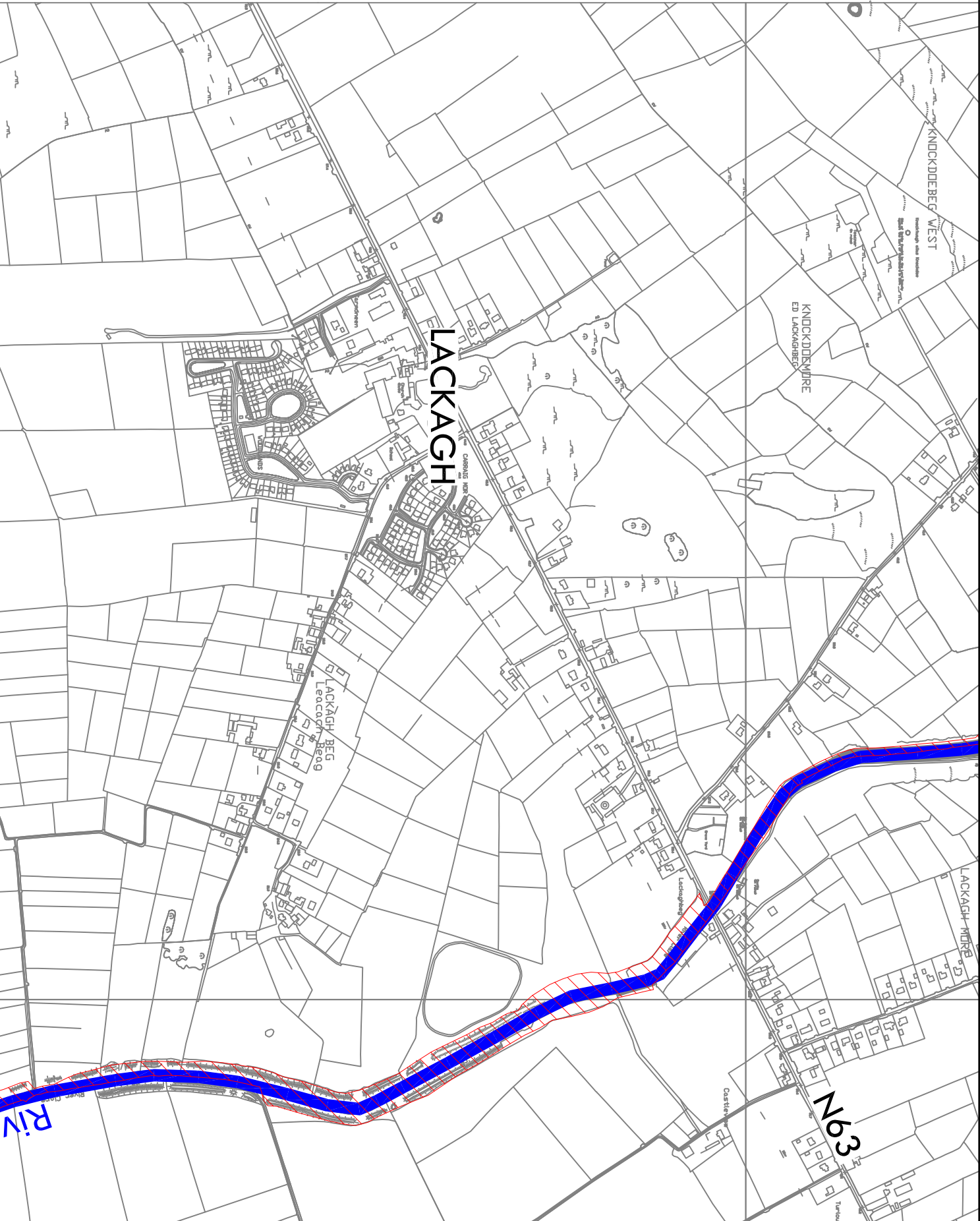
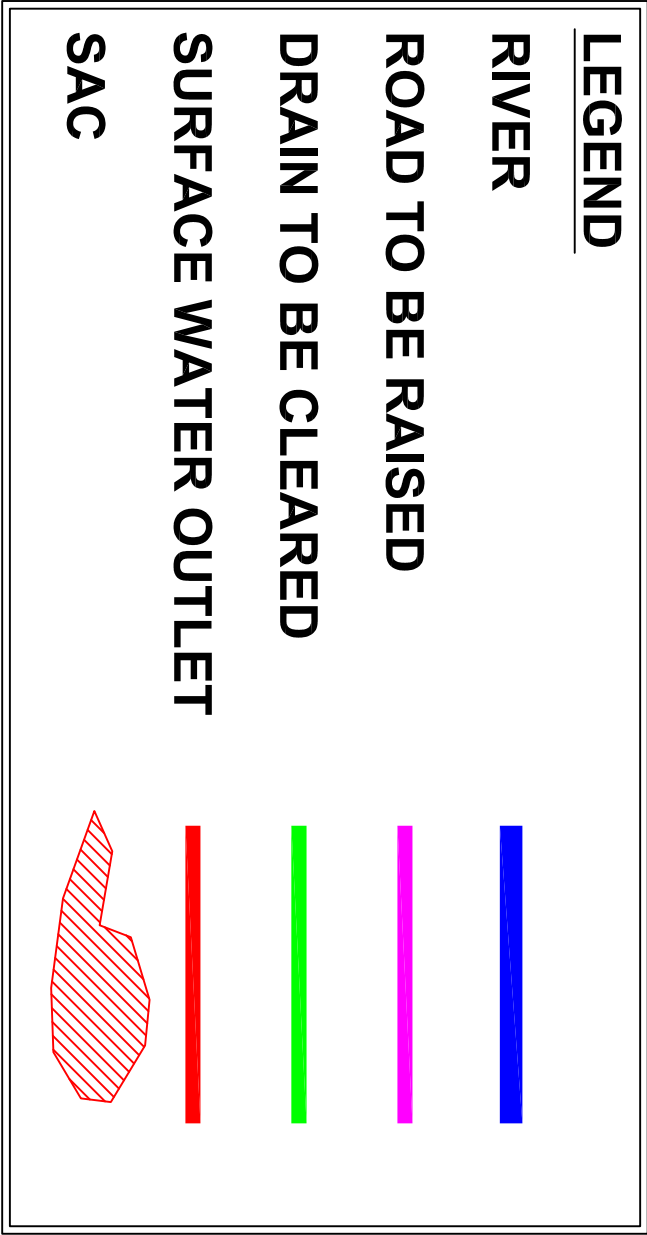




APPENDIX C OUTLINE DESIGN OF POTENTIALLY VIABLE MEASURES



- 2b. Increase size of culvert in conjunction with road works
- 2c. Clean drain ED at Mollath and other drains in vicinity
- 3a. Raise access road
- 4a. Install additional flood eye at Clargewally Bridge
- 4b. Regrade channel upstream of and under Clargewally Bridge
- 4c. Fill up in flood defense wall at A1 Mainshill housing settlement
- 4d. Provide local enhancement at Old Nine Arches bridge
- 5a. Improve C37
- 5b. Provide stream C3/5
- 6a. Clean surface water outlet through fields and along M17 to downstream of Clargewally Bridge
- 6b. Install additional flood eyes at Craighern Bridge
- 7a. Clean up drain from 300m upstream of Craighern Bridge to Clargewally
- 8c. Cleaning and regrading of Islandmore drain OPW C3/7 & F.739/1
- 10a. Raise local road
- 10b. Replace existing flood bridge with wider bridge
- 10c. Replace existing flood bridge with bridge to Bultinn Bridge
- 11a. Re-grading from A7 to A16
- 12a. Install additional flood eye at Bultinn Bridge
- 13a. Channel widening

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JOB No.	DRAWING No.		REV.	
2138	500			

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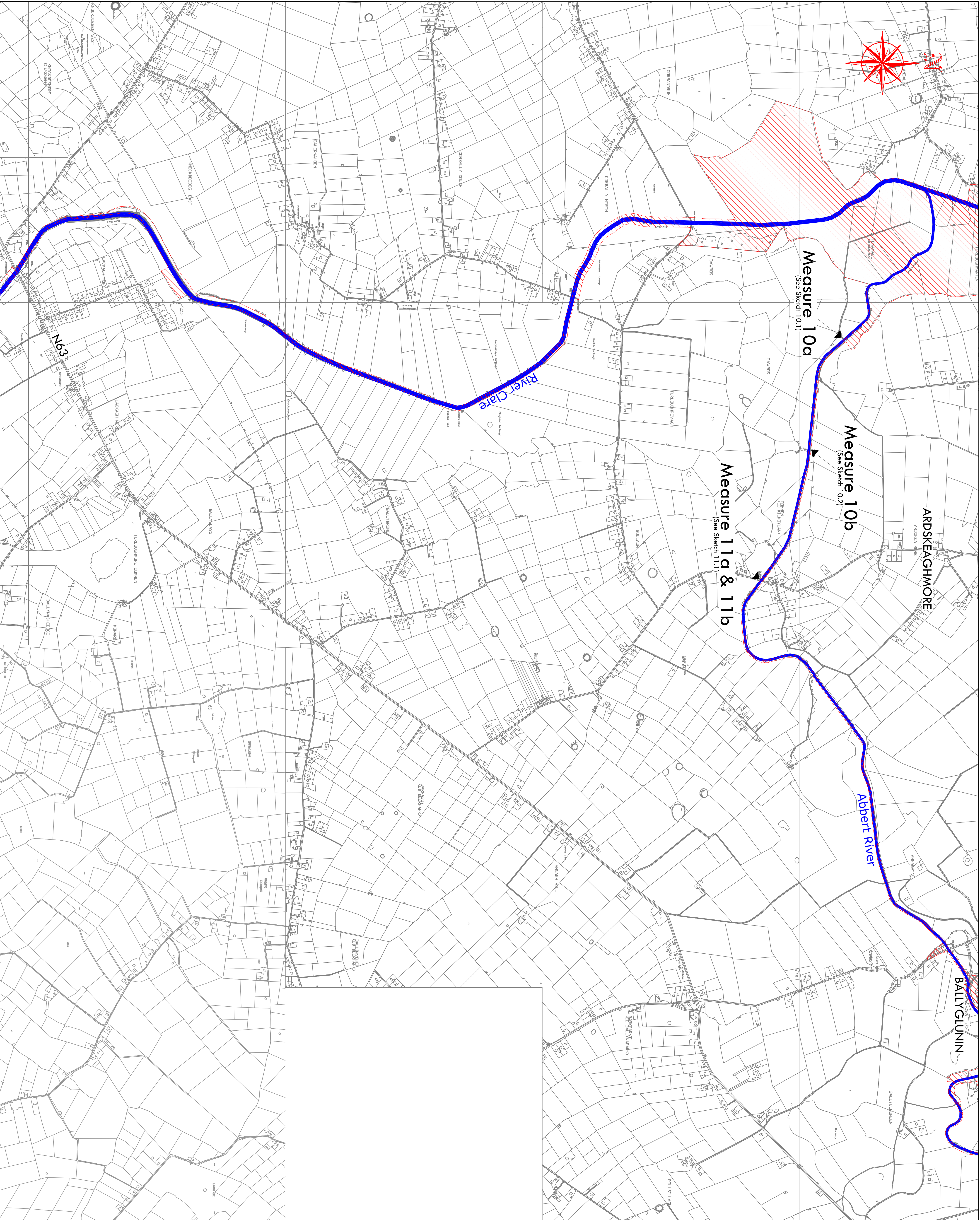
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NOTES

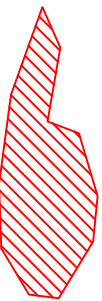
FLOOD ALLEVIATION MEASURES

- 2a. Raise access road
- 2b. Clean drain ED @ Mientach and other drains in vicinity
- 3a. Raise access road
- 3b. Raise access road
- 4a. Install additional flood eye at Claregalway Bridge
- 4b. Install additional flood eye at Claregalway Bridge
- 4c. Fill gap in flood defence wall at An Mhaisistir housing estate
- 4d. Provide local embankment at old Nine Arches bridge
- 5a. Increase capacity of at least one culvert on stream
- 5b. Clean stream C3/5
- 6a. Provide surface water outlet through fields and along N17
- 6b. Install additional flood eyes at Crusheen Bridge
- 6c. Clean drain ED @ Crusheen Bridge
- 6d. Clean drain ED @ Crusheen Bridge
- 6e. Cleaning and regrading of Islandmore drain OPW C3/7 & F/7/9/1
- 8d. Re-align road
- 10a. Replace existing field bridge with wider bridge
- 10b. Channel widening from field bridge to Bullaun Bridge
- 10c. Re-grading from A7 to A16
- 11a. Install additional flood eye at Bullaun Bridge
- 11b. Channel widening

LEGEND

RIVER

SAC



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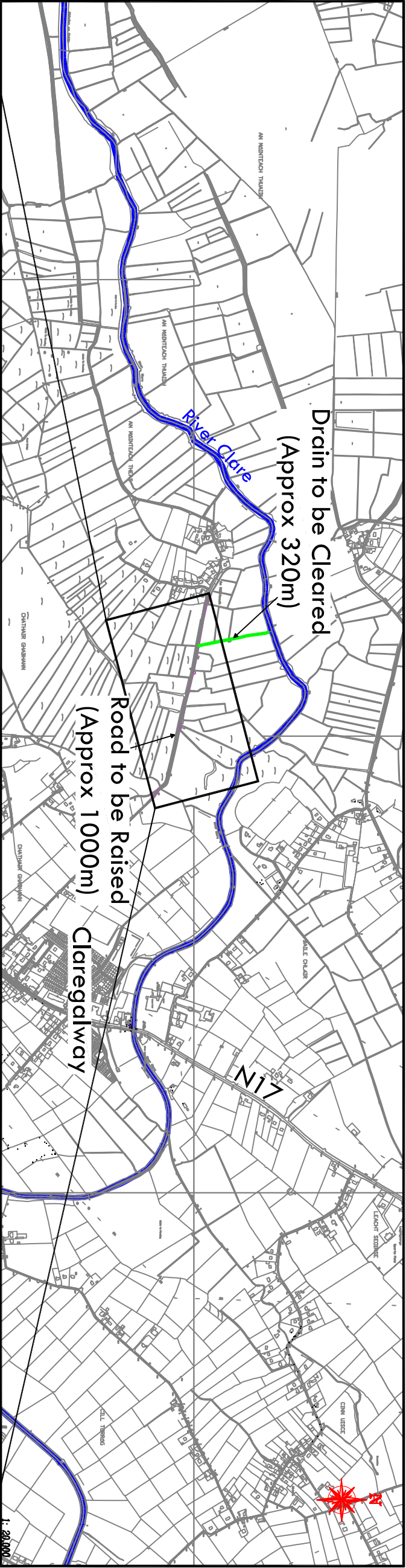
PROJECT

Clare River Flood Study

TITLE

Overview of Proposed Flood
Alleviation Measures
(Sheet 2 of 2)

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2138	501			



- NOTES**
- Note road has already been raised above field levels, with deep drains on either side. Health and Safety measures will need to be put in place, e.g. crash barriers.
 - Note that increasing the culvert capacity and clearing the drains will only assist in the conveyance of flows at mean flows and is unlikely to have a significant impact at high flows as lake will influence water level at that location.
 - Note that the stream drains to Clare River which is a cSAC and culvert works may require environmental mitigations.
 - Site of proposed culvert to be finalised at detailed design stage.

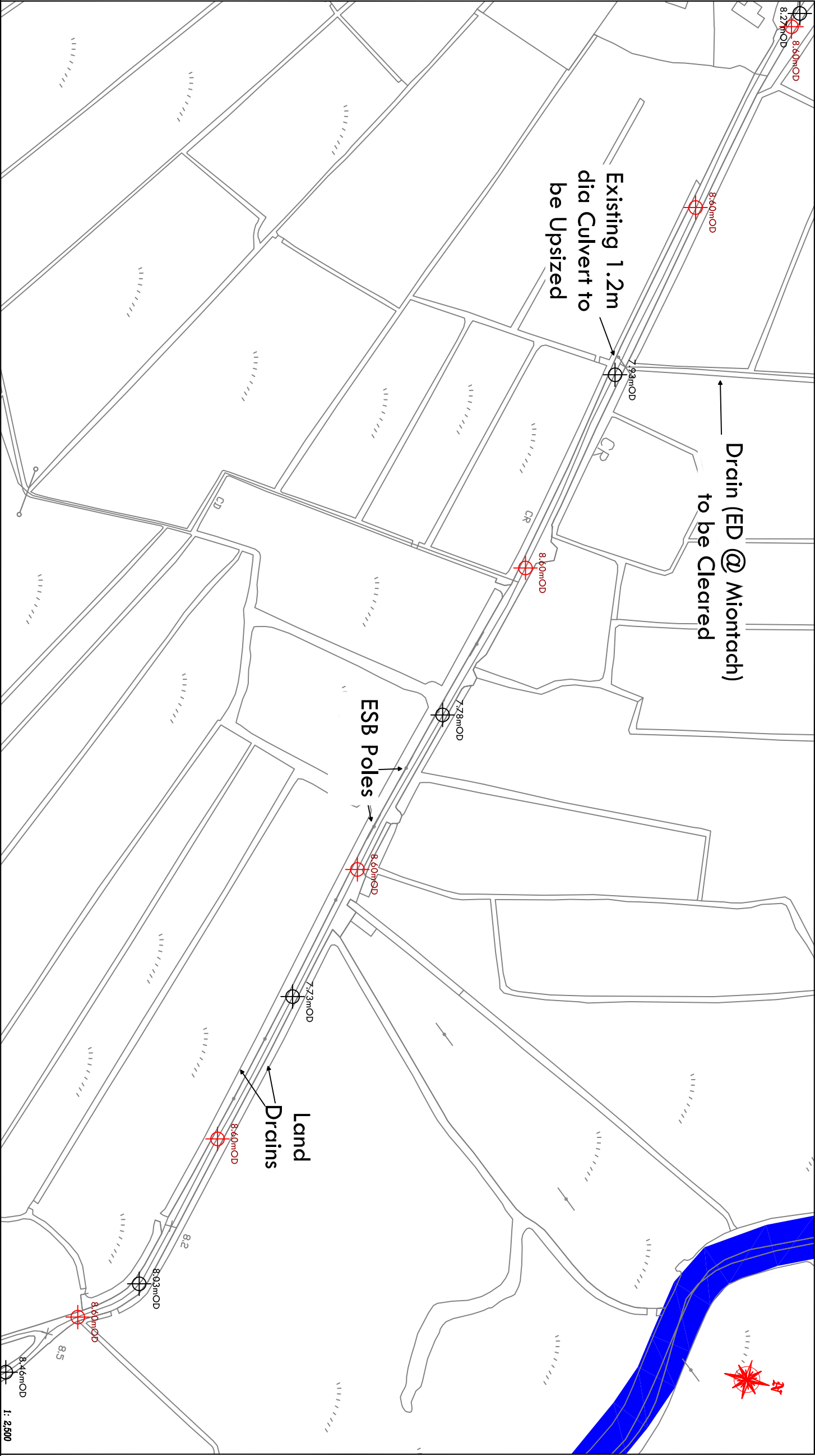
LEGEND

Road To Be Raised
7.78mOD

Drain To Be Cleared
7.73mOD

Existing Levels
7.73mOD

Proposed Levels
7.73mOD



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PROJECT
Clare River Flood Study

TITLE
**Measures 2a and 2b
Outline Design**

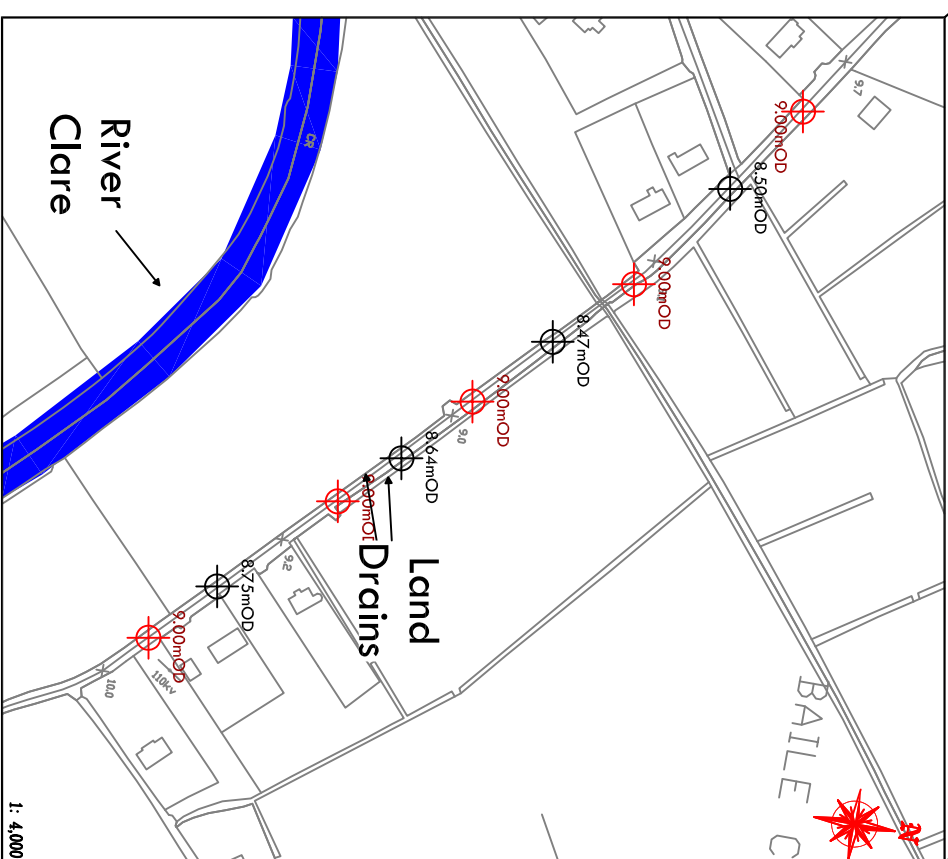
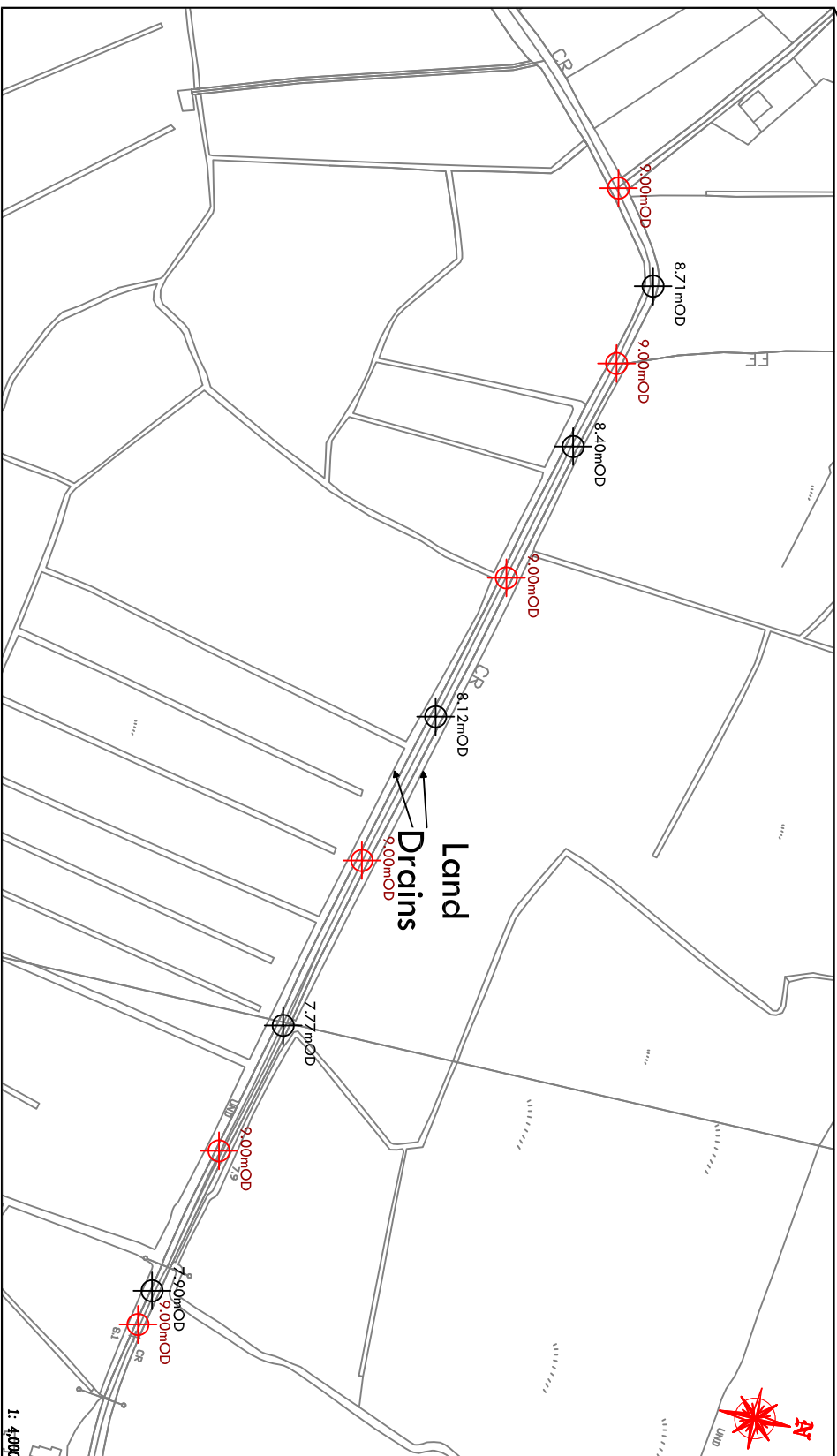
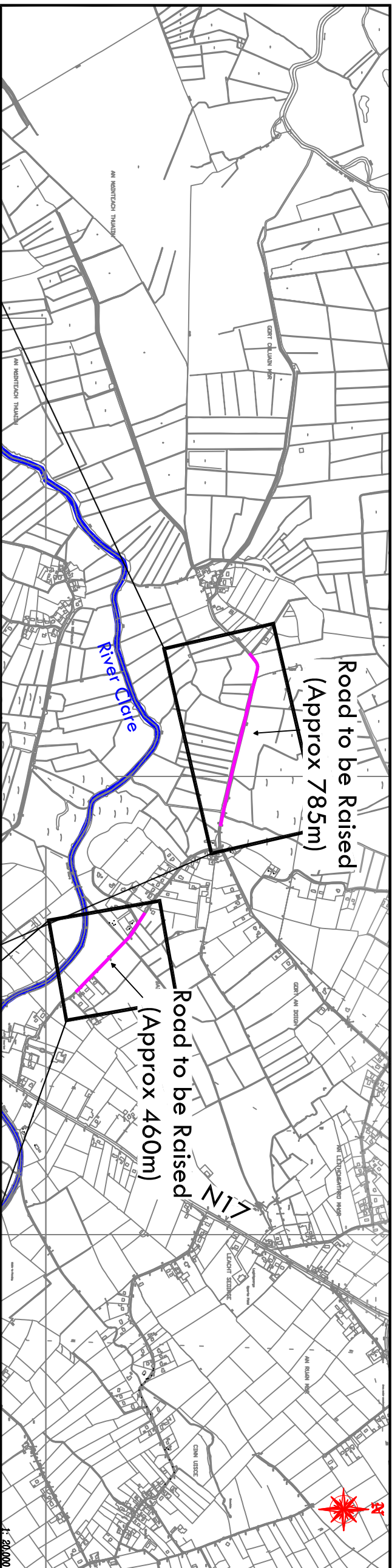
SCALE @ A3
As Shown


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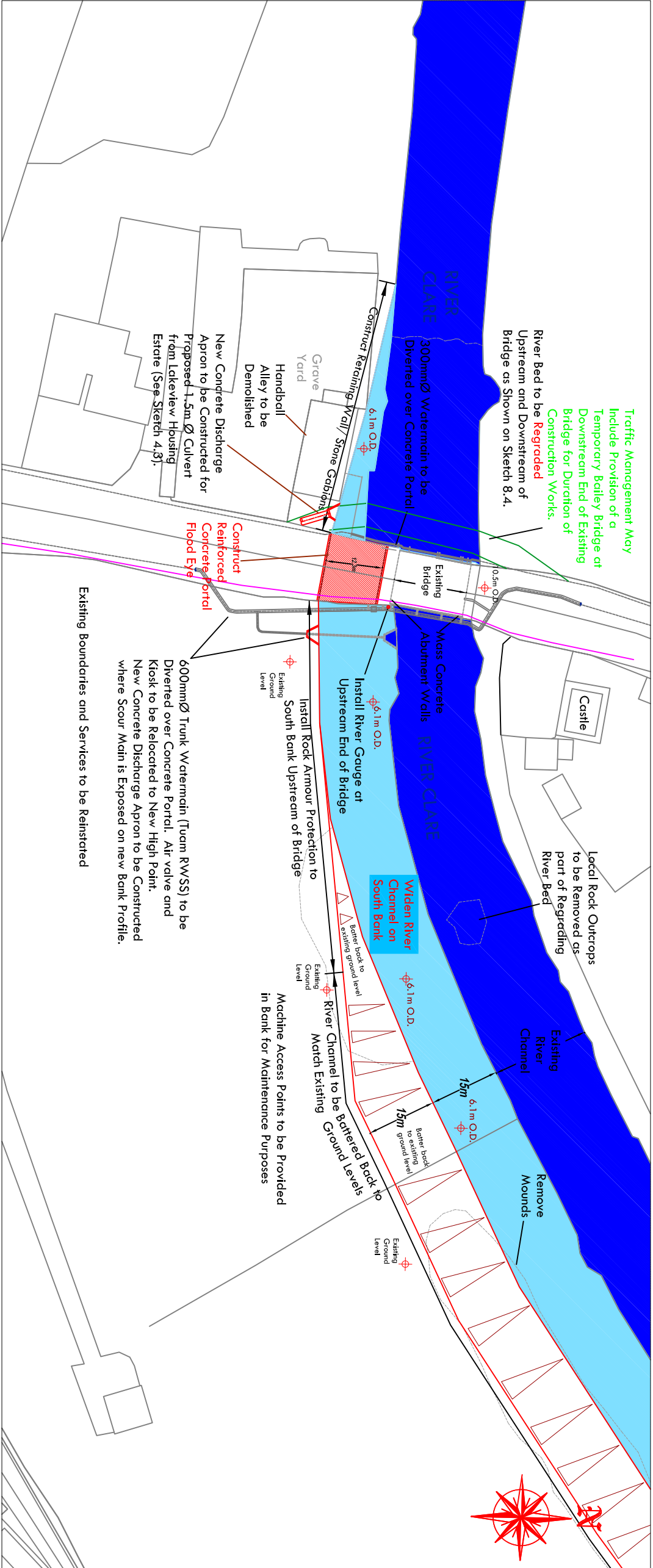
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NOTES

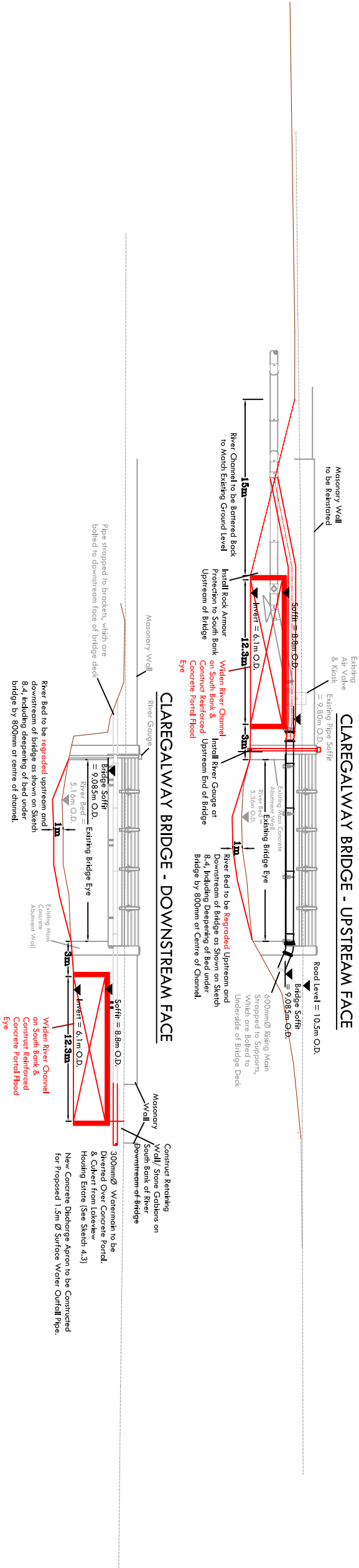
1. Note road has already been raised above field levels, with deep drains on either side. Health and Safety measures will need to be put in place, e.g. crash barriers.



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<div style="display: flex; justify-content: space-between;"> <div> PROJECT Clare River Flood Study </div> <div>  RYAN HANLEY CONSULTING ENGINEERS Sherwood House, Sherwood Avenue Taylor's Hill, Glenroy Tel: (09) 1957 1116 Fax: (09) 1957 1110 Email: info@ryanhaley.co.nz www.ryanhaley.co.nz </div> </div>					
CLIENT DBSUN OFFICE, State Of, The Cities Offices, Beacon South Quarter, Sandford, Dunedin					
TITLE <div style="display: flex; justify-content: space-between;"> <div> SCALE @ A3 As Shown </div> <div> DATE JUNE 2010 </div> <div> DRAWN R.K. </div> <div> CHECKED C.L. </div> <div> APPROVED M.J. </div> </div> <div style="display: flex; justify-content: space-between; margin-top: 10px;"> <div> JOB No. 2138 </div> <div> DRAWING No. Sketch 31 </div> <div> REV. </div> </div>					



Plan View of Claregalway Bridge Scale 1:1,000



East & West Elevations of Claregalway Bridge Scale 1:250

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PROJECT River Clare Flood Study			
TITLE Measures 4a & 4b. Outline Design			
SCALE @ A3 AS SHOWN	DATE June 2010	DRAWN J.R.	CHECKED / APPROVED C.L. M.F.J.
JOB No. 2138	DRAWING No. Sketch 4.2		REV.

- Proposed Culvert
- Proposed Field Drain
- Proposed Embankment

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PROJECT

River Clare Flood Study

TITLE

Measures 4c, 4d & 6a

Outline Design

SCALE @ A3

AS SHOWN

JOB NO. 2138

DATE June 2010

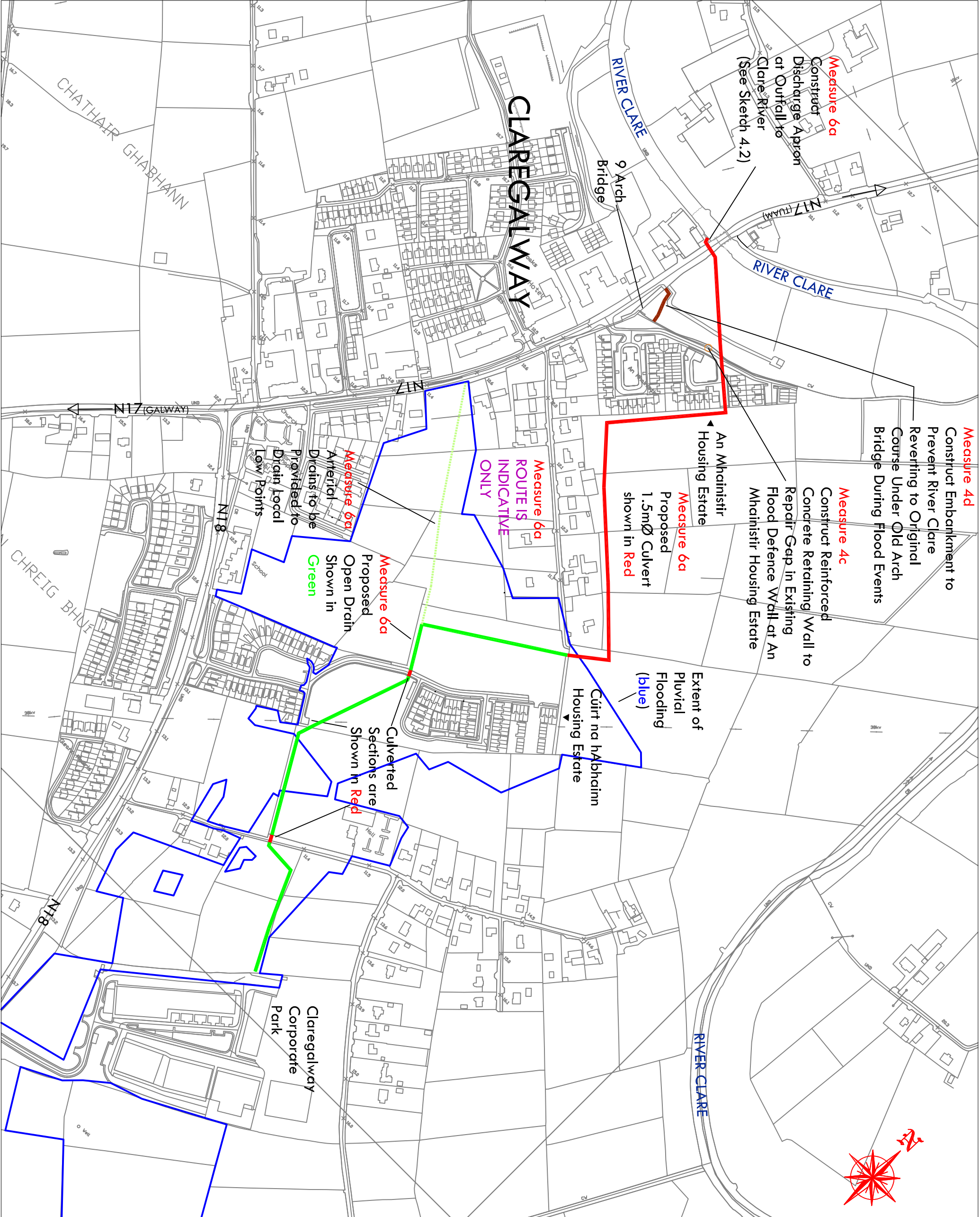
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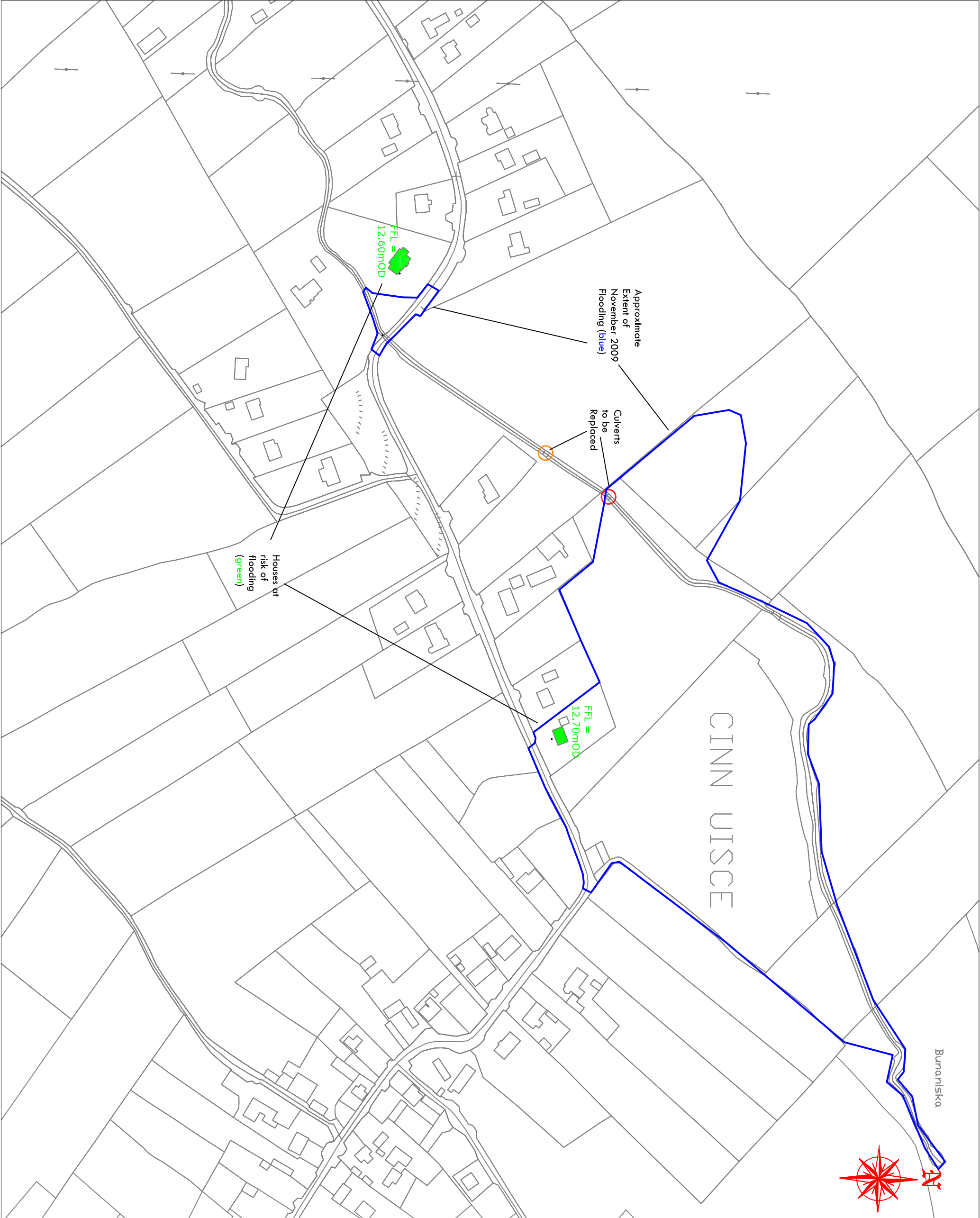
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APPROVED M.F.J

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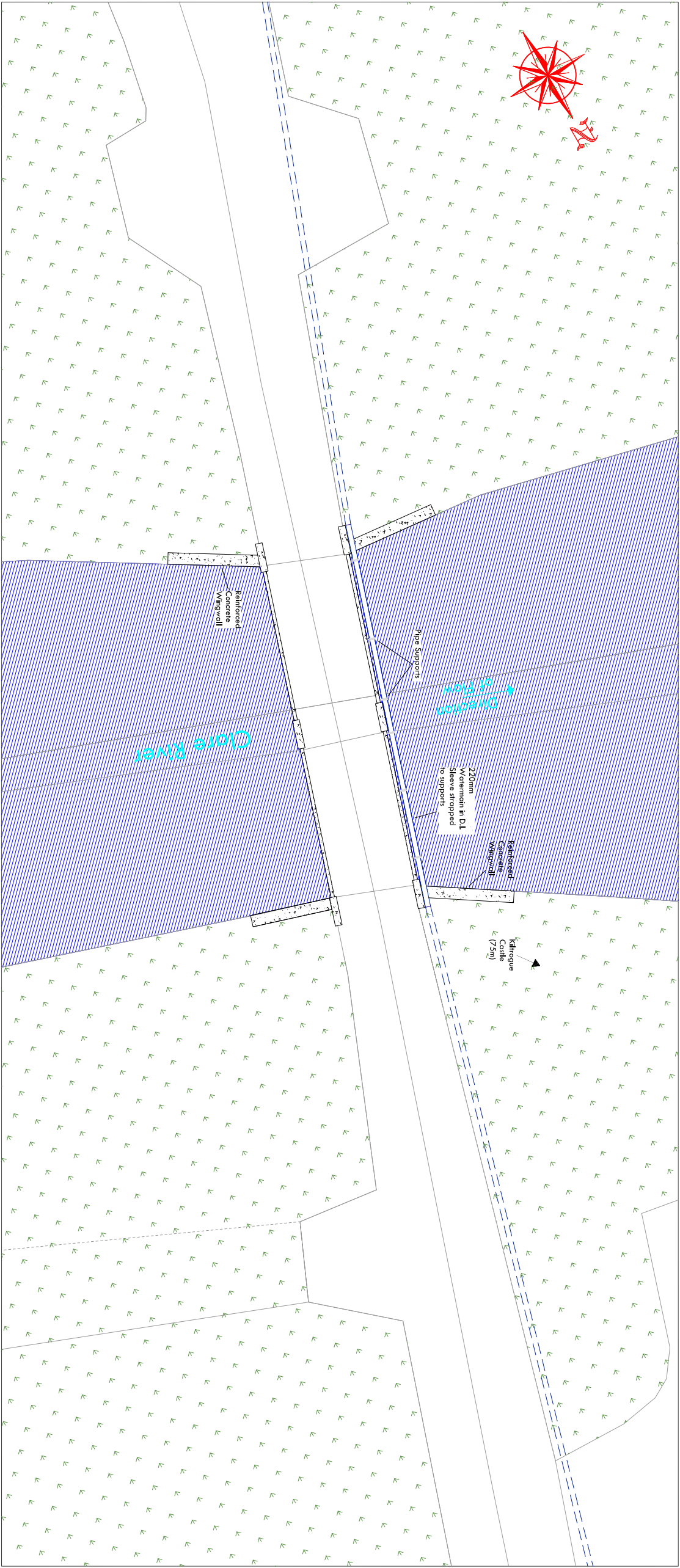
PROJECT

River Clare Flood Study

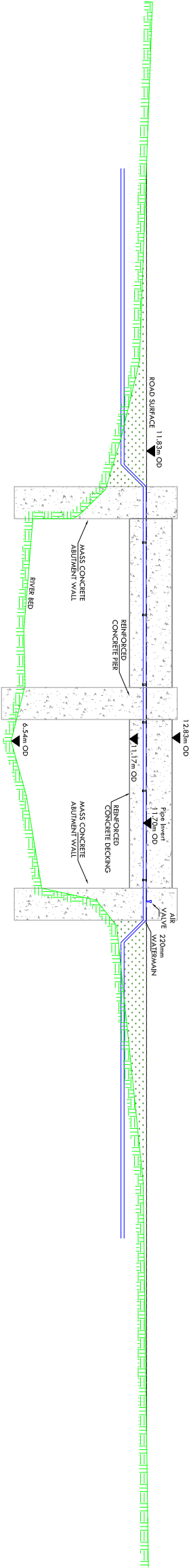
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Measure 5a.
Outline Design

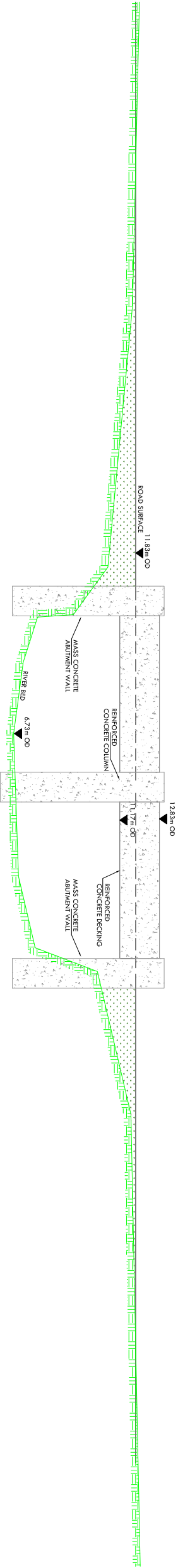
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JOB NO.	DRAWING NO.	Sketch 5.1	REV.	
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Plan View of Crusheen Bridge Scale 1:200



Downstream Face 1:200



Upstream Face 1:200

NOTES

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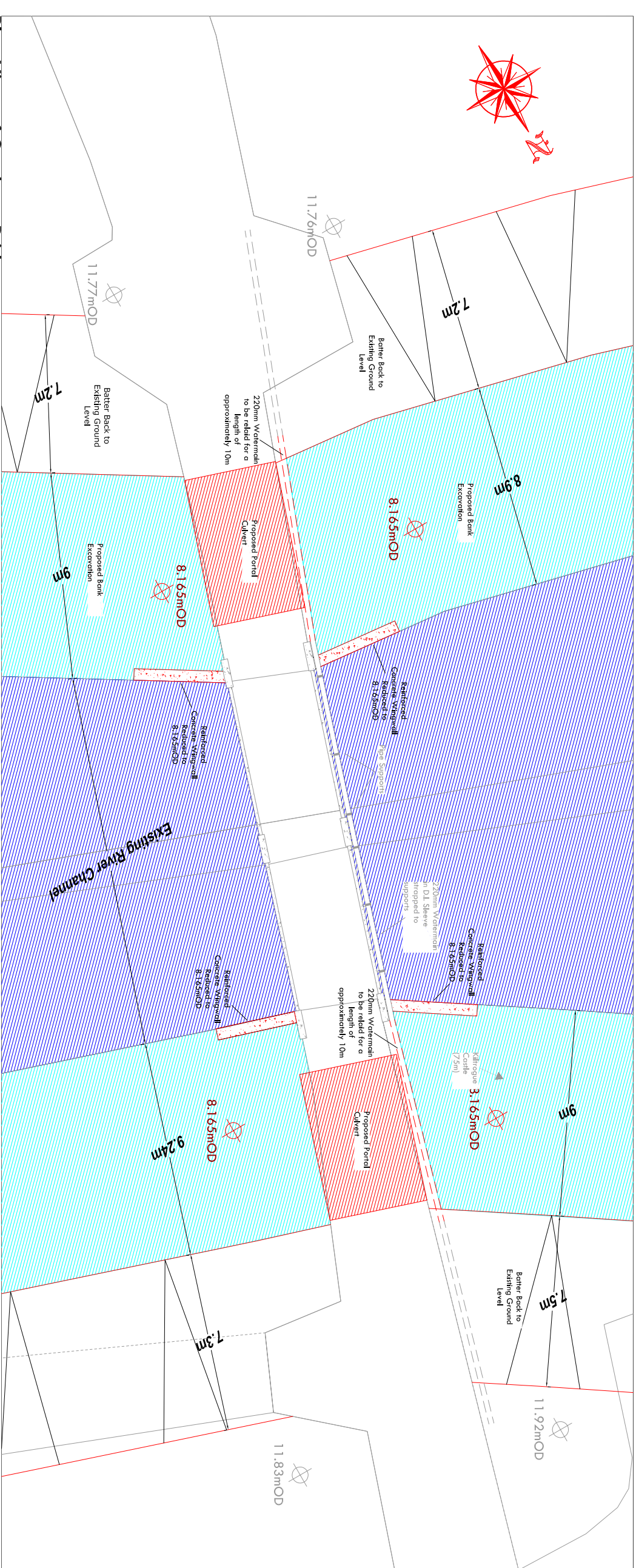
Clare River Flood Study

TITLE

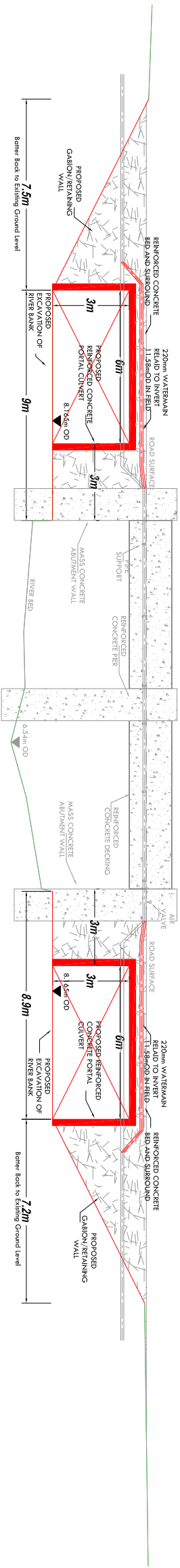
**Plan View & Elevation of
Existing Crusheen Bridge**

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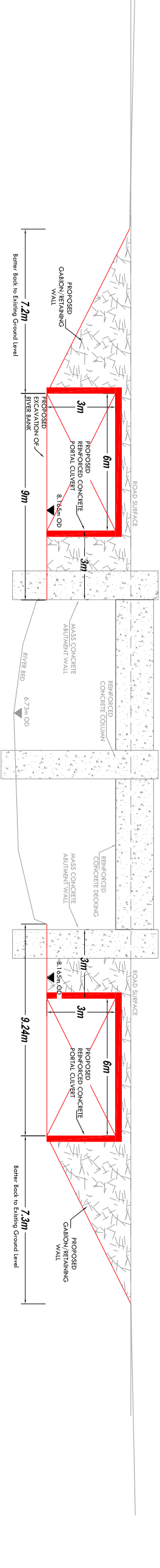
JOB No.	DRAWING No.	REV.
2138	Sketch 8.1	



Plan View of Crusheen Bridge Scale 1:200



Downstream Face 1:200



Upstream Face 1:200

- NOTES
- Culvert invert level set at higher level than existing bed so as to maintain existing low flow conditions.
 - Crusheen Bridge will be closed for two weeks during construction phase. A diversion for local traffic will be put in place.
 - Temporary water supply may be required while watermain is being diverted
 - Works will be carried out in the vicinity of a Candidate Special Area of Conservation.

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PROJECT

Clare River Flood Study

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Measure 8a - Outline Design

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