

FLOOD RISK ASSESSMENT



**MILLOM SCHOOL, SALTHOUSE ROAD, MILLOM, CUMBRIA, LA18 5AB
PREPARED FOR ALLIANCE LEISURE SERVICES LIMITED**



QUALITY CONTROL

Project No.	GEOL22-8471	Client	Alliance Leisure Services Limited
Design Team	Cohesion Consult Limited, Furness Partnership Limited & Robert Limbrick Limited		
Report Type	Flood Risk Assessment		
Project Type	Redevelopment of Millom School comprising a new sports facility replacing the existing sports facility, along with a change in layout to on-site parking areas		
Site Address	Millom School, Salthouse Road, Millom, Cumbria, LA18 5AB		
NGR	317360, 480450		
Date	20/04/2023		
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Position	Director		
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Position	Principal Geo-Environmental Engineer		
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Position	Director		

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REPORT REVISION HISTORY				
Issue	Description	Date	Author	Approval
1	Final Issue	20/04/2023	RS	TMc

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FLOOD RISK ASSESSMENT

1.0 Introduction

Geol Consultants Limited (GEOL) were instructed by Furness Partnership on behalf of Alliance Leisure Services Limited to undertake a site-specific Flood Risk Assessment (FRA) for a parcel of land located within the grounds of Millom School situated in Millom town, Cumbria, where proposals have been made to redevelop the existing sport facility. Proposals also include for alterations to existing on-site car parking areas. A copy of the proposed development layout plan can be seen on the Roberts Limbrick Limited drawing, in Appendix I. As part of this FRA, a reconnaissance (walkover) survey was undertaken which involved an inspection of the site and immediate surrounding area. Site photographs taken during this survey can be seen in Appendix I and all relevant observations are noted in the Site Details & Description section on the following page.

The purpose of this FRA report is to provide information relating to the following.

- ▼ Determine the flood risk zone(s) for the site, in accordance with current Environment Agency (EA) flood risk mapping
- ▼ Identify and assess the potential sources of flood risk that could affect the site and proposed development
- ▼ Determine where the future development can be designed to minimise the risks from flooding, including the application of the Sequential Test and Exception Test (if required)
- ▼ Assess the impact of the proposed development on flood risk to the surrounding area, including any adverse impact on watercourses, floodplains and potential flood storage capacity
- ▼ Present a concept surface water drainage management plan for the proposed development to demonstrate that surface water discharge volumes and rates can be managed in an acceptable manner, including future foul drainage
- ▼ Assess if the future development will impede access to flood defences or management facilities

A review of currently available information from the following information and data sources has been undertaken to assist in the completion of this technical report.

- ▼ National Planning Policy Framework (NPPF), February 2019; Section 14 Paragraphs 155 to 165
- ▼ Technical Guidance to the NPPF, March 2012
- ▼ DEFRA / Environment Agency (EA); Flood Risk Assessment Guidance for New Development, Phase 2 Framework and Guidance for Assessing and Managing Flood Risk for New Development – Full Documentation and Tools, R&D Technical Report FD2320/TR2, October 2005
- ▼ Environment Agency (EA) / GOV.UK; Flood map for planning, Long term flood risk information interactive map and Preparing a flood risk assessment: standing advice
- ▼ CIRIA Report C624; Development and flood risk – guidance for the construction industry
- ▼ BS8533:2017; Assessing and managing flood risk in development- code of practice

FLOOD RISK ASSESSMENT

1.0 Introduction (Cont'd)

-  British Geological Survey (BGS); geological maps
-  Landmark Information Group; Flood Screening Report (FSR)

2.0 Site Details & Description

All relevant details and descriptions relating to the site have been summarised in the Table below and on the following page.

Detail	Description
Site address and access	Millom School, Salthouse Road, Millom, Cumbria, LA18 5AB
NGR	317360, 480450
Approximate size	c.1.77 Ha
Current site use	The site lies within the grounds of Millom School, comprising school buildings, sports facilities, areas of car parking and soft landscaping
Proposed site use	Proposals have been made to redevelop the existing sports facility on site and including alterations to two areas of existing on-site car parking
Surrounding land uses	The site is situated within the rural town of Millom and is bounded by residential properties and playing fields. A railway line is situated directly south-east of the site
Site topography & current site levels	The site area slopes in a northeasterly / easterly direction, from a ground level of circa 8m to 5m AOD
Future site levels	Site levels are likely to remain similar to existing ground levels in the area of the proposed sports facility
Existing & proposed areas of positive surface runoff	The whole of the site area covers an area of 17,700m², however the proposed sports facility area occupies an area of 4,464m², which currently comprises a mixture of existing building footprints, playground and grass soft landscaping. The existing school premises is expected to be serviced by an existing surface water and foul drainage system, which presumably discharges offsite into the public infrastructure. Across the remaining portions of the site, surface water is more than likely to infiltrate directly into the ground where grass / soft landscaping is present. The new sports facility development (comprising a new building footprint of c.1,850m²) will create an additional area of new impermeable surfacing and building footprint of up to 400m², which will result in a small increase in the volume and rate of surface water runoff from the new development that will need to be managed by new surface water management system post development

FLOOD RISK ASSESSMENT

2.0 Site Details & Description (Cont'd)

Detail (Cont'd)	Description (Cont'd)
Existing & proposed areas of positive surface runoff (Cont'd)	Insitu falling head permeability tests have been carried out within the existing natural deposits present and coefficient of permeability values (k) ranging between $1.71\text{E}^{-04} \text{ ms}^{-1}$ and $1.47\text{E}^{-07} \text{ ms}^{-1}$ have been recorded, indicating medium and low permeability classifications, with good and poor drainage characteristics. An appropriate drainage design strategy should accompany this FRA

3.0 Ground Conditions, Hydrogeology & Hydrology

3.1 Site Geology

No made ground / fill deposits are recorded on site in accordance with geological maps published by the BGS, reference; Sheet 48, Ulverston, 1:50,000 Scale, dated 1997. Whilst significant made ground / fill deposits are not recorded below the site area on BGS maps, some made ground / disturbed deposits should be anticipated associated with the construction of historical buildings (now demolished) and the existing school and buildings present on site today.

The site is shown to be initially overlain by superficial (drift) deposits comprising Devensian Till (glacial clay) with an area of Raised Marine Deposits (sand and gravel), recorded to the north-east of the site. Both superficial formations were deposited up to 2.5 million years ago during the Quaternary Period.

The site lies over a solid geological boundary, with the underlying bedrock deposits shown to comprise calcareous mudstone of the Kirkley Bank Formation, and interbedded siltstone and mudstone of the Brathay Formation in the north-west corner of the site. The Kirkley Bank Formation was deposited between 447 and 448 million years ago during the Ordovician Period, and the Brathay Formation was deposited between 427 and 433 million years ago during the Silurian Period. Archive BGS borehole records located east of the site record bedrock deposits at c.70m below ground levels.

3.2 Hydrogeology & Hydrology Setting

The Devensian Till deposits present below the site have been designated as a Secondary Undifferentiated Aquifer, with a high vulnerability. Secondary Undifferentiated Aquifers are aquifers where it has not been possible to attribute either category A or B to a deposit type. In most cases this means that the layer in question has previously been designated as both minor and non-aquifer in different locations due to the variable characteristics of the deposit type. The bedrock deposits present below the site have been designated as a Secondary B Aquifer.

FLOOD RISK ASSESSMENT

3.0 Ground Conditions, Hydrogeology & Hydrology (Cont'd)

3.2 Hydrogeology & Hydrology Setting (Cont'd)

These are predominantly lower permeability layers which may store and yield limited amounts of groundwater due to localised features such as fissures, thin permeable horizons, and weathering. These are generally the water-bearing parts of the former Non-Aquifers.

When considering the anticipated ground conditions recorded below the site, a shallow continuous groundwater surface is not expected below this site. Deep groundwater is anticipated at depth within the solid geology. The site is not recorded within a Source Protection Zone (SPZ), nor any recorded within 1km of the site boundary.

Salthouse Pool is recorded 23m to the northeast of the site boundary, flowing in a southerly and easterly direction, before discharging into the Irish Sea.

3.3 Management of Existing Surface Water Discharges

The whole proposed development area covers 17,700m². It is presumed that the existing school complex is serviced by an existing surface water and foul drainage system, which presumably discharges offsite into existing public infrastructure. Across the remaining portions of the site where grass / soft landscaping is present surface water is more than likely to infiltrate directly into the ground. A drainage survey should be undertaken to determine the capacity and current discharge rate of the existing surface water infrastructure.

3.4 Management of Future Surface Water Discharges

As part of a site-specific FRA consideration needs to be given to the control and discharge of surface water, particularly where positive surface water drainage management systems are required as part of the proposed development. It is recommended that surface water run-off will discharge to one of following listed in order of priority.

1. An adequate soakaway or infiltration system, or where the ground conditions do not permit this option
2. Discharge to a surface water course, at an equivalent greenfield run-off for the site and / or incorporating a 40% reduction in the discharge rate, or where this is not practically possible
3. Surface water will have to be discharged to the public sewer infrastructure system incorporating a 50% betterment on the discharge rate, and as such attenuation may be required to accommodate surface water storage

FLOOD RISK ASSESSMENT

3.0 Ground Conditions, Hydrogeology & Hydrology (Cont'd)

3.4 Management of Future Surface Water Discharges (Cont'd)

As a new development is proposed a new drainage infrastructure system will be required. The proposed area of new impermeable hardstanding and building footprint will be c.1,850m², which will create an additional area of new impermeable surfacing and building footprint of up to c.400m². As such this will result in a small increase in the volume and rate of surface water runoff generated by the new development which will need to be managed by the new surface water management system. The ground conditions present below the site comprise topsoil and made ground ranging in thickness between 0.30m up to 2.15m, in turn underlain by stiff dark grey slightly sandy slightly gravelly clay, transitioning into grey and brown slightly gravelly sand. Insitu falling head permeability tests have been carried out on the site within the existing natural deposits present and coefficient of permeability values (k) ranging between $1.71\text{E}^{-04} \text{ ms}^{-1}$ and $1.47\text{E}^{-07} \text{ ms}^{-1}$ have been recorded, indicating medium and low permeability classifications, with good and poor drainage characteristics. As such, some of the underlying ground conditions may be suitable for the use of traditional soakaways to allow for the direct discharge of surface water into the underlying ground, in accordance with the SuDS manual C753.

Where traditional soakaways cannot be utilised, surface water could be discharged to an existing surface water course, namely Salthouse Pool located to the immediate northeast of the site boundary. Discharge rates will need to be limited to the Greenfield runoff rate for the site area, and therefore attenuation may be required to deal with the volumes and rates generated by the new development.

As a last resort, surface water from the new development could continue discharging into the existing onsite surface water infrastructure. The current volume and discharge rate of the existing infrastructure is unknown, however, consideration will need to be given to attenuation of the additional volumes of surface water as well as incorporating a 50% reduction in the discharge rate to reduce the burden on the existing infrastructure and prevent it from becoming overwhelmed in the future. Once the design scheme has been completed, a drainage management plan / strategy should accompany this FRA report.

3.5 Current & Future Foul Drainage

United Utilities are responsible for the management of the foul sewer infrastructure in this area. When considering the current site, foul drainage from the existing school complex presumably discharges into the existing onsite drainage infrastructure which is presumed to ultimately discharge into the public infrastructure.

A new foul drainage system will be required for the proposed new sports facility development which is likely to be directed to the existing foul sewer infrastructure present on site. Once the design scheme has been completed, a drainage management plan / strategy should accompany this FRA report.

FLOOD RISK ASSESSMENT

4.0 Potential Sources of Flood Risk

4.1 Fluvial (River) Flood Zones

According to the EA / GOV.UK Flood Map for Planning Interactive Map, the site lies within a Flood Zone 1, an area with a low probability of flooding with <1 in 1000 chance of fluvial flooding occurring (<0.1%), and therefore this site is unlikely to be at significant risk from future flooding. As the site lies out with a flood risk area no modelled flood levels can be provided by the EA. It is noted that a Zone 3 Flood risk area is located up to and adjacent to the northern boundary of the site, although this area benefits from flood defences.

According to the EA / GOV.UK Long Term Flood Risk Information Interactive Map and the EA RoFRS map contained within the FSR, generally the whole of the site is shown to lie within an area at negligible risk of flooding, where the chance of flooding occurring is <0.1%. This considers 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. Again it is noted that an area of very low risk flooding is recorded up to and adjacent to the northern boundary of the site.

The JBA flood maps indicate the majority of site area not to be at risk from the 75, 100, 200 and 1000 year fluvial flood events, and the BGS records the site to lie out with an area where there are potential geological indicators of flooding. The site is recorded to have a medium flood insurance claim rating.

4.2 Tidal (Sea) Flood Zone

The site does not lie in an area which is likely to flood from the sea (i.e. <1 in 1000 or <0.1% chance of happening).

4.3 Pluvial (Surface Water) Flooding

According to the GOV.UK Long Term Flood Risk Information Interactive Map, small pockets of the site area are shown to lie within an area at low (between 0.1% & 1%) risk of surface water (pluvial) flooding occurring each year.

The EA surface water maps contained within the FSR concur with the Long Term Flood Risk Information Interactive Map where small localised pockets of 1 in 30 (high), 1 in 100 (medium) and 1 in 1000 (low) year return events exist but generally on the whole the site area is not considered to be at significant risk. The Surface Water Hazard Rating is generally recorded as low. The JBA flood data correlates with the EA data. During the reconnaissance (walkover) survey there were no areas of standing surface water noted.

FLOOD RISK ASSESSMENT

4.0 Potential Sources of Flood Risk (Cont'd)

4.4 Flooding from Groundwater

According to BGS data, the whole of the site is shown to lie within an area with a potential for groundwater flooding to occur at surface. The Geosmart data indicates the majority of the site area is at negligible risk from groundwater flooding occurring and any groundwater flooding incidence has a chance of less than 1 in 100 (<1%) probability of occurrence. However the northeastern corner of the site is shown to lie within a low risk area, where there is a chance of greater than 1 in 100 (>1%) probability of occurrence. During recent site investigation works completed by GEOL, borehole locations were noted to remain dry during the investigation period. However, post fieldwork monitoring of groundwater wells recorded water levels in one position ranging between 1.05m and 2.95m.

4.5 Flooding from Reservoirs, Canals and other Artificial Bodies

Non-natural or artificial sources of flooding can include reservoirs, canals and lakes where water is retained above natural ground level, operational and redundant industrial processes including mining, quarrying and sand and gravel extraction, as they may increase floodwater depths and velocities in adjacent areas. The potential effects of flood risk management infrastructure and other structures also need to be considered. Reservoir or canal flooding may occur as a result of the facility being overwhelmed and/or as a result of dam or bank failure. The site is not considered to be at risk from any artificial sources of flooding, including reservoirs, canals, lakes or the like.

4.6 Flooding from Sewers

The FSR has no data relating to the site or surrounding area is at risk from flooding from public sewers.

4.7 Flooding from Overland Flow & Adjacent Sites

When considering the topography of the site and surrounding area, it is likely that if overland flow of surface water were to occur, it would be generated from road infrastructure located to the west of the site, as well as the site itself and would flow in a easterly direction.

As part of the proposed development, the site levels and drainage strategy should be designed to ensure that any overland flows resulting from new areas of hardstanding are directed away from proposed buildings in order to mitigate any risk of flooding from this source.

4.8 Historical Flooding

According to the FSR, there are no records of any historical flooding events affecting the site or the immediate surrounding area.

FLOOD RISK ASSESSMENT

5.0 Flood Risk Assessment

5.1 Impact of Flooding on the Site & Proposed Development

From the review of data available for this site and the findings of this site-specific FRA, the site is not recorded to be at significant risk from fluvial flooding, with the site shown to lie within a Zone 1 flood risk area, where there is <1 in 1000 chance of fluvial flooding occurring (<0.1%). The EA / GOV.UK Long Term Flood Risk Information Interactive Map and the EA RoFRS map contained within the FSR, records the site to lie within an area at negligible risk of flooding, where the chance of flooding occurring is <0.1%. There is no historical data to suggest the site has been affected by past flooding events. The site area is not considered to be at potential risk from tidal flooding, flooding from artificial sources of water (reservoirs, canals, etc.) or public sewers.

In general the risk of pluvial flooding affecting the site is not considered to represent a risk, although small and isolated areas of the site are shown to be at risk from low risk pluvial flooding (surface water), however this is not felt to represent a significant risk to future end users or the proposed development.

The majority of the site area is not considered to be at potential risk from groundwater flooding, although the northeastern portion of the site where the new sports facility is proposed is shown to lie within a low risk area. Therefore any proposed below ground structures should be designed to be waterproof.

5.2 Flood Risk Vulnerability of the Proposed Development

The EA classifications for flood risk vulnerability are provided in the technical guidance document (March 2012) which accompanies the NPPF (2019). The end-use of the site will remain the same (i.e. leisure centre, and in accordance with Table 2 of the technical guidance, 2012, Flood Risk Vulnerability Classification, the proposed development has been defined as Less Vulnerable, and therefore this type of development is deemed appropriate in a Zone 1 flood risk area, without the requirement for the application of the Sequential or Exception Test. As such, no further risk assessment is required for this site or proposed development.

5.3 Impact of the Development on Flood Risk to the Surrounding Area, Watercourses and Flood Storage Capacity

When considering the proposed development, and the small increase in new impermeable surfacing (new building footprint across the site from the current surface area), it is felt that the site and proposed development could increase the flood risk elsewhere by increasing the volume and rate of surface water discharge required from this site.

FLOOD RISK ASSESSMENT

5.0 Flood Risk Assessment (Cont'd)

5.3 Impact of the Development on Flood Risk to the Surrounding Area, Watercourses and Flood Storage Capacity (Cont'd)

As such, appropriate surface water management will be required to reduce this potential risk, and to deal with the additional area of new impermeable surfacing (c.400m²).

At this stage it is not known how the existing site drainage is discharged. However, consideration will need to be given to attenuation of the additional volumes of surface water generated by the proposed development. A new drainage strategy should accompany this proposed development meeting the criteria of the SuDS manual and the LLFA.

As the site and proposed development does not lie within a fluvial flood risk zone, the construction of the proposed sports facility development will not have the effect of increasing the depth of flooding to surrounding areas or by extending the floodplain to impact properties normally outside of the floodplain.

5.4 Impact of the Development on Flood Defences or Management Facilities

There are flood defences recorded 208m east of the east, which provide flood defence benefits to the land located to the immediate north of the site. As such, the proposed development will not result in a loss of access to any surface watercourses or any known existing or proposed flood defences maintained by the EA or the local flood authority, and as such the proposed development will not have an adverse impact on the operation or maintenance of existing flood defences or management facilities in this area.

6.0 Conclusions

As can be seen from the results of this site-specific FRA, the whole of the site and the proposed development are not considered to be at significant risk from fluvial flooding. The site lies wholly within a Zone 1 flood risk area and is considered to have a <0.1% chance of fluvial (rivers) flooding (less than 1 in 1000 chance of flooding in a year). The site is also not considered to be at risk from tidal flooding, flooding from artificial sources of water (reservoirs, canals, etc.), or flooding from public sewers, and there are no records of any historical flooding. The northeastern portion of the site is shown to lie within an area where there is a risk of groundwater flooding occurring at surface. Therefore any proposed below ground structures should be designed to be waterproof.

In general the site is not shown to be affected by significant pluvial (surface water) flooding, however the proposed development will comprise new areas of impermeable surfacing from new building footprints and road infrastructure (c.400m²) therefore new surface water drainage infrastructure should be designed to accommodate surface water discharges for various storm events / durations.

FLOOD RISK ASSESSMENT

6.0 Conclusions (Cont'd)

The site / proposed development lies within a Zone 1 flood risk area and therefore passes the Sequential Test on both a strategic and site-specific basis. The proposed end use of this development is commercial / leisure and would be classified as Less Vulnerable (Flood Risk Vulnerability Classification - Table 2, NPPF TG), and therefore would be considered as an appropriate end use for a Zone 1 flood risk area, without requiring application of the Exception Test.

This site and proposed development could increase the flood risk elsewhere by increasing the volume and rate of surface water discharge due to the new increase in hardstanding and building footprints covering an additional undeveloped area of c.400m², therefore there will be a need to incorporate new surface water drainage infrastructure to deal with the additional volume and increased rate of surface water generated by the new development. Once the design scheme has been completed, a drainage management plan / strategy should accompany this FRA report.

Given the use of an appropriate drainage strategy, the development will not have an adverse impact on any nearby watercourses, floodplains and areas of flood storage capacity, nor will the development result in flooding of adjacent sites.

End of Report

APPENDIX I

Existing Site Plan Proposed Development Layout Plan & Site Photographs

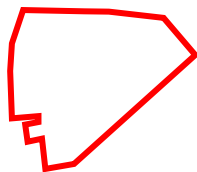


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Key

Approximate Site Boundary



EXISTING SITE PLAN



Report Type: Flood Risk Assessment

Site Address: Millom School, Salthouse Road, Millom, Cumbria, LA18 5AB

Project No.: GEOL22-8471



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Registered Office England No. 06556029

Project Name

Millom Leisure Centre

Client Name

Alliance Leisure / Copeland BC

Drawing Title

Proposed Site Plan

Scale

1 : 500 • A1

Project No.

10930

Status

A3

Purpose Of Issue

Issued for Planning

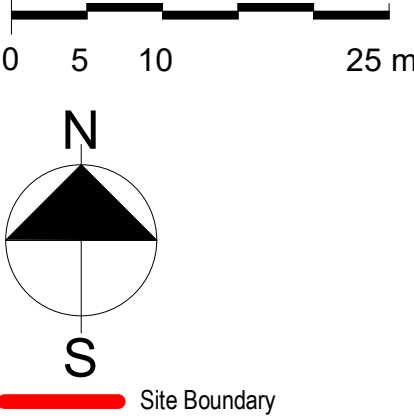
Project	Org	Vol	Level	Form	Role
10930	• RL	• XX	• ZZ	• DR	• A

Number

P2001

Revision

P01





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 SITE PHOTOGRAPHS

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 SITE PHOTOGRAPHS

Report Type: Flood Risk Assessment

Site Address: Millom School, Salhouse Road, Millom, Cumbria, LA18 5AB

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 SITE PHOTOGRAPHS

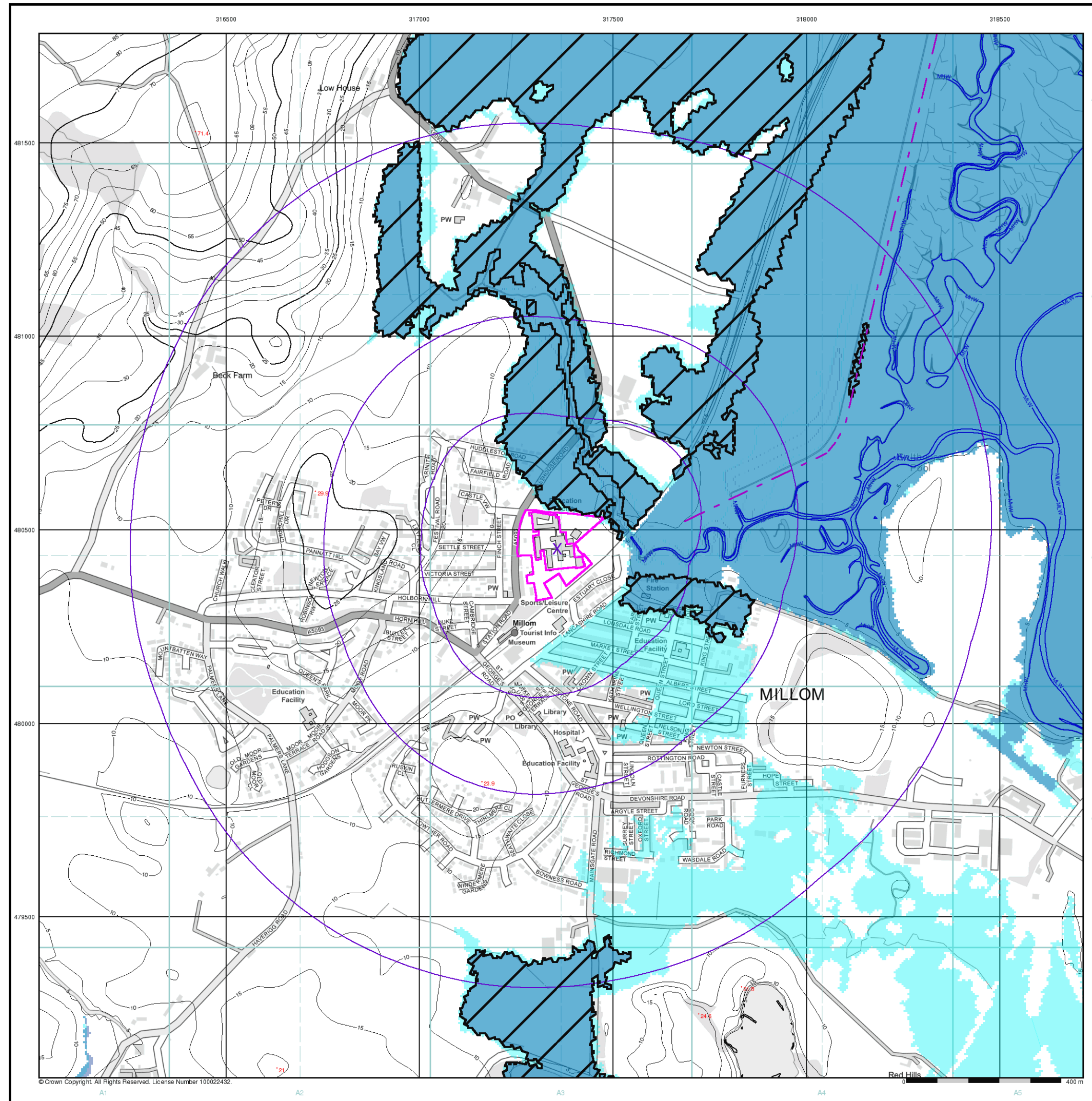
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APPENDIX II

Landmark Information Group, Flood Screening Report



EA/NRW Flood Data Map (1:10,000)

General

- Specified Site
- Specified Buffer(s)
- Bearing Reference Point

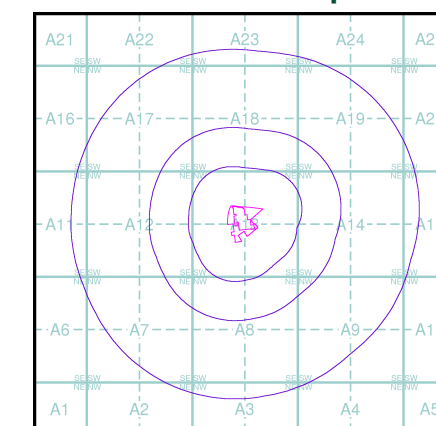
Flood Data

- Extreme Flooding from Rivers or Sea without Defences (Zone 2)
- Flooding from Rivers or Sea without Defences (Zone 3)
- Area Benefiting from Flood Defence
- Flood Water Storage Areas
- Flood Defence

Contours (height in metres)

- Standard Contour
- Master Contour
- Spot Height
- MLW Mean Low Water
- MHW Mean High Water

EA/NRW Flood Data Map - Slice A



Order Details

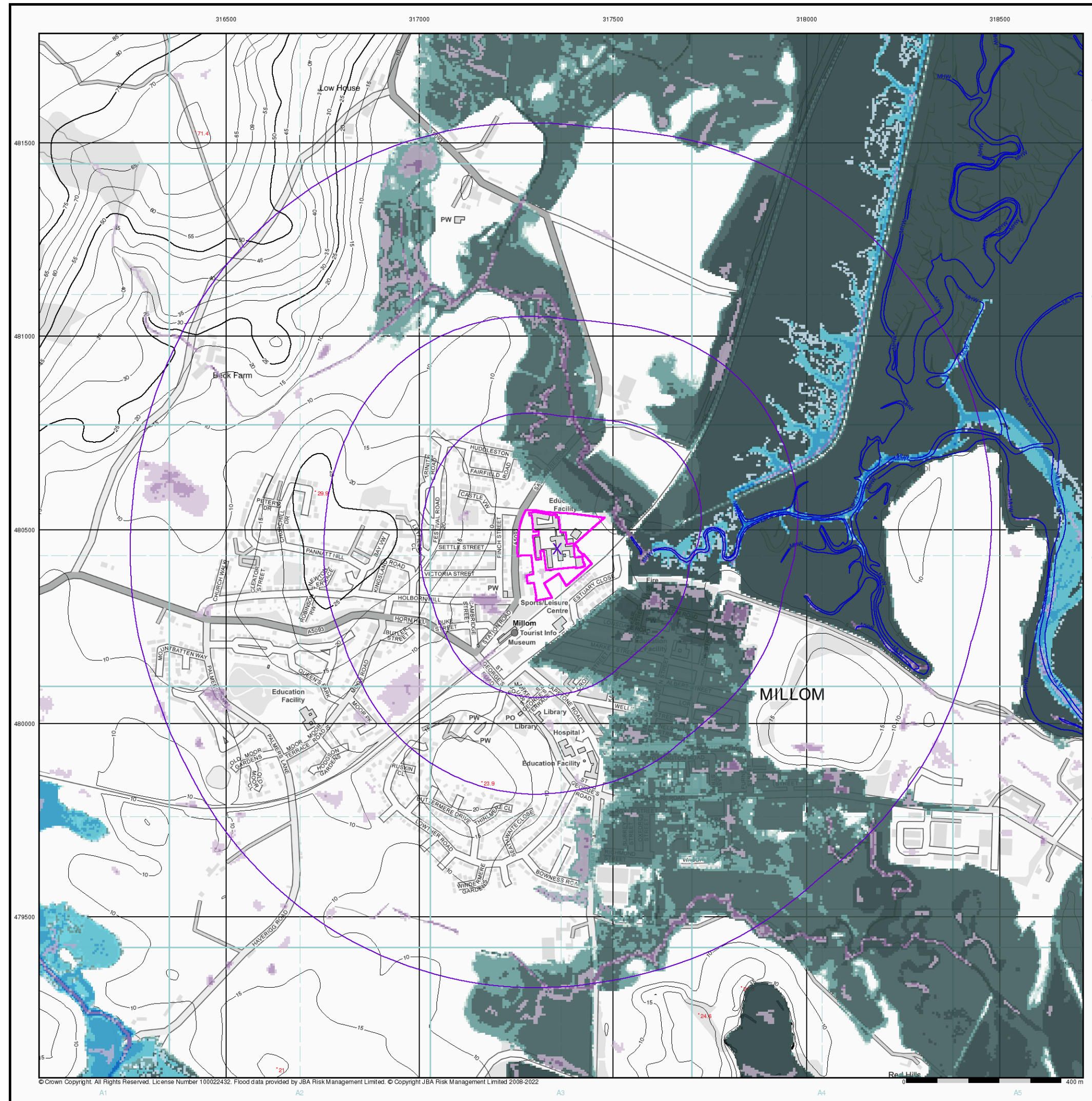
Order Number: 295446615_1_1
Customer Ref: GEOL22-8471
National Grid Reference: 317360, 480450
Slice: A
Site Area (Ha): 1.77
Search Buffer (m): 1000

Site Details

Millom School, Salthouse Road, MILLOM, LA18 5AB



Tel: 0844 844 9952
Fax: 0844 844 9951
Web: www.envirocheck.co.uk



JBA 75 Year Return Flood Map (Undefended) (1:10,000)

General

- Specified Site
- Specified Buffer(s)
- Bearing Reference Point

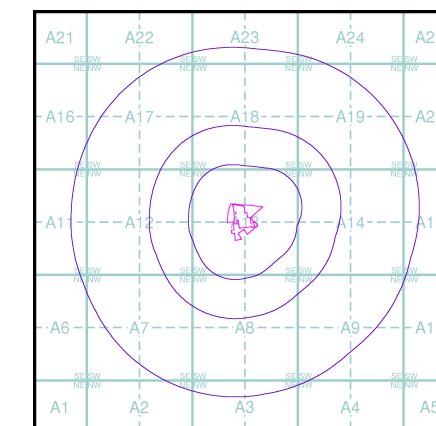
Modelled Flood Depth

Pluvial Depth	Fluvial Depth	Coastal Depth
0.1m	0.01m - 0.05m	0.01m - 0.05m
0.1m - 0.3m	0.05m - 0.1m	0.05m - 0.1m
0.3m - 1m	0.1m - 0.3m	0.1m - 0.3m
>1m	0.3m - 1m	0.3m - 1m
	>1m	>1m

Contours (height in metres)

- Standard Contour: 105, 100, 95
- Master Contour: 105, 100, 95
- Spot Height: 167.8
- MLW: Mean Low Water
- MHW: Mean High Water

JBA 75 Year Return Flood Map (Undefended) - Slice A



Order Details

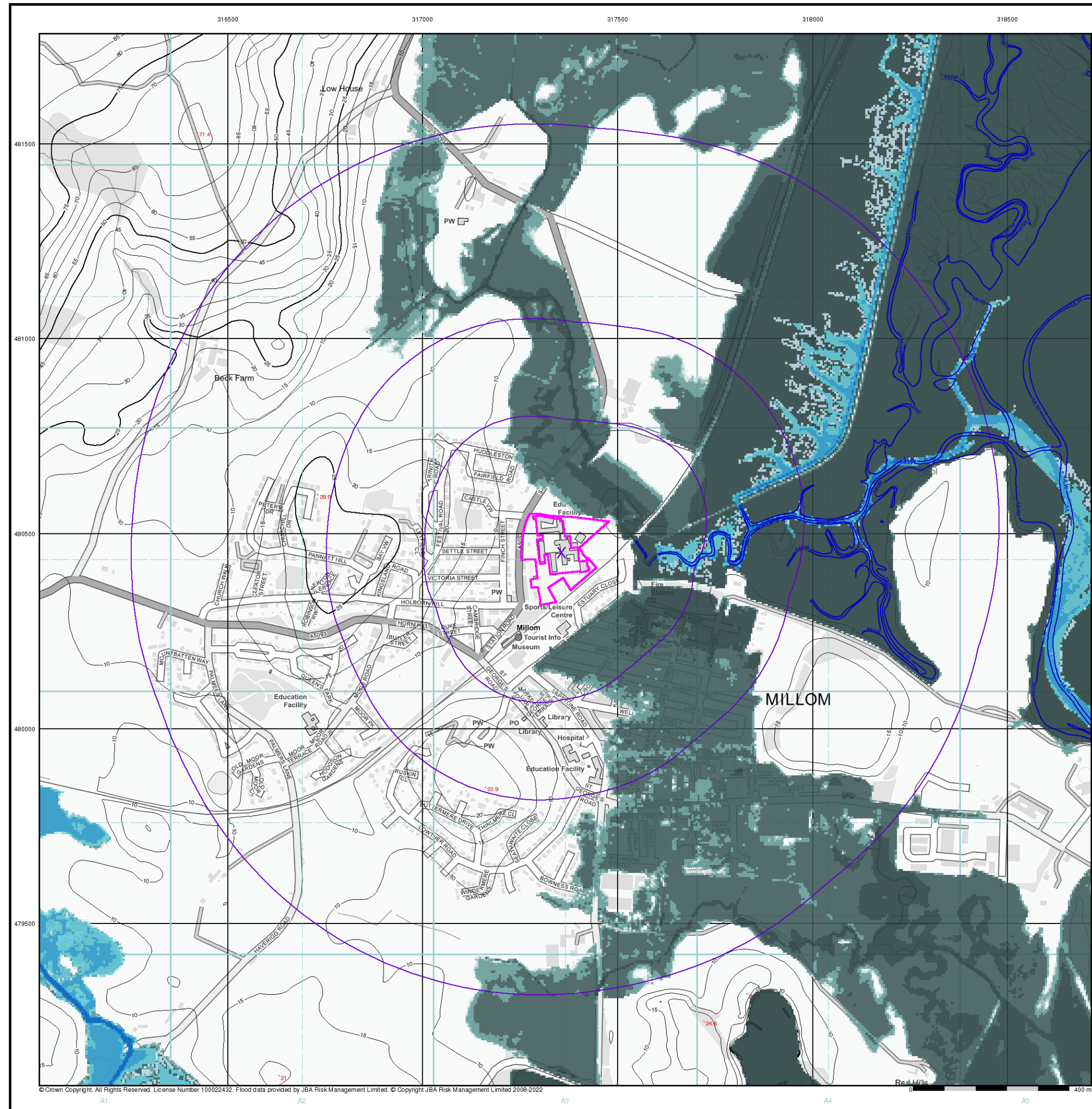
Order Number: 295446615_1_1
Customer Ref: GEOL22-8471
National Grid Reference: 317360, 480450
Slice: A
Site Area (Ha): 1.77
Search Buffer (m): 1000

Site Details

Millom School, Salthouse Road, MILLOM, LA18 5AB



Tel: 0844 844 9952
Fax: 0844 844 9951
Web: www.envirocheck.co.uk



JBA 100 Year Return Flood Map (Un defended) (1:10,000)

General

- Specified Site
- Specified Buffer(s)
- Bearing Reference Point

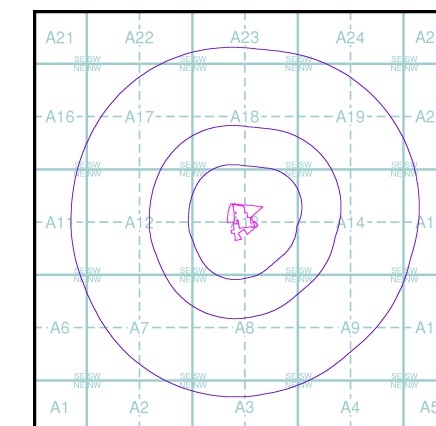
Modelled Flood Depth

Fluvial Depth	Coastal Depth
0.01m - 0.05m	0.01m - 0.05m
0.05m - 0.1m	0.05m - 0.1m
0.1m - 0.3m	0.1m - 0.3m
0.3m - 1m	0.3m - 1m
>1m	>1m

Contours (height in metres)

- Standard Contour
- Master Contour
- Spot Height
- MLW Mean Low Water
- MHW Mean High Water

JBA 100 Year Return Flood Map (Un defended) - Slice A



Order Details

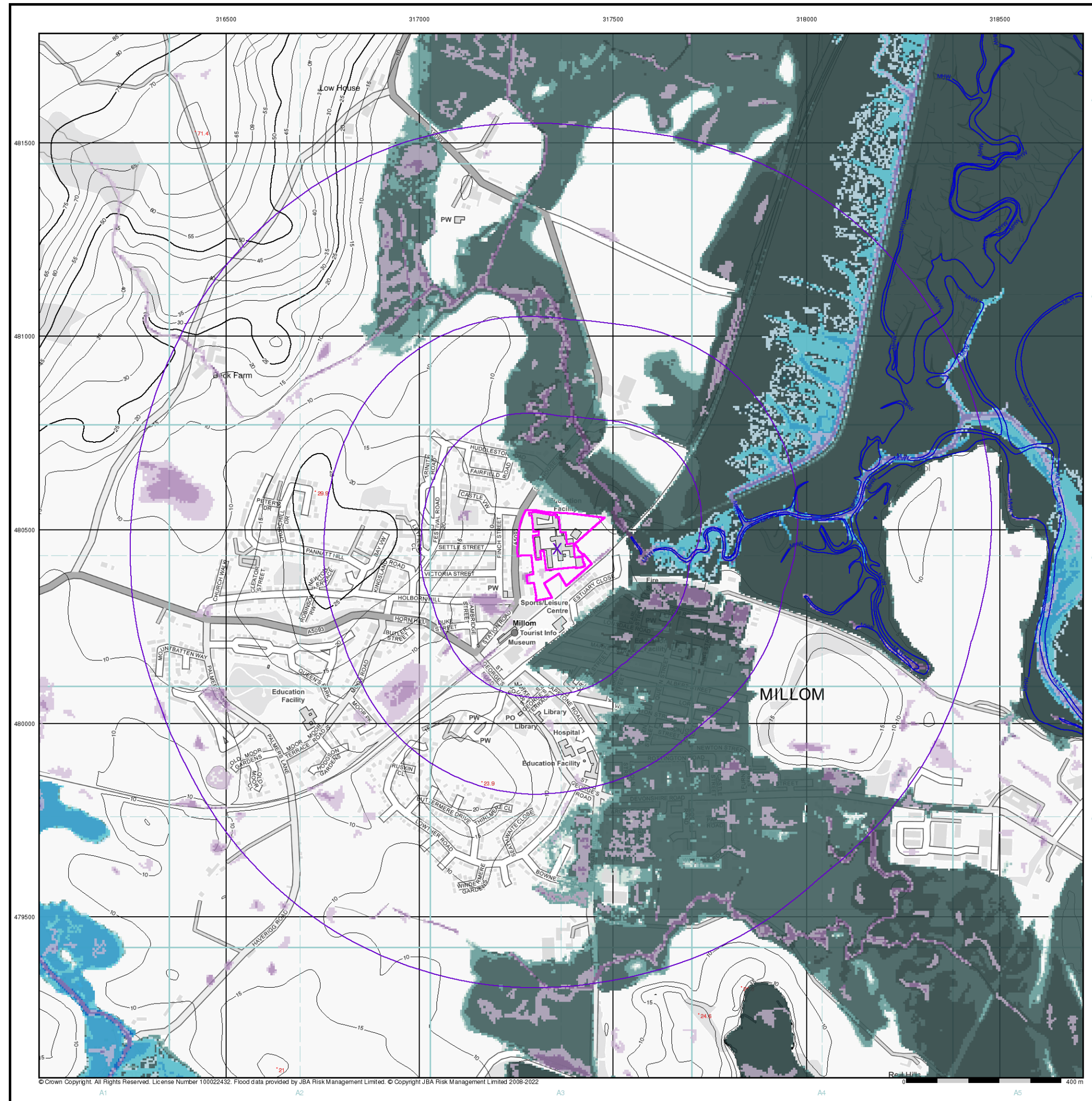
Order Number: 295446615_1_1
Customer Ref: GEOL22-8471
National Grid Reference: 317360, 480450
Slice: A
Site Area (Ha): 1.77
Search Buffer (m): 1000

Site Details

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JBA 200 Year Return Flood Map (Undefended) (1:10,000)

General

- Specified Site
- Specified Buffer(s)
- Bearing Reference Point

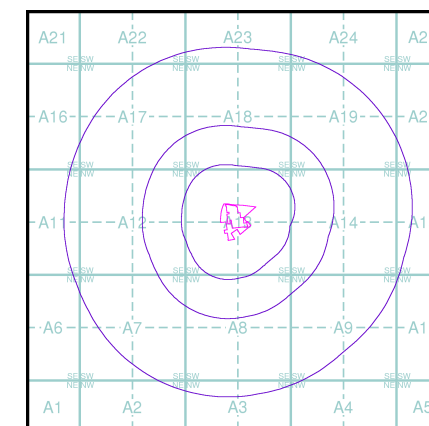
Modelled Flood Depth

Pluvial Depth	Fluvial Depth	Coastal Depth
0.1m	0.01m - 0.05m	0.01m - 0.05m
0.1m - 0.3m	0.05m - 0.1m	0.05m - 0.1m
0.3m - 1m	0.1m - 0.3m	0.1m - 0.3m
>1m	0.3m - 1m	0.3m - 1m
	>1m	>1m

Contours (height in metres)

- Standard Contour: 105, 100, 95
- Master Contour: 105, 100, 95
- Spot Height: 167.8
- MLW: Mean Low Water
- MHW: Mean High Water

JBA 200 Year Return Flood Map (Undefended) - Slice A



Order Details

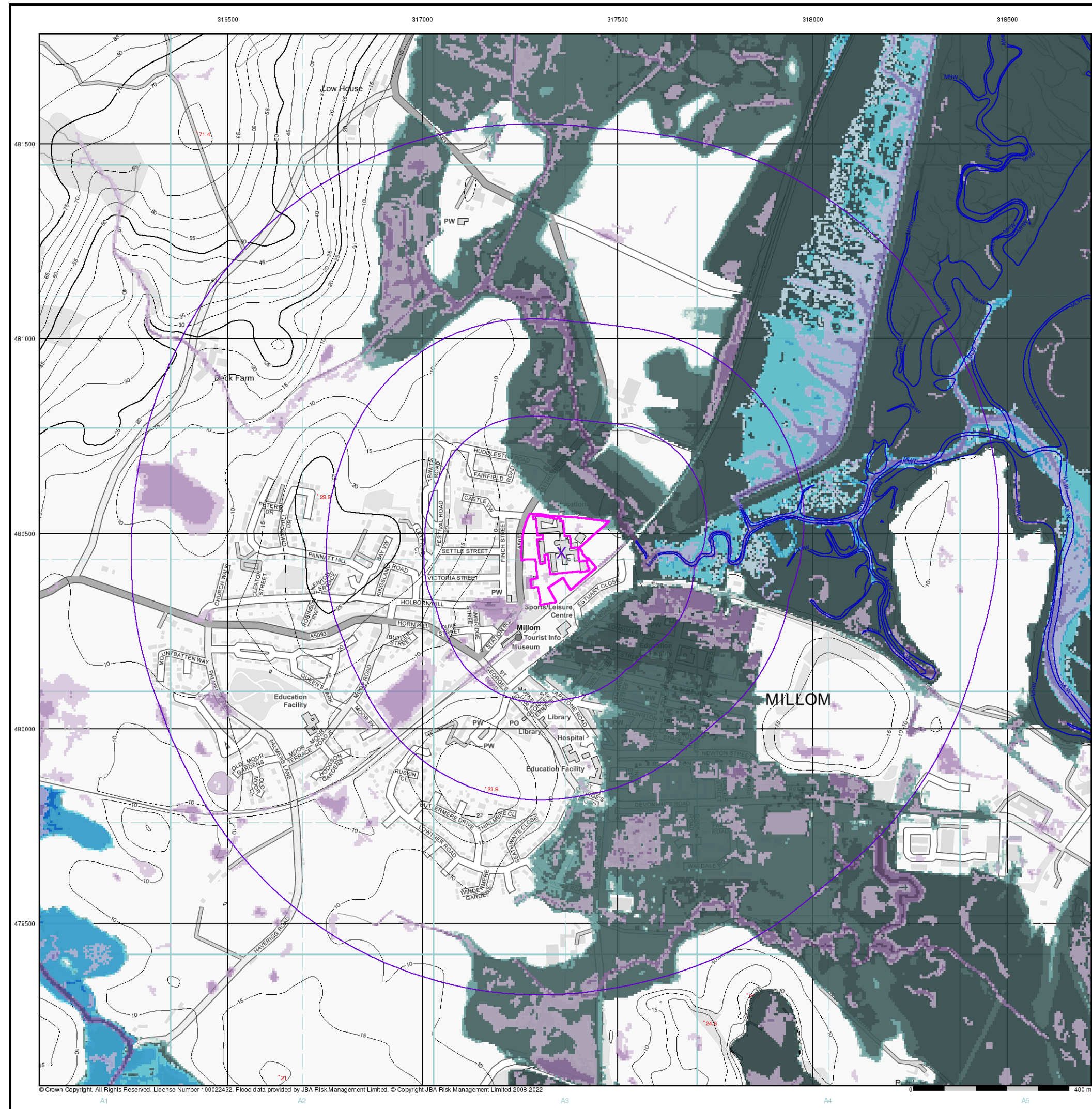
Order Number: 295446615_1_1
Customer Ref: GEOL22-8471
National Grid Reference: 317360, 480450
Slice: A
Site Area (Ha): 1.77
Search Buffer (m): 1000

Site Details

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JBA 1000 Year Return Flood Map (Undefended) (1:10,000)

General

- Specified Site
- Specified Buffer(s)
- Bearing Reference Point

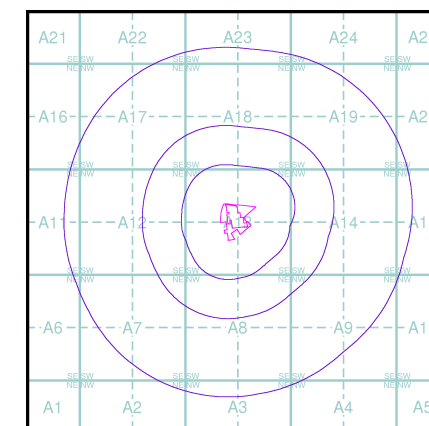
Modelled Flood Depth

Pluvial Depth	Fluvial Depth	Coastal Depth
0.1m	0.01m - 0.05m	0.01m - 0.05m
0.1m - 0.3m	0.05m - 0.1m	0.05m - 0.1m
0.3m - 1m	0.1m - 0.3m	0.1m - 0.3m
>1m	0.3m - 1m	0.3m - 1m
	>1m	>1m

Contours (height in metres)

- Standard Contour: 105, 100, 95
- Master Contour: 105, 100, 95
- Spot Height: 167.8
- MLW: Mean Low Water
- MHW: Mean High Water

JBA 1000 Year Return Flood Map (Undefended) - Slice A



Order Details

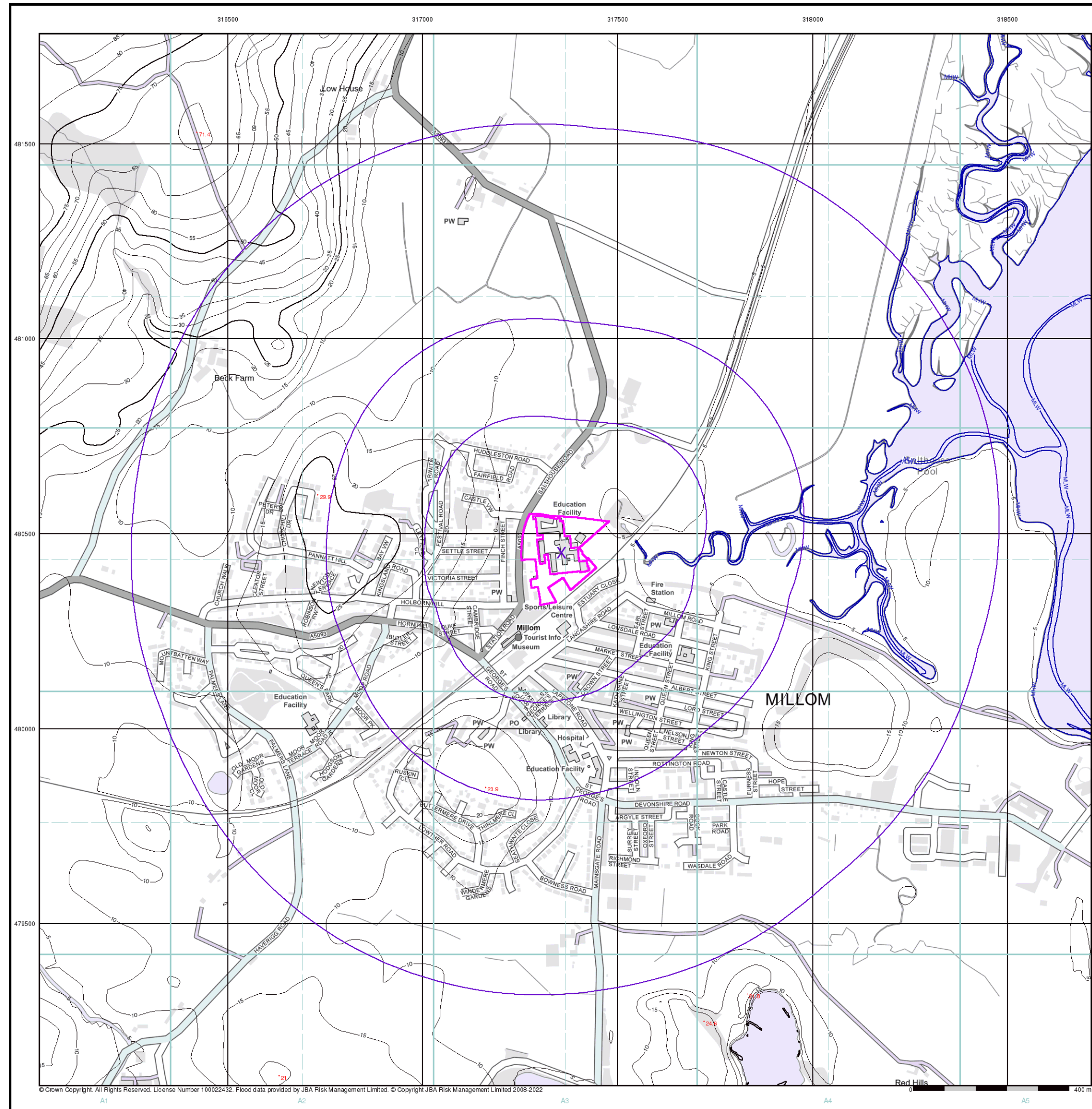
Order Number: 295446615_1_1
Customer Ref: GEOL22-8471
National Grid Reference: 317360, 480450
Slice: A
Site Area (Ha): 1.77
Search Buffer (m): 1000

Site Details

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JBA Canal Failure Map (1:10,000)

General

- Specified Site
- Specified Buffer(s)
- Bearing Reference Point

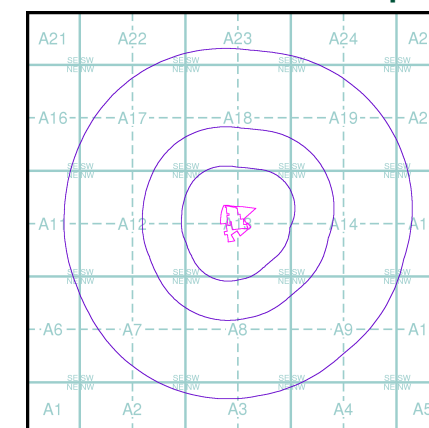
Flood Data

- Canal Failure
- Coverage

Contours (height in metres)

- Standard Contour
- Master Contour
- Spot Height
- MLW Mean Low Water
- MHW Mean High Water

JBA Canal Failure Flood Map - Slice A



Order Details

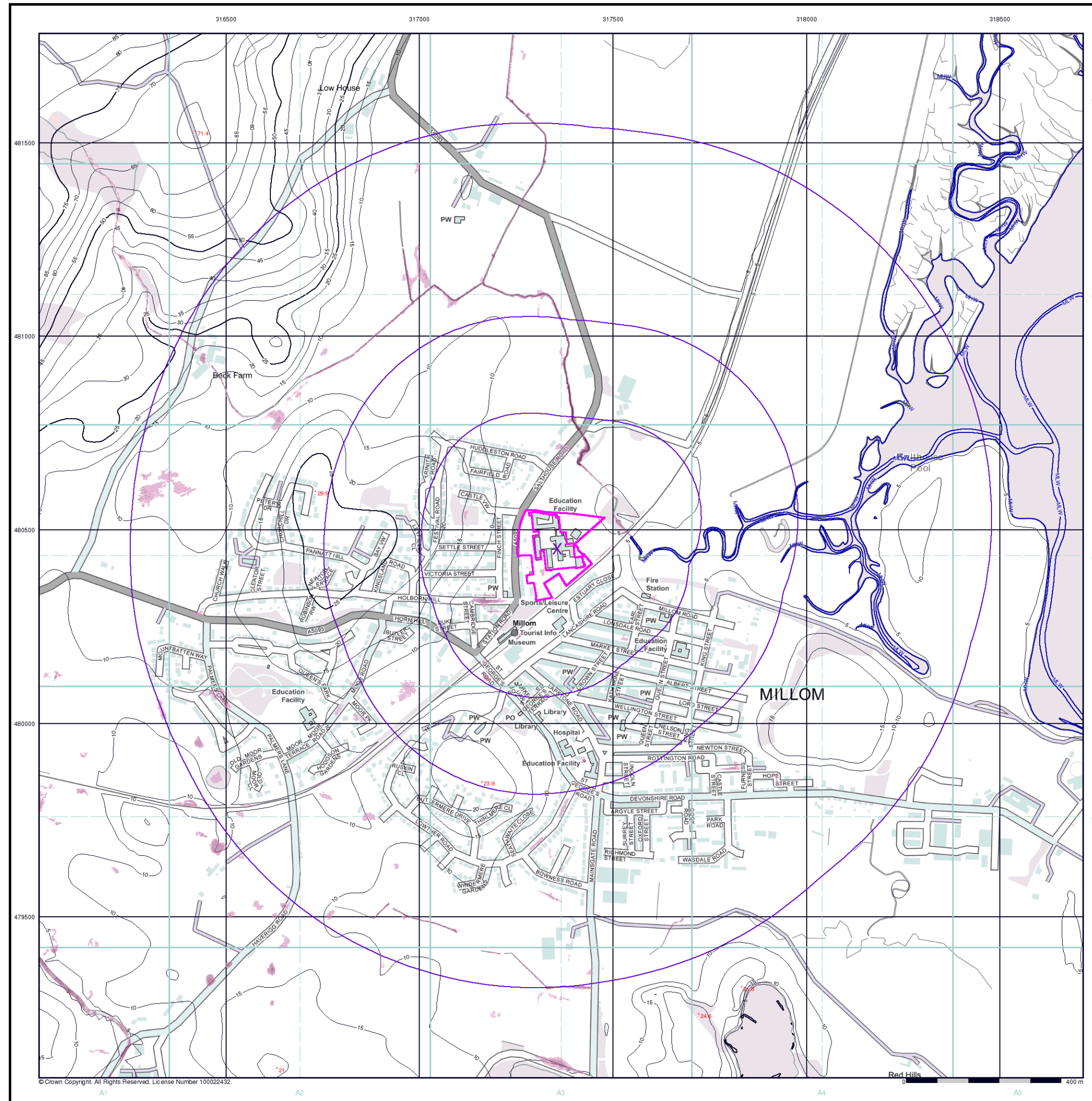
Order Number: 295446615_1_1
Customer Ref: GEOL22-8471
National Grid Reference: 317360, 480450
Slice: A
Site Area (Ha): 1.77
Search Buffer (m): 1000

Site Details

Millom School, Salthouse Road, MILLOM, LA18 5AB



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EA/NRW Surface Water 30 Year Return Depth Map (1:10,000)

General

- Specified Site
- Specified Buffer(s)
- Bearing Reference Point

Surface Water Depth

- 0 - 0.15m
- 0.15 - 0.30m
- 0.30 - 0.60m
- 0.60 - 0.90m
- 0.90 - 1.20m
- > 1.20m

Contours (height in metres)

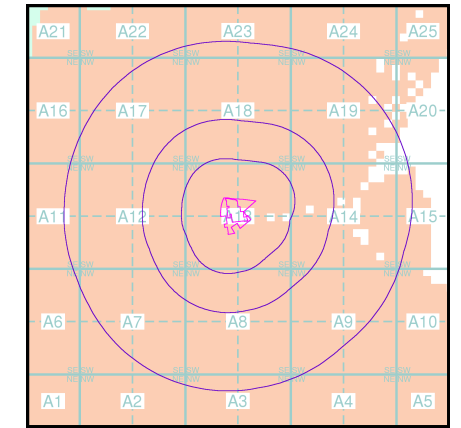
- Standard Contour
- Master Contour
- Spot Height

Suitability

See the suitability map below

- National to county
- County to town
- Town to street
- Street to parcels of land
- Property

EA/NRW Suitability Map - Slice A



Order Details

Order Number: 295446615_1_1
Customer Ref: GEOL22-8471
National Grid Reference: 317360, 480450
Slice: A
Site Area (Ha): 1.77
Search Buffer (m): 1000

Site Details

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Landmark
INFORMATION GROUP

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