiversity and geodiversity	**This proposal aligns with the aims and objectives of OE2 by:** • c) This proposal intends to encourage a bat colony to establish in a small, wooded area to the west of the site. To encourage biodiversity a small freshwater pond will be added to encourage the arrival of amphibians that are found in Middle Town but are less evident in Lower Town. Fresh water ponds also encourage other insects that then become attractive food sources for the bats and other birds. • As part of the shepherd's hut experience visitors will be encouraged to contribute to a blog and entries to a data base recording sightings of insect, birds and bats around the site. This is turn will help inform the growth, or otherwise, of a bat colony.

Policy, Aims and Objectives	Planning Application: Statement of Alignment
POLICY OE4 Protecting Scilly's Dark Skies (1) Development proposals that include external lighting will only be permitted where it can be demonstrated that the lights are essential for safety, security or community reasons, and where details are provided of attempts to minimise light pollution,	**This proposal aligns with the aims and objectives of OE4 by:** As previously stated, the proposals will not harm the Dark Sky status of the islands and all lighting will be proportional and sympathetic to the environment, including low level, solar powered, motion activated LED pathway markers.

3: Shepherd Hut: Other Matters of Consideration

b. Local Plan

Policy, Aims and Objectives	Planning Application: Statement of Alignment
POLICY OE5 Managing Waste (1) Existing waste sites are identified on the Policies Map. Development proposals that could prejudice use of these sites for the essential processing of waste for the islands, will be refused. (2) All development proposals must demonstrate best practice in addressing waste management solutions, must align with the waste hierarchy, and a site waste management plan (SWMP) must be submitted to support planning applications. (3) Construction and demolition waste should be minimised and must be managed and re-used on-island where there will be no harmful impacts. Where re-use on island would result in an environmental risk to human health, biodiversity, the historic environment, the amenity of neighbouring properties or land uses, or the water environment, then appropriate off-island management or disposal will be required. (5) Waste facilities for re-use, recycling, composting and the generation of heat/energy, or the co-location of such uses, will be permitted where they improve the sustainable management of waste on the islands and accord with other relevant policies in the Local Plan.	**This proposal aligns with the aims and objectives of OE5 by:** • 1) This small development proposal with its own on site management for waste will not contribute a significant burden on the normal kerbside waste and recycling collections. • 2) The SWMP attached as a separate document will detail the approaches taken for recycling, food and black waste composting, including the use of a solar powered shredder for wood, cardboard and paper that may then be used as dry soak in the toilet and food composting bins. Whilst all single use containers and plastic containers will be minimised, glass objects will make use of the island recycling collection from time to time. • 3) Construction waste will be minimal as the shepherd's huts are pre-engineered and delivered to the site in kit form There will be some pallets and timber off cuts that will be recycled and repurposed on the island. Any materials that may be detrimental to the island environment or waste process will be separately returned to the mainland for efficient disposal. This is covered in the separate SWMP attached to the application. • 4) As stated, the intention is to maximise recycling of waste on site whilst, at the same time, minimising the use of resources and negating, wherever possible, anything that may increase the carbon footprint. All end of life white goods will be shipped to the mainland for recycling independent of the existing island arrangements for such disposal.

3: Shepherd Hut: Other Matters of Consideration

b. Local Plan

Policy, Aims and Objectives	Planning Application: Statement of Alignment
POLICY WC5 Visitor Economy and Tourism Developments (1) Proposals for new or upgraded tourism development will be permitted where they: • a) make a positive contribution to creating a sustainable, diverse and modern tourism economy; and • b) are located in sustainable and accessible locations; and • c) are appropriate to the site and its surroundings in terms of activity, scale and design; and • d) do not result in an unacceptable impact on the environment or residential amenities, in accordance with other relevant policies in the Local Plan; (2) Proposals for tourism developments will be particularly encouraged subject to a) – e) above, and where it is demonstrated that they would: • a) extend the tourism season and increase productivity and wages in tourism; • b) support the promotion and interpretation of the islands' heritage;	**This proposal aligns with the aims and objectives of WC5 by:** (1) • a) The proposal is for a new visitor experience, one that embraces the growing awareness of the need for positive action to reduce the climate crisis facing the globe. Increasingly tourists are seeking experiences that are closer aligned to nature, including a resurgence of interest and demand for camping. The facilities proposed will give visitors first-hand experience of new technologies and improved, traditional, human waste management resources and facilities. The experience is meant to be educative as well as enjoyable, whilst having minimum impact on the environment in which the huts are sited. • b) The proposed site location is both accessible and sustainable. • c) The huts are appropriate and sympathetic to the proposed location. • d) The proposed huts will have minimum, if any, impact on the immediate environment and current amenities. It is hoped they will have a positive impact and prove a model on which others may plan future developments. (2) • a) The proposal for shepherd's huts will provide for secure and comfortable accommodation that extends into the periods of less clement weather when there are many potential visitors who enjoy outdoor experiences such as campers, but for whom exposed sites are too uncomfortable. By their nature as guest accommodation with a unique 'off grid' experience it is hoped to attract visitors during late winter/early spring and into the late autumn. • b) Visitors that have been coming from the 1960s and mid 1980s often remark on their experiences of collecting water from the Middle Town hand pump, the use of chemical toilets and the 18 hour 'thump' of the many diesel generators. This proposal brings that 'off grid' experience into the modern age, returning to a more simplistic, yet more comfortable time without noise, chemical and carbon emissions. It is in many ways a, 'Back to the Future' experience in keeping with old Scilly.

3: Shepherd Hut: Other Matters of Consideration

Local Plan Other Related Issues

Wildlife Survey and Report	The proposed site of the units is a former flower field disused for decades. The soil is mainly compressed sand and remnant topsoil with a mixed sward of grass, bramble and random bulb remnant clusters and seasonal meadow species. Apart from the installation of a small freshwater pond it is intended to keep the environment natural and seasonal with just brambles kept under control and away from the paths and access areas. What have now become 'local' flowers, agapanthus, crocosmia, belladonna and day lilies, for example, will be encouraged to prosper on site encouraging insect populations. A number of small fruit trees will be planted to add diversity and interest to the site, there is a small orchard on the adjacent golf course that hosts apple, damson and plum trees that have prospered in the sandy soil. The hedges may support nesting birds during the breeding season and will be left undisturbed. The erection of the huts takes about 5 days per hut and it is hoped this will occur outside the breeding season. The hedges, and small, wooded area containing pine, pittosporum and Escallonia are further than 10 metres from the huts and should not suffer any root damage from the minimal excavation planned for the wheelbases. No further protected species have been identified at the site but any disturbance to the site will be managed carefully to create a minimum of disturbance.
Infrastructure Impact Assessment	Apart from initially part-filling the water buts from an existing bore hole to prevent wind movement there is no intended demand on existing infrastructure. However, should any water issues arise in the future through drought, for example, that critically reduced the water harvest volumes, then temporary pumping of water would occur to maintain the visitors' stay.
Fire Safety	The site has been visited by the local Fire Service who have confirmed the access to the site and storage of water harvest is adequate for their needs. The huts have a natural fire break distance between them and there will be an emergency high pressure pump and hose available on site to provide immediate water dowsing capability including for any potential grass or tree fires that may arise unexpectedly. Each hut will have a multi sensor (smoke, heat, carbon monoxide) detector affixed to the living area ceiling with appropriate fire extinguishers and fire blanket positioned within the kitchen area. Additionally, it is intended to have a 3 X 5-meter deck veranda running under the bedroom window and past the door. This will provide: 1. A safe landing and access to the hut doors, that open outwards, to provide secure standing particularly for those with access requirements. 2. A safe landing area under the bedroom window that would provide an emergency exit should a fire arise that blocks the doorway
Tree Survey	The huts are located at least 10 meters from trees and hedges. The disturbance to the substrate for the wheel foundations and solar cable trench is minimal and should not encroach on tree roots. The trees bordering the proposed site are pittosporum, Elm, Pine and Escallonia and will provide shelter and screening to the site. There will be zero impact on the trees. In addition Pittosporum, Elm and Escallonia will be planted to provide an offset screened access to the site from the eastern approach. It is envisaged that will take 3-5 years to establish.

3: Shepherd Hut: Other Matters of Consideration

Local Plan Other Related Issues: SWMP

Site Waste Management Plan (SWMP)

This small development proposal with its own on site management for waste will not contribute a significant burden on the normal kerbside waste and recycling collections.

This SWMP document will detail the approaches taken for recycling, food and black waste composting, including the use of a solar powered shredder for wood, cardboard and paper that may then be used as dry soak in the toilet and food composting bins. Whilst all single use containers and plastic containers will be minimised, glass objects will make use of the island recycling collection from time to time.

As stated, the intention is to maximise recycling of waste on site whilst, at the same time, minimising the use of resources and negating, wherever possible, anything that may increase the carbon footprint. All end of life white goods will be shipped to the mainland for recycling independent of the existing island arrangements for such disposal.

1 Construction and Waste

Construction waste will be minimal as the shepherd's huts are pre-engineered and delivered to the site in kit form. There will be some pallets and timber off cuts that will be recycled and repurposed on the island. Any materials that may be detrimental to the island environment or waste process will be separately returned to the mainland for efficient disposal. Items for return will likely include polystyrene packing and plastic materials that invariably come as protective wrapping and packing surrounding white goods and related items.

There are no chemicals deployed in the building or running of the huts. The external finishes will be 'ProTec Eco Shield' that are safe for animal and environmental uses and endorsed by the Royal Society for the Protection of Birds (RSPB) as safe to use.

During the building phase a 4HP electric timber shredder will be deployed for reducing timber offcuts to composting materials and will be retained on site for on-going use, particularly in shredding cardboard for use as a drying agent in the compostable toilet and the black waste and food waste composting bins.

During the construction phase there will be a small amount of shallow excavation for the wheel foundation bases and trench for the DC Solar cable. The soil/sand will be backfilled and any useful topsoil retained for use in the vegetable/flower raised beds

2 Day to Day Habitation and Waste

The Council's Local Plan is clear in its ambition to encourage actions that deal directly with the 'Climate Crisis'. Only direct and meaningful actions will contribute towards the ambitious targets set for 2020-2050. Therefore, the ambition to reduce carbon emissions, water use and waste as part of this 'off grid' project is important. In addition, the use of regenerative solar power and rainwater harvesting are key parts of the waste management plan.

By harvesting water and recycling it through 2 'Grey Water' stages before deployment to the hydroponic garden and raised flower beds the amount of water not entering the conventional septic tank system will be significantly reduced. The use of a waterless composting toilet will also reduce the waste passing through the huts as the 'dry' human waste will be repurposed via composting for plant and tree food via an annual mulch.

Low voltage long life LED lights will provide the illumination to the huts significantly reducing the wastage associated with other forms of light bulbs.

Food waste will be composted on site in 'hot' compost bins. Dry soak material will be provided by use of the electric wood shredder that will shred small branches and all the site cardboard that arrives as packing boxes and food containers.

Glass and recyclable plastic food containers are the materials that will most likely add to the kerbside collection by the island service, but the quantity is not expected to be significant from the two huts and will add to the current volume of glass leaving the island for processing and recycling.

To further assist in the reduction of cardboard and unnecessary additional packaging, visitors' food orders from the local store will be collected on a weekly basis using the electric quad bike and trailer to keep to a minimum the flow of potential waste to the site.

Human (Black) waste will be collected via a composting toilet solution. This enables the collection and separation of solid and fluid waste and its non-chemical treatment on site. The waste will be deposited in a waterless toilet receptacle that separates fluids from solids. Waste will be treated in a 'hot' composting bin using shredded cardboard as the dry soak agent. After a period of 6-9 months the waste is reduced to a composting mulch for use on the flowerbeds and around tree bases in the wooded area. In the event of technical failure there is an unused septic tank on the Apple Tree Land that has more than adequate capacity for the period of any exigency arising.

3 Local Recycling Procedures and Export of Waste as Required

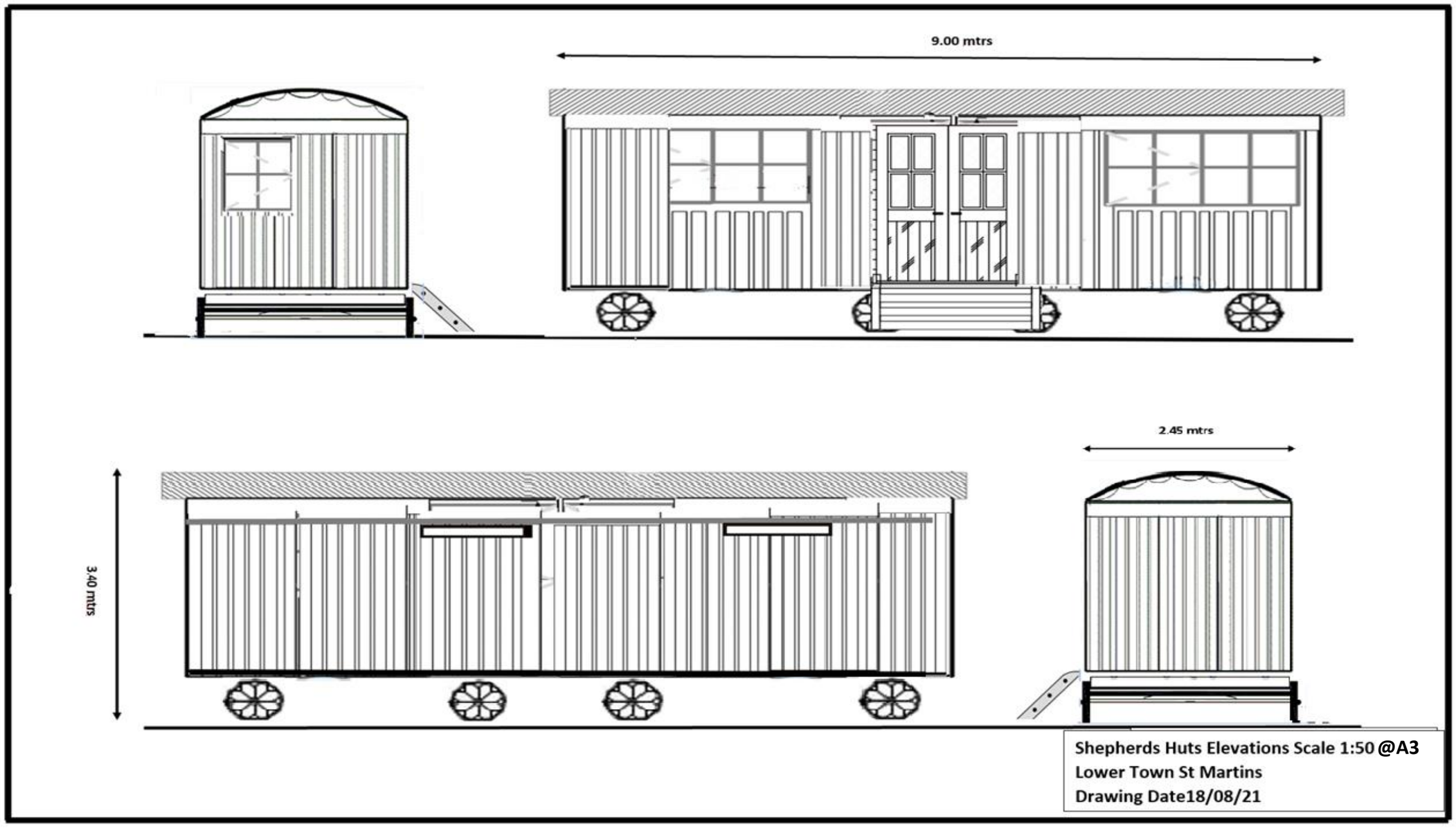
The site will be run as far as possible on low consumption, low waste principles. As stated in 2 above there will be some requirement for recycling collections locally of glass and plastic from time to time. However, whenever there is a large, or abnormal, amount of waste for whatever reason, that it would be unreasonable to expect the local service to collect we will make separate arrangements to remove the waste from the island to the mainland for processing there.

The aim of the waste management strategy is to reduce waste to the minimum acceptable levels and to demonstrate that small changes in lifestyle and waste management attitudes can have a significant impact on climate change and reducing carbon footprints. The use of regenerative power sources, water harvesting and the existence of a plan for waste management are a small step towards achieving the councils' aims and objectives contained in the Local Plan and also a demonstrable commitment towards making a difference.

4: Shepherd Hut: Associated Plans

Submitted as Separate Documents

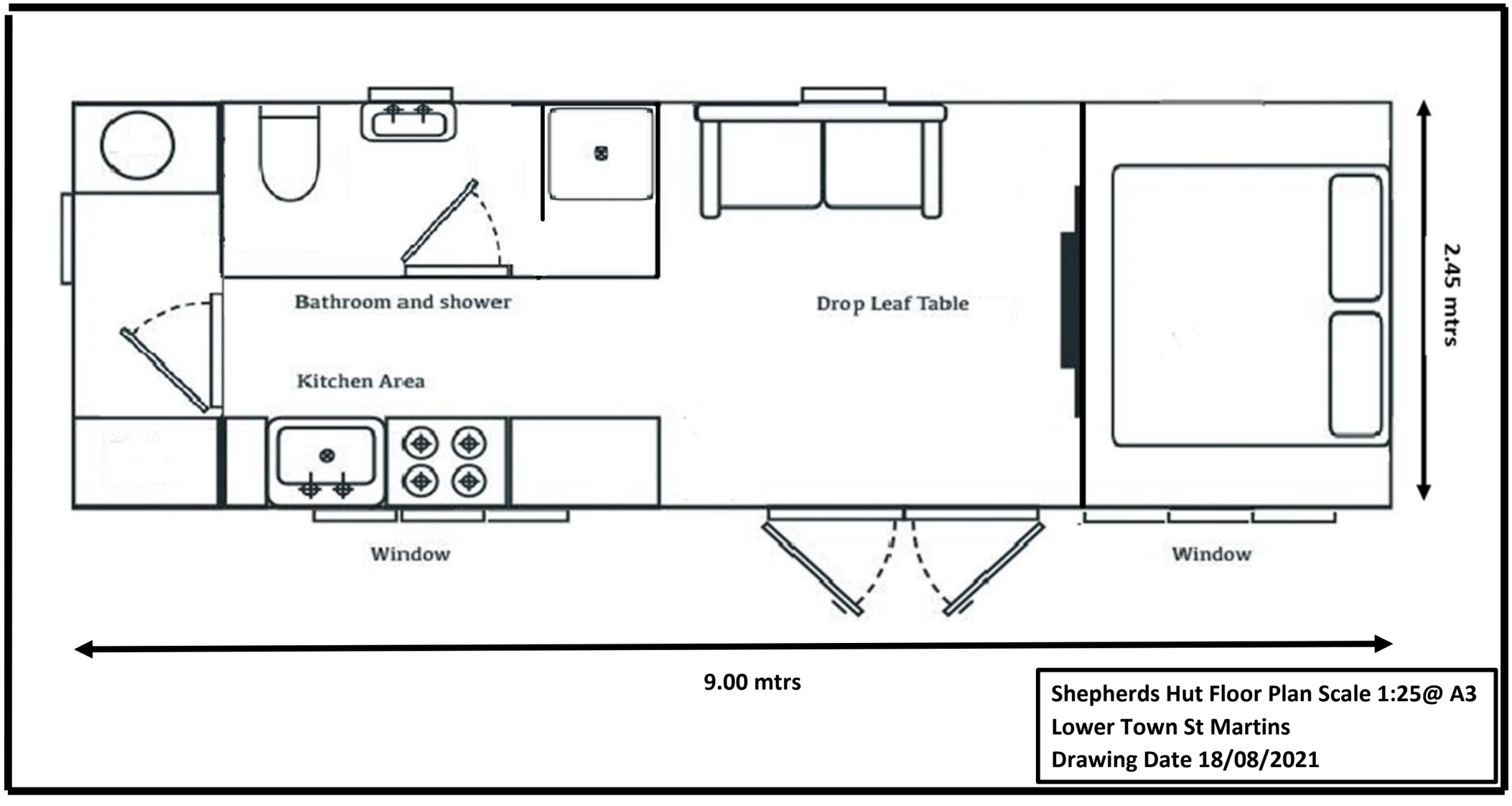
a. Elevations



4: Shepherd Hut: Associated Plans

Submitted as Separate Documents

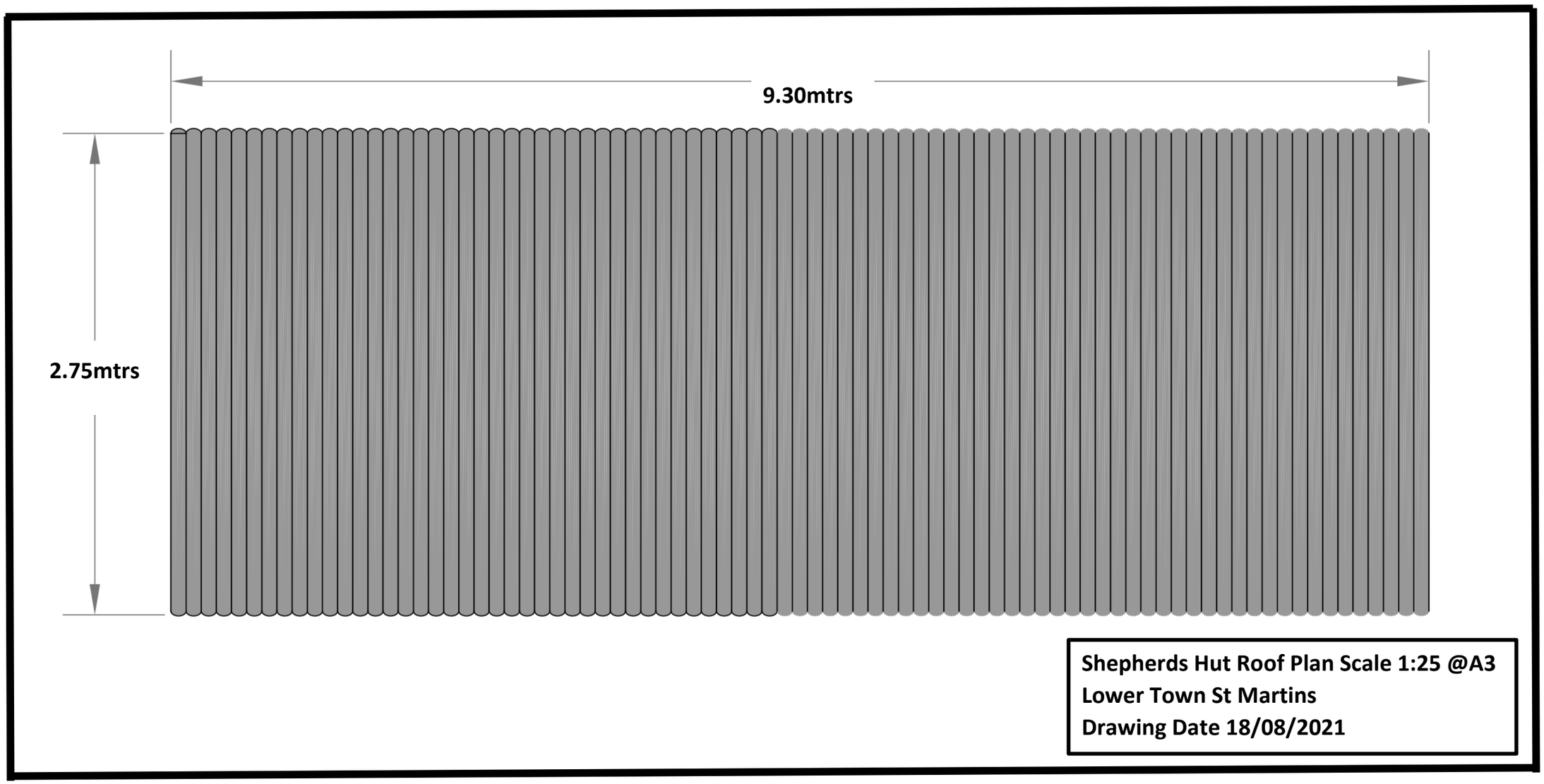
b. Floor Plan



4: Shepherd Hut: Associated Plans

Submitted as Separate Documents

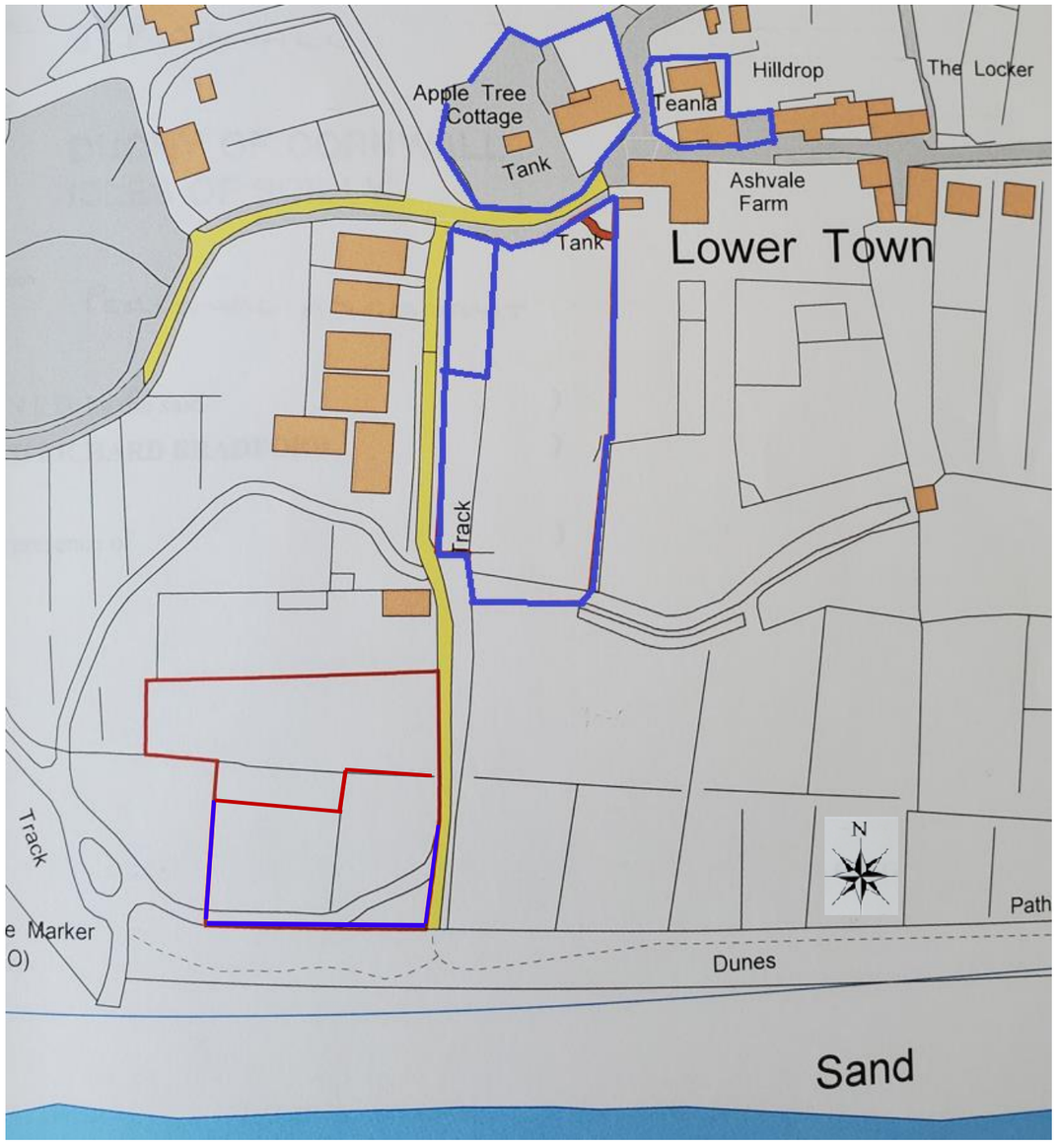
b. Roof Plan



4: Shepherd Hut: Associated Plans

Submitted as Separate Documents

c. Build Location See 2a above



Land Map showing the field location for the proposed Shepherd's Huts. The yellow track is the access route for pedestrians and for tractors, with a clear access route for the Island's Fire Service that already practices attending call outs to the barns situated along the access route to the north of the proposed site.

The barns to the north are all constructed of shiplap timber that will be matched by the façade of the proposed Shepherds Huts.

Scale 1:1250 @A3

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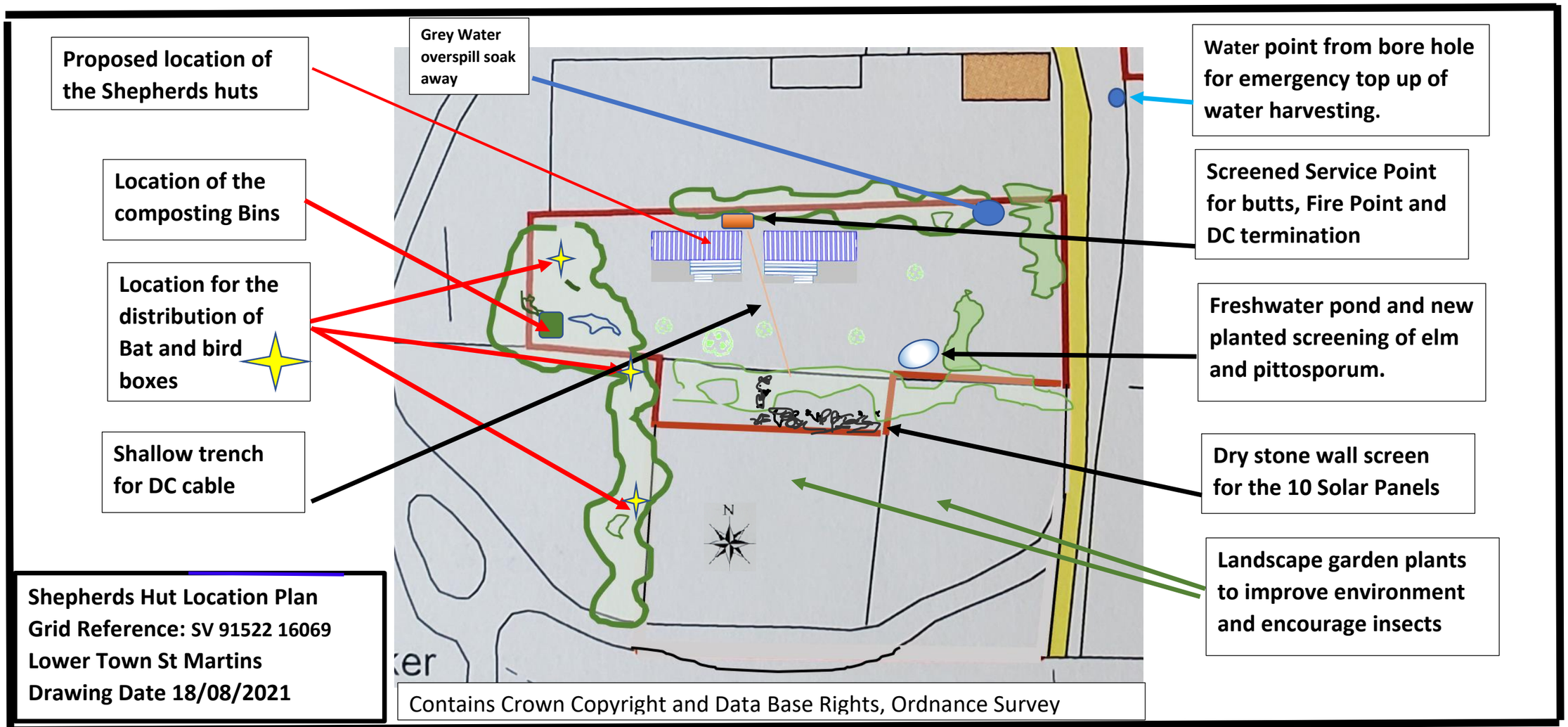
Legend

- Access Route and Right of Way
- Border of the Proposed Site
- Additional Land Holding
- Buildings

4: Shepherd Hut: Associated Plans

Submitted as Separate Documents

c. Build Location: Supplementary Schema to 2a above



5: Shepherd Hut: Unique Contribution

Submitted as Separate Documents

I: Carbon Neutral & Environmental Challenges

Carbon Neutral and Environmental Challenges.

70 years ago, in 1951, the Festival of Britain was held exactly 100 years after the Great Exhibition of 1851 for which the Crystal Palace was designed and constructed. The Great Exhibition showcased the world leading engineering and manufacturing marvels of Britain, the world's richest and foremost nation at that time. In 1951, the earth's population stood at 2.5 billion people. Now in 2021, 70 years later, it is estimated at 7.5 to 9 billion people. This simple fact encapsulates the greatest challenge of our age. Increased demand for land, food, energy, water and other resources, but the Earth has finite resources.

Coupled with demand for consumption has been a rise in energy production to meet the demands of productivity and energy use. This has created enormous increases in pollution of all kinds, in particular, carbon and greenhouse gases. In turn this has skewed the Earth's climate which is heating up, resulting in droughts, floods and wildfires in ever increasing intensity. Predictions for a significant rise in sea levels is a particular concern for the Isles of Scilly. The world's nations have now declared a climate crisis with a 30 year deadline to effect meaningful change. Increasing demand leads to an increase in consumption, so something has to give. Targets have been set, objectives stated but how are they to be met?

This planning application is for a project designed to demonstrate that it is possible to provide a modern standard of accommodation whilst, at the same time, reducing demands on water, power production and their redistribution. In addition, by small changes in personal consumption, it is also possible to show how this can have a positive impact in reaching the challenges and targets set out in the Isles of Scilly Local Plan.

The 1851 and 1951 exhibition and festival showcased British technology and, at this time, it is Britain that is setting ambitious targets for climate change achieved through the use of modern technologies that lead the world. Technology can produce regenerated power through solar power, technology can enable the harvesting and non-polluting treatment of water for human consumption and the treatment of human waste. Whilst harnessing technology will help, in order to succeed humans must also learn to reduce demands and better manage resources and waste.

To this end the proposal for the Shepherd's Huts aspires to:

1. Be an exemplar to others interested in reducing consumption and waste an in harnessing solar power and harvesting water
2. Educate interested parties and the next generation through practical examples, of policies and strategic aims being demonstrated in daily use
3. Experiment with new technologies as they come on-line during the next 2 decades

1. Exemplar

One of the difficulties all communities face when challenges of this scale are presented is a lack of experience and knowledge as to how to change in order to succeed. New technologies, such as solar power and related auxiliary technologies, appear enticing on the web, but seeing it in the flesh, using it, talking to those that currently use it, is an essential part in any decision making process. Questions such as, 'how reliable is it?', 'how easy is it to maintain and repair?', 'how long will the batteries last if I boil a kettle?', these are all legitimate concerns and reservations. Having off grid shepherd's huts on the islands, that demonstrate the viability of the technologies, will be invaluable in encouraging others to consider adopting some of the features for use in their own homes.

50 years ago, visitors to the islands were confronted with chemical toilets, the thump of electric generators for 18 hours a day, walking to water pumps to collect rations and limited supplies of victuals, they still kept coming year after year. The advent of electricity in the 1980s has radically altered that experience. Now, the Isles of Scilly are the second highest consumers of electricity per capita in Britain. Whilst no one is advocating a return to those days, modern technology will enable much of the desired reductions in consumption and waste production whilst maintaining the higher standards of accommodation and provisioning that visitor expect today.

Therefore, part of the planning process has been to identify ways in which the daily cycle of both the visitors' experience and that of the maintenance staff demonstrate the value of new technology and changing patterns of lifestyle and accommodation.

In recent years, more and more vehicles have come to the islands in support of the tourist industry. These in turn require regular shipments of fuel and add increased levels of exhaust gasses to the environment. We intend that the site is serviced by an electric quad bike and small trailer. The vehicle is better suited to the narrow road on St Martins, is quiet, emits no gasses and is fully rechargeable from the solar panels. Quads are a popular vehicle but cautious interest in electric vehicles is tempered by doubt as to reliability and maintenance. Having a vehicle in daily use that can be seen and tried and tested by members of the community will help encourage some to consider a change to electric. An example of such a vehicle is the Bide Vehicle 3000 shown below.

This vehicle specifications are;
Motor: front 60V 1500W Brushless DC and rear 60V 1500W Brushless DC
Battery Specification: 5pcs x 12V 50Ah
Charge period: 8-10hours
Battery-life: 300 cycles
Max torque(N·M): 110
Max speed: 60km/h
Max distance range: 50km
Max climbing angle: 45
Load capacity: ≤150kg
2. Brake system: front/rear disc
Suspension: hydraulic suspension
Dimensions: 1830×1100×1100mm

2. Educate

An important aspect of this project is education. It is only through education that a paradigm shift in societal attitudes to energy use and the better management the Earth's resources can be achieved, other than by political enforcement. There are 3 ways in which this project can help to provide educative experiences and information for the wider community interested in engaging with new technologies and their ability to improve the environment.

a) The Visitor Experience

- Visitors will be provided with a handbook that introduces them to the technology and methodology behind the 'off grid' systems that explains their function, purpose and provides a measure of the daily carbon offset achieved.
- Visitors will be encouraged to contribute to the site log for bat, bird and insect location and frequency of observations that build a record of inhabitation by species
- Visitors will be encouraged to compare and record consumption and waste data at the end of their visit that shows reductions, or otherwise, in their normal domestic consumption patterns
- Interested visitors will be able to partake in a short, 20 hour, Level 2 award bearing short course. The focus will be on one of several key features such as; Water Harvesting and Redistribution, Harnessing Solar Power, Hydroponics and Raised Bed Horticulture, for example. Each course will have an online test associated and may be completed during the stay or on return home. These courses have been designed at Level 1 and Level 2 and have been submitted to an accredited awarding body for consideration as certified courses awarded through an education centre established to promote the use of new technologies for a better world.

It is hoped that by encouraging visitors to reflect on their interactions with the off grid system they will identify ways in which they may adjust their own lifestyle on return to home. Learning through doing is recognised as one of the oldest and most successful teaching and learning methods most likely to bring understanding and sustainable change.

b) The Next Generation

During the next 20 years, the current school population will mature to adult roles and responsibility for the direction in which the world heads in terms of successfully effecting climate change, or in suffering the consequences. To this end we hope the project will provide an opportunity for the Island school to make use of the project data and work with us to provide an education visit and project based learning activity as part of the primary and secondary curriculum. We have engaged the services of an education specialist who has supported many of the government's leading edge Free Schools, University Technical Colleges (UTCs) and Academy projects. Additionally, he has provided curriculum design to a number of international school design competitions, notably a prize winning entry in Qatar for an aquaponics based Science curriculum that addressed the chronic water and food production shortfall in the desert nation. More recently, he designed project based STEM (science, technology, engineering & maths) activities for international schools in China that emulated the growing of food on the dark side of the moon in a technology controlled environment. We intend to produce learning materials related to the use of new technology that promotes living in harmony with the environment through a policy of: 'Awareness, Action, Achievement'.

St Martins Lower School

We intend to approach the school with a view to discussing ways that our site may provide a small field study experience on an annual basis related to a mini beast trail, pond dipping, and a data collection activity related to flora and fauna. Additionally, we intend, on an annual basis, to provide a tree for each child to plant with the hope of creating a small copse over the next 10 years. This encourages the concept of 'offsetting' carbon emissions in a practical and tangible way.

c) The Local Community

The Isles of Scilly community have a long tradition of 'make do and mend'. The isolation of the islands in recent memory made the recycling of materials a fundamental way of life. Waste not, want not, was a familiar mantra. Today, with next day Amazon deliveries, it is easy to forget those times. However, as transport becomes ever more costly, and less reliable, the throwaway society that has been encouraged by ready access to consumer goods may come under pressure. Recycling and waste reduction are key aspects of this project plan. We intend to host some out of season 'open days' on site for interested members of the island communities. We will share ideas, information on the success and efficiency of the systems, or otherwise, and provide an open forum support blog to encourage uptake of new technologies and a support group with shared skill and expertise to help keep the technology running efficiently.

3. Experiment

The challenges created by climate change are considerable. They have stimulated many experiments to find solutions to the most pressing of these. In just a decade Britain has reduced its dependency on fossil fuels for energy production and, in 2020, renewable power outstripped fossil fuels for the first time. !0 years ago, electric cars with significant power and range were a pipedream. Now we have self-driving cars and robot vehicles that deliver food and goods direct to homes.

10 years ago, solar panels were very expensive. Now they are twice as efficient and 10% of previous costs. Batteries to store solar energy have increased in capacity and power output, whilst reducing in both weight and, most significantly, cost. It is clear that the global drive for effective climate change has driven these developments, nor will they stop. During the next decade there will be even more significant discoveries and improvements.

Our project will research and experiment with 4 topics that can inform the wider community interested in 'off grid' living:

- The effective use of recycled grey water on plant propagation
- The most efficient use of composted human waste for plant propagation
- High output, low energy consumption cooking, using adapted technologies and new 'small scale' cooking appliances such as the 'instapot'® 700w steam pressure cooker and other low consumption airfry type appliances
- Heating and cooling technologies including solar powered underfloor heating versus a solar powered air heat pump.

Small, yet reliable, experiments and research can contribute to the wider knowledge base arising from increasing interest in tackling climate change.