

PRELIMINARY ECOLOGICAL APPRAISAL & PRELIMINARY BAT ROOST ASSESSMENT OF:

WARLEGGAN FLATS CHURCH STREET ST MARY'S ISLES OF SCILLY TR21 0JT

Client: Warleggan Management Ltd c/o Joseph Payne

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Non-Technical Summary

- On 29th January 2021, the Isles of Scilly Wildlife Trust (IoSWT) (due to government COVID guidelines at the time) conducted a Preliminary Ecological Appraisal (PEA) and the external component of a Preliminary Roost Assessment (PRA) of Warleggan Flats, Church Street, St Mary's, Isles of Scilly, TR21 0JT. The internal component of the PRA was undertaken on 11th February. These surveys were undertaken to establish baseline conditions, determine the importance of any ecological features within and around the survey area and to establish the actual or potential use of the building by bats to help inform the determination of planning application P/21/009
- This report outlines the findings of the PEA and PRA assessment and provides advice based on the survey's conclusions.
- During the PRA and external/internal inspection of the building was undertaken (where accessible).
- The front garden of the proposed development is considered to have very limited habitat for foraging bats but nearby mature gardens, the dark corridor to the south-east and the strandline along both beaches to the north and south provides opportunity for bats to commute to more favoured feeding habitats.
- No evidence of breeding birds was recorded during the survey
- Several roosting features were identified which individual bats may use opportunistically and one roosting feature that has potential to host a larger number of bats.
- Taken in combination, the characteristics of the building and the surrounding habitat suggests **low roost potential** for bats.
- The recommendations of this PEA and PRA are that **one activity survey is carried out, consisting of either a dusk emergence survey or a dawn re-entry survey carried out within the bat active season between May and September as the proposed development provides external roosting features which could be used by a small number of crevice-dwelling species such as Common and/or Soprano Pipistrelle or Whiskered bat.**
- Aside from bats, no other ecological constraints are identified which require consideration to inform the determination of this planning application.
- **It must be noted that this report is not sufficient to support a planning application.**

1.0 Introduction

1.1 Survey and reporting

This report details the results of a preliminary ecological appraisal (PEA) and a preliminary bat roost assessment (PRA) of Warleggan Flats, Church Street, St Mary's, Isles of Scilly, TR21 0JT. The survey was carried out over two days; the external survey on the 29th January 2021 and the internal loft space inspection on ??? due to ongoing COVID-19 guidelines (in agreement with the tenants).

1.2 The application site

Waleggan Flats are in Hugh Town, St Mary's (National Grid Reference SV9056710528) overlooking Church Street, facing north. The application site is comprised of a large-terraced and extended granite two-storey property with a small, linear rear courtyard (see Figure 1 below for general location).



Figure 1. Warleggan Flats general location



Photo 1. North Elevation of Warleggan Flats

1.3 Details of proposed works

This report relates to work associated with planning application P/21/009 and the focus of descriptions and results is concentrated on the elements of the property to be affected by the proposals.

Application P/21/009 concerns works to the fabric and structure of the existing two-storey residential components only. The application outlines the removal of the existing defective scantle tiling from the north-aspect (north elevation) roof, removal of the defective scantle tiling from two dormer windows and associated vertical hanging tiles, replacing these with dry laid natural slate tiles.

2.0 Methodology

2.1 Preliminary Ecological Appraisal - Desk Study

A desk study data search was undertaken. This involved carrying out a review of the Local Records Centres (LRC) available records for bat species and publicly available datasets and citations of statutory designated sites of importance for nature conservation for sites within the zone of influence (ZOI) of the survey area (considered to be a maximum of 2km in this case). The desk study was also undertaken to identify habitats and features that are likely to be important for bats and assess their connectivity using aerial photographs.

2.2 Preliminary Bat Roost Assessment

The Preliminary Bat Roost Assessment comprised a survey of the building for bats, signs of bats and features potentially suitable for use by roosting bats, and an assessment of the surrounding habitat in terms of its suitability for commuting and foraging bats.

The survey consisted of a ground-based inspection and a detailed search of the interior and exterior of the building (from ground level), looking for bats and/or evidence of bats including droppings (on walls and windowsills and in roof and loft spaces), rub or scratch marks, staining at potential roosts and exit holes, live or dead bats and features, such as raised or missing tiles, potentially suitable for use by roosting bats. Binoculars, a ladder and a high-powered torch were used as required.

2.3 Classification of building

The building was classified according to its suitability for use by roosting bats. The classification was dependent on several factors including (but not limited to):

- Bats and/or signs of bats
- External and internal features potentially suitable for use by roosting bats (e.g., raised or missing tiles, gaps behind fascia boards etc.)
- Setting
- Night-time light levels
- Disturbance levels
- Proximity of suitable foraging habitat and commuting routes (e.g., ponds, streams, woodland, large gardens, hedgerows)

The categories used to classify buildings and the survey effort required to determine the presence or absence of bats (as per the Bat Conservation Trust's Bat Survey Guidelines¹, referred to by Natural England in their standing advice to planning officers) are described in Table 1 (see below).

2.4 Surveyor details

The survey was undertaken by Darren Mason BSc (Hons) of the Isles of Scilly Wildlife Trust. Darren has undertaken professional Bat Licence Training and holds a Natural England WML-A34-Level 2 (Class 2 License); registration number: 2020-46277-CLS-CLS which permits him to survey bats using artificial light and endoscopes and capture bats using hand and hand-held static nets.

Table 1 – Description of the categories used to classify a building’s bat roost potential and the survey effort required to determine the likely presence or absence of bats

	Roost Potential	Description	Survey effort required to determine the likely presence or absence of bats
Bat Roost Potential	High	A structure or tree with one or more potential roost sites that are obviously suitable for use by larger number of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions and surrounding habitat.	Three dusk emergence and/or pre-dawn re-entry surveys between May and September. Optimum period May – August. Two surveys should be undertaken during the optimal period and at least one survey should be a pre-dawn survey.
	Moderate	A structure or tree with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions and surrounding habitat.	Two or three dusk emergence and/or pre-dawn re-entry surveys between May and September (but only if features will be affected by the proposals).
	Low	A structure with one or more potential roost sites that could be used by individual bats opportunistically. But these sites do not provide appropriate conditions or surrounding habitat to be used on a regular basis or by larger number of bats.	One or two dusk emergence and/or pre-dawn re-entry surveys between May and September (but only if features will be affected by the proposals).
	Negligible	Negligible habitat features on site likely to be used by roosting, commuting or foraging bats.	No further surveys required.

Table 1. Categorising and classifying a building’s bat roost potential

1 Collins, J. (ed.) (2016). Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edn). The Bat Conservation Trust

3. Results

Preliminary Ecological Appraisal

3.1 Pre-existing information on bat species

The desk study showed that no species of bat had previously been recorded within the building. A data search of LRC records for bats revealed information on 6 species of bat recorded within the 2km ZOI of the site. The species conclusively identified were Common Pipistrelle (*Pipistrellus pipistrellus*), Soprano Pipistrelle (*Pipistrellus pygmaeus*) and Brown Long-eared Bat (*Plecotus auritus*) both UK Biodiversity Action Plan (BAP) priority species, Whiskered Bat (*Myotis mystacinus*), Leisler's Bat (*Nyctalus leisleri*) and the rare Nathusius Pipistrelle (*Pipistrellus nathusii*). Sixteen bat roosts are known to exist within the 2km of the proposed development, with 2 known roosts within 100m of the property.

3.2 Statutory and non-statutory sites

In addition, the desk study revealed the presence of the following statutory designated sites within the 2Km ZOI of the site:

- i.) **Peninnis Head SSSI** – Lying 546m south east of the proposed development is Peninnis Head SSSI. The site designated primarily for its maritime heathland, maritime grassland and scrub habitats together with good populations of several rare plant and lichen species, in addition to its significant quaternary geomorphology.
- ii.) **Lower Moors SSSI** – Situated 413m due east of Warleggan Flats lies Lower Moors SSSI. A topogenous mire that has a range of wetland habitats supporting a diverse range of wetland wildflower species, including the Nationally Scarce Tubular Water-dropwort (*Oenanthe fistulosa*). The site also holds locally important populations of Royal Fern (*Osmunda regalis*) and Southern Marsh Orchid (*Dactylorhiza praetermissa*) and is particularly important feeding for passage and wintering birds including Corncrake (*Crex crex*) and Spotted Crake (*Porzana porzana*).
- iii.) **Higher Moors & Porth Hellick Pool SSSI** – 1.51km east north-east of the proposed development is Higher Moors SSSI. A topogenous mire designated for several rare and notable plant species) including Bog pimpernel (*Anagallis tenella*), Star Sedge (*Carex echinata*) and Marsh St John's-wort (*Hypericum elodes*).

3.3 Habitats surrounding the application site

Warleggan Flats lie within the Built-Up Areas Boundaries² (2011) for England and Wales (published by the Office for National Statistics, Geography). The street lighting throughout the town is intermittent and minimal, consisting primarily of orange sodium lighting. Though intermittent, there are several lights along the length of Church Street, with the nearest being 33m away to the north-west (aiming angle $<28^{\circ}$ white light), with a further two 84m and 160m to the north-east and east respectively (both orange sodium). The nearest potential foraging feature to the proposed development lies immediately south-east of the complex, consisting of the mature gardens and hedgerow of Mundesley House. Beyond this is a relatively dark corridor further south and south-east of the property, reaching the large, mature gardens of 4 detached properties at the base of Buzza Hill. The hill comprises an open area of grassland and scrub, which is linked to the wider countryside and to the SSSI of Lower Moors by further mature gardens, the old school site at Carn Thomas and the small allotments below Pilot's Retreat. For a further 2km north and east the countryside consists of a mixture of small, enclosed fields bounded by hedgerows, linked to small linear shelterbelts, beyond the SSSI.

Due west of the proposed development, lies a small park on the Strand, comprising of open lawn, small, flowered borders and occasional mature trees which is lit by a single streetlight. Lighting becomes more prominent along the lower slopes of the Garrison approximately 500m west of the complex. However, the large properties and their associated gardens back onto the large open improved and semi-natural grassland areas on the summit of the Garrison which in part are relatively sheltered due to the numerous shelterbelts and mature woodland blocks, the latter more prominent on its south east slopes. Due south of the proposed development is the beach of Porthcressa, with its strandline stretching 430m and 170m to the west and east respectively. To the south-west the beach meets Porthcressa allotments, comprising of small hedgerow enclosed cultivated fields. Beyond these and further to the south-east is the open headland of Peninnis Head SSSI, consisting of semi-natural grassland, scrub and heathland.

In summary, the immediate habitat surrounding the complex provides feeding opportunities for bats, which naturally leads to a dark corridor further south-east of the complex and the open beach of Porthcressa to the south-west are potential commuting routes for bats to reach optimal feeding habitat (more information given below). This dark corridor may be an important route for bats to utilise as it has been shown that street lighting can negatively impact upon bats commuting and foraging routes³. In contrast, it has been shown that species such as Common Pipistrelle and Leisler's Bat will feed around

street-lighting, to take advantage of the insectivorous prey that congregates around them. However, this has been shown to be dependent on the light emitting from the lamps, with orange sodium light (found here in this instance) having the greatest negative impact on feeding opportunities⁴.

Though Soprano Pipistrelle have been shown to utilise more built-up areas compared to Common Pipistrelle⁵, all species of bat require 'edge' habitat (like hedgerows) to both feed from and commute to other feeding areas^{6, 7&8}. This type of habitat is limited in the immediate surroundings of Warleggan, particularly to the west and quickly breaks down after approximately 550m, where the landscape becomes very open and which most species of bat prefer not to utilise⁹. In contrast edge habitat is almost continuous to the east and north-east for at least two kilometres, providing access to a wider variety of habitats for which Common Pipistrelle are known to take advantage of¹⁰, including the strandline along the beaches¹¹ to the south and north. The former commuting routes are also important for both Soprano and Nathusius Pipistrelle as they provide a feeding corridor to their preferred habitat of open water and watercourses^{6, 7&8}, habitats such as those found at both Lower and Higher Moors SSSIs and Holy Vale. The location of Warleggan Flats also falls within the core sustenance zones of all three species being 1.7km, 1.5km to 3km respectively¹².

In contrast, Whiskered Bat in Britain has been shown to favour more open areas of semi-natural grassland and pasture with scattered hedgerows, or small woodland blocks^{13&14} in which to feed. Habitat such as the Garrison to the west and the golf course to the north-east are typical examples of such habitat which they could exploit and fall within the typical core sustenance zone for this species¹³. Brown Long-eared bat have been shown to prefer to feed in open canopy deciduous woodland typically located close to their roosts, which would also have larger tracts of woodland available to feed no greater than .5km away¹⁵, making the former school site at Carn Thomas a potential site to feed. This site falls within this species core sustenance zone of 1.1km¹⁶, however the lack of trees in the immediate area of the complex may limit the sites' use as a roost. Likewise, Leisler's Bat also take advantage of woodlands, particularly woodland edge¹⁷, making this woodland block and the woodlands at Lower Moors, Higher Moors and Holy Vale and even Trenoweth shelterbelt at 2.4km away as Leisler's Bat has a large core sustenance zone of 4.2-7.4km¹⁸. Leisler's Bat in England is also known to take advantage of open areas of pasture¹⁸, making the coastal headlands to the north, south and east potential feeding areas also. This contrasts with most other species

of bat which typically avoid this type of open habitat, particularly during peak times of prey abundance (dusk and dawn) to avoid predation¹⁹.

3.4 Habitats within the application site

The north-facing front garden is flat, bounded on 3 sides by a low granite wall which iron railings sit atop. The garden itself is laid primarily to mortared granite blocks. Small borders restricted to the perimeter of the garden consist of small shrubs including Coprosma (*Coprosma repens*), Pittosporum (*Pittosporum tenuifolium*), Shrubby Veronica (*Hebe sp.*) and Rose (*Rosa sp.*). Plants and bulbs included African Lily (*Agapanthus africanus*), African Daisy (*Osteospermum sp.*) and Bermuda Buttercup (*Oxalis pes-caprae*).

In summary, the garden provides very limited species of shrub and plant that attract a variety of insects which bats may feed upon, reducing the gardens potential for foraging bats. However, the proximity to the mature gardens to the south-east and the mature Elm trees to the north-west provide more favoured feeding areas.

Preliminary Roost Assessment

3.5 External

Warleggan Flats is a two-storey, double-fronted, terraced house with a north-south elevation. Granite block-built with 'faced' stone, with wooden fenestration throughout. The mortar between the joints of the north elevation is mainly in good condition, apart from several areas where the roof-plate joins the eaves, seen externally below the soffit board and above the lintel of the east 1st storey window (see Photo 2.). The loss of mortar here has the potential to provide a roosting space for individual bats to utilise opportunistically. The wooden fenestration throughout is in good condition presenting with no gaps between the blockwork and the timber frames. The wooden fascia and soffit boards along their full length are tightly adhered together and present with no cracks which bats could utilise as a roost too.

The north aspect roof has an approximate pitch of 35° laid with traditional mortared scantle tiles, capped with glazed clay ridge tiles. The mortar between the ridge tiles and the uppermost roof tiles is in good condition throughout. Likewise, for most of the north aspect roof the mortar between the scantle tiles is present too. There are however, several tiles, to the west of the west dormer window (level with the base of the window) where mortar is missing which could provide roosting opportunities for individual bats (see Photo 3.)



Photo 2.



Photo 3.

The roof has two chimneys shared with the properties either side. Both are cement rendered and in good condition, with no apparent cracks. They are both tied in with mortar to the tiles below, which is in good condition and none missing, likewise the mortar overlaying the zinc flashing surrounding the single Velux window and the soil pipe, leaving no opportunities for bats to roost.

Two north-facing dormer windows are situated within the roof, both have wooden, single-glazed windows and wooden cladding on their north elevations. Their east/west elevations are clad in vertical hanging tiles which sit below east/west facing roofs with scantle tiles and glazed ridge tiles. The western dormer window (left hand window in Photo 1.) is in good condition throughout, with no missing tiles or raised tiles on the roof, or vertical east/west faces. No mortar is missing below the ridge tiles and there are no obvious crevices at the junction where the dormer window meets the main body of the roof, leaving no opportunities for bats to roost.

In contrast, the eastern dormer window (right hand window in Photo 1.) on its eastern elevation has two raised tiles on its uppermost course (below the eaves) which provide a roosting opportunity for individual bats which may be used opportunistically (see Photo 4.). On the dormer windows west elevation several vertical hanging tiles are missing (see Photo 5.) revealing a large crevice behind. The crevice size suggests

a suitable space for a larger number of bats, it is not illuminated by any exterior lighting and is also situated at a suitable height. However, its aspect exposes it to the prevailing south-westerly winds and there is likely to be some noise disturbance from the room that the dormer window lights. Taking these factors into consideration, the roosting features could provide space for a larger number of bats, on an irregular basis.

3.6 Internal

The construction of the roof of Warleggan was in a modified 'Queen post' style, with the internal loft space restricted to the area above the collar beam. This space was split into 3 small areas one behind each of the dormer windows and a third behind the Velux window. In both sections behind the dormer windows these areas were lined with shiplap, or hardboard. No roof joists were visible making inspection of the joints possible and no inspection of the tiles could be carried out. These internal spaces were very clean with minimal dust with no mammal droppings or cobwebs present (see photo 6.)

In contrast, the central space (behind the Velux window) was free from lining, including any roofing felt/membrane. The joists were constructed with traditional lap joints, but these were either tightly bound, or were full of dense dust and cobwebs. No claw marks or staining were present in these areas. The ridge board was covered in cobwebs and no droppings were present below (see photo 7.). When all lighting was switched off no external light was visible entering the loft space, confirming that no roost features were apparent from the outside. This central section was very small and cluttered, containing an expansion tank for the flat below.



Photo 6. Internal loft space behind dormer



Photo 7. Internal loft space behind Velux window

3.7 Summary

It has been shown that all 3 pipistrelle species of bat along with Whiskered bat typically roost within buildings, utilising a very wide variety of features^{13, 14 & 19} including, crevices, cracks, holes etc as individuals up to several hundred at a time. Externally at Warleggan, there are several features which these species could potentially utilise as a roost, most likely individually or as a small number of bats opportunistically. Internally, the roof void is split into 3 small compartments, which is a feature which Brown Long-eared bat are known use to around to warm up prior to exiting the roost and roosting in crevices within the loft space, such as where the rafters meet the ridge board, or the joints between the joists¹⁵. The space in the compartments at Warleggan area small and cluttered and two of the three are lined, limiting available potential roosting spaces. Brown Long-eared Bat show high roost fidelity where it would be expected to see concentrations of droppings¹⁶, which were not found during the roost assessment. Leisler's bat is a typical tree dwelling species, particularly during the non-breeding season^{17 & 18}. However, it has been shown that nursery roosts of Leisler's bat show a limited preference for buildings, but typically those constructed of stone and lined with roof felt¹⁷. When found in roof-voids Leisler's bat can be seen

hanging on roof timbers as well as in crevices for example between the joints of the joists. During the survey no obvious claw marks or staining could be seen on the timbers. However, it was not possible to see the full extent of the roof timbers and their joints as two of the 3 compartments were lined.

Warleggan, therefore presents with one or more roost features most likely for individuals, or for a small number of crevice-dwelling bats.

Assessment and recommendations (excluding bats)

4.1 Protected sites

The proposed development falls into the SSSI Impact Risk Zones of Lower Moors, Higher Moors and Peninnis Head SSSIs. Impact zones are used in the assessment of planning applications for likely impacts on SSSI's, Special Areas of Conservation (SAC), Special Protection Areas (SPA) and Ramsar Sites (England). However, the likely attributable impact in these zones is for residential developments of 100, or 50 or more houses outside existing settlement/urban areas. Therefore, in this instance the development is not likely to impact on the surrounding SSSIs.

4.2 Nesting birds

All wild birds are protected under the Wildlife and Countryside Act 1981 (as amended). Section 1 of this Act makes it an offence to kill, injure or take any wild bird, or intentionally to take damage or destroy the nest of any wild bird while that nest is in use or being built²⁰. During this survey, no evidence of nesting birds was found. However, if demolition was to commence between the months of March and August inclusive, then the site would need to be checked first for nesting birds and if, any evidence of breeding activity was found, or nests are identified works that would disturb the adults, the nest or young must be postponed until all young have fledged the nest and it is no longer in use.

5. Assessment and recommendations (bats)

5.1 Survey constraints

The survey was undertaken at a time of year suitable for undertaking preliminary bat roost assessments. It was not possible to survey the whole of the proposed development as during the visit no inspection could be made of the roof timbers and tiles internally in two of the 3 roof voids due to them being lined.

5.2 Further survey requirements

Warleggan is considered to have **'low' potential** to support roosting bats (see Table 1.). This assessment is based on the occurrence of the following features within or immediately adjacent to the site:

- The development has one or more potential roost features suitable for individuals of crevice-dwelling species of bat such as Common or Soprano Pipistrelle, most likely used opportunistically because of its size.
- The development has one roost feature suitable to house a small number of crevice-dwelling species of bat such as Common or Soprano Pipistrelle, because of its size. Due to its exposure to the prevailing wind and possible noise disturbance (internally) it would likely be used opportunistically.
- The development is situated such that bat species have access via the use of dark corridors and other commuting routes to suitable foraging habitat that falls within the typical core sustenance zones of all 6 species of bat. The surrounding habitat, its lack of proximity to larger tracts of woodland and the lack of typical roost characteristics appears to be less suitable for Brown Long-eared Bat and Leisler's Bat.
- Not all aspects of the building could be inspected therefore no evaluation of their roost potential, or a search for direct evidence was possible.

To confirm whether this complex hosts roosting bats, further surveys (see section 5.3) carried out during the bat active season are recommended.

5.3 Presence or absence surveys

The Bat Conservation Trust's Bat Survey Guidelines¹ (referred to by Natural England in their advice to planning officers) state that buildings with 'low' bat roost potential are those which could be used by individual bats opportunistically, or do not provide sufficient space to be used by a larger number of bats. Though one feature presents with sufficient space for a larger number of bats, the lack of shelter and potential for noise disturbance makes this feature less likely to be used on a regular basis. For this reason, one survey visit is recommended between May and September during the bat active season. This survey should consist of either one dusk emergence survey, or a dawn re-entry survey.

The surveys should take place in optimum weather conditions, to maximise the likelihood of recording bats, with dusk air temperatures exceeding 10°C and not rain or strong wind.

Dusk emergence surveys should commence 15 minutes before sunset and continue for 1.5 – 2 hours after sunset. A pre-dawn re-entry survey should commence 1.5 – 2 hours before sunrise and continue until 15 minutes after sunrise.

Sufficient surveyors should be used on each survey so that all aspects of the building can be viewed at one time, therefore the building should be adequately surveyed by **two surveyors**. Surveyors should be positioned no more than 50m away from the buildings with an awareness of the likely exit/access points and potential roost locations. Each surveyor should be equipped with a bat detector and recording equipment and should count the number and species of bats and their activity in a defined area.

If no roosts are found during the presence or likely absence surveys, then no further surveys would be required.

5.4 Mitigation

To comply with planning policy and wildlife legislation (both domestic and European) it will be necessary to ensure that following the development the "favourable conservation status" of bats will be maintained. This means that, where a roost will be lost, appropriate mitigation needs to be provided.

If roosts are found a detailed roost characterisation survey would be required to establish how bats use the roost, the intensity of use and what features and characteristics of the roost and the surroundings are

important. The information gained would allow an accurate assessment of the potential impacts of the development on bats and inform the requirement of a European Protected Species Mitigation licence, to be considered and issued by Natural England prior to the works commencing.

If roosts are found, then a data search will be required to support the European Protected Species Mitigation licence if an application is required. Information should be obtained in relation to bat roost sites or any sites of nature conservation importance designated for their bat interest within or near to the proposed development site. When requesting information, a minimum search radius of 2km from the site should be applied.

6. Summary

Warleggan has the potential to host individuals, or a small number of cavity dwelling species of bat such as Common and/or Soprano Pipistrelle and possibly Whiskered Bat. In contrast, the lack of typical roosting features and distance from suitable habitat reduces its roost potential for Leisler's and Brown Long-eared Bats.

To assess whether bats roost in the building, one further survey is recommended; either one dusk emergence survey or dawn re-entry survey carried out between May and September. If bats are found to be roosting in the dwelling then, the status of the roost(s) will need to be identified. Further surveys will then be required to inform a mitigation strategy which would need to be implemented.

Other than bats, if the recommendations given in this report are adhered to, there should be no further ecological constraints to the proposals.

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