



7 Mellinsey Fields  
Station Road  
Perranwell Station  
Truro  
Cornwall  
TR3 7FA



Date : 19 October 2023  
Our ref: J -1124-01

James Dart  
Company Director  
Studio D  
Jubilee Warehouse  
Commercial Road  
Penryn  
TR10 8AE

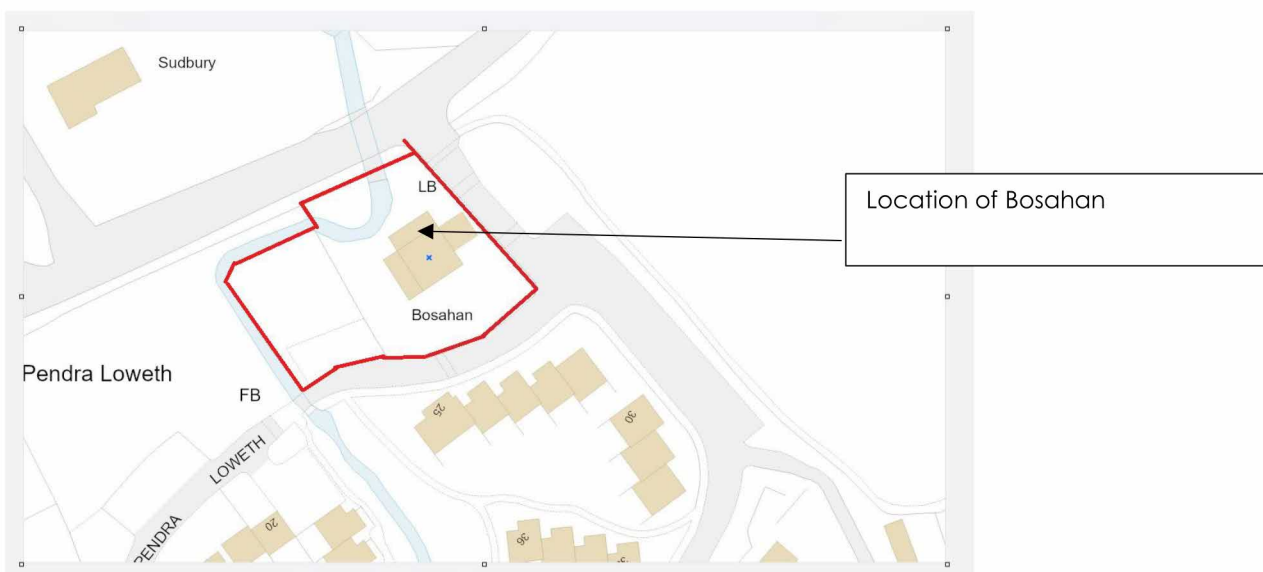
Dear James,

**REF : BRIEF FLOOD RISK ASSESSMENT REPORT FOR PROPOSED EXTENSION AT BOSAHAN, ROSCARRACK ROAD, FALMOUTH, TR11 5BL**

Thank you for your appointment on Wednesday 20<sup>th</sup> September to prepare a brief Flood Risk Assessment to accompany the planning application to demolish the existing car port and erect new 2 story extension 6m x 6m with living accommodation on the ground floor and a master and ensuite on the 1<sup>st</sup> floor and a 6m x 9m standalone garage in the land to the west of the site. The application for planning will be made by Dart Architecture. This FRA is written in accordance with the Flood Risk and Coastal Change Guidance 25<sup>th</sup> August 2022.

**The Location of Site**

Figure 1 – Location of the site – adjacent to the minor river



[PREMIERWATERSOLUTIONS.CO.UK](http://PREMIERWATERSOLUTIONS.CO.UK)

Contains public sector information licensed under the Open Government Licence v3.0  
Registered in England 06482545 as Premier Water Solutions 10 Ltd  
Luke's Cottage, Green Lane, Mawla, Redruth, TR16 5DW



7 Mellingley Fields  
Station Road  
Perranwell Station  
Truro  
Cornwall  
TR3 7FA



Dart Architecture is proposing to extend the property to provide a demolish an existing car port and erect a 2-story extension on the same footprint as the car port to provide an extra living room on the ground floor and a master bedroom on the 1<sup>st</sup> floor with ensuite. There will be a new standalone garage in the ground to the west of the development.

Figure 2 – Proposed Layout of the extension in green (original footprint shown in yellow) and stand alone garage







7 Mellingey Fields  
Station Road  
Perranwell Station  
Truro  
Cornwall  
TR3 7FA



Figure 3 – Car Port to be demolished



Car port to be  
demolished

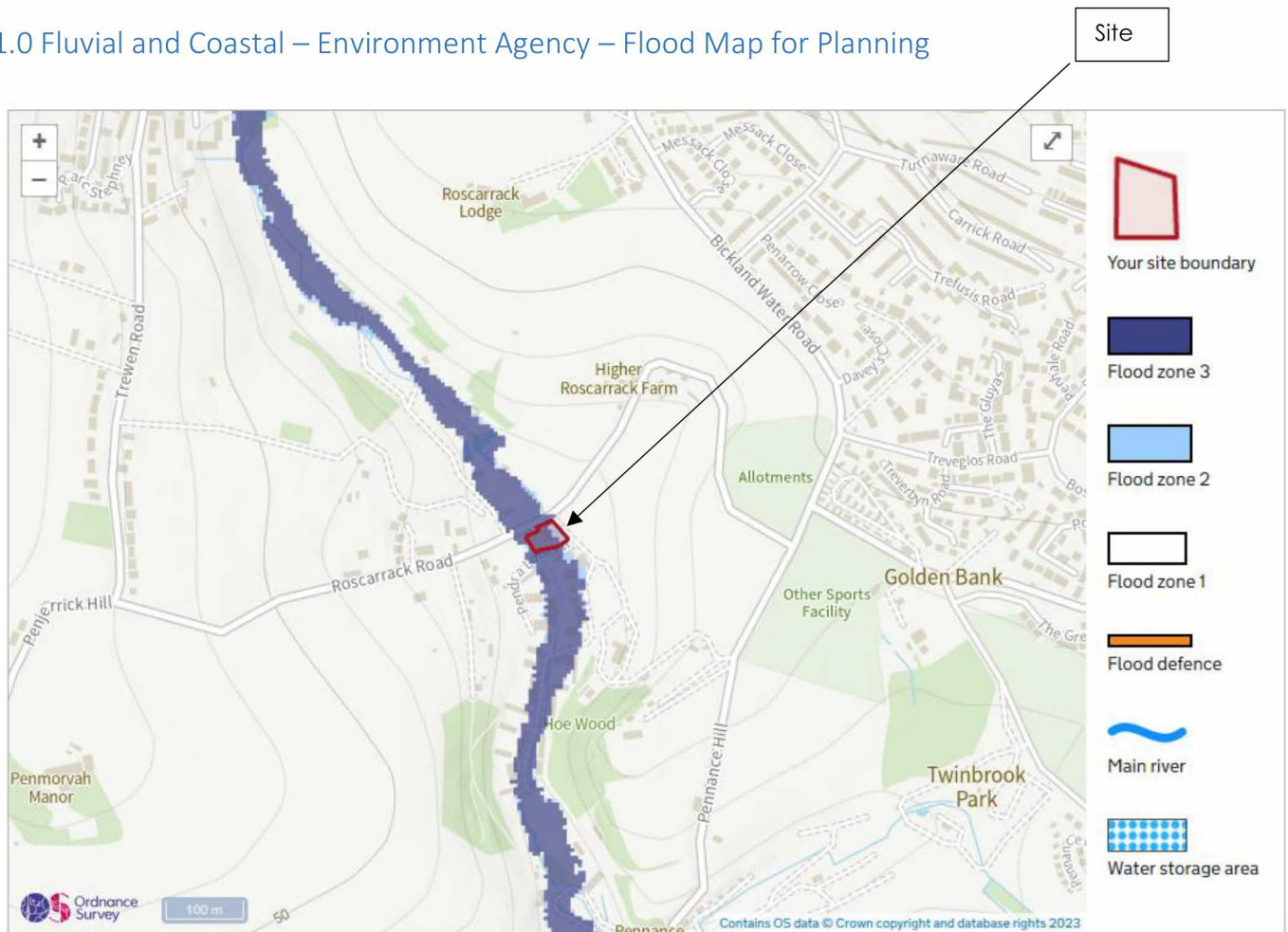


7 Mellinsey Fields  
 Station Road  
 Perranwell Station  
 Truro  
 Cornwall  
 TR3 7FA



## Assessment of Flood Risk

### 1.0 Fluvial and Coastal – Environment Agency – Flood Map for Planning



The site is in Fluvial and Coastal Flood Zone 3. There are flood defences and there is a minor river in proximity – to the north and west boundary of the site.

[PREMIERWATERSOLUTIONS.CO.UK](http://PREMIERWATERSOLUTIONS.CO.UK)

Contains public sector information licensed under the Open Government Licence v3.0  
 Registered in England 06482545 as Premier Water Solutions 10 Ltd  
 Luke's Cottage, Green Lane, Mawla, Redruth, TR16 5DW





7 Mellingley Fields  
 Station Road  
 Perranwell Station  
 Truro  
 Cornwall  
 TR3 7FA



### Flood Risk from Rivers or the Sea

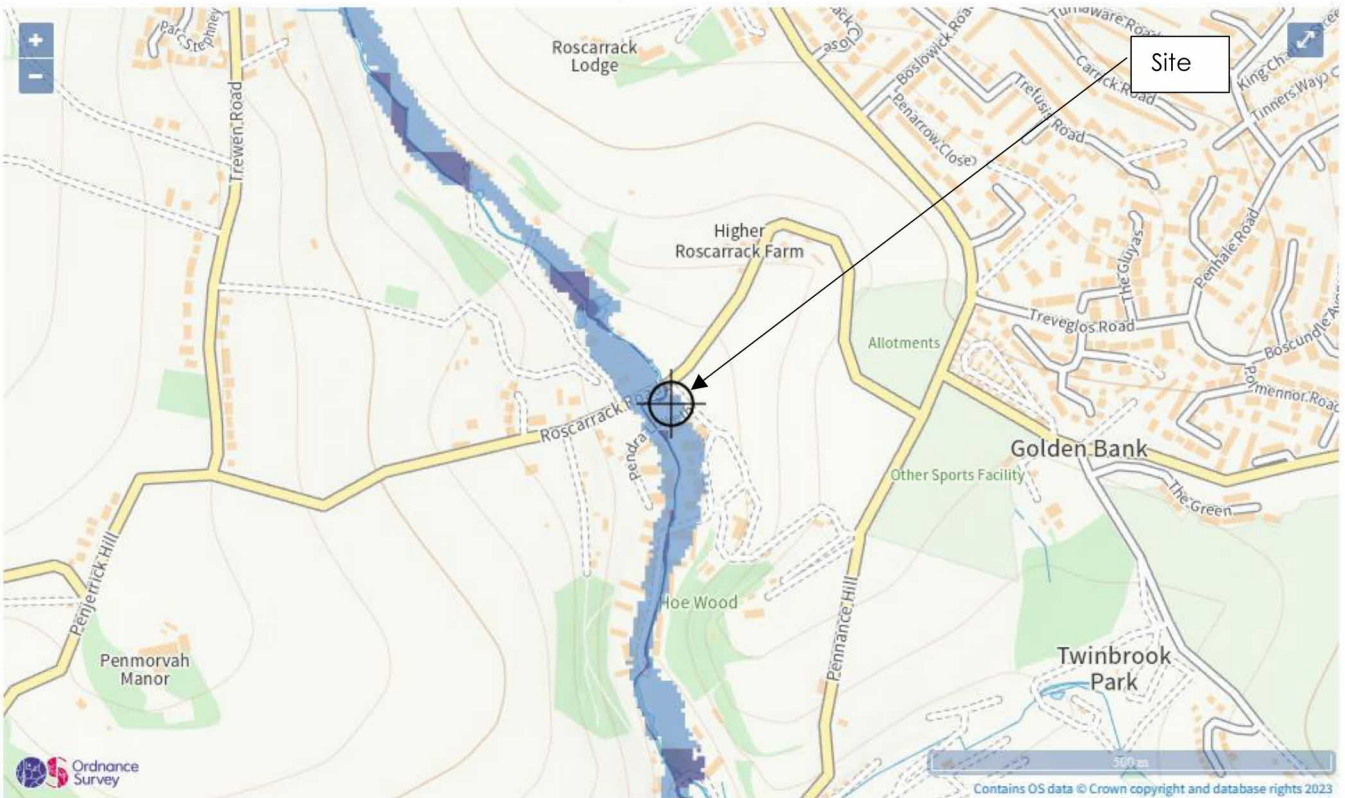
**Medium risk** means that this area has a chance of flooding of between 1% and 3.3% **each year**. This takes into account the effect of any flood defences in the area. These defences reduce but do not completely stop the chance of flooding as they can be overtopped, or fail.

Flood risk

Extent of flooding

Location

Enter a place or postcode



Extent of flooding from rivers or the sea

- High
- Medium
- Low
- Very low
- Location you selected

PREMIERWATERSOLUTIONS.CO.UK

Contains public sector information licensed under the Open Government Licence v3.0  
 Registered in England 06482545 as Premier Water Solutions 10 Ltd  
 Luke's Cottage, Green Lane, Mawla, Redruth, TR16 5DW



7 Mellinsey Fields  
Station Road  
Perranwell Station  
Truro  
Cornwall  
TR3 7FA



## 2.0 Surface Water – Environment Agency – Surface Water Map

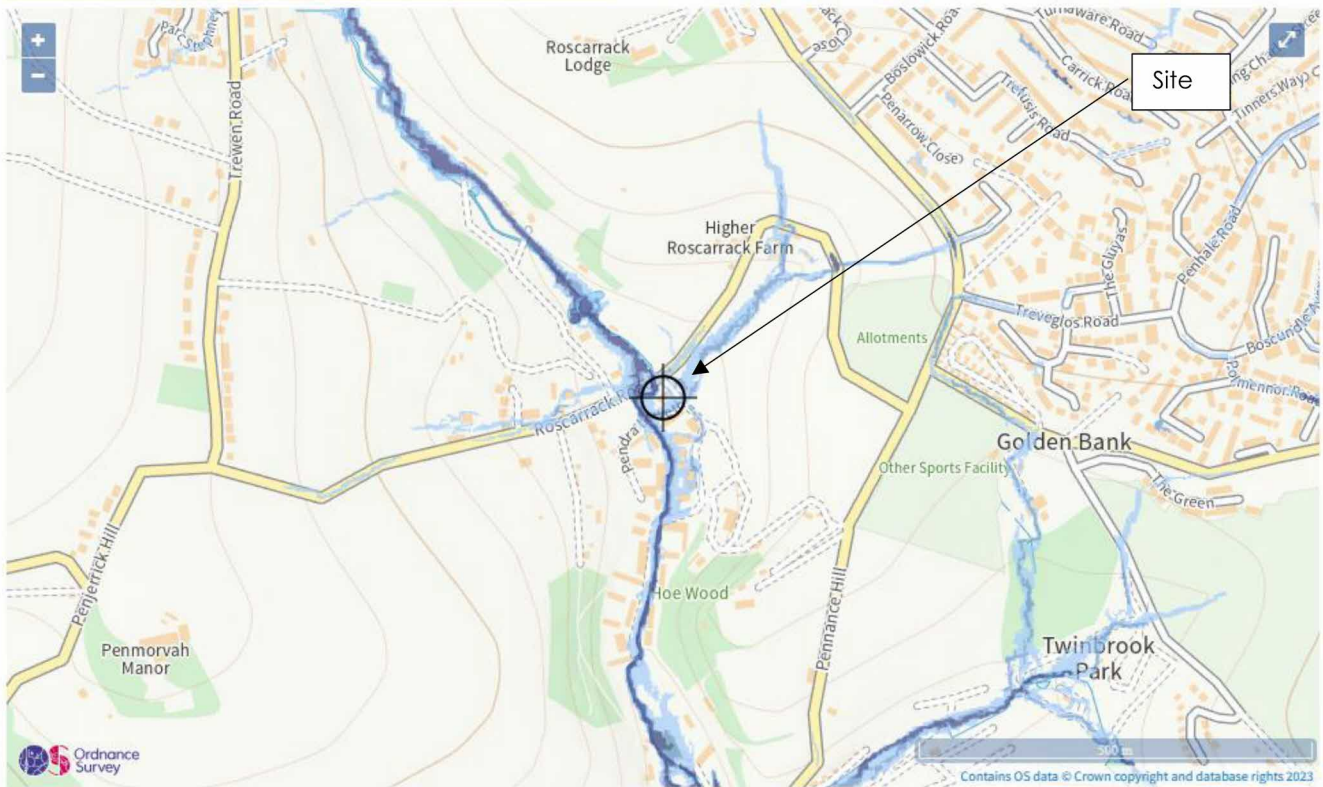
**High risk** means that this area has a chance of flooding of greater than 3.3% **each year**. Flooding from surface water is difficult to predict as rainfall location and volume are difficult to forecast. In addition, local features can greatly affect the chance and severity of flooding.

Flood risk

Extent of flooding

Location

Enter a place or postcode



Extent of flooding from surface water

● High ● Medium ● Low ○ Very low ⊕ Location you selected

PREMIERWATERSOLUTIONS.CO.UK

Contains public sector information licensed under the Open Government Licence v3.0  
Registered in England 06482545 as Premier Water Solutions 10 Ltd  
Luke's Cottage, Green Lane, Mawla, Redruth, TR16 5DW





7 Mellinsey Fields  
Station Road  
Perranwell Station  
Truro  
Cornwall  
TR3 7FA



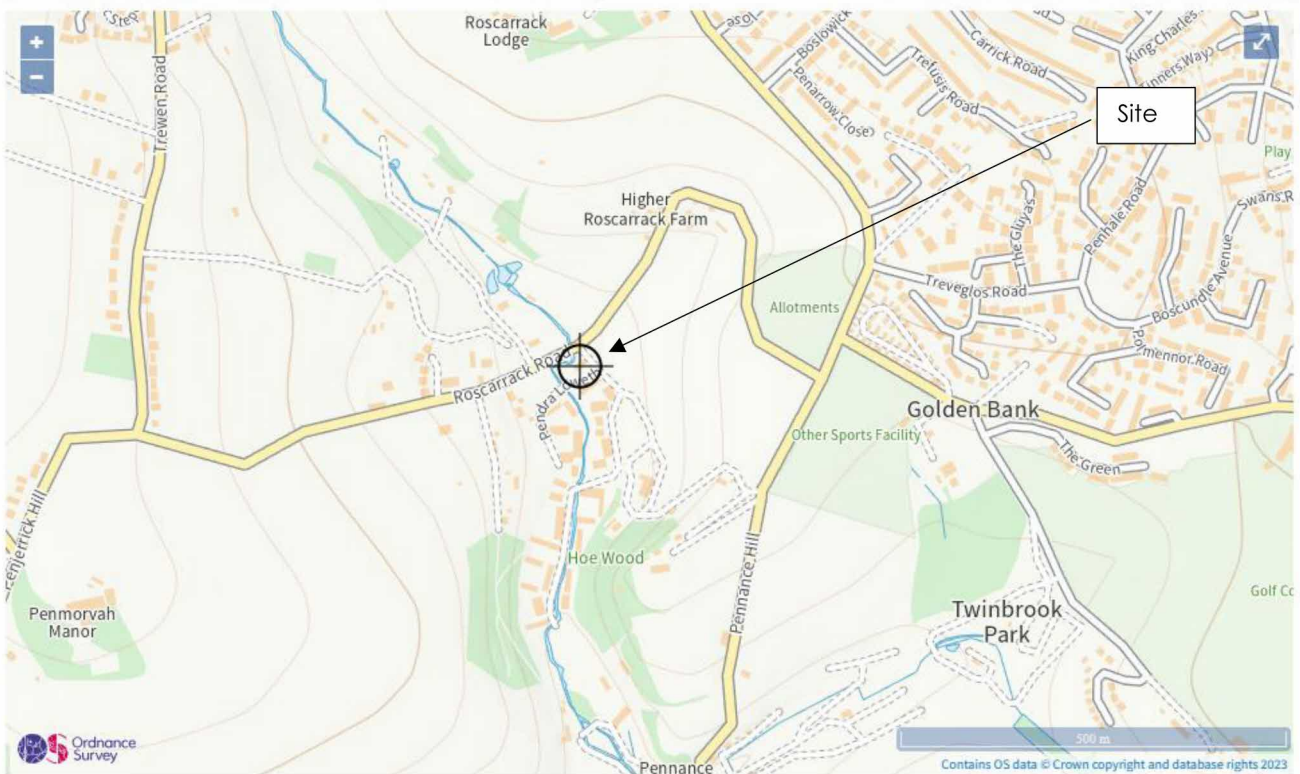
### 3.0 Reservoir Flooding

Flood risk

Extent of flooding

Location

Enter a place or postcode



Maximum extent of flooding from reservoirs:

- when river levels are normal
- when there is also flooding from rivers
- ⊕ Location you selected

The site is at low risk of flooding even when the River is in flood.



7 Mellinige Fields  
 Station Road  
 Perranwell Station  
 Truro  
 Cornwall  
 TR3 7FA



## 4.0 Groundwater

### Groundwater

**Flooding from groundwater is unlikely in this area**

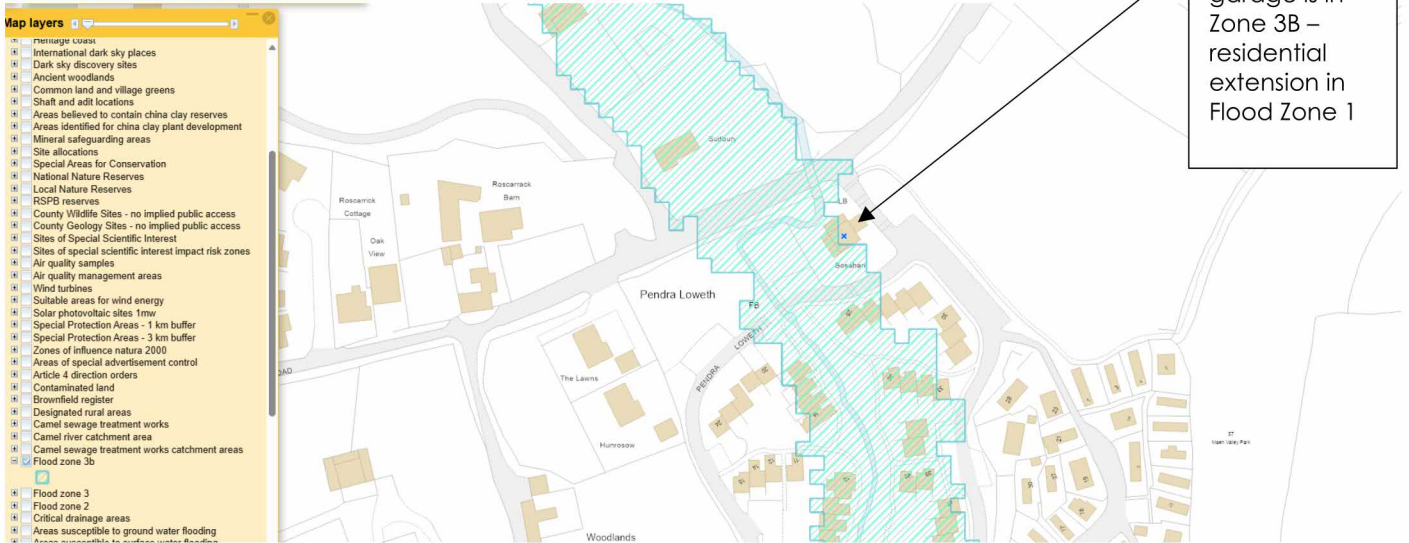
▼ **What groundwater flooding is and how we can check an area's risk**

Flooding caused by groundwater happens when water underground that is usually held in the rocks and soil (known as the water table) gets so high that it flows above the surface.

We use flood alert data to check the risk of flooding from groundwater.

## 5.0 Cornwall Council Interactive Mapping

### 5.1 Flood Zone 3B



Site

[PREMIERWATERSOLUTIONS.CO.UK](http://PREMIERWATERSOLUTIONS.CO.UK)

Contains public sector information licensed under the Open Government Licence v3.0  
 Registered in England 06482545 as Premier Water Solutions 10 Ltd  
 Luke's Cottage, Green Lane, Mawla, Redruth, TR16 5DW

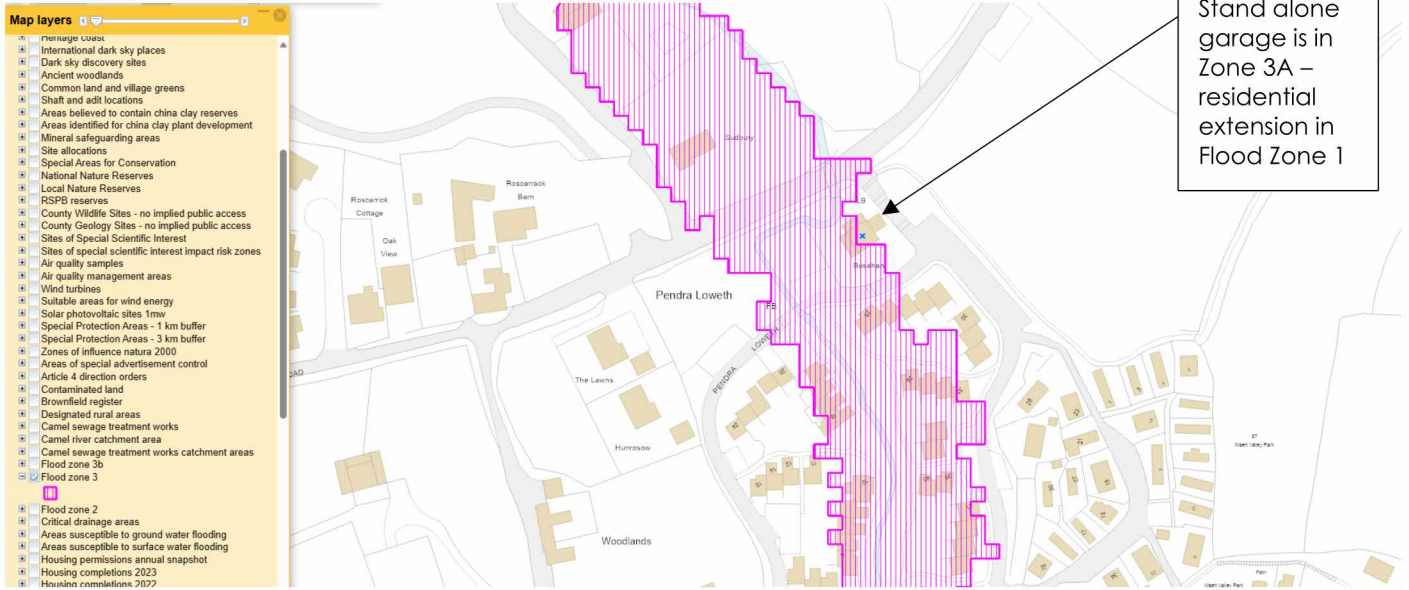




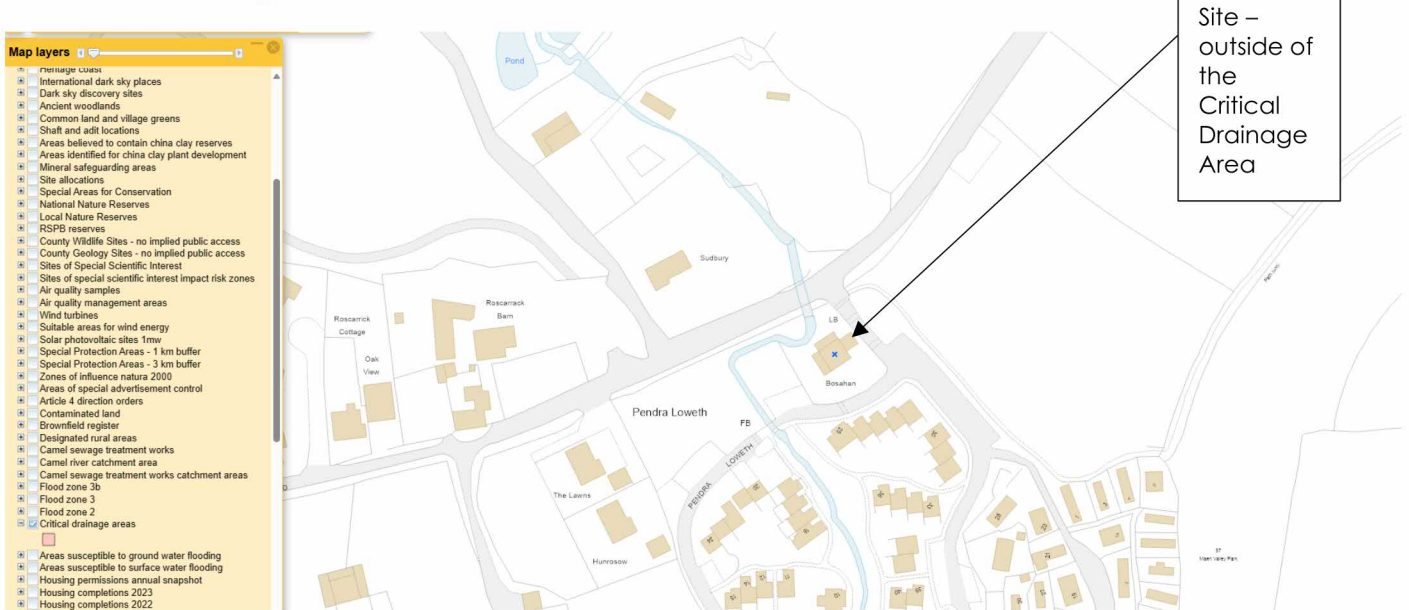
7 Mellinsey Fields  
 Station Road  
 Perranwell Station  
 Truro  
 Cornwall  
 TR3 7FA



### 5.2 Flood Zone 3A



### 5.3 – Critical Drainage Area



PREMIERWATERSOLUTIONS.CO.UK

Contains public sector information licensed under the Open Government Licence v3.0  
 Registered in England 06482545 as Premier Water Solutions 10 Ltd  
 Luke's Cottage, Green Lane, Mawla, Redruth, TR16 5DW



7 Mellingley Fields  
 Station Road  
 Perranwell Station  
 Truro  
 Cornwall  
 TR3 7FA



### 5.4 Sewer Flooding



### Summary of Flood Risk

Fluvial and Coastal	Flood Zone 3 – High Risk
Flood Zone 3B	Yes – standalone garage in Flood Zone 3B; Residential extension in Flood Zone 1
Flood Zone 3A	Yes Stand alone garage in Flood Zone 3A; Residential development in Flood Zone 1
Fluvial and Coastal (with sea defences)	Medium Risk
Surface Water	High Risk
Reservoir	No
Groundwater	Unlikely
Sewer	High risk
Critical Drainage Area	No

PREMIERWATERSOLUTIONS.CO.UK

Contains public sector information licensed under the Open Government Licence v3.0  
 Registered in England 06482545 as Premier Water Solutions 10 Ltd  
 Luke's Cottage, Green Lane, Mawla, Redruth, TR16 5DW

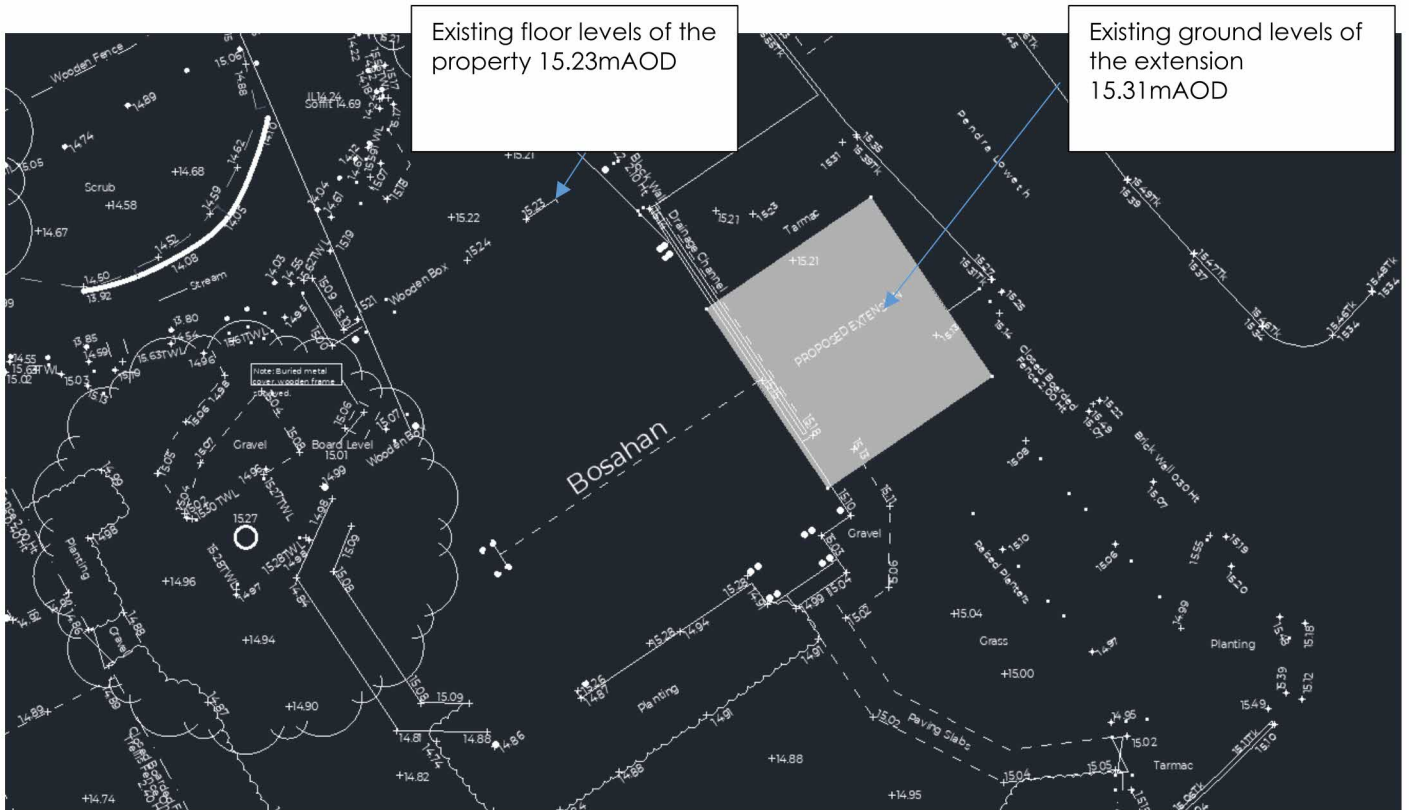




7 Mellinsey Fields  
 Station Road  
 Perranwell Station  
 Truro  
 Cornwall  
 TR3 7FA



## Site Levels



Floor level of the proposed ground floor living accommodation should be set at minimum of 15.23m AOD or if possible 350mm higher providing that it does not increase the risk of flooding to the main house.

The proposed finished floor level of the garage should be 14.80m which allows some cut and fill of the existing ground level to get a relatively flat base. This approach would negate the need for providing flood storage compensation for raising the ground to the south.

[PREMIERWATERSOLUTIONS.CO.UK](http://PREMIERWATERSOLUTIONS.CO.UK)

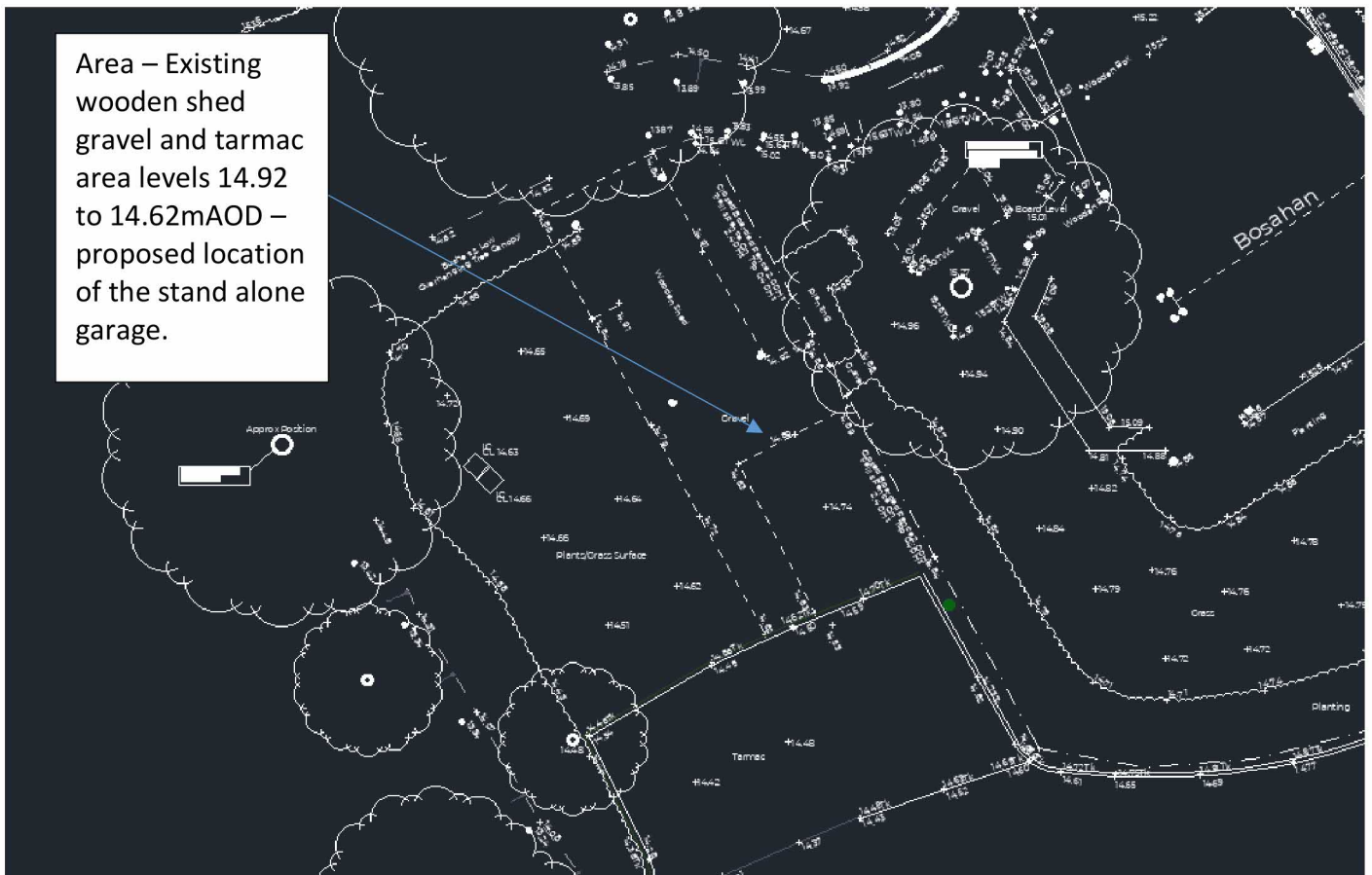
Contains public sector information licensed under the Open Government Licence v3.0  
 Registered in England 06482545 as Premier Water Solutions 10 Ltd  
 Luke's Cottage, Green Lane, Mawla, Redruth, TR16 5DW



7 Mellinsey Fields  
 Station Road  
 Perranwell Station  
 Truro  
 Cornwall  
 TR3 7FA



Area – Existing wooden shed gravel and tarmac area levels 14.92 to 14.62m AOD – proposed location of the stand alone garage.



### Acceptable development

The erection of a minor residential development is acceptable development in a high flood risk area – the location of the extension is in Flood Zone 1 (low risk), providing that the finished floor levels of the extension are no lower than the existing floor levels in the house. Flood Resilience is required for following the water exclusion strategy for depths up to 600mm. Since the proposal is for living accommodation on the ground floor, this would be acceptable to flood. The standalone garage in the land to the west would be termed an ancillary building to the property and would be acceptable development in Flood Zone 3B. The extension and the garage is classified as More Vulnerable. The existing car port, which will be demolished would also be classed as More Vulnerable therefore the vulnerability has not increased as a result of the development.

More Vulnerable is acceptable development in high flood risk areas.





7 Mellingley Fields  
Station Road  
Perranwell Station  
Truro  
Cornwall  
TR3 7FA



## Sequential Test

Not Required for the extension – extension under 250m<sup>2</sup>. The sequential approach has been followed by ensuring the stand alone garage is located in the area more likely to flood and the extension with living and sleeping accommodation in flood Zone 1. Furthermore, the sleeping accommodation has been designed to be on the 1s floor only, again following the sequential approach.

## Exceptions Test

Exception Test is not Required.

## Sustainable Urban Drainage System

There will not be an increase in impermeable area for the extension because of this development. This is because the proposed extension is formalising an existing garage with a similar footprint. The runoff drains onto the ground and into an aco drain located between the house and the garage and most likely drains to a soakaway or discharges indirectly into the stream.

It is recommended to use improvements to reduce the flow of water. There are opportunities to use a water butt to catch the water for example, which then could be used by the occupier to water the garden and wash the car. This would provide a net improvement in reducing water volume and flow before entry in the river.

There would be an increase in impermeable area for the garage (54m<sup>2</sup>) and it is recommended that a soakaway type approach would be acceptable. If when percolation tests are undertaken that soakaways will not work, then it would be acceptable to use an attenuation tank with attenuated discharge into the adjacent stream.

## Foul Water

The property connects to the main sewer, and this will remain the same post development. It is recommended to fit a double Non-Return Valve to prevent surcharged pipework from the SWW sewer backflowing to the property.

## Proximity to Watercourses

A Flood Risk Activity Permit from the Environment Agency may be required in addition to the planning permission and the Building Regulation Approval if the toilet building is within 16m of a riverbank of a tidal main River and 8m for a non tidal main river. This is not applicable to this site.

[PREMIERWATERSOLUTIONS.CO.UK](http://PREMIERWATERSOLUTIONS.CO.UK)

Contains public sector information licensed under the Open Government Licence v3.0  
Registered in England 06482545 as Premier Water Solutions 10 Ltd  
Luke's Cottage, Green Lane, Mawla, Redruth, TR16 5DW



7 Mellingley Fields  
Station Road  
Perranwell Station  
Truro  
Cornwall  
TR3 7FA



## Flood Warning and Alerts

This property is not located within an area where the Environment Agency issues flood warnings and alerts.

## Property Flood Resilience (PFR)

It is accepted that the standalone garage is located within a high flood risk area and will be prone to flooding. The depths of which are unknown. However, the garage will be designed following the water entry methodology. Property Flood Resilience is recommended for the living area of the extension.

### Living room / extension

- 1) Flood doors for the entry point to the extension
- 2) Tank the base slab and walls to a minimum of 600mm above ground level
- 3) Tiled / concrete floor with wall tiles with waterproof grout
- 4) No low-level storage cupboards containing chip board or containing cleaning chemicals.
- 5) Electrical power points to be from the 1<sup>st</sup> floor down with the sockets 1.5m above ground level. There should be a high level easily accessible isolation switch to be turned off when there is a flood alert or in flood.
- 6) There should be an external water supply so that if the living room or garage is flooded it can be easily washed down after a flood.
- 7) There should be a double non return valve fitted between the property and the connection point into the SWW main pipework.
- 8) If possible, it would be a good idea to raise the Finished Floor Level of the extension 350mm higher than the existing ground level to prevent surface water flooding providing this does not increase the flood risk to the main property.

### Garage

- 1) Allow water to enter into the garage to prevent structural damage to the building fabric. Slab and covering should be waterproof and easily cleaned after a flood.
- 2) Electrical sockets to be from the roof down and the sockets located 1.5m above ground level
- 3) No storage of chemicals or toxic products

## Conclusions

- 1) Dart Architecture are applying for permission to demolish an existing car port to the east of the property and erect a 2-story extension with living accommodation on the ground floor with a master bedroom and ensuite on the 1<sup>st</sup> floor. There will be a standalone garage in the land to the west of the property.
- 2) The property is already connected to the main sewer, there should be a double non return valve fitted between the toilet block and the main sewer.
- 3) The site is at risk from all sources of flooding apart from reservoir and groundwater and would be termed at high risk of flooding. The location of the extension is in Flood Zone 1 (low flood risk) and the proposed garage in Flood Zone 3B.

PREMIERWATERSOLUTIONS.CO.UK

Contains public sector information licensed under the Open Government Licence v3.0  
Registered in England 06482545 as Premier Water Solutions 10 Ltd  
Luke's Cottage, Green Lane, Mawla, Redruth, TR16 5DW





7 Mellingley Fields  
Station Road  
Perranwell Station  
Truro  
Cornwall  
TR3 7FA



- 4) The extension would be classified as More Vulnerable and is appropriate development for Flood Zone 1. The garage is termed an ancillary building to the main property and is acceptable development in a high flood risk area.
- 5) There is no need to apply the Sequential or Exceptions Test. However, a sequential approach has been followed by proposing the garage in the higher flood risk area with the 2-story extension in the lower flood risk area. Together with ensuring no sleeping accommodation on the ground floor.
- 6) It is recommended that a water butt be used to store water from the roof area from the extension to reduce the amount of water draining onto the garden area and it can be used to water the garden or wash the car reducing potable water use. A soakaway type SuDS solution for the additional impermeable area from the stand alone garage – design by others.
- 7) Property Flood Resilience measures would be required following the water exclusion strategy for the ground floor of the extension – flood doors and tanking of the slab and walls are recommended. For the garage the water entry strategy has been recommended
- 8) The living room FFL to remain the same as the existing property at 15.23mAOD or if possible raised at least 350mm from the existing levels providing it does not increase the risk of flooding to the existing property. The Finished Slab level of the garage should be 14.80mOD which has allowed for some cut and fill negating the need for flood storage compensation.

If you require further information, please contact the undersigned.

Yours sincerely,



Louisa Inch  
CEnv MIEMA MCIWEM C.WEM BSc (Hons)

Managing Director  
Award Winning, Independent Environmental, Water and Drainage Consultants and Contractors

Company Registration Number 11445512

[PREMIERWATERSOLUTIONS.CO.UK](http://PREMIERWATERSOLUTIONS.CO.UK)

Contains public sector information licensed under the Open Government Licence v3.0  
Registered in England 06482545 as Premier Water Solutions 10 Ltd  
Luke's Cottage, Green Lane, Mawla, Redruth, TR16 5DW