

Flood Risk Assessment

Proposed food outlet in the beer garden of former Swan public house, Station Road, Marsden HD7 6BS.



Jan 2021.

Flood Risk Assessment.

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1.0 Introduction.

- 1.1 This statement has been prepared to accompany a planning application for a food takeaway outlet within the beer garden of the former Swan public house Station Road, Marsden HD7 6BS.
- 1.2 Part of the site is within zone 2 of the flood risk area from the River Colne as defined by the Environment Agency, a copy of the map is appended to this statement.
- 1.3 The co ordinate of the river adjacent to the site is OS NGR SE 04890 111666.

2.0 Flood Risk.

- 2.1 From EA data (appended to this assessment) the relevant cross sectional data is COLN04_19685 which is adjacent to the site.
- 2.2 The cross section is self evident but a summary of approximate levels are as follows:
 - Footpath level at the site= 180.20
 - Top of wall at bridge = 181.00
 - Top of wall opposite application site = 180.400
 - River bed level = 176.40
 - 1% AEP = 178.40
 - 0.1% AEP = 180.50

AEP = Annual Exceedance Probability.

- 2.3 It is evident from the above data that the 0.1% AEP is around the same level as the wall so mitigation measures are required which are set out in section 3 below.

3.0 Mitigation Measures.

- 3.1 The following mitigation measures will be implemented to minimise both the risk of flood within the building and also damage to the building should water enter it.
- a. Applicant to register with EA Floodline Warnings Direct.
 - b. Applicant to prepare a personal flood plan which can be downloaded from EA website.
 - c. The ground floor walls are or will be masonry not timber.
 - d. Any plasterboard to be laid horizontally to minimise disruption if needs to be replaced.
 - e. Ensure adequate seals at the building perimeter and service entry points.
 - f. Have a rebated threshold to the external door cills.
 - g. Sandbags or other emergency measures to be kept accessible.
 - h. All ground floor electrics to be fed vertically downwards.
 - i. Non return valves to be fitted to any drainage.
 - j. Use rigid, closed cell insulation as other types hold water.
 - k. Floor finish recommended to be tiles as opposed to carpet.
 - l. Ensure any units are on a plinth and are preferably solid wood or plastic and not mdf.

4.0 Conclusions.

- 4.1 There is 0.1% AEP risk of flood within the site but the use of the building is no more at risk than the previous use and mitigation measures are recommended to minimise any impact should it occur.

Appendix A

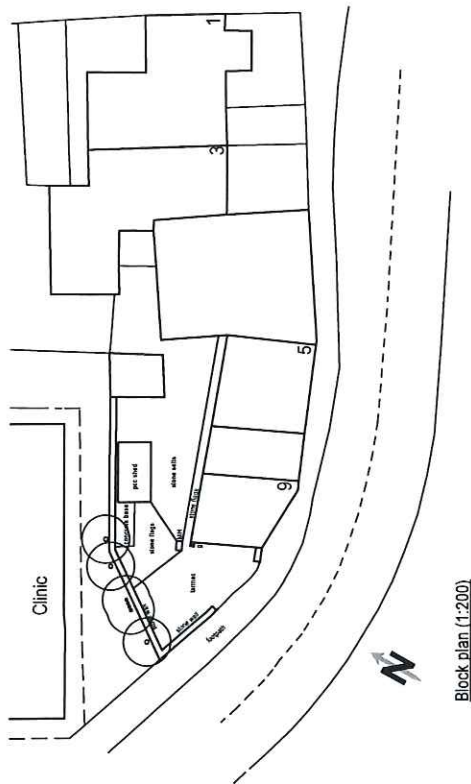
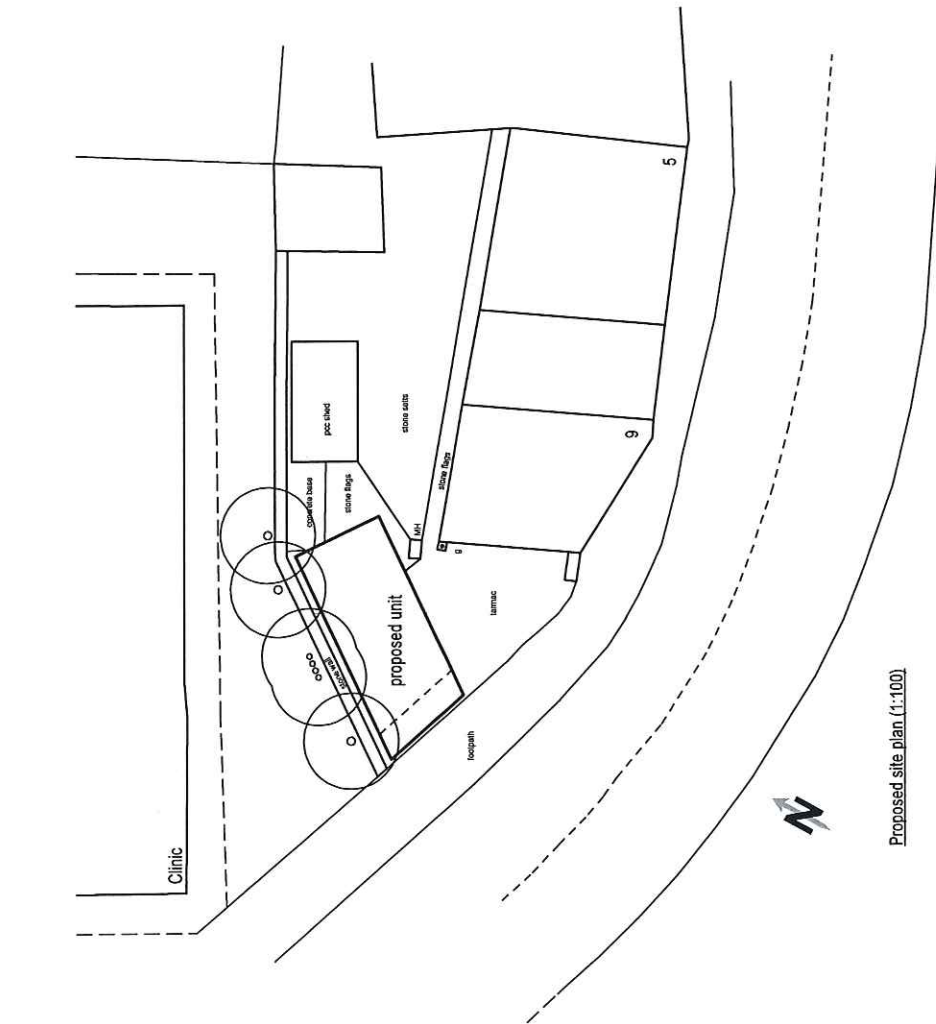
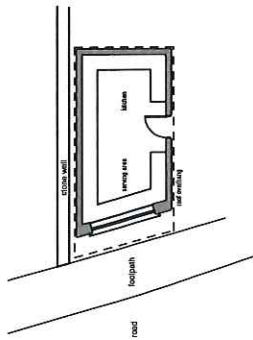
Photos.





Appendix B

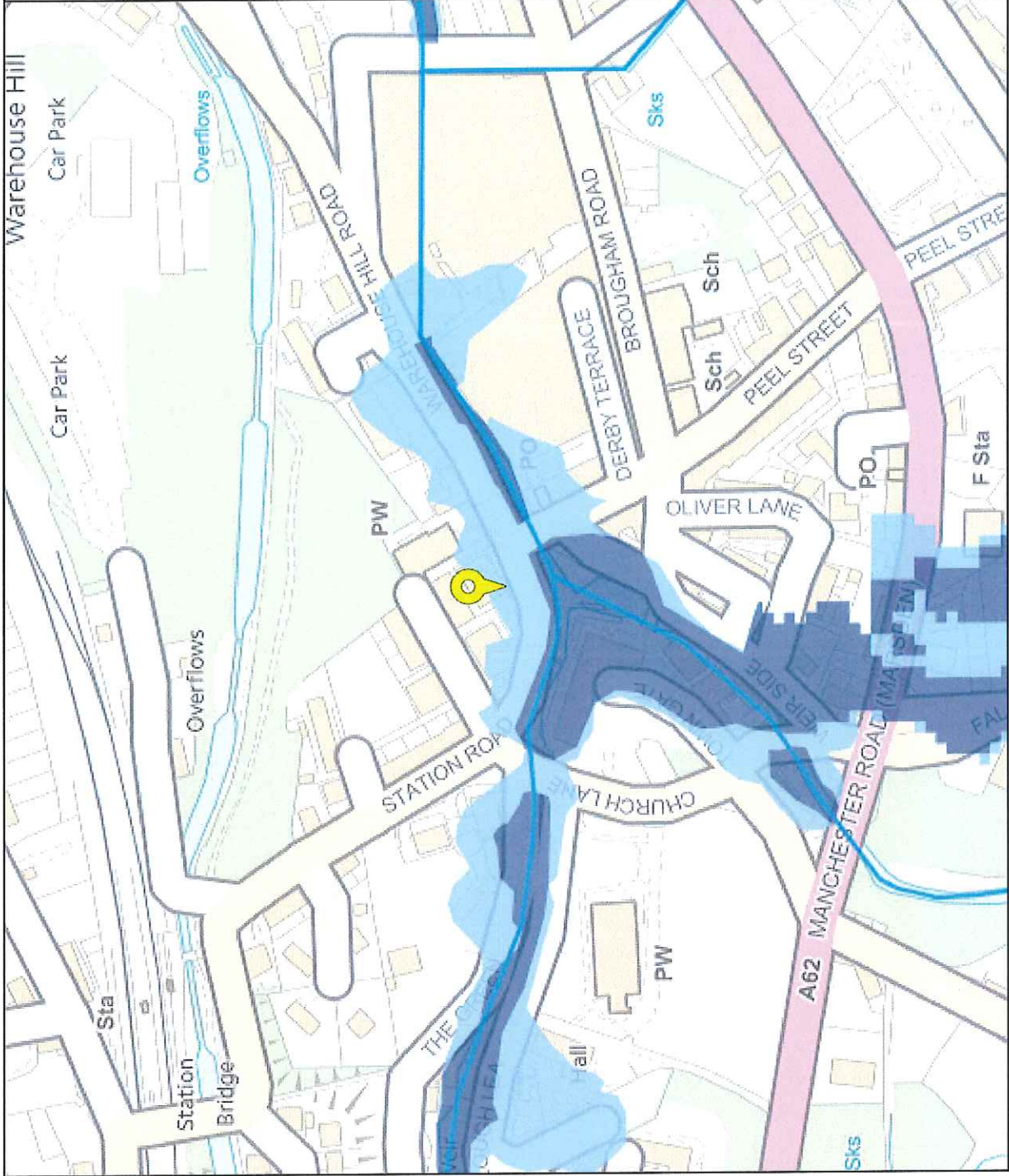
Drawings.



Project	Proposed commercial unit.		
Address	Former Swan Public House 5 and 7 Station Road Marsden HD7 6BS.		
Title	Layout plans.		
Paper size	A1	Drawing number	SW 02.
		Date	Nov 2020.

Appendix C

EA records.



Flood map for planning

Your reference

Swan

Location (easting/northing)

404873/411683

Scale

1:2500

Created

18 Oct 2019 12:46



Selected point



Flood zone 3



Flood zone 3: areas benefitting from flood defences



Flood zone 2



Flood zone 1



Flood defence



Main river



Flood storage area



Page 2 of 2

Location Plan



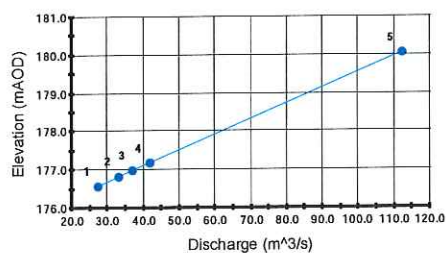
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Cross Section References

River: COLNE
Reach: 04
Chainage: 19574
Section Type: CONDUIT, SECTION, SPILL
OS NGR: SE 04986 11721
Survey Dwg Ref: N/A
Photograph Ref: COLN04_19574b.JPG
Next
Section d/s: 19438d
Section u/s: 19633



Rating Curve



Number represents model profile number

Summary of Results

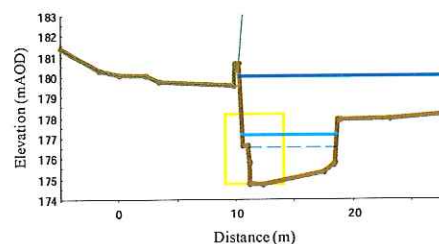
Profile No	AEP (%)	Flow (m ³ /s)	Water Level (mAOD)	Velocity (m/s)
1	10.0	27.3	176.593	2.52
2	4.0	33.0	176.843	2.58
3	2.0	36.9	177.006	2.62
4	1.0	41.8	177.203	2.67
5	0.1	111.9	180.064	1.12

Level of Left Bank 180.120 mAOD

Level of Right Bank 177.975 mAOD

AEP: Annual Exceedance Probability = 1/T, where T = Return Period (Years)

Cross Section Profile

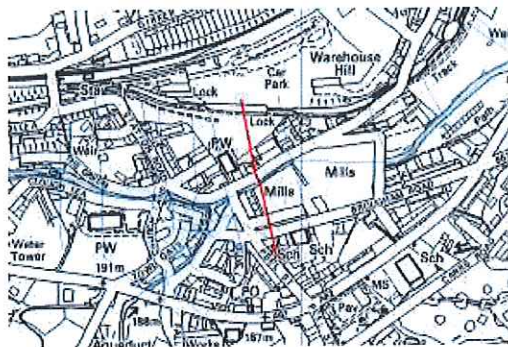


Conduit 1% AEP Section 0.1% AEP 10% AEP Spill Level

Structure position is indicative only.

COLNE: 04: CROSS SECTION NUMBER 19574u

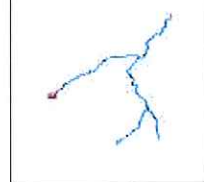
Location Plan



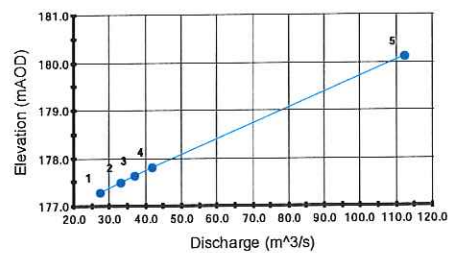
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Cross Section References

River: COLNE
Reach: 04
Chainage: 19633
Section Type: SECTION
OS NGR: SE 04937 11690
Survey Dwg Ref: N/A
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Next
Section d/s: 19574u
Section u/s: 19685d



Rating Curve



Number represents model profile number

Summary of Results

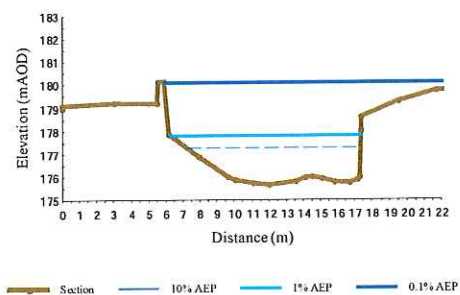
Profile No	AEP (%)	Flow (m ³ /s)	Water Level (mAOD)	Velocity (m/s)
1	10.0	27.3	177.303	2.17
2	4.0	33.0	177.514	2.23
3	2.0	36.9	177.654	2.27
4	1.0	41.8	177.829	2.30
5	0.1	111.9	180.126	1.65

Level of Left Bank 180.171 mAOD

Level of Right Bank 178.042 mAOD

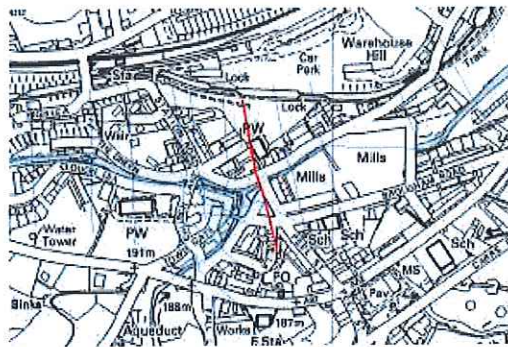
AEP: Annual Exceedance Probability = 1/T, where T = Return Period (Years)

Cross Section Profile



COLNE: 04: CROSS SECTION NUMBER 19633

Location Plan



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Cross Section References

River: COLNE
Reach: 04
Chainage: 19685
Section Type: BRIDGE, SECTION, SPILL
OS NGR: SE 04890 11666
Survey Dwg Ref: N/A
Photograph Ref: COLN04_19685.JPG

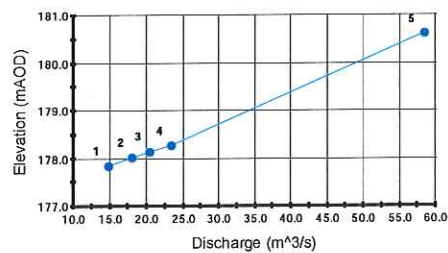


Next

Section d/s: 19685d
Section u/s: 19738d



Rating Curve



Number represents model profile number

Summary of Results

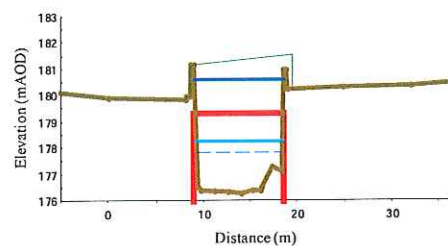
Profile No	AEP (%)	Flow (m³/s)	Water Level (mAOD)	Velocity (m/s)
1	10.0	14.8	177.860	1.26
2	4.0	18.0	178.035	1.35
3	2.0	20.4	178.151	1.42
4	1.0	23.4	178.286	1.50
5	0.1	58.3	180.618	1.06

Level of Left Bank 179.920 mAOD

Level of Right Bank 180.380 mAOD

AEP: Annual Exceedance Probability = 1/T, where T = Return Period (Years)

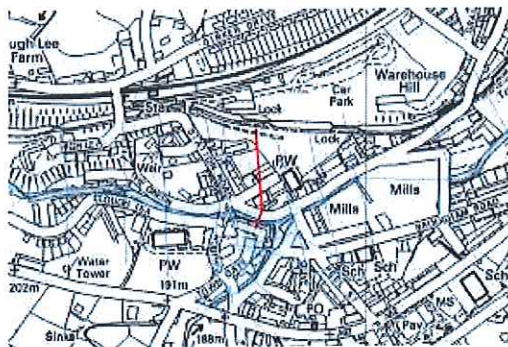
Cross Section Profile



Bridge 1% AEP Section 0.1% AEP 10% AEP Spill Level

COLNE: 04: CROSS SECTION NUMBER 19685u

Location Plan



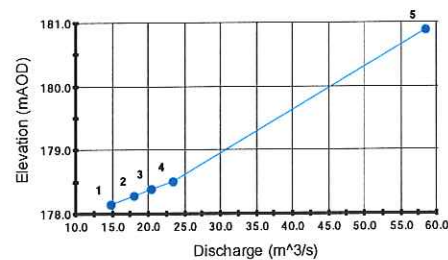
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Cross Section References

River: COLNE
Reach: 04
Chainage: 19738
Section Type: BRIDGE, SECTION, SPILL
OS NGR: SE 04839 11660
Survey Dwg Ref: N/A
Photograph Ref: COLN04_19738b.JPG
Next
Section d/s: 19738d
Section u/s: 19776d



Rating Curve



Number represents model profile number

Summary of Results

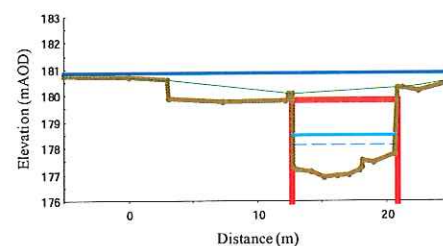
Profile No	AEP (%)	Flow (m ³ /s)	Water Level (mAOD)	Velocity (m/s)
1	10.0	14.8	178.162	2.08
2	4.0	18.0	178.300	2.19
3	2.0	20.4	178.402	2.26
4	1.0	23.4	178.523	2.35
5	0.1	58.3	180.888	1.32

Level of Left Bank 180.728 mAOD

Level of Right Bank 180.324 mAOD

AEP: Annual Exceedance Probability = 1/T, where T = Return Period (Years)

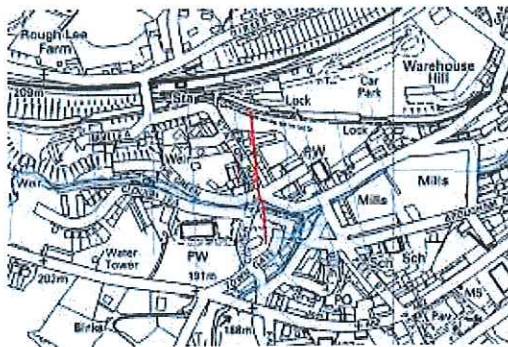
Cross Section Profile



Bridge 1% AEP Section 0.1% AEP 10% AEP Spill Level

COLNE: 04: CROSS SECTION NUMBER 19738u

Location Plan



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Cross Section References

River: COLNE

Reach: 04

Chainage: 19776

Section Type: SECTION, WEIR

OS NGR: SE 04803 11672

Survey Dwg Ref: N/A

Photograph Ref: COLN04_19776b.JPG

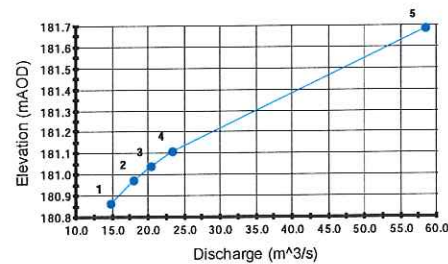
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Section d/s: 19776d

Section u/s: 19801d



Rating Curve



Number represents model profile number

Summary of Results

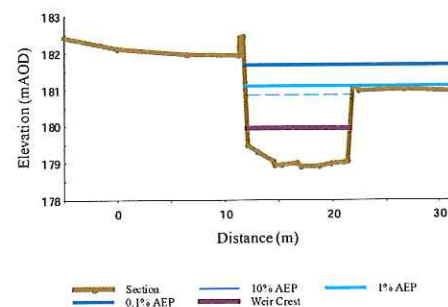
Profile No	AEP (%)	Flow (m³/s)	Water Level (mAOD)	Velocity (m/s)
1	10.0	14.8	180.869	0.84
2	4.0	18.0	180.978	0.92
3	2.0	20.4	181.043	0.96
4	1.0	23.4	181.113	0.99
5	0.1	58.3	181.687	1.34

Level of Left Bank 182.118 mAOD

Level of Right Bank 181.023 mAOD

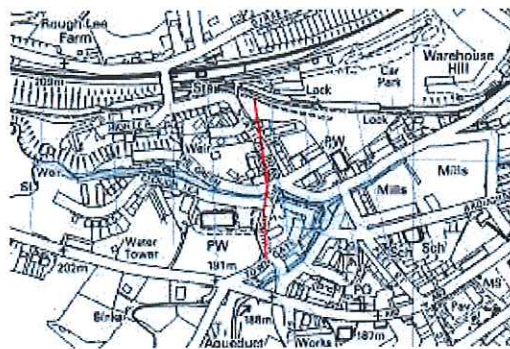
AEP: Annual Exceedance Probability = 1/T, where T = Return Period (Years)

Weir Crest Profile (Weir Type: Normal)



COLNE: 04: CROSS SECTION NUMBER 19776u

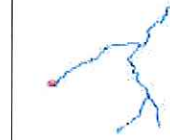
Location Plan



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Cross Section References

River: COLNE
Reach: 04
Chainage: 19801
Section Type: BRIDGE, SECTION, SPILL
OS NGR: SE 04778 11669
Survey Dwg Ref: N/A
Photograph Ref: COLN04_19801.JPG

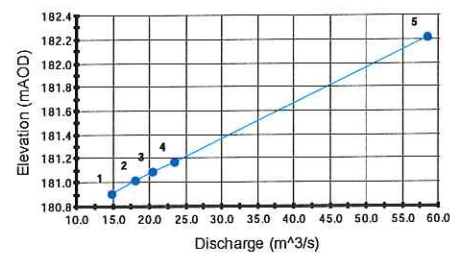


Next

Section d/s: 19801d
Section u/s: 19881d



Rating Curve



Number represents model profile number

Summary of Results

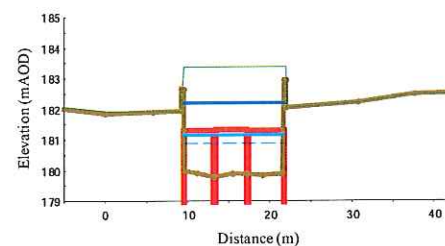
Profile No	AEP (%)	Flow (m ³ /s)	Water Level (mAOD)	Velocity (m/s)
1	10.0	14.8	180.914	1.21
2	4.0	18.0	181.028	1.33
3	2.0	20.4	181.100	1.41
4	1.0	23.4	181.179	1.52
5	0.1	58.3	182.218	1.74

Level of Left Bank 181.857 mAOD

Level of Right Bank 182.495 mAOD

AEP: Annual Exceedance Probability = 1/T, where T = Return Period (Years)

Cross Section Profile



Bridge 1% AEP Section 0.1% AEP 10% AEP Spill Level

COLNE: 04: CROSS SECTION NUMBER 19801u