

REMEDIATION METHODOLOGY

Brooke Bridge Remediation

Project: K424

February 2021

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DOCUMENT CONTROL & HISTORY

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ВН

C02

C01

A1

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19/02/2021

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REMEDIATION METHODOLOGY

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Project: K424

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1 INTRODUCTION

1.1 Introduction

O'Connor Sutton Cronin (OCSC) were appointed by Kildare County Council to undertake a condition survey of Brooke Bridge. Following the condition survey, OCSC undertook the design of the remediation works required for the structure. The survey identified that the proposed repair works consists of rebuilding and repointing of the parapets, replacing grass verges with concrete rubbing strips, relaying of the bridge surface, removal of vegetation from embankments, stitch repair to a crack in the arch barrel and the repointing of the underside of the arch barrel.

An AA screening was required to be undertaken for the proposed remedial works to confirm if likely significant effects on European sites will arise from the proposed repair works either alone or in combination with other plans or projects and as to whether the proposed development is likely to have significant effects on European sites, either individually or in combination with other plans or projects.

For the reasons set out in detail in the AA Screening Report undertaken by Altemar Ltd. (reference date 26th June 2020), it was objectively concluded that an Appropriate Assessment of the proposed Project is required as it could not be concluded, on the basis of objective information, that the proposed project, either individually or in combination with other plans or projects, will not have a significant effect on the following European site(s): River Barrow and River Nore SAC.

As part of the Appropriate Assessment process, OCSC engaged Alternar Ltd. to prepare a Natura Impact Statement (NIS). To assist Alternar in completing the NIS, OCSC are required to prepare a construction methodology to be submitted to Alternar Ltd. for its inclusion in the Natura Impact Statement, which is the subject of this report.

1.2 Project Background

In November 2014, Malachy Walsh and Partners Consulting Engineers conducted a Principal Inspection survey for Brooke Bridge (See Appendix A). The bridge was given an overall structural rating of "Category 4". The Principal survey was conducted, and rating given in accordance with EIRSPAN Bridge Management System Principal Inspection manual (AM-STR-06054), published by TII. As can be seen from this report, an area of particular deterioration is the masonry arch barrel, receiving a "Category 4" rating.





1.3 Bridge Description

Brooke Bridge carries the L7049 over an unknown stream located north of Monasterevin, Co. Kildare. The bridge is a single-span, limestone masonry road bridge. Concrete skirts have been retrofitted to the 2 no. abutments to provide scour protection. See figure 1 below for photo of Brooke Bridge Upstream Elevation.



Figure 1: Brooke Bridge Upstream Elevation



2 SITE ACCESS

Access to the bridge will be from the L7049. Please see figure 2 below for site location map.

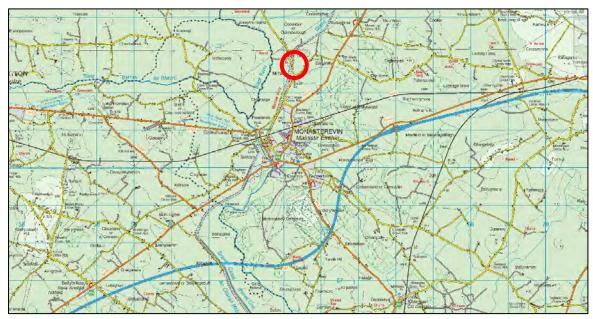


Figure 2: Site Location map





3 DESCRIPTION OF IN-STREAM WORKS

3.1 De-vegetation and Repointing of Masonry

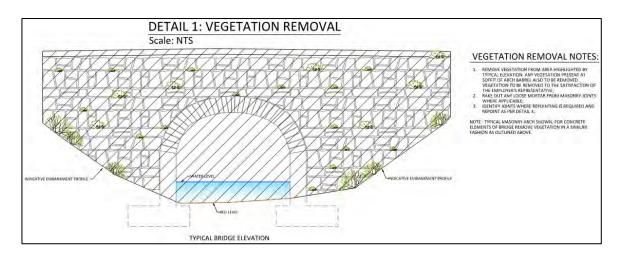
It was noted during OCSC's survey of Brooke Bridge that on a number of the masonry units of the arch barrel, there was a loss of mortar in the joints and vegetation growing between the units. The extent of masonry repointing and vegetation removal is minor in nature with the specific repairs detailed in the notes for Details 1 and 3. See figure 3 below for image of masonry loss and vegetation growth and Detail 1 and 3 below for vegetation removal and masonry repointing, respectively. In order to further mitigate debris entering the watercourse, cleaning, and vegetation removal of bridge elements will be undertaken in such way as to prevent any debris falling into the watercourses. A sealed working platform — CRASH DECK - will be provided at the structure to contain the cleaning works. The crash deck will be fully boarded out and effectively screened and sealed on all edges to ensure that no products enter the watercourse. Debris will be removed from the crash deck at the end of each working day to avoid the build-up of material on the crash deck. During the cleaning works the Contractor must use a filtration membrane on the scaffold/ crash deck to capture particles and prevent them from entering the river/ watercourse.

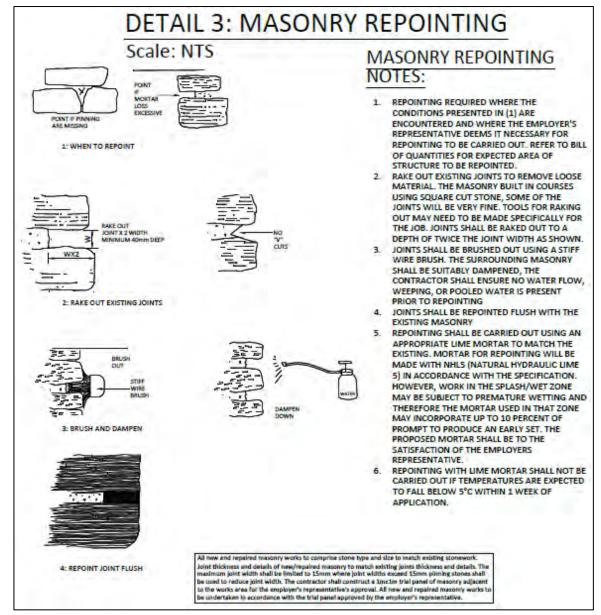


Figure 3: Loss of mortar in joints and vegetation growth











3.2 Crack Stitching to Masonry Arch

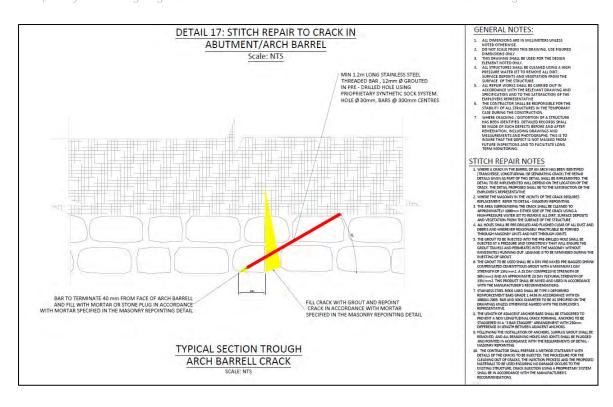
It was noted during OCSC's survey of Brooke Bridge that a crack had formed in the abutment and arch barrel. The specific repairs for the crack stitching are detailed in the notes for Details 17 below. See figure 4 below for image of the crack in the abutment and arch barrel. In order to further mitigate debris entering the watercourse, a sealed working platform – CRASH DECK - will be provided at the structure below the area to be stitched in order to catch any falling debris and excess grout. The crash deck will be fully boarded out and effectively screened and sealed on all edges to ensure that no products enter the watercourse. Debris will be removed from the crash deck at the end of each working day to avoid the build-up of material on the crash deck. During the crack stitching works the Contractor must use a filtration membrane on the scaffold/ crash deck to capture particles and prevent them from entering the river/ watercourse.



Figure 4: Crack in abutment and Arch Barrel









4 SITE DURING CONSTRUCTION

In order to further mitigate debris entering the watercourse, the contractor will install a sealed working platform – CRASH DECK - fully boarded out and effectively screened and sealed on all edges to ensure that no products enter the watercourse. A filtration membrane will be installed on the scaffold/ crash deck to capture particles and prevent them from entering the river/ watercourse. This crash deck system will be installed around the areas to be repointed and stitch repaired. See figure 5 below for image of typical crash deck/ scaffolding setup.

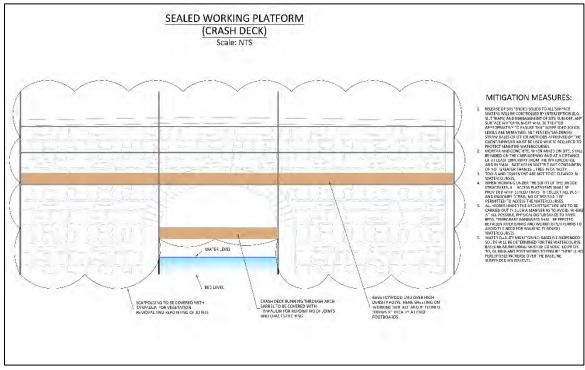


Figure 5: Typical tarpaulin and scaffolding setup



5 TIMEFRAME AND RESTRICTIONS

It is intended that all works will be carried out between the 1st July 2021 and 30th September 2021, in accordance with Inland Fisheries Ireland's 'Guidelines on Protection of Fisheries During Construction Works in and Adjacent to Waters'.

Works will take place outside the salmonid close season. Works will not be undertaken during hours of darkness to avoid disturbance of otter foraging and commuting. Works will be undertaken outside the lamprey spawning season.





6 PLANT AND EQUIPMENT

Plant and equipment will be confirmed by the appointed contractor. It is expected that the contractor will repoint the joints in the arch barrel by hand and that a pneumatic drill will be used to drill into the arch barrel for the crack stitching, followed by pressure grouting.

No concrete/cement mixing or refuelling of plant and equipment will take place near any watercourse.

Fuels, lubricants and hydraulic fluids for equipment used on the construction site will be carefully handled to avoid spillage, properly secured against unauthorised access or vandalism and provided with spill containment according to current best practice.

Fuelling and lubrication of equipment will be carried out offsite or in bunded areas at site compound that must not be located within 10m of the river.

All equipment will be sterilised at a disinfection /cleaning station set up next to the site compound and not within 10m from the river.

Appropriate spill control equipment, including oil booms and oil soakage pads, will be kept within the construction site to deal with any accidental spillage.

Any spillage of fuels, lubricants or hydraulic oils will be immediately contained and the contaminated soil removed from the construction site and disposed of in accordance with all relevant waste management legislation.

Prior to any work commencing, all construction equipment will be checked to ensure that it is mechanically sound, to avoid leaks of oil, fuel, hydraulic fluids and grease.





7 MATERIAL REQUIREMENTS

- i. Cementitious grout for crack stitching;
- ii. Stainless steel type II reinforcement bars for crack stitching;
- iii. Lime mortar for repointing of masonry joints.





8 REDUCTION OR ELIMINATION OF POLLUTION FROM SUBSTANCES

The following guidelines, based on the IFI guidelines (2016), Chilibeck et al (1992), and NRA (2005), will be followed by the contractor where required:

- i. Raw or uncured waste concrete will be removed from the construction site and disposed of in accordance with the relevant waste management legislation;
- ii. Wash down water from concrete trucks, cast in situ concrete etc. will be collected in a suitable containment structure and then taken off-site for appropriate disposal;
- iii. Fuels, lubricants and hydraulic fluids for equipment used on the construction site will be carefully handled to avoid spillage, properly secured against unauthorised access or vandalism and provided with spill containment according to current best practice;
- iv. Fuelling and lubrication of equipment will be carried out offsite or in bunded areas;
- v. Appropriate spill control equipment, including oil booms and oil soakage pads, will be kept within the construction site to deal with any accidental spillage;
- vi. Any spillage of fuels, lubricants or hydraulic oils will be immediately contained and the contaminated soil removed from the construction site and disposed of in accordance with all relevant waste management legislation;
- vii. Prior to any work commencing, all construction equipment will be checked to ensure that it is mechanically sound, to avoid leaks of oil, fuel, hydraulic fluids and grease;
- viii. Measures will be implemented to minimise waste and ensure correct handling, storage and disposal of waste;
 - ix. Emergency response procedures will be put in place.







APPENDIX A. PRINCIPAL INSPECTION REPORT FOR BROOKE BRIDGE





Kildare Bridges Inventory Gathering and Principal Inspections

Structure Name: **Brooke Bridge**Structure ID: **KE-L7049-002.00**



Client: Kildare County Council Áras Cill Dara, Devoy Park, Naas, Co. Kildare.



Engineer:
Malachy Walsh and
Partners.
Bessboro Road,
Mahon Technology Park,
Blackrock,
Cork.



Document No	Revision	Prepared By	Checked By	Approved By	Status	Date	
16011-6156	Α			J Mc Carthy P O'Donnell		Nov 2014	
10011 0130	,				Final Issue	1404 2011	



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Maintaining Agent: 15	KE - Kildare
Road:	
Side of road:	
Region 2	Leinster
Struct. reg. no: 118	
Year of construction:	
Year of reconstruction:	
Primary passage Overbridge/Underbridge:	U
Dir. of chainage on primary road:	N
Access equipment needed:	0 Nothing
Data collected: Date:	10 Nov 2014
Inspector Initials:	JMC/DC
Checker Initials:	MM

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KE-L7049-002.00 Brooke Bridge

Geographical position:

Geograp	hical position:				
Easting:	263180		Northi	ng:	212209
Geometry	y:				
	Number of spans	:	1		
	Min span length	(m):	3.20		
	Max span length	(m):	3.20		
	Overall length	(m):	3.20		
	Width out-to-out	(m):	6.35		
	Width of median	(m):			
	Width of footway left	t(m):			
	Width of footway right	ht(m):			
	Width of carriageway	(m):	4.12		
	Width kerb-to-kerb	(m):	4.12		
	Width of approach	(m):	4.05		
	Area	(m2):	20.32		
	Minimum Parapet Heigh	ht(m):	0.90		
	Width of Soft Verge	Left(m):	0.34		
	Width of Soft Verge 1	Right.(m):	0.5		
	Approach Skew 1	(deg):	0.00		
	Approach Skew 2	(deg):	0.00		
	Bridge curved	(Y/N):	N		
	Skew	(deg):	30		
Span Le	engths:				
Span 1	(m): 3.2	Span 6(m):			Span 11(m):
Span 2	(m):	Span 7(m):			Span 12(m):
Span 3	(m):	Span 8(m):			Span 13(m):
Span 4	(m):	Span 9(m):			Span 14(m):
Span 5	(m):	Span 10(m):			
Superst	ructure, principal	l type:			
Standa	rd design	(Y/N):	Y		
Design	of cross section	:	60	Masoni	ry arch
Design	of elevation	:	50	Arch,	one or more spans

Material of primary members.....: 60 Stone masonry

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Superstructure, secondary ty	ype (if ar	plicabl	.e):						
Standard design(Y/N):									
Design of cross section		91 N	ot applicable						
Design of elevation	:	91 N	ot applicable						
Material of primary members	:	91 N	ot applicable						
Superstructure, tertiary type	pe (if apr	olicable	a):						
Standard design	(Y/N):								
Design of cross section	:	91 N	Not applicable						
Design of elevation	:	91 No	ot applicable						
Material of primary members	:	91 N	ot applicable						
Masonry arch (if applicable)) :								
Span Length		3.2							
Rise of arch barrel at crown		0.61							
Rise of arch barrel, quarter po	ints(m):	0.55							
Springing height above mudline.	(m):	1.52							
Thickness of arch barrel	(m):	0.36							
Average depth of fill	(m):	0							
Parapet thickness	(m):	0.42							
Material	.:		Square cut/rubble (S/R):						
Arch facing stones: 10 Lim	nestone		S						
	nestone		R						
Spandrel walls: 10 Lim	nestone		R						
Average joint thickness: Mortar strength Soft/Hard:									
Arch facing stones: 20 Bet	ween 10mm a	ınd 25mm	Н						
Arch barrel sheeting.: 30 Mor	re than 25mm	ı	Н						
Spandrel walls: 30 Mor	re than 25mm	ı	Н						

<pre>KE-L7049-002.00 Brooke Bridge Substructure: Abutment: Type: 10</pre>
Abutment: Type: 10 Abutm. wall, integ. wing walls
Abutment: Type: 10 Abutm. wall, integ. wing walls
walls
Material : 10 Magonry
raccitat
Foundation: 10 Spread footing
Pier: Type 91 Not applicable
Material 91 Not applicable
Foundation 91 Not applicable
Details:
Type of parapet 20 Masonry
Type of safety barrier 0 No guard rail
Type of wearing surface: 20 Bituminous surface dressing
Type of expansion joint 50 No joint device
Type of fixed bearings on support: 91 Not applicable
Type of free bearings on support: 91 Not applicable
Type of fixed bearings on girders: 91 Not applicable
Type of free bearings on girders: 91 Not applicable
Obstacle:
Type of passage 31 River
Passage id River
Passage name Uknown river
Road side:
Vertical Clearance:
Primary passage(m): L: LM: RM: R:

Secondary passage.....(m): L: LM: 2.13 RM: R:

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KE-L7049-002.00 Brooke Bridge

Miscellaneous:	
Design Load:	30.0 HB

Load Distribution...... 2 Distribution in 1 direction

Technical Standards...... 0 Unknown standard

Assessed Capacity Normal....:
Assessed Capacity Abnormal...:

Weight Restriction....:

Owner: 13 Kildare County Council Maintaining Agent....: 13 Kildare County Council

Inspection Consultant.....: 115 Malachy Walsh/O'Connor

Technical installations..... 2 Other electrical

installation

Remarks:

Width of approach 2 = 3.8m

Overhead wires passing downstream of the structure.

Chrono Date Remarks	logic	eal Overview Activity										14 St
10 Nov	2014	Principal inspection	2		2	1	2	1		4	2	4

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Principal Inspection:	
Date:	10 Nov 2014
Team Leader Name:	Jerome Mc Carthy
Initials:	JMC/DC
Weather:	Overcast
Temperature(deg. C):	7
Traffic:Annual Average Daily Traffic: Percentage, light vehicles: Percentage, heavy vehicles: Year for next Principal Inspection:	2016
Remark:	

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No	Component				Repair Work				
	Repair work Damage description Type of damage	Con rtg		Spe Ins	T P	Qty	Year	Cost	Pho
1 P	ridge surface	2	Y	N					2
	C : Replacement of wearing course		_		С	8	2016	1250	
	Z : Other repair work				Z	20	2016	1000	
	L : Road markings				L	30	2016	800	
	Rubbing strips need to be installed in the soft verges to prevent further water ingress to the arch. Road markings need to be painted. Damaged section of pot holing to the north eastern side of the bridge is to be repaired. Sweep debris from soft verges under routine maintenance. Photo 1.1 - View over structure from the south Photo 1.2 - Damaged section of pavement Grass verge over structure								
2 Expansion joints				N					0
3 Footways/median				N					0
4 P	arapets/Safety barrier	2	Y	N					2
	J : Masonry repair				J	4	2016	4800	
	Repair the upstream parapet at the northern end of, and to the south of the bridge. Repoint the traffic face of the parapet north of the bridge. Clean vegetation growth from outside faces under routine maintenance. Photo 4.1 - Upstream parapet, note damage at far (southern) end Photo 4.2 - Parapet on downstream side of the bridge Vehicle impact				К	6	2016	750	

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No	Component								
	Repair work Damage description Type of damage	Con rtg	_	ı –	T P	Qty	Year	Cost	Pho tos
	Embankments/Revetments p	1	Y	N					1
	All embankments are stable, Remove vegetation growth under routine maintenance. Photo 5.1 - Upstream right hand side embankment								
6 Wing/Spandrel/Retaining Walls		2	Y	N					2
	D : Masonry repointing				D	4	2017	500	
	Repoint localised areas of the downstream walls. Remove minor vegetation growth throughout. Photo 6.1 - Upstream left hand side wing wall Photo 6.2 - Downstream left hand side wing wall								
	Loss of masonry pointing								
7 2	Abutments s	1	N	N					1
	Both abutments are ok and have scour protection installed. Photo 7.1 - Left hand side abutment								
8 1	Piers			N					0
9 I	Bearings			N					0
10 I	Deck/slab/arch barrel	4	N	N					2
	D : Masonry repointing				D	19	2015	3515	
	Arch is flat. Loss of pointing from the 1m at the upstream end with dense crack patterns. Loose stones and loss of pointingfor 1m either side of the crown for full out to out width. Note that cover over the crown of the arch is very low. Photo 10.1 - Intrados of arch Photo 10.2 - Open jointing and dropped stones across width at crown of arch Loss of masonry pointing								

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11 Beams/girders/transverse beams			N					0
12 Riverbed		Y	N					1
B : Scour protection				В	2	2016	500	
The bed is lined and there is a scour skirt along the abutments. Minor scour to scour protection at the downstream end for 1m length. Remove debris from downstream end. Photo 12.1 - view of watercourse Erosion / scour								
13 Other elements			N					0
14 Structure in generals		Y	N					2
Photo 14.1 - upstream elevation Photo 14.2 - downstream elevation								
Total Cost:	_						13115	

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KE-L7049-002.00 Brooke Bridge

Bridge surface Component No.

Rubbing strips need to be installed in the soft verges to prevent further water ingress to the arch. Road markings need to be painted. Damaged section of pot holing to the north eastern side of the bridge is to be repaired. Sweep debris from soft verges under routine maintenance.

Photo 1.1 - View over structure from the south

Photo 1.2 - Damaged section of pavement

Condition/Mainten. 2 / Y



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KE-L7049-002.00 Brooke Bridge

Component No. Bridge surface

Rubbing strips need to be installed in the soft verges to prevent further water ingress to the arch. Road markings need to be painted. Damaged section of pot holing to the north eastern side of the bridge is to be repaired. Sweep debris from soft verges under routine maintenance.

Photo 1.1 - View over structure from the south Photo 1.2 - Damaged section of pavement





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KE-L7049-002.00 Brooke Bridge

Component No. Parapets/Safety barrier

Repair the upstream parapet at the northern end of, and to the south of the bridge. Repoint the traffic face of the parapet north of the bridge. Clean vegetation growth from outside faces under routine maintenance.

Photo 4.1 - Upstream parapet, note damage at far (southern) end Photo 4.2 - Parapet on downstream side of the bridge

Condition/Mainten.



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KE-L7049-002.00 Brooke Bridge

Component No. Parapets/Safety barrier

Repair the upstream parapet at the northern end of, and to the south of the bridge. Repoint the traffic face of the parapet north of the bridge. Clean vegetation growth from outside faces under routine maintenance.

Photo 4.1 - Upstream parapet, note damage at far (southern) end Photo 4.2 - Parapet on downstream side of the bridge

Condition/Mainten.



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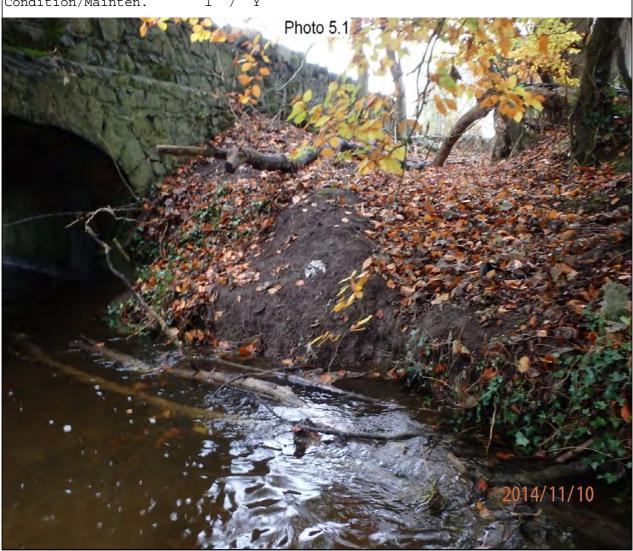
KE-L7049-002.00 Brooke Bridge

Embankments/Revetments p 5 Component No.

All embankments are stable, Remove vegetation growth under routine maintenance.

Photo 5.1 - Upstream right hand side embankment

Condition/Mainten. 1 /

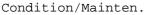


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KE-L7049-002.00 Brooke Bridge

Wing/Spandrel/Retaining Walls Component No. Repoint localised areas of the downstream walls. Remove minor vegetation growth throughout. Photo 6.1 - Upstream left hand side wing wall Photo 6.2 - Downstream left hand side wing wall







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KE-L7049-002.00 Brooke Bridge

Wing/Spandrel/Retaining Walls Component No.

Repoint localised areas of the downstream walls. Remove minor vegetation growth throughout.

Photo 6.1 - Upstream left hand side wing wall Photo 6.2 - Downstream left hand side wing wall

Condition/Mainten.



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KE-L7049-002.00 Brooke Bridge

Component No. Abutments s

Both abutments are ok and have scour protection installed. Photo 7.1 - Left hand side abutment



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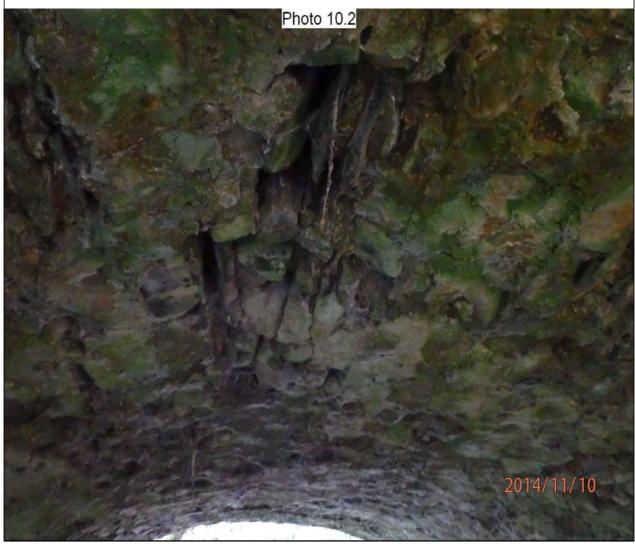
KE-L7049-002.00 Brooke Bridge

Component No. 10 Deck/slab/arch barrel

Arch is flat. Loss of pointing from the 1m at the upstream end with dense crack patterns. Loose stones and loss of pointingfor 1m either side of the crown for full out to out width. Note that cover over the crown of the arch is very low.

Photo 10.1 - Intrados of arch
Photo 10.2 - Open jointing and dropped stones across width at crown of arch

Condition/Mainten.



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KE-L7049-002.00 Brooke Bridge

Component No. 10 Deck/slab/arch barrel

Arch is flat. Loss of pointing from the 1m at the upstream end with dense crack patterns. Loose stones and loss of pointingfor 1m either side of the crown for full out to out width. Note that cover over the crown of the arch is very low.

Photo 10.1 - Intrados of arch
Photo 10.2 - Open jointing and dropped stones across width at crown of arch





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KE-L7049-002.00 Brooke Bridge

12 Riverbed Component No.

The bed is lined and there is a scour skirt along the abutments. Minor scour to scour protection at the downstream end for 1m length. Remove debris from downstream end.

Photo 12.1 - view of watercourse

Condition/Mainten.



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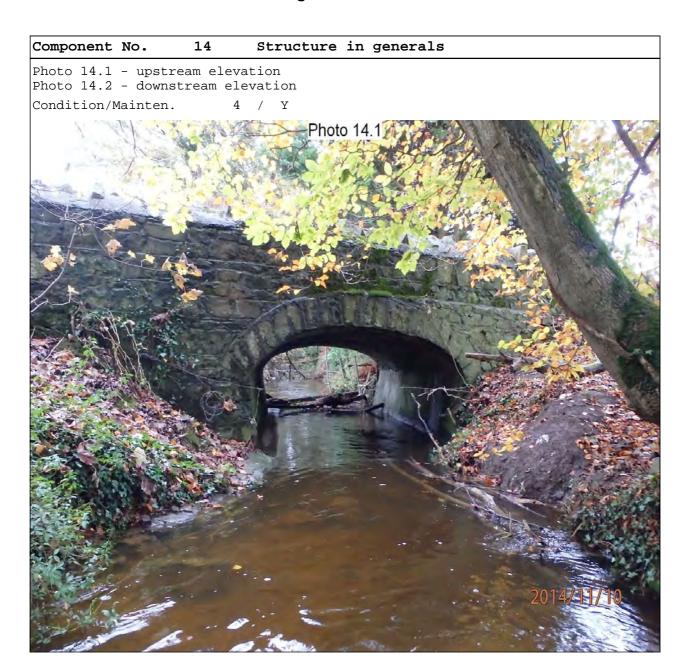
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KE-L7049-002.00 Brooke Bridge



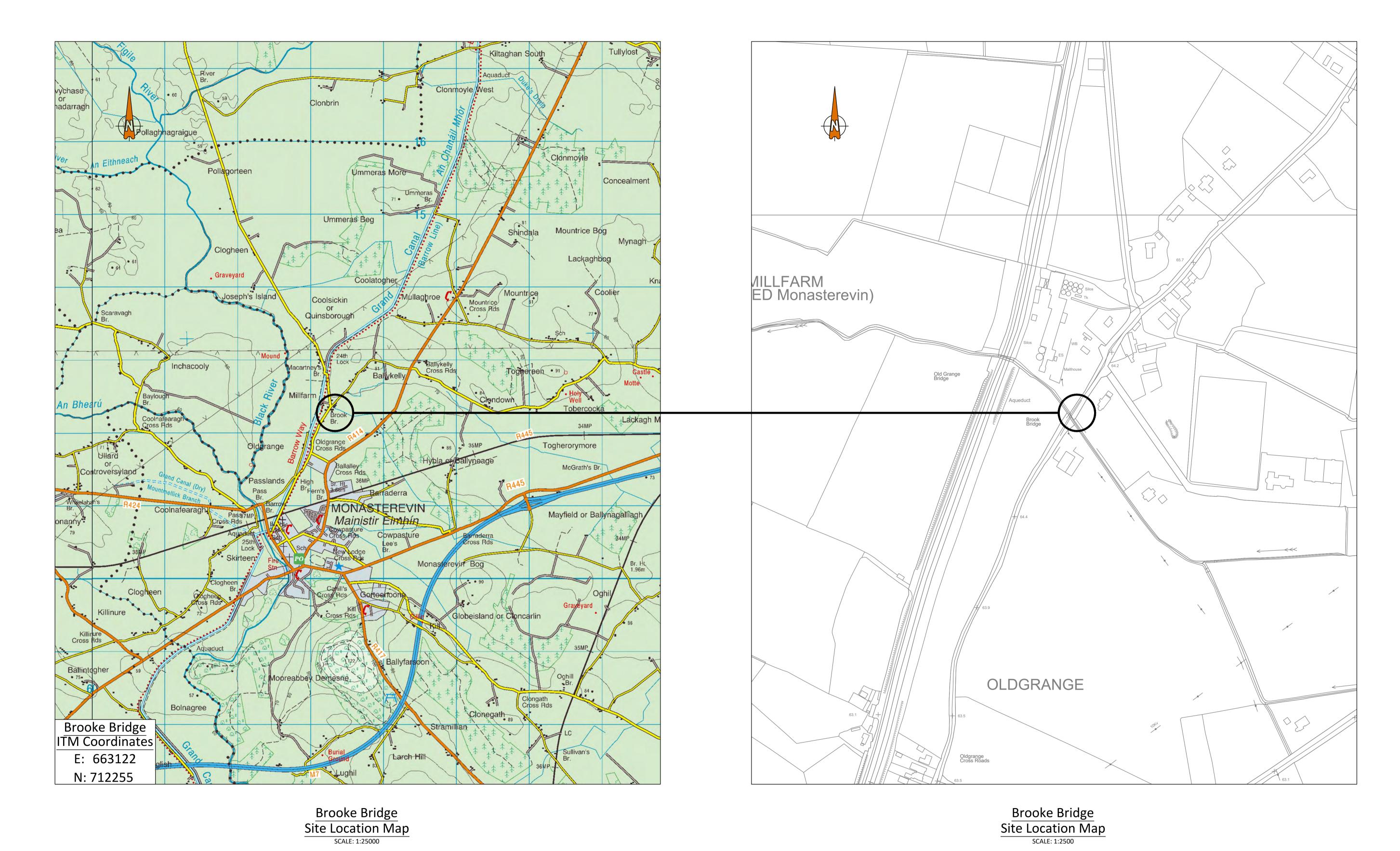
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KE-L7049-002.00 Brooke Bridge





APPENDIX B. DRAWINGS RELATED TO THE WORKS



ORDNANCE SURVEY OF IRELAND LICENCE NO. EN0000821 © GOVERNMENT OF IRELAND

• FOR SETTING OUT REFER TO ARCHITECT'S DRAWINGS. • THIS DRAWING TO BE READ IN CONJUNCTION WITH ALL OTHER ARCHITECTURAL AND ENGINEERING DRAWINGS AND ALL OTHER

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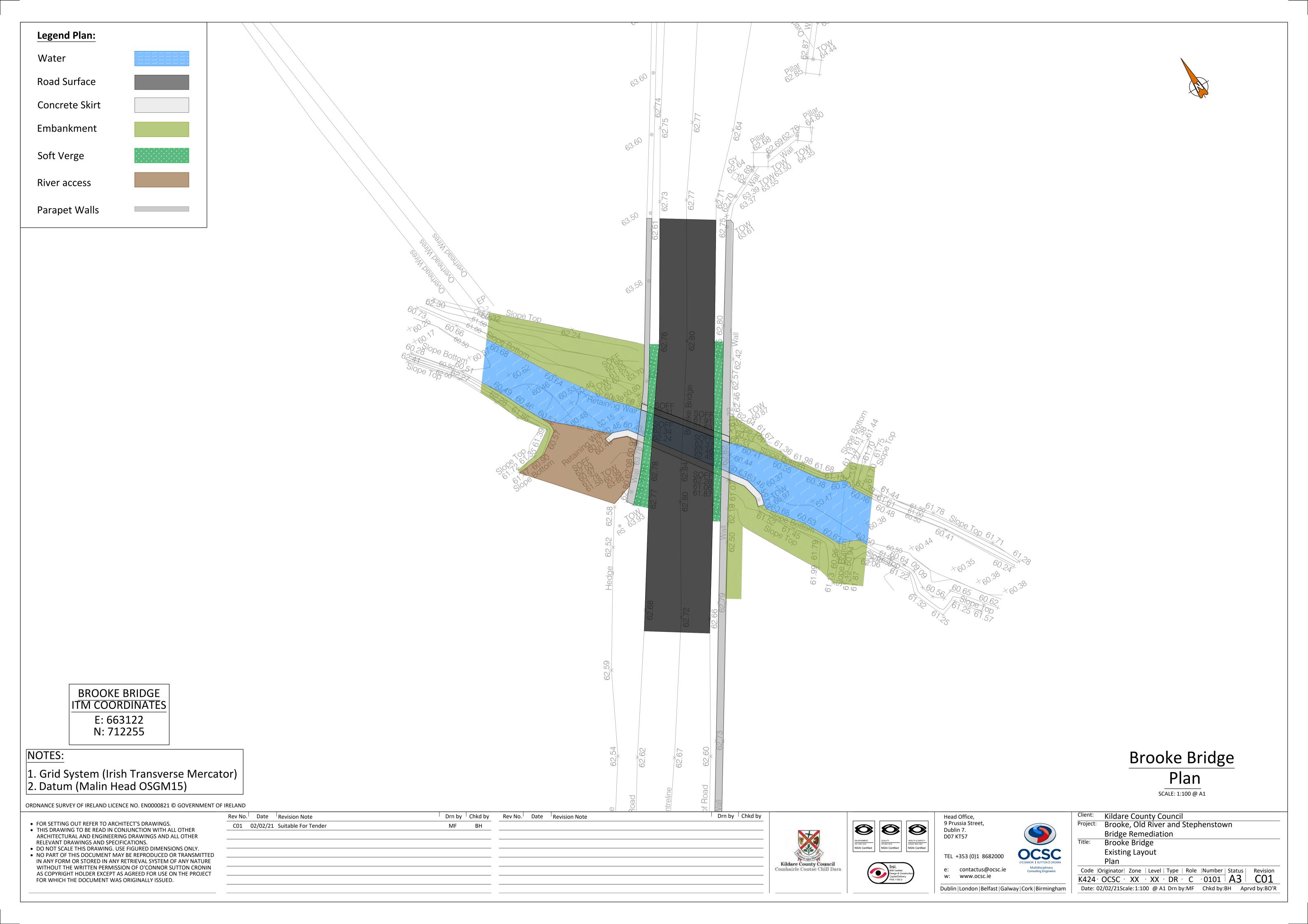
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Bridge Remediation
Brooke Bridge Site Location Map

Client: Kildare County Council

Project: Brooke Bridge

Code |Originator| Zone | Level | Type | Role |Number | Status | Revision K424 OCSC - Z1 - XX - DR - C -0100 A3 C01 Date: 02/02/21Scale: Shown @ A1 Drn by:MF Chkd by:BH Aprvd by:BO'R



Legend Elevation: Water Earth Concrete Skirt 000000000000000000 Parapet Copping Masonry Surface **Arch Voussoirs** Vegetation **Road Level**

Brooke Bridge Upstream Elevation SCALE: 1:75 @ A1

TOW = Top of Wall

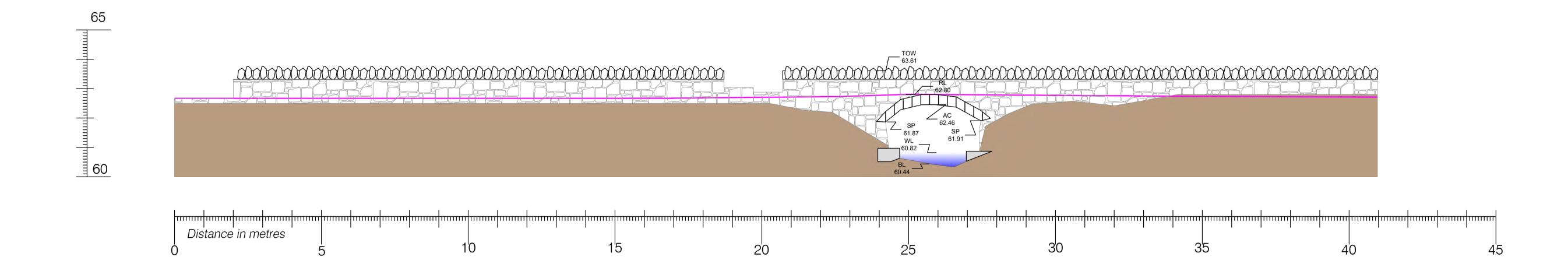
BL = Bed Level

AC = Arch Crown

WL = Water Level

SP = Springing Point

RL = Road Level



NOTES:

1. Grid System (Irish Transverse Mercator) 2. Datum (Malin Head OSGM15)

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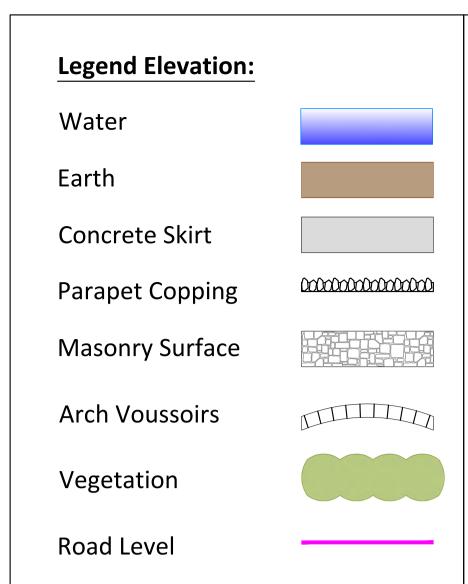
Bridge Remediation Brooke Bridge **Existing Layout**

Project: Brooke, Old River and Stephenstown

Client: Kildare County Council

Upstream Elevation

Code |Originator| Zone | Level | Type | Role |Number | Status | Revision K424 · OCSC · XX · XX · DR · C · 0102 A3 C01 Date: 02/02/21Scale:1:75 @ A1 Drn by:MF Chkd by:BH Aprvd by:BO'R



Brooke Bridge Downstream Elevation SCALE: 1:50 @ A1

TOW = Top of Wall

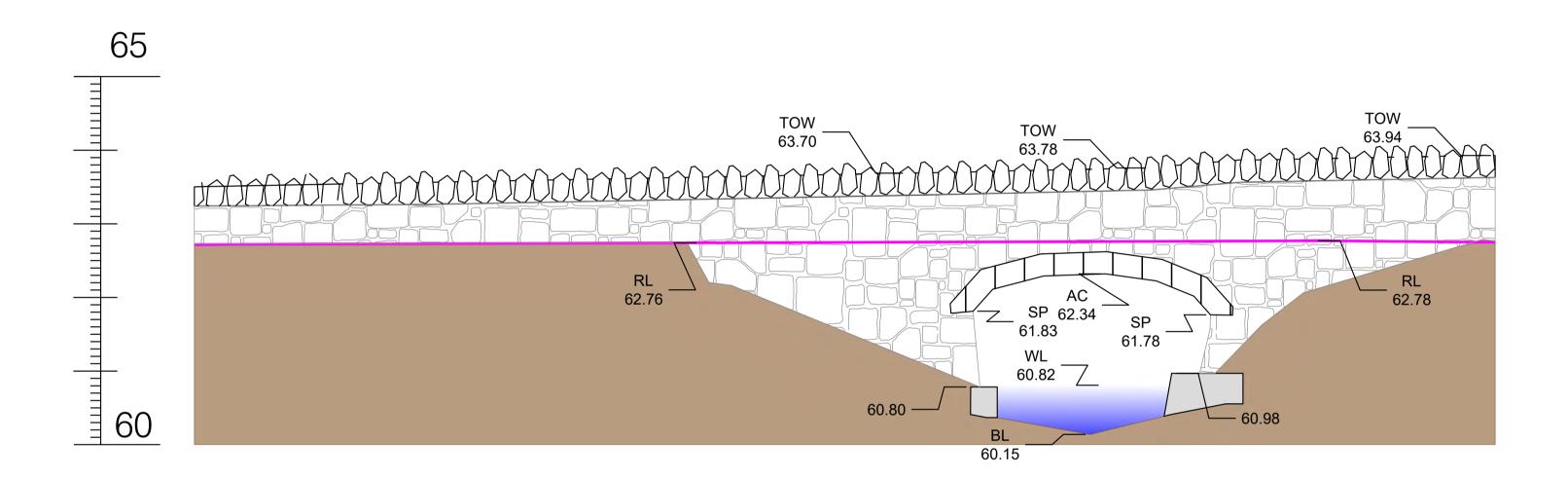
BL = Bed Level

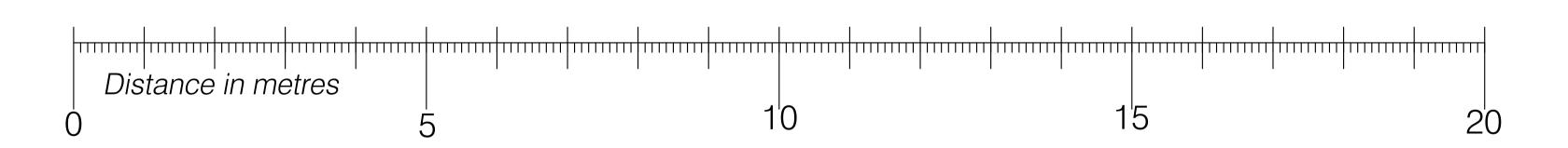
AC = Arch Crown

WL = Water Level

SP = Springing Point

RL = Road Level





NOTES:

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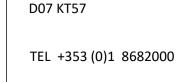
2. Datum (Malin Head OSGM15)

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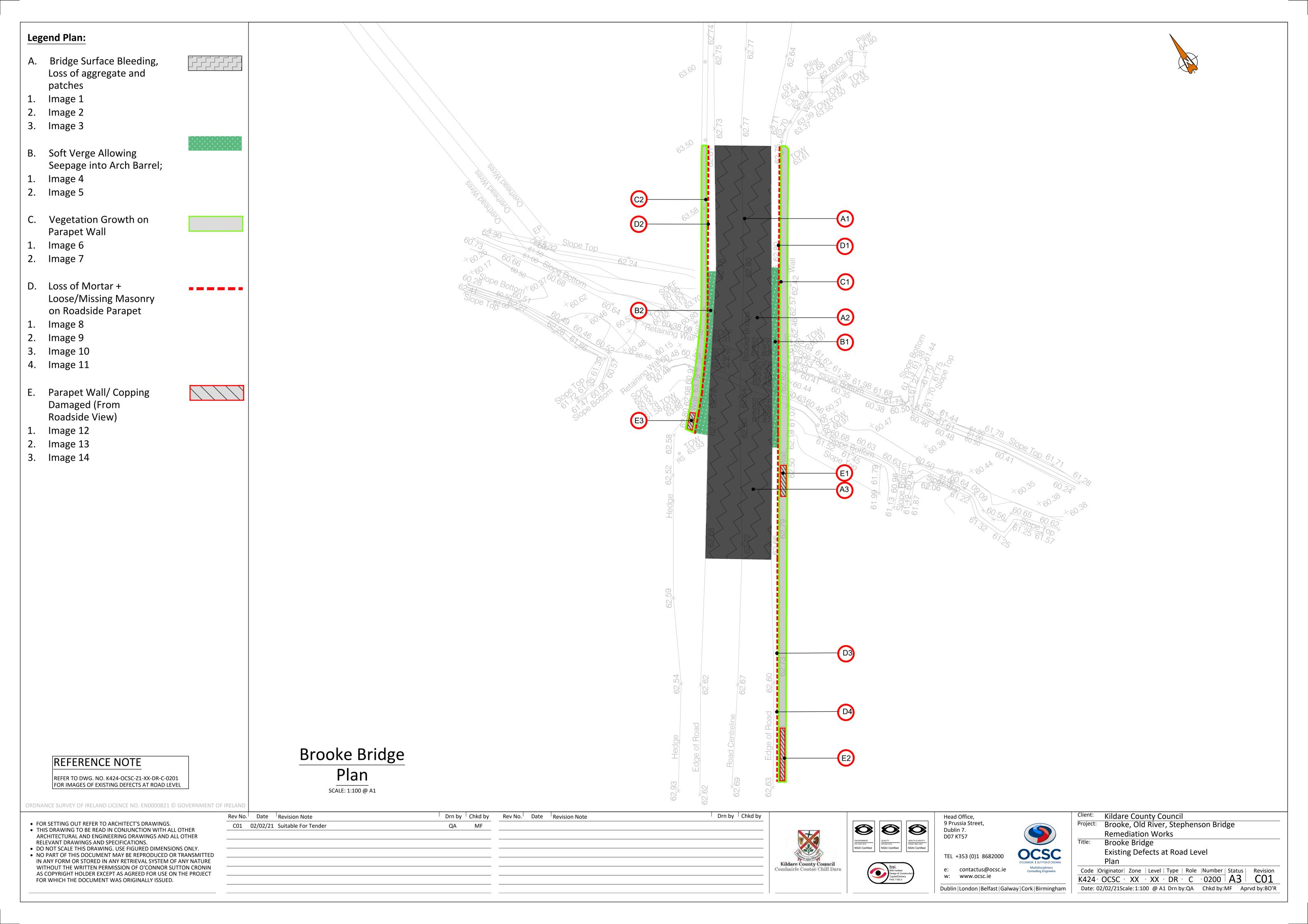
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Client: Kildare County Council
Project: Brooke, Old River and Stephenstown Bridge Remediation
Brooke Bridge

Existing Layout

Downstream Elevation Code |Originator| Zone | Level | Type | Role |Number | Status | Revision K424 · OCSC · XX · XX · DR · C · 0103 A3 C01

Date: 02/02/21Scale:1:50 @ A1 Drn by:MF Chkd by:BH Aprvd by:BO'R



Brooke Bridge Photos of Existing Defects at Road Level



Image 1 Legend Annotation (A1)

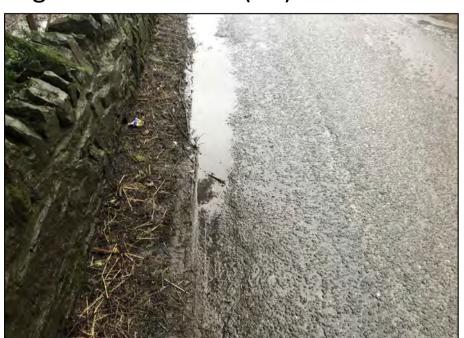


Image 5 Legend Annotation (B2)



Image 9 Legend Annotation (D2)



Image 13 Legend Annotation (E2)



Image 2 Legend Annotation (A2)



Image 6 Legend Annotation (C1)



Legend Annotation (D3)



Image 14 Legend Annotation (E3)



Image 3 Legend Annotation (A3)



Image 7 Legend Annotation (C2)



Image 11 Legend Annotation (D4)



Image 4 Legend Annotation (B1)



Image 8 Legend Annotation (D1)



Image 12 Legend Annotation (E1)

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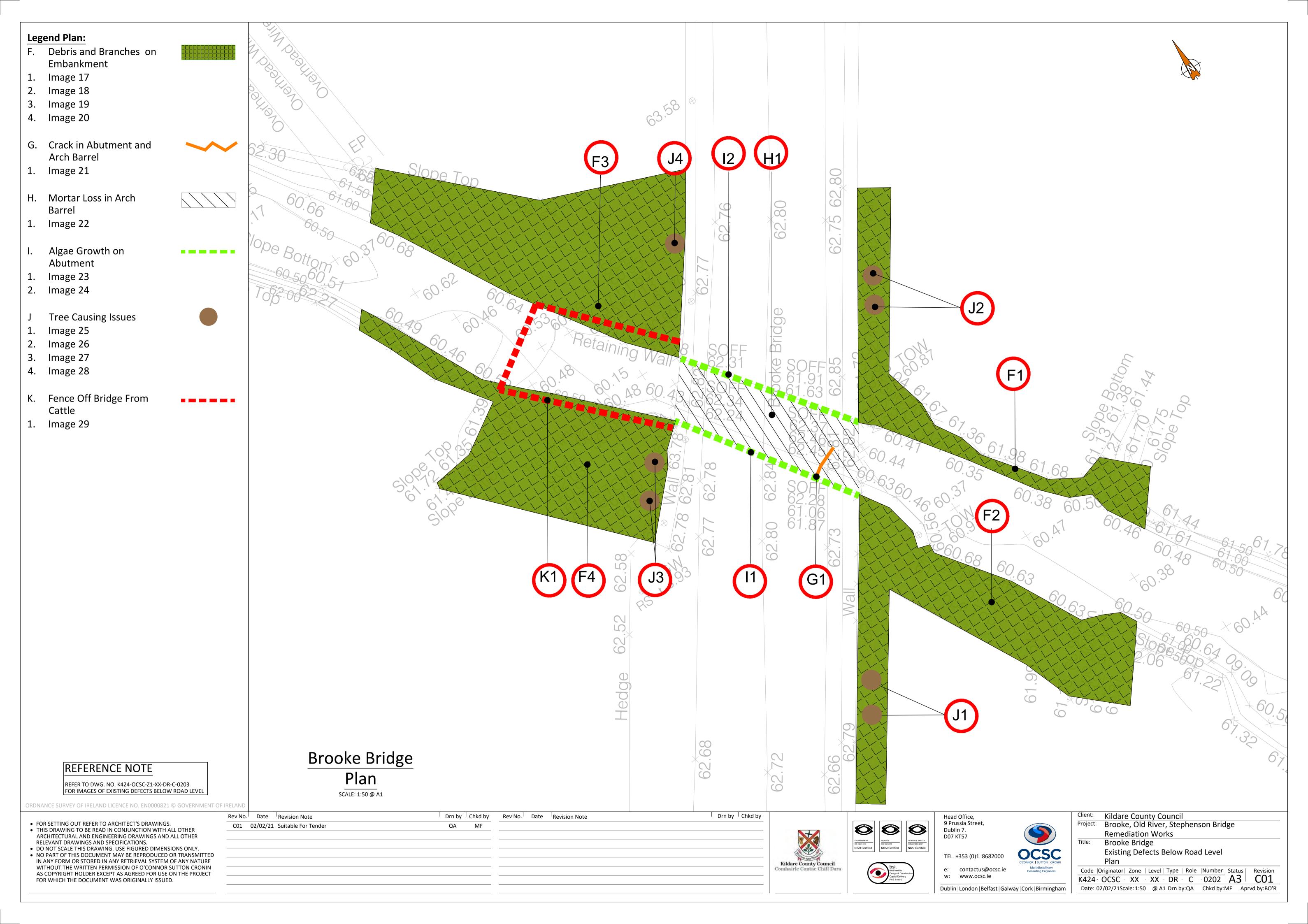


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Remediation Works Brooke Bridge Photos of Existing Defects at Road Level

Client: Kildare County Council
Project: Brooke, Old River, Stephenson Bridge

Code |Originator| Zone | Level | Type | Role | Number | Status | Revision K424 · OCSC · XX · XX · DR · C · 0201 A3 C01 Date: 02/02/20Scale: N/A @ A1 Drn by:QA Chkd by:MF Aprvd by:BO'R



Brooke Bridge Photos of Existing Defects Below Road Level



Image 17 Legend Annotation (F1)



Image 18 Legend Annotation (F2)



Image 19 Legend Annotation (F3)



Image 20 Legend Annotation (F4)

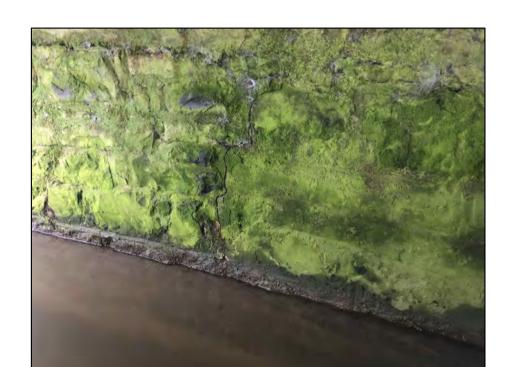


Image 21 Legend Annotation (G1)



lmage 22 Legend Annotation (H1)



Image 23 Legend Annotation (I1)

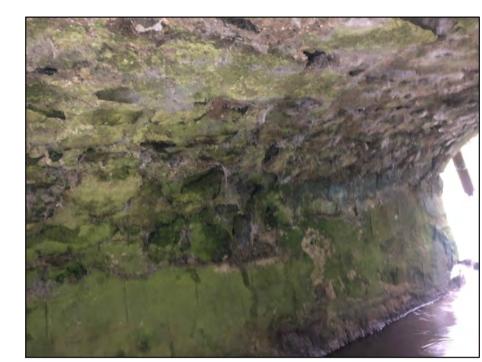


Image 24 Legend Annotation (I2)



Image 25 Legend Annotation (J1)



Image 26 Legend Annotation (J2)



Image 27 Legend Annotation (J3)



Image 28 Legend Annotation (J4)



Image 29 Legend Annotation (K1)

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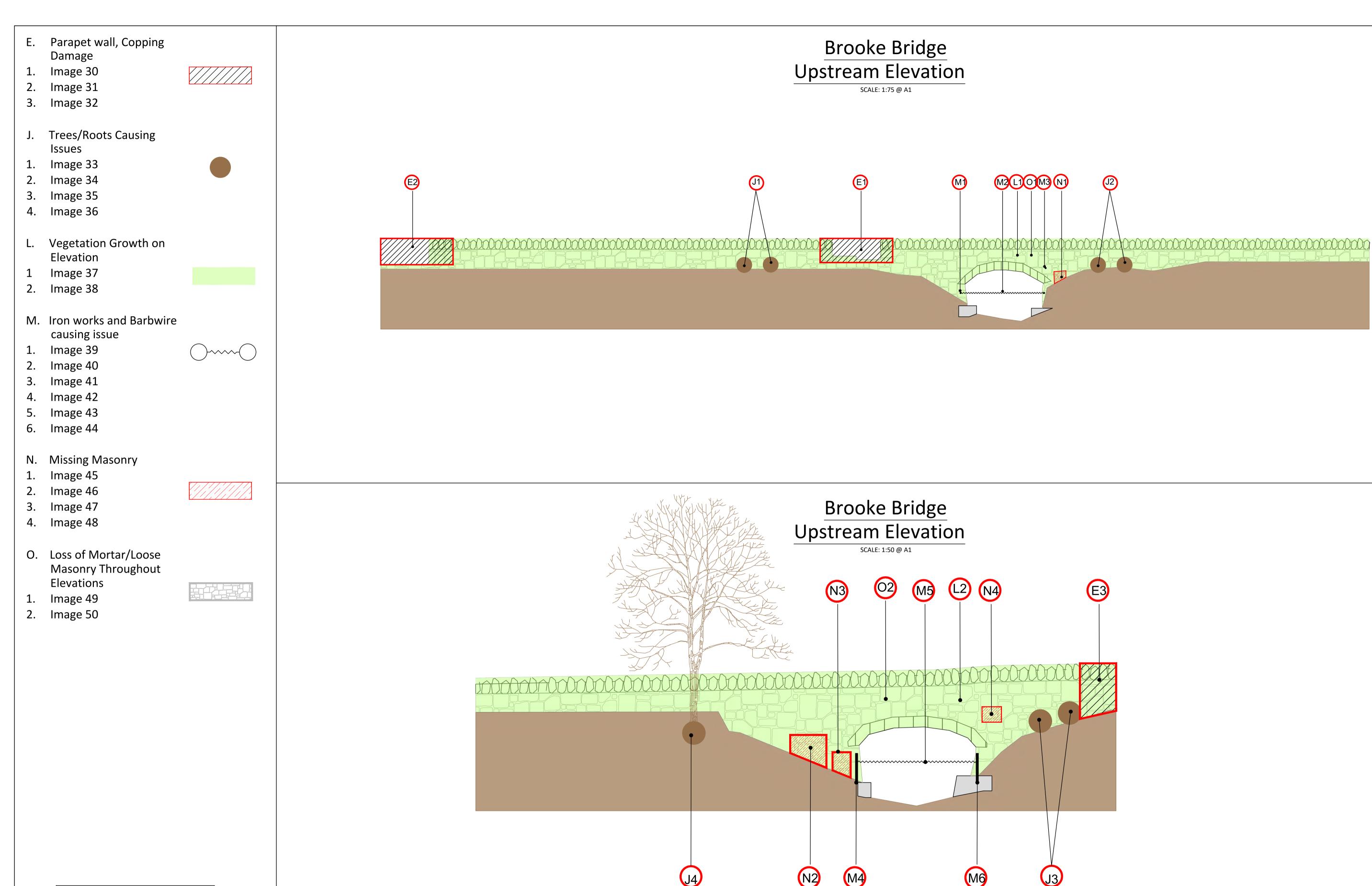
Photos of Existing Defects

Below Road Level Code |Originator| Zone | Level | Type | Role |Number | Status | Revision K424 OCSC - XX - XX - DR - C - 0203 A3 C01 Date: 02/02/21Scale: N/A @ A1 Drn by:QA Chkd by:MF Aprvd by:BO'R

Client: Kildare County Council
Project: Brooke, Old River, Stephenson Bridge

Remediation Works

Brooke Bridge

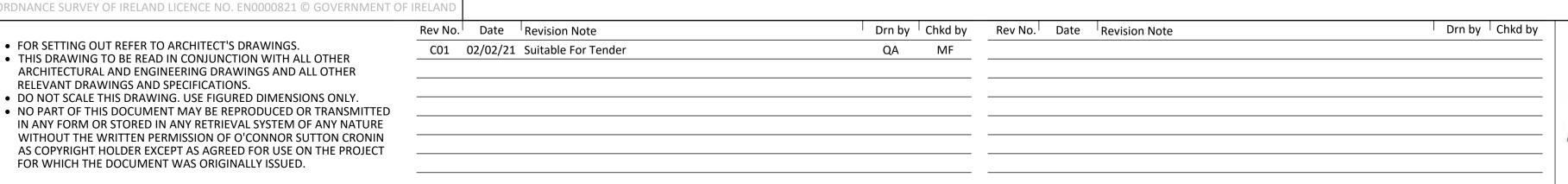


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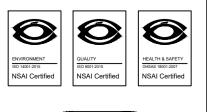
REFER TO DWG. NO. K424-OCSC-Z1-XX-DR-C-0205 FOR IMAGES OF EXISTING DEFECTS AT ELEVATIONS

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Client: Kildare County Council Project: Brooke, Old River, Stephenson Bridge Remediation Works Brooke Bridge **Existing Defects** at Elevations

Code |Originator| Zone | Level | Type | Role |Number | Status | Revision K424 · OCSC · XX · XX · DR · C · 0204 A3 C01 Date: 02/02/21Scale: Shown@ A1 Drn by:QA Chkd by:MF Aprvd by:BO'R

Brooke Bridge Photos Existing Defects at Elevations



Image 30 Legend Annotation (E1)



Image 36 Legend Annotation (J4)



Image 42 Legend Annotation (M4)



Legend Annotation (N4)



Image 31 Legend Annotation (E2)



Image 37 Legend Annotation (L1)



Image 43 Legend Annotation (M5)

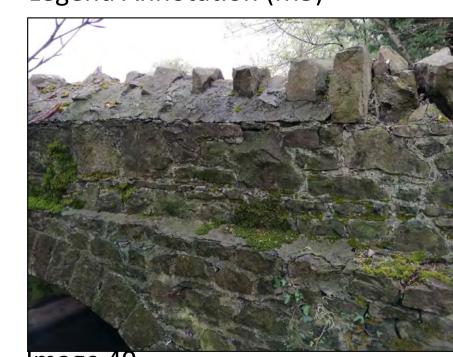


Image 49 Legend Annotation (01)



Image 32 Legend Annotation (E3)



Image 38 Legend Annotation (L2)



Image 44 Legend Annotation (M6)



Image 50 Legend Annotation (O2)



Image 33 Legend Annotation (J1)



Legend Annotation (M1)



Image 45 Legend Annotation (N1)



Image 34 Legend Annotation (J2)



Legend Annotation (M2)



Image 46 Legend Annotation (N2)



Image 35 Legend Annotation (J3)



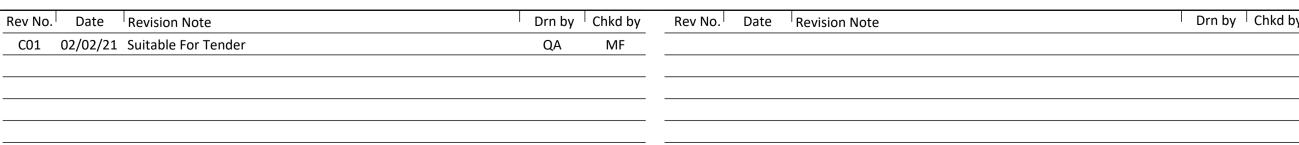
Legend Annotation (M3)



Legend Annotation (N3)

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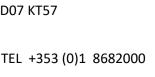












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Client: Kildare County Council
Project: Brooke, Old River, Stephenson Bridge

Remediation Works Brooke Bridge Photos of Existing Defects

at Elevations

Code |Originator| Zone | Level | Type | Role |Number | Status | Revision K424- OCSC - XX - XX - DR - C - 0205 A3 C01 Date: 02/02/21Scale: N/A @ A1 Drn by:QA Chkd by:MF Aprvd by:BO'R

REPAIR DETAILS VEGETATION REMOVAL MASONRY REPOINTING MASONRY REPAIR: MISSING STONE REPLACEMENT 4a. MASONRY PARAPET WALL REPAIR, TAKE DOWN PARAPET AND REBUILD USING EXISTING MATERIAL 4b. MASONRY PARAPET WALL REPAIR, REBUILD PARAPET USING MATERIAL SIMILAR TO EXISTING 15)-MASONRY STRUCTURE REPAIR CONCRETE RUBBING STRIP INSTALLATION 3.60m→ INTEGRATED STAINLESS STEEL DRAIN IN CONCRETE **RUBBING STRIP** 0.50m 0.70m 8. EXISTING SURFACE TIE IN TO CONCRETE RUBBING STRIP (LONGITUDINAL JOINT) 9. EXISTING SURFACE TO NEW SURFACE TIE IN (TRANSVERSE JOINTS) C2 1 10. REPLACEMENT OF DAMAGED ROAD SURFACE 11. RAISE ROAD LEVEL BY A MINIMUM OF 100mm OVER ARCH BARREL USING TYPICAL ROAD BUILDUP DETAIL. 12. SCOUR PROTECTION - CONCRETE CANVAS INSTALLATION 2 D1 13. STITCH REPAIR TO CRACK IN ARCH BARREL **NOTE:** REFER TO DRAWINGS K431-OCSC-XX-XX-0300-0312 0.30m _0.50m FOR ABOVE REPAIR DETAILS 1 (C1) OTHER REPAIRS 14. VEGETATION REMOVAL & DISPOSAL FROM OVERGROWN EMBANKMENTS. VEGETATION TO BE REMOVED ALONG A 10m LENGTH EXTENDING FROM THE ELEVATION FACES 15. REGRADE SOFT VERGE TO TIE IN TO CONCRETE RUBBING STRIP 16. INSTALL MINIMUM 5m FENCING AT END OF PARAPET 0.60m TO CLOSE GAP WITH HEDGE. FENCING, TIMBER POST AND TENSION MESH STUD FENCE TO CC-SCD-00321. TIMBER POSTS TO BE TREATED WITH DARK STAIN OR CREOSOTE 17. REMOVAL OF TREES/ROOTS AND DISPOSE - IF ----0.50m TREE/ROOT IS EMBEDDED IN MASONRY IT MAY BE NECESSARY TO TAKE DOWN MASONRY AROUND TREE/ROOT, REMOVE TREE/ROOT AND THEN REFER TO DETAIL 4 FOR MASONRY REPAIR - STONE REPLACEMENT 18. REBEDDING OF COPPING STONES AFTER VEGETATION REMOVAL, REFER TO DETAIL 4 FOR STONE REPLACEMENT AND DETAIL 5 FOR MASONRY PARAPET WALL REPAIR 19. BREAK OUT PLASTER COPPING REPAIR AND REPLACE WITH MASONRY COPPING THAT MATCHES THE REST. REFER TO DETAIL 5 FOR PARAPET WALL REPAIR 20. REMOVE AND DISPOSE OF GATE BLOCKING SPAN 21. DEBRIS REMOVAL FROM RIVER -4.20m-22. ERECT TIMBER POST AND WIRE MESH FENCING TO BLOCK LIVESTOCK. TIMBER POST AND TENSION MESH STUD FENCE TO CC-SCD-00321. TIMBER POSTS TO BE TREATED WITH DARK STAIN OR CREOSOTE 23. REMOVE IRONWORK AND WIRE LODGED BETWEEN **MASONRY** 24. RAISE MASONRY PARAPET BY 200mm. REFER TO DETAIL 5 FOR REBUILDING OF PARAPET WALL DETAIL 3 D4 Brooke Bridge THE ABOVE SYMBOL/NUMBER DENOTES REPAIR 4b E2 DETAIL TO BE INCORPORATED. THE EXTENT OF THE Plan DETAIL SHALL BE AS DEFINED IN DWG. K424-OCSC-Z1-XX-DR-C-0305/6 AND VOLUME C OF SCALE: 1:100 @ A1 THE ACCOMPANYING TENDER DOCUMENTS. ORDNANCE SURVEY OF IRELAND LICENCE NO. EN0000821 © GOVERNMENT OF IRELAND Client: Kildare County Council Drn by Chkd by Rev No. Date Revision Note Drn by [|] Chkd by Rev No. Date Revision Note Head Office, Project: Brooke, Old River, Stephenson Bridge 9 Prussia Street, • FOR SETTING OUT REFER TO ARCHITECT'S DRAWINGS. QA C01 02/02/21 Suitable For Tender • THIS DRAWING TO BE READ IN CONJUNCTION WITH ALL OTHER

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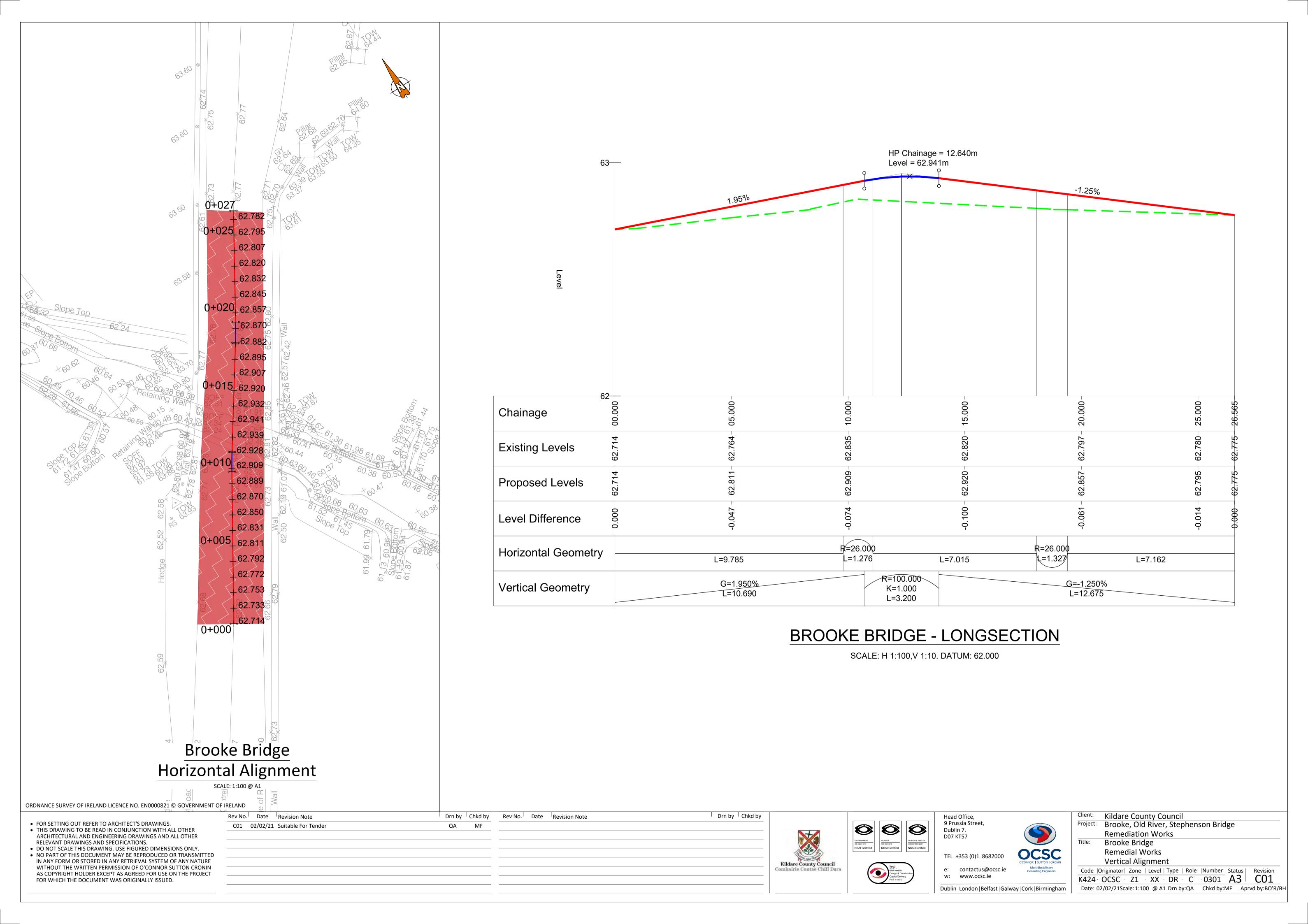
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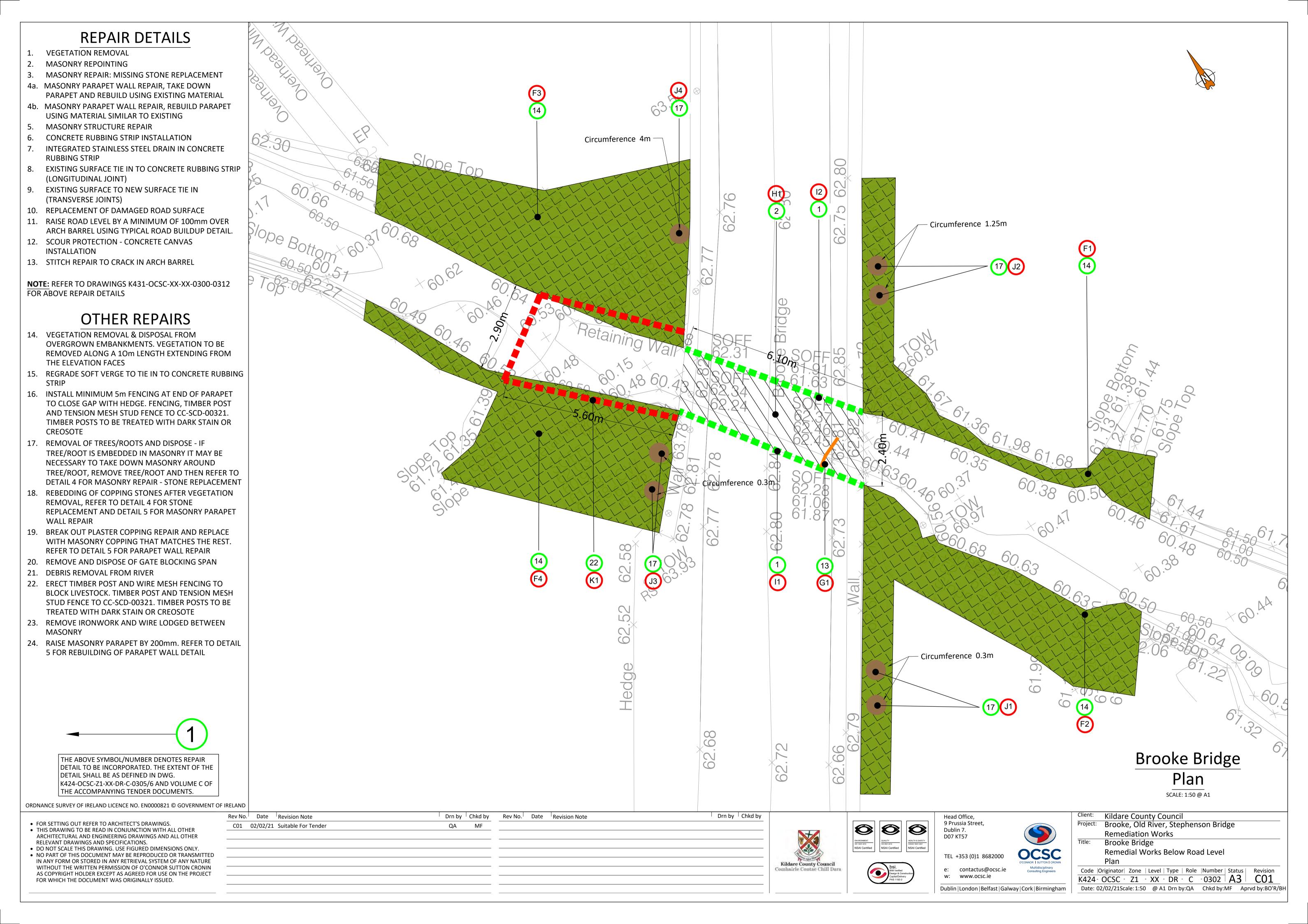
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Remediation Works

Brooke Bridge Remedial Works at Road Level

Code |Originator| Zone | Level | Type | Role |Number | Status | Revision K424- OCSC - Z1 - XX - DR - C -0300 A3 C01 Date: 02/02/21Scale: 1:100 @ A1 Drn by:QA Chkd by:MF Aprvd by:BO'R/BH Dublin | London | Belfast | Galway | Cork | Birmingham





REPAIR DETAILS

- 1. VEGETATION REMOVAL
- MASONRY REPOINTING
- MASONRY REPAIR: MISSING STONE REPLACEMENT
- 4a. MASONRY PARAPET WALL REPAIR, TAKE DOWN PARAPET AND REBUILD USING EXISTING MATERIAL
- 4b. MASONRY PARAPET WALL REPAIR, REBUILD PARAPET USING MATERIAL SIMILAR TO EXISTING
- 5. MASONRY STRUCTURE REPAIR
- CONCRETE RUBBING STRIP INSTALLATION
- INTEGRATED STAINLESS STEEL DRAIN IN CONCRETE **RUBBING STRIP**
- 8. EXISTING SURFACE TIE IN TO CONCRETE RUBBING STRIP (LONGITUDINAL JOINT)
- 9. EXISTING SURFACE TO NEW SURFACE TIE IN (TRANSVERSE JOINTS)
- 10. REPLACEMENT OF DAMAGED ROAD SURFACE
- 11. RAISE ROAD LEVEL BY A MINIMUM OF 100mm OVER ARCH BARREL USING TYPICAL ROAD BUILDUP DETAIL.
- 12. SCOUR PROTECTION CONCRETE CANVAS INSTALLATION
- 13. STITCH REPAIR TO CRACK IN ARCH BARREL

NOTE: REFER TO DRAWINGS K431-OCSC-XX-XX-0300-0312 FOR ABOVE REPAIR DETAILS

OTHER REPAIRS

- 14. VEGETATION REMOVAL & DISPOSAL FROM OVERGROWN EMBANKMENTS. VEGETATION TO BE REMOVED ALONG A 10m LENGTH EXTENDING FROM THE ELEVATION FACES
- 15. REGRADE SOFT VERGE TO TIE IN TO CONCRETE RUBBING **STRIP**
- 16. INSTALL MINIMUM 5m FENCING AT END OF PARAPET TO CLOSE GAP WITH HEDGE. FENCING, TIMBER POST AND TENSION MESH STUD FENCE TO CC-SCD-00321. TIMBER POSTS TO BE TREATED WITH DARK STAIN OR CREOSOTE
- 17. REMOVAL OF TREES/ROOTS AND DISPOSE IF TREE/ROOT IS EMBEDDED IN MASONRY IT MAY BE NECESSARY TO TAKE DOWN MASONRY AROUND TREE/ROOT, REMOVE TREE/ROOT AND THEN REFER TO DETAIL 4 FOR MASONRY REPAIR - STONE REPLACEMENT
- 18. REBEDDING OF COPPING STONES AFTER VEGETATION REMOVAL, REFER TO DETAIL 4 FOR STONE REPLACEMENT AND DETAIL 5 FOR MASONRY PARAPET WALL REPAIR
- 19. BREAK OUT PLASTER COPPING REPAIR AND REPLACE WITH MASONRY COPPING THAT MATCHES THE REST. REFER TO DETAIL 5 FOR PARAPET WALL REPAIR
- 20. REMOVE AND DISPOSE OF GATE BLOCKING SPAN
- 21. DEBRIS REMOVAL FROM RIVER
- 22. ERECT TIMBER POST AND WIRE MESH FENCING TO BLOCK LIVESTOCK. TIMBER POST AND TENSION MESH STUD FENCE TO CC-SCD-00321. TIMBER POSTS TO BE TREATED WITH DARK STAIN OR CREOSOTE
- 23. REMOVE IRONWORK AND WIRE LODGED BETWEEN **MASONRY**
- 24. RAISE MASONRY PARAPET BY 200mm. REFER TO DETAIL 5 FOR REBUILDING OF PARAPET WALL DETAIL



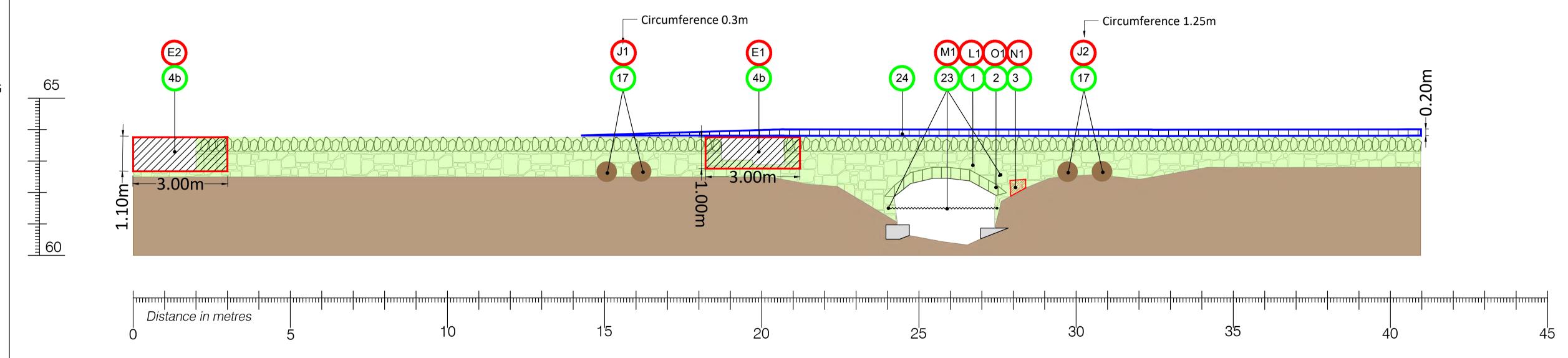
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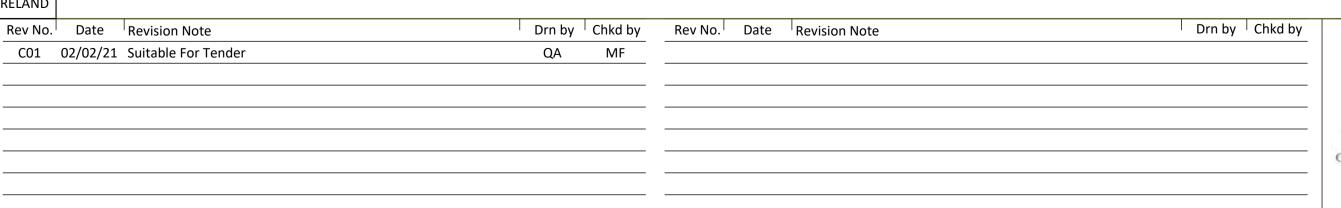
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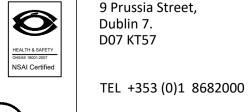
Brooke Bridge Upstream Elevation SCALE: 1:75 @ A1











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Client: Kildare County Council Project: Brooke, Old River, Stephenson Bridge Remediation Works Brooke Bridge Remedial Works at Elevation

Upstream Elevation Code | Originator | Zone | Level | Type | Role | Number | Status | Revision K424 · OCSC · Z1 · XX · DR · C · 0303 A3 C01

Date: 02/02/21Scale: 1:75 @ A1 Drn by:QA Chkd by:MF Aprvd by:BO'R/BH

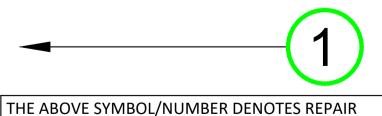
REPAIR DETAILS

- 1. VEGETATION REMOVAL
- MASONRY REPOINTING
- MASONRY REPAIR: MISSING STONE REPLACEMENT
- 4a. MASONRY PARAPET WALL REPAIR, TAKE DOWN PARAPET AND REBUILD USING EXISTING MATERIAL
- 4b. MASONRY PARAPET WALL REPAIR, REBUILD PARAPET USING MATERIAL SIMILAR TO EXISTING
- 5. MASONRY STRUCTURE REPAIR
- CONCRETE RUBBING STRIP INSTALLATION
- 7. INTEGRATED STAINLESS STEEL DRAIN IN CONCRETE **RUBBING STRIP**
- 8. EXISTING SURFACE TIE IN TO CONCRETE RUBBING STRIP (LONGITUDINAL JOINT)
- 9. EXISTING SURFACE TO NEW SURFACE TIE IN (TRANSVERSE JOINTS)
- 10. REPLACEMENT OF DAMAGED ROAD SURFACE
- 11. RAISE ROAD LEVEL BY A MINIMUM OF 100mm OVER ARCH BARREL USING TYPICAL ROAD BUILDUP DETAIL.
- 12. SCOUR PROTECTION CONCRETE CANVAS INSTALLATION
- 13. STITCH REPAIR TO CRACK IN ARCH BARREL

NOTE: REFER TO DRAWINGS K431-OCSC-XX-XX-0300-0312 FOR ABOVE REPAIR DETAILS

OTHER REPAIRS

- 14. VEGETATION REMOVAL & DISPOSAL FROM OVERGROWN EMBANKMENTS. VEGETATION TO BE REMOVED ALONG A 10m LENGTH EXTENDING FROM THE ELEVATION FACES
- 15. REGRADE SOFT VERGE TO TIE IN TO CONCRETE RUBBING **STRIP**
- 16. INSTALL MINIMUM 5m FENCING AT END OF PARAPET TO CLOSE GAP WITH HEDGE. FENCING, TIMBER POST AND TENSION MESH STUD FENCE TO CC-SCD-00321. TIMBER POSTS TO BE TREATED WITH DARK STAIN OR CREOSOTE
- 17. REMOVAL OF TREES/ROOTS AND DISPOSE IF TREE/ROOT IS EMBEDDED IN MASONRY IT MAY BE NECESSARY TO TAKE DOWN MASONRY AROUND TREE/ROOT, REMOVE TREE/ROOT AND THEN REFER TO DETAIL 4 FOR MASONRY REPAIR - STONE REPLACEMENT
- 18. REBEDDING OF COPPING STONES AFTER VEGETATION REMOVAL, REFER TO DETAIL 4 FOR STONE REPLACEMENT AND DETAIL 5 FOR MASONRY PARAPET WALL REPAIR
- 19. BREAK OUT PLASTER COPPING REPAIR AND REPLACE WITH MASONRY COPPING THAT MATCHES THE REST. REFER TO DETAIL 5 FOR PARAPET WALL REPAIR
- 20. REMOVE AND DISPOSE OF GATE BLOCKING SPAN
- 21. DEBRIS REMOVAL FROM RIVER
- 22. ERECT TIMBER POST AND WIRE MESH FENCING TO BLOCK LIVESTOCK. TIMBER POST AND TENSION MESH STUD FENCE TO CC-SCD-00321. TIMBER POSTS TO BE TREATED WITH DARK STAIN OR CREOSOTE
- 23. REMOVE IRONWORK AND WIRE LODGED BETWEEN **MASONRY**
- 24. RAISE MASONRY PARAPET BY 200mm. REFER TO DETAIL 5 FOR REBUILDING OF PARAPET WALL DETAIL



DETAIL TO BE INCORPORATED. THE EXTENT OF THE DETAIL SHALL BE AS DEFINED IN DWG. K424-OCSC-Z1-XX-DR-C-0305/6 AND VOLUME C OF

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THE ACCOMPANYING TENDER DOCUMENTS.

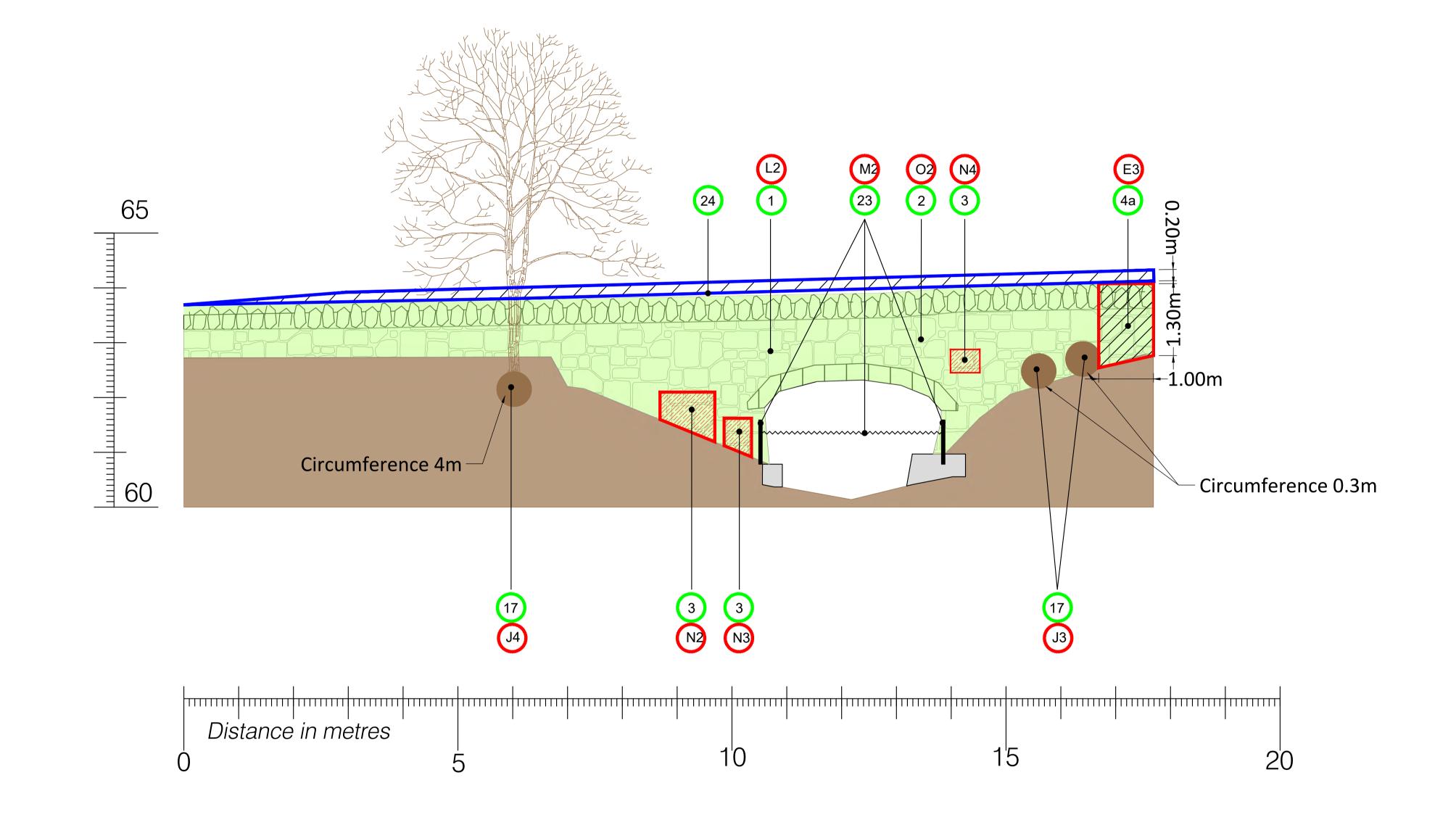
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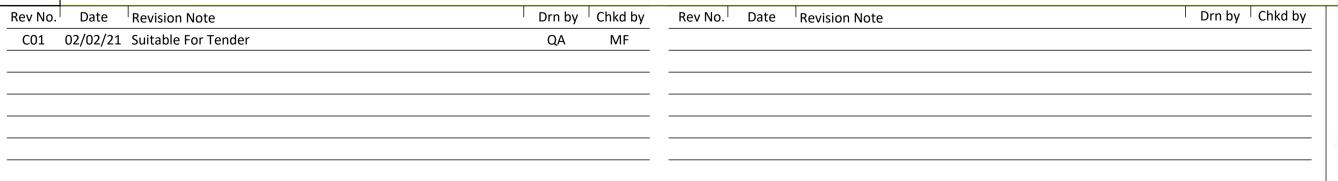
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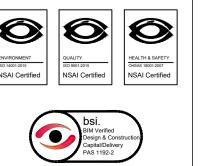
Brooke Bridge Downstream Elevation

SCALE: 1:50 @ A1











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Client: Kildare County Council Project: Brooke, Old River, Stephenson Bridge Remediation Works

Brooke Bridge Remedial Works at Elevation Downstream Elevation

Code |Originator| Zone | Level | Type | Role | Number | Status | Revision K424 · OCSC · Z1 · XX · DR · C · 0304 A3 C01 Date: 02/02/21Scale: 1:50 @ A1 Drn by:QA Chkd by:MF Aprvd by:BO'R/BH

Schedule of Works For Brooke Bridge						
Existing Defect Taken From 0200 Series Drawings	Remedial Action Taken From 0400 Series Drawings	Quantity				
A Bridge Road Surface Damaged	Detail 11 raise road level by a minimum 100mm over arch barrel using typical road buildup detail	100m2				
31 Upstream Soft Verge Allowing Seepage into Arch Barrel	Detail 6 replace grass verge with concrete rubbing strip	10m2				
31 Upstream Soft Verge Allowing Seepage into Arch Barrel	Detail 6 kerb for concrete rubbing strip	18m				
32 Downstream Soft Verge Allowing Seepage into Arch Barrel	Detail 6 repalce grass verge with concrete rubbing strip	10m2				
2 Downstream Soft Verge Allowing Seepage into Arch Barrel	Detail 6 kerb for concrete rubbing strip	18m				
1 Vegetation Growth on Upstream Roadside Parapet Wall	Detail 1 vegetation removal	41m2				
2 Vegetation Growth on Downstream Roadside Parapet Wall	Detail 1 vegetation removal	18m2				
1 Loss of Mortar on Upstream Roadside Parapet	Detail 2 masonry repointing	41m2				
2 Loss of Mortar on Downstream Roadside Parapet	Detail 2 masonry repointing	18m2				
3 Missing Masonry on Upstream Roadside Parapet	Detail 3 missing masonry replacement	1m3				
94 Missing Masonry on Upstream Roadside Parapet	Detail 3 missing masonry replacement	1m3				
1 Upstream Parapet Wall Damaged	Detail 4b masonry parapet wall repair - rebuild parapet using material similar to exiting	1m3				
2 Upstream Parapet Wall Damaged	Detail 4b masonry parapet wall repair - rebuild parapet using material similar to exiting	2m3				
3 Downstream Parapet Wall Damaged	Detail 4a masonry parapet wall repair - take down existing parapet wall (demolition)	1m3				
3 Downstream Parapet Wall Damaged	Detail 4a masonry parapet wall repair - rebuild parapet using existing material	1m3				
1 Overgrown Embankments	Detail 14 cut back overgrown vegetation and dispose	20m2				
1 Embankment Debris	dispose of debris on embankment. U2 material	1m3				
2 Overgrown Embankments	Detail 14 cut back overgrown vegetation and dispose	30m2				
2 Embankment Debris	dispose of debris on embankment. U2 material	1m3				
3 Overgrown Embankments	Detail 14 cut back overgrown vegetation and dispose	30m2				
3 Embankment Debris	dispose of debris on embankment. U2 material	1m3				
4 Overgrown Embankments	Detail 14 cut back overgrown vegetation and dispose	20m2				
4 Embankment Debris	dispose of debris on embankment. U2 material	1m3				
Crack in Abutment and Arch Barrel	Detail 13 stitch repair to carck in abutment and arch	3m				
Mortar Loss in Arch Barrel	Detail 2 masonry repointing	15m2				
1 Vegetation Growth on Abutment	Detail 1 vegetation removal	7m2				
2 Vegetation Growth on Abutment	Detail 1 vegetation removal	7m2				
1 Trees Causing Issues	Detail 17 removal of tree and disposal. Circumference 0.3m	2Nr.				
2 Trees Causing Issues	Detail 17 removal of tree and disposal. Circumference 1.25m	2Nr.				
3 Trees Causing Issues	Detail 17 removal of tree and disposal. Circumference 0.3m	2Nr.				
4 Trees Causing Issues	Detail 17 removal of tree and disposal. Circumference 4m	1Nr.				
Fence off Bridge From Cattle	Detail 22 erect timber post and wire mesh fencing to block livestock	15m				
1 Vegetation Growth Throughout Upstream Elevation	Detail 1 vegetation removal from spandrels, wing walls and riverside parapet face	50m2				
2 Vegetation Growth Throughout Downstream Elevation	Detail 1 vegetation removal from spandrels, wing walls and riverside parapet face	30m2				

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Remediation Works

Title: Brooke Bridge
Remedial Works

Client: Kildare County Council

Project: Brooke, Old River, Stephenson Bridge

Schedule of Works (Sheet 1 of 2)

Code |Originator| Zone | Level | Type | Role | Number | Status | Revision |
K424 - OCSC - Z1 - XX - DR - C - 0305 | A3 | C01 Date: 02/02/21Scale: N/A @ A1 Drn by:QA Chkd by:MF Aprvd by:BO'R/BH

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Schedule of Works For Brooke Bridge						
Existing Defect Taken From 0200 Series Drawings	Remedial Action Taken From 0400 Series Drawings	Quantity				
M1 Ironwork and Wire Embedded in Masonry	Detail 23 remove ironwork embedded in masonry and dispose	1 item				
M2 Ironwork and Wire Embedded in Masonry	Detail 23 remove ironwork embedded in masonry and dispose	1 item				
13 Ironwork and Wire Embedded in Masonry	Detail 23 remove ironwork embedded in masonry and dispose	1 item				
14 Ironwork and Wire Embedded in Masonry	Detail 23 remove ironwork embedded in masonry and dispose	1 item				
15 Ironwork and Wire Embedded in Masonry	Detail 23 remove ironwork embedded in masonry and dispose	1 item				
16 Ironwork and Wire Embedded in Masonry	Detail 23 remove ironwork embedded in masonry and dispose	1 item				
1 Missing Masonry	Detail 3 missing masonry replacement	1m3				
12 Missing Masonry	Detail 3 missing masonry replacement	1m3				
3 Missing Masonry	Detail 3 missing masonry replacement	1m3				
4 Missing Masonry	Detail 3 missing masonry replacement	1m3				
1 Loss of Mortar/Loose Masonry Throughout Upstream Elevation	Detail 2 masonry repointing on spandrels, wing walls and riverside parapet face	50m2				
2 Loss of Mortar/Loose Masonry Throughout Downstream Elevation	Detail 2 masonry repointing on spandrels, wing walls and riverside parapet face	30m2				
Additional Items						
	Detail 7 install 200mm x 200mm stainless steel drain integrated into concrete rubbing stripo for drainage	2m				
	Detail 15 regrade north west soft verge to tie into new concrete rubbing strip	1m3				
	Grass seeding north west soft verge	2m2				
	Detail 15 regrade south west soft verge to tie into new concrete rubbing strip	5m3				
	Grass seeding south west soft verge	17m2				
	Detail 15 regrade south east soft verge to tie into new concrete rubbing strip	1m3				
	Grass seeding south east soft verge	4m2				
	Detail 16 installation of 5m of fencing at the southern end of downstream parapet	5m				
	Detail 24 raise upstream parapet by 200mm	3m3				
0	Detail 24 raise downstream parapet by 200mm	2m3				

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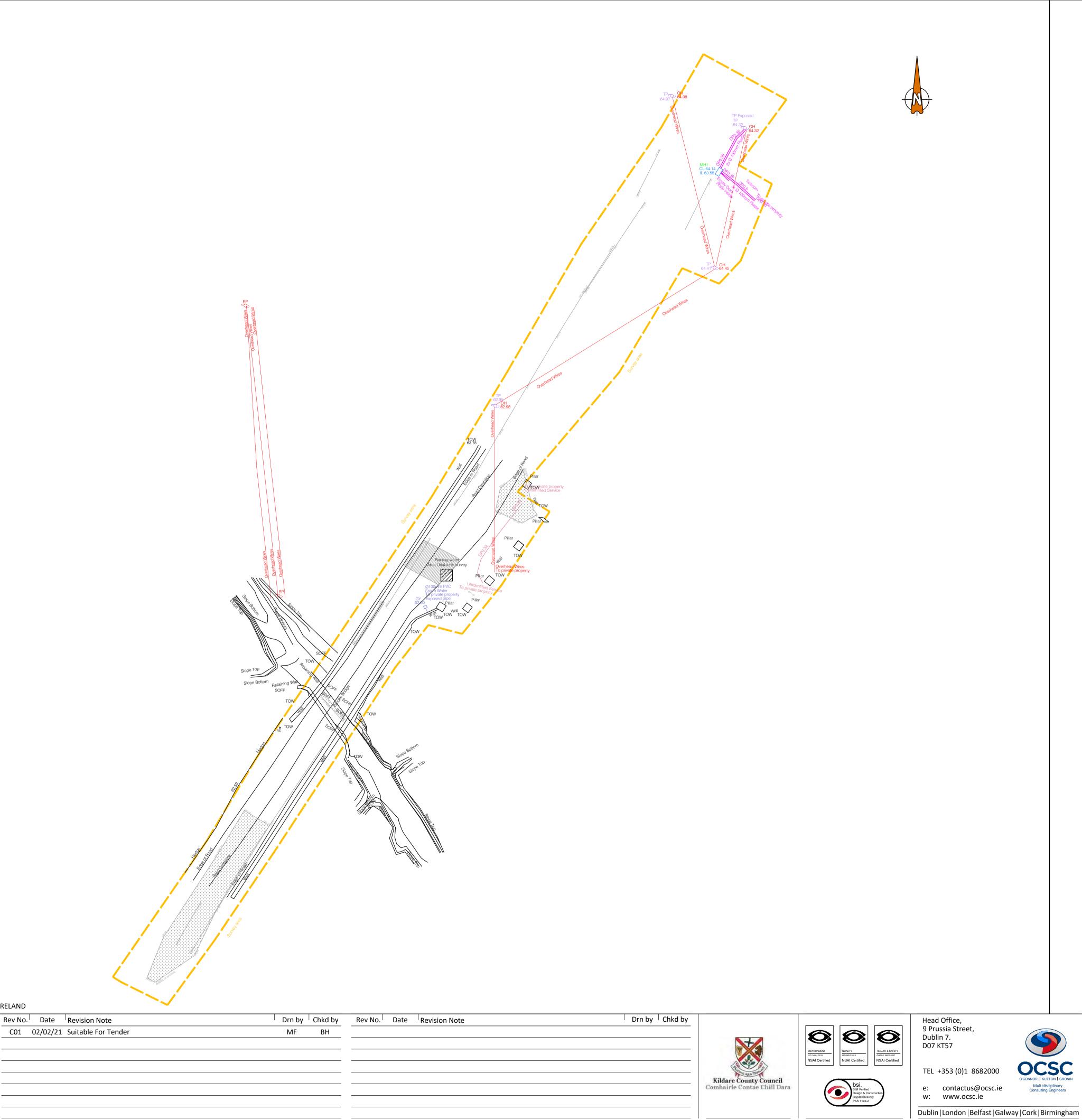
Client: Kildare County Council
Project: Brooke, Old River, Stephenson Bridge Remediation Works

Title: Brooke Bridge

Remedial Works Schedule of Works (Sheet 2 of 2)

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Date: 02/02/21Scale: N/A @ A1 Drn by:QA Chkd by:MF Aprvd by:BO'R/BH



Brooke Bridge

SCALE: 1:250 @ A1

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LEGEND Underground Utilities

Water Main

— Fire Water

Process Water

Storm Water Drainage

Foul Sewer

Combined Sewer

Manhole Chamber

Telecom

NTL/Virgin

ENET/OCEAN

BT/ESAT

Colt

Bend / Weld

Oxygen Pipe

Gas

Hydrogen Pipe

Oil Pipe

--- Magnet

Adshel

Traffic

Heating Pipe

Electrical

Public Lighting

GPR Anomaly

Unknown Cable

Unknown Duct

Nitrogen Pipe

Unidentified Service

Photo point

→ WELD Weld Point

DP0.55 Depth from ground level to Top of Pipe/GPR Target (m)

Manhole / Inspection Cover Unable to Open

Reinforced Concrete (GPR)

Possible Slab (GPR)

Other observations - see description (GPR)

S1 \(\sum_{N:1000.000}^{E:1000.000} \) Survey Station

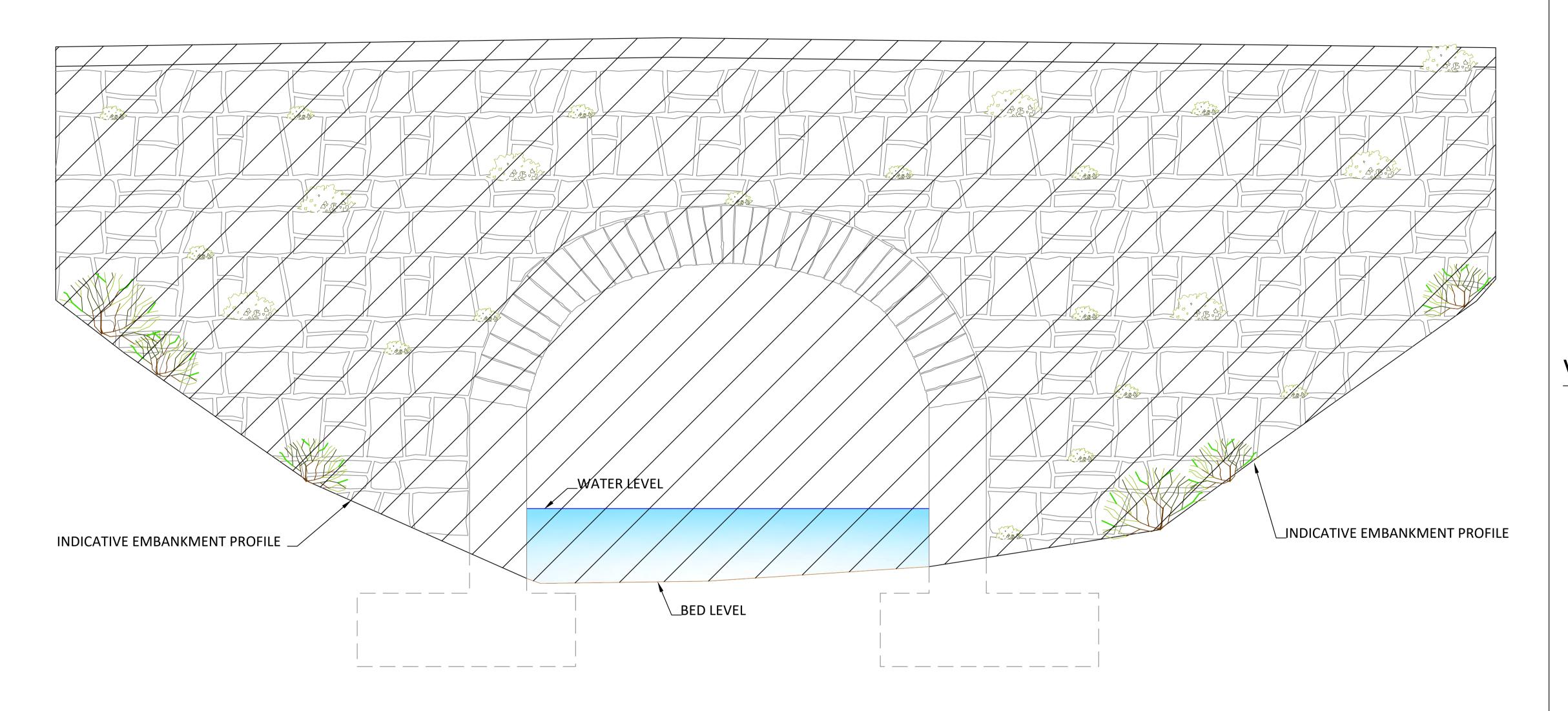
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Project: Brooke, Old River and Stephenstown

Bridge Remediation Brooke Bridge **GPR Survey**

Code |Originator| Zone | Level | Type | Role |Number | Status | Revision K424 · OCSC · Z1 · XX · DR · C · 0400 A3 C01 Date: 02/02/21Scale:1:250 @ A1 Drn by:MF Chkd by:BH Aprvd by:BO'R

DETAIL 1: VEGETATION REMOVAL

Scale: NTS



TYPICAL BRIDGE ELEVATION

GENERAL NOTES:

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- 4. ALL STRUCTURES SHALL BE CLEANED USING A HIGH PRESSURE WATER JET TO REMOVE ALL DIRT; SURFACE DEPOSITS AND VEGETATION FROM THE SURFACE OF THE STRUCTURE.
- 5. ALL REPAIR WORKS SHALL BE CARRIED OUT IN ACCORDANCE WITH THE RELEVANT DRAWING AND SPECIFICATION AND TO THE SATISFACTION OF THE EMPLOYERS REPRESENTATIVE
- 6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE STABILITY OF ALL STRUCTURES IN THE TEMPORARY CASE DURING THE CONSTRUCTION.
- 7. WHERE CRACKING / DISTORTION OF A STRUCTURE HAS BEEN IDENTIFIED, DETAILED RECORDS SHALL BE MADE OF SUCH DEFECTS BEFORE AND AFTER REMEDIATION, INCLUDING DRAWINGS AND MEASUREMENTS AND PHOTOGRAPHS. THIS IS TO INSURE THAT THE DEFECT IS NOT MASKED FROM FUTURE INSPECTIONS AND TO FACILITATE LONG TERM MONITORING.

VEGETATION REMOVAL NOTES:

- 1. REMOVE VEGETATION FROM AREA HIGHLIGHTED BY TYPICAL ELEVATION. ANY VEGETATION PRESENT AT SOFFIT OF ARCH BARREL AND ABUTMENTS ALSO TO BE REMOVED. VEGETATION TO BE REMOVED TO THE SATISFACTION OF THE EMPLOYER'S REPRESENTATIVE;
- 2. WHERE ROOTS HAVE EMBEDDED THEMSELVES DEEP WITHIN THE JOINTS BETWEEN THE MASONRY UNITS THE MASONRY WILL NEED TO BE REMOVED AROUND THE ROOT, THE ROOT CAN THEN BE REMOVED AND THE MASONRY RE-BEDDED. REFER TO DETAIL MISSING MASONRY REPLACEMENT FOR RE-BEDDING OF MASONRY;
- 3. AS PART OF SITE CLEARANCE CONTRACTOR TO UNDERTAKE MASONRY WASHING USING LOW PRESSURE HOT WASHING WITH TURBO NOZZLE TO EXISTING WALLS OF THE STRUCTURE, WITHIN THE EXTENTS OF THE WORKS, TO PARAPET WALLS, SPANDREL WALLS, WING WALLS, ABUTMENTS AND ARCH BARRELS/SOFFIT;
- 4. RAKE OUT ANY LOOSE MORTAR FROM MASONRY JOINTS WHERE APPLICABLE;
- 5. IDENTIFY JOINTS WHERE REPOINTING IS REQUIRED AND REPOINT AS PER DETAIL MASONRY REPOINTING;

NOTE: TYPICAL MASONRY ARCH SHOWN; FOR CONCRETE ELEMENTS OF BRIDGE REMOVE VEGETATION IN A SIMILAR FASHION AS OUTLINED ABOVE.

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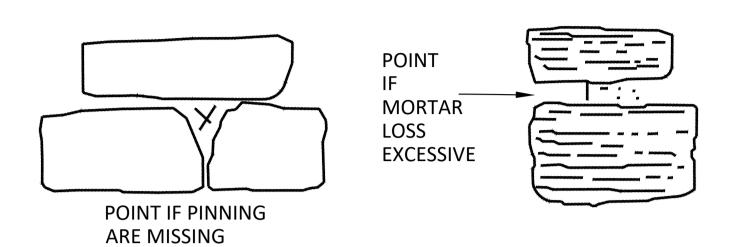
Client: Kildare County Council Project: Brooke, Old River and Stephenstown **Bridge Remediation**

Remedial Works Standard Detail Sheet 1 of 13

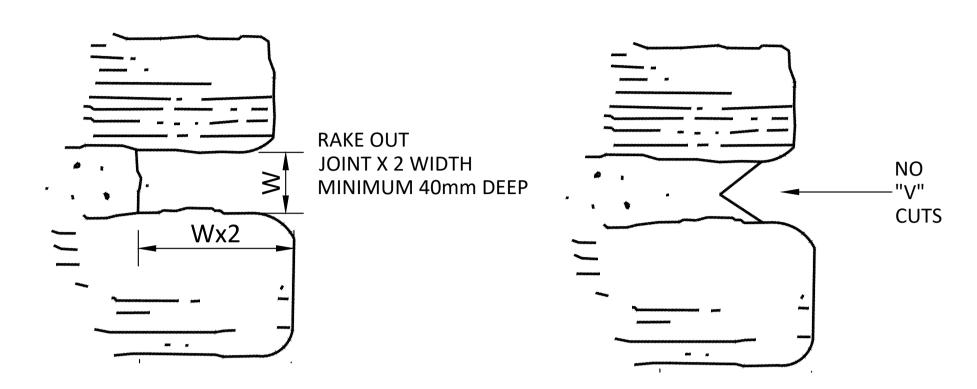
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DETAIL 2: MASONRY REPOINTING

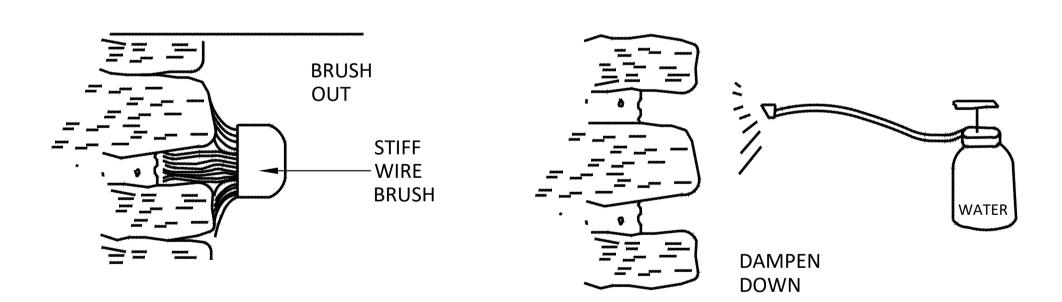
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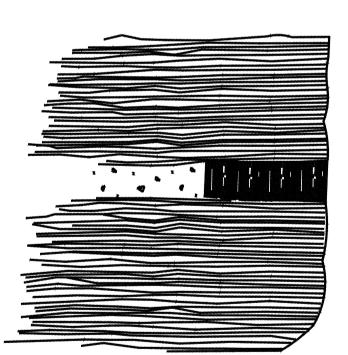
1: WHEN TO REPOINT



2: RAKE OUT EXISTING JOINTS



3: BRUSH AND DAMPEN



4: REPOINT JOINT FLUSH

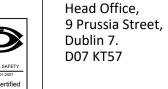
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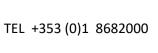
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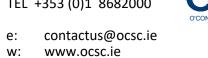












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- 6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE STABILITY OF ALL STRUCTURES IN THE TEMPORARY CASE DURING THE CONSTRUCTION.
- 7. WHERE CRACKING / DISTORTION OF A STRUCTURE HAS BEEN IDENTIFIED, DETAILED RECORDS SHALL BE MADE OF SUCH DEFECTS BEFORE AND AFTER REMEDIATION, INCLUDING DRAWINGS AND MEASUREMENTS AND PHOTOGRAPHS. THIS IS TO INSURE THAT THE DEFECT IS NOT MASKED FROM FUTURE INSPECTIONS AND TO FACILITATE LONG TERM MONITORING.

MASONRY REPOINTING **NOTES:**

- 1. REPOINTING REQUIRED WHERE THE CONDITIONS PRESENTED IN (1) ARE ENCOUNTERED AND WHERE THE EMPLOYER'S REPRESENTATIVE DEEMS IT NECESSARY FOR REPOINTING TO BE CARRIED OUT. REFER TO BILL OF QUANTITIES FOR EXPECTED AREA OF STRUCTURE TO BE REPOINTED.
- 2. RAKE OUT EXISTING JOINTS TO REMOVE LOOSE MATERIAL. JOINTS SHALL BE RAKED OUT TO A DEPTH OF TWICE THE JOINT WIDTH AS SHOWN, USING A PLUGGING CHISEL AND HAMMER. JOINTS SHALL BE RAKED OUT SQUARE WITH NO "V" CUTS.
- 3. JOINTS SHALL BE BRUSHED OUT USING A STIFF WIRE BRUSH. THE SURROUNDING MASONRY SHALL BE SUITABLY DAMPENED, THE CONTRACTOR SHALL ENSURE NO WATER FLOW, WEEPING, OR POOLED WATER IS PRESENT PRIOR TO REPOINTING
- 4. JOINTS SHALL BE REPOINTED FLUSH WITH THE **EXISTING MASONRY**
- 5. REPOINTING SHALL BE CARRIED OUT USING AN APPROPRIATE LIME OR CEMENTITIONS MORTAR; TO MATCH THE EXISTING. TWO POSSIBLE STANDARD GAUGED MORTARS **APPLICABLE ARE:**
 - a) MORTAR CLASS 6 TO EN998-2, 1 PART CEMENT; $\frac{1}{2}$ PART LIME; $4\frac{1}{2}$ PARTS SAND BY **VOLUME FOR A MORTAR STRENGTH RANGE** OF 4.5n/mm² TO 6.5N/mm²
 - b) MORTAR CLASS 2 TO EN 998-2, 1 PART CEMENT; 2 PARTS LIME, 8 PARTS SAND BY VOLUME FOR A MORTAR STRENGTH RANGE OF 1.0N/mm² TO 1.5N/mm².
 - THE PROPOSED MORTAR SHALL BE TO THE SATISFACTION OF THE EMPLOYERS REPRESENTATIVE.
- 6. REPOINTING WITH LIME MORTAR SHALL NOT BE CARRIED OUT IF TEMPERATURES ARE EXPECTED TO FALL BELOW 5°C WITHIN 1 WEEK OF APPLICATION.

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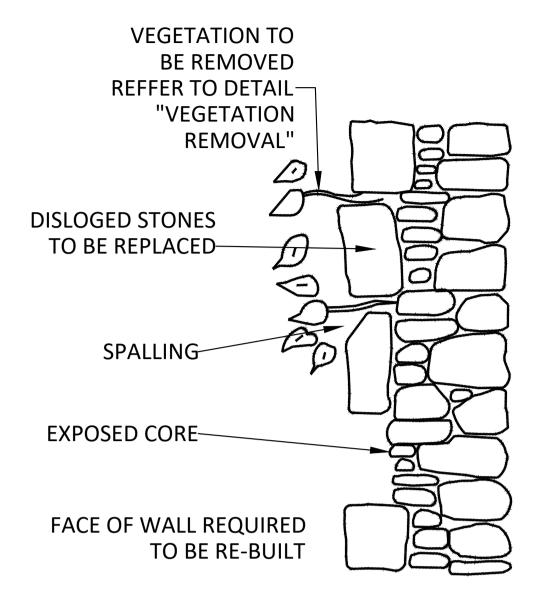
Project: Brooke, Old River, Stephenstown Bridge

Remediation Works Remedial Works Standard Detail

Sheet 2 of 13 Code |Originator| Zone | Level | Type | Role |Number | Status | Revision K431 - OCSC - XX - XX - DR - C - 0301 A3 C01 Date: 03/04/20Scale: NTS @ A1 Drn by:QA Chkd by:MF Aprvd by:BO'R/BH

DETAIL 3: MASONRY REPAIR -MISSING MASONRY REPLACEMENT

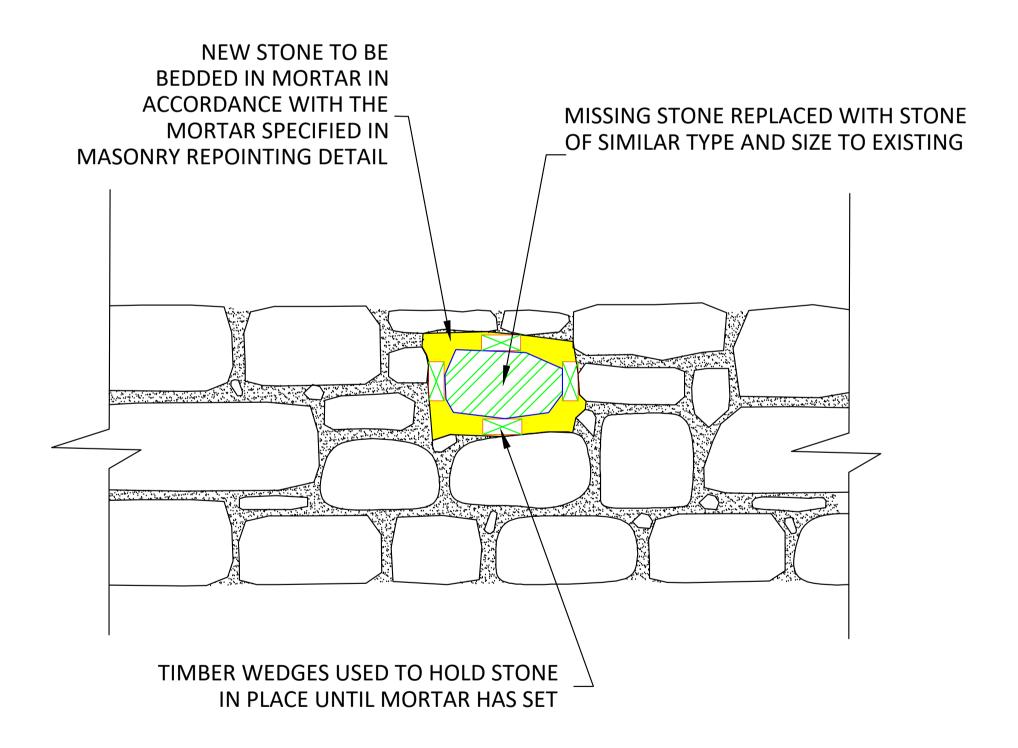
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(1): REPAIR REQUIRED

TYPICAL CROSS SECTION

SCALE: NTS



TYPICAL ELEVATION ON WALL/ARCH

NTS

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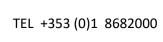


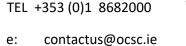












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Client: Kildare County Council

GENERAL NOTES:

NOTED OTHERWISE.

DIMENSIONS ONLY.

ELEMENT NOTED ONLY.

SURFACE OF THE STRUCTURE.

EMPLOYERS REPRESENTATIVE

TERM MONITORING.

NOTES:

CASE DURING THE CONSTRUCTION.

1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS

3. THIS DRAWING SHALL BE USED FOR THE DESIGN

5. ALL REPAIR WORKS SHALL BE CARRIED OUT IN

4. ALL STRUCTURES SHALL BE CLEANED USING A HIGH PRESSURE WATER JET TO REMOVE ALL DIRT;

6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE

7. WHERE CRACKING / DISTORTION OF A STRUCTURE

REMEDIATION, INCLUDING DRAWINGS AND

HAS BEEN IDENTIFIED, DETAILED RECORDS SHALL BE MADE OF SUCH DEFECTS BEFORE AND AFTER

MEASUREMENTS AND PHOTOGRAPHS. THIS IS TO

INSURE THAT THE DEFECT IS NOT MASKED FROM

FUTURE INSPECTIONS AND TO FACILITATE LONG

All new and repaired masonry works to comprise stone type and size to match existing stonework.

be undertaken in accordance with the trial panel approved by the employer's representative.

MASONRY REPLACEMENT

1. REPAIR REQUIRED WHERE THE CONDITIONS PRESENTED IN

(1) ARE ENCOUNTERED AND WHERE THE EMPLOYER'S REPRESENTATIVE DEEMS IT NECESSARY TO BE CARRIED

2. REPAIR WORKS SHALL BE CARRIED OUT IN ACCORDANCE

STANDARD CONSTRUCTION DETAILS CC-SCD-02407-01.

RECLAIMED STONES ACCURATELY CUT AND DRESSED TO THE DIMENSIONS OF THE VOIDS. THE STYLE OF FINISH

DISTURB THE SURROUNDING MASONRY WHICH SHALL BE SUPPORTED OR SHORED AS DEEMED APPROPRIATE BY THE

5. ONCE EXPOSED, THE BACKING OF THE REPAIR AREA SHALL BE CLEANED DOWN TO REMOVE ANY LOOSE MATERIAL.

MORTAR AND HELD IN PLACE USING TIMBER WEDGES AS REQUIRED UNTIL MORTAR HAS SET. JOINTS TO BE FULLY POINTED WHEN TIMBER WEDGES HAVE BEEN REMOVED.

ACCORDANCE WITH THE REQUIREMENTS OF THOSE IN THE

7. ALL MORTAR FOR BEDDING AND POINTING SHALL BE IN

3. ALL REPLACEMENT STONE TO COMPRISE OF SOUND

4. CUTTING AWAY OF DAMAGED MASONRY SHALL NOT

6. THE REPLACEMENT STONE SHALL BE SET IN A BED OF

WITH THE DETAILS PRESENTED ON THIS DRAWING AND TIL

OUT. REFER TO BILL OF QUANTITIES FOR EXPECTED

VOLUME OF MASONRY TO BE REPLACED.

SHALL MATCH THE EXISTING.

EMPLOYER'S REPRESENTATIVE.

MASONRY REPOINTING DETAIL.

Joint thickness and details of new/repaired masonry to match existing joints thickness and details. The maximum joint width shall be limited to 15mm where joint widths exceed 15mm pinning stones shall be used to reduce joint width. The contractor shall construct a 1mx1m trial panel of masonry adjacent to the works area for the employer's representative's approval. All new and repaired masonry works to

SURFACE DEPOSITS AND VEGETATION FROM THE

ACCORDANCE WITH THE RELEVANT DRAWING AND SPECIFICATION AND TO THE SATISFACTION OF THE

STABILITY OF ALL STRUCTURES IN THE TEMPORARY

2. DO NOT SCALE FROM THIS DRAWING. USE FIGURED

Project: Brooke, Old River, Stephenstown Bridge **Remediation Works**

Remedial Works Standard Detail Sheet 3 of 13

Code |Originator| Zone | Level | Type | Role | Number | Status | Revision K431 · OCSC · XX · XX · DR · C · 0302 A3 C01 Date: 03/04/20Scale: NTS @ A1 Drn by:QA Chkd by:MF Aprvd by:BO'R/Bi

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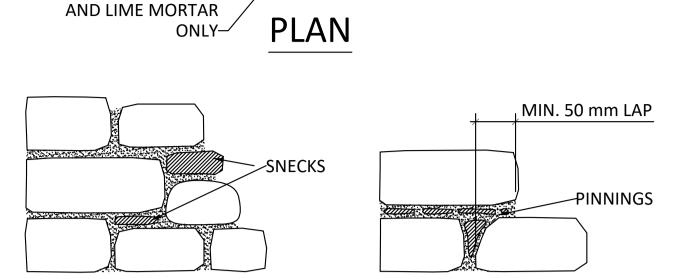
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DETAIL 4: MASONRY PARAPET WALL REPAIR

Scale: NTS

FEATURE COPING TO MATCH EXISTING WHERE REQUIRED.

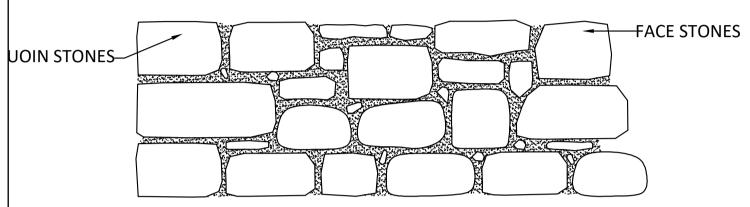
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ELEVATION

HEARTING STONE

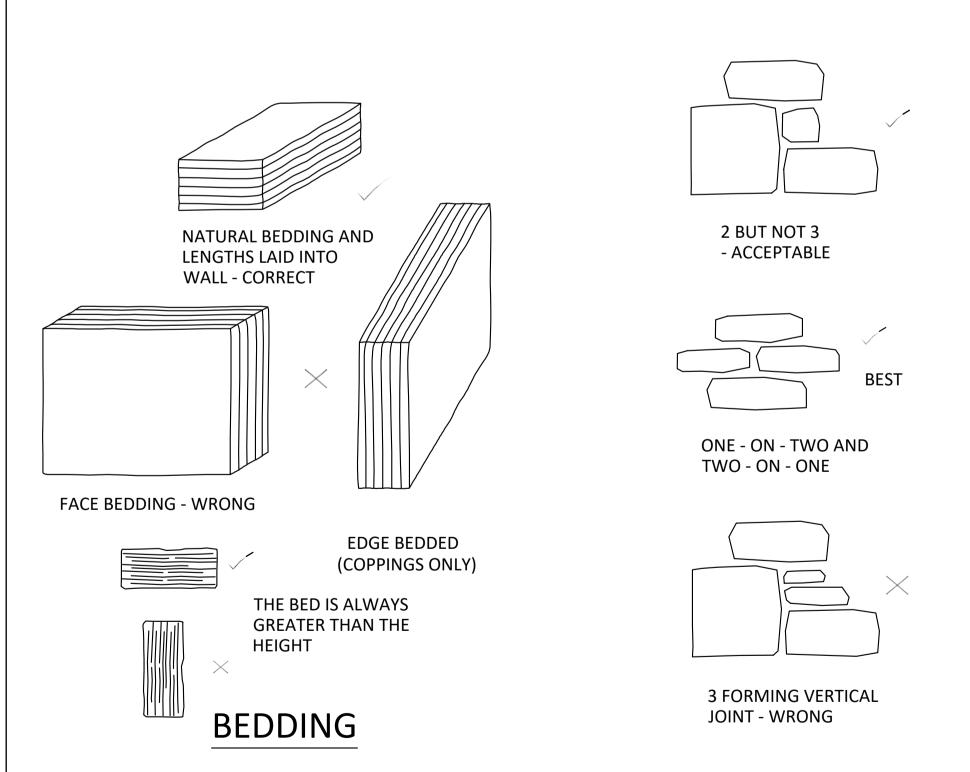




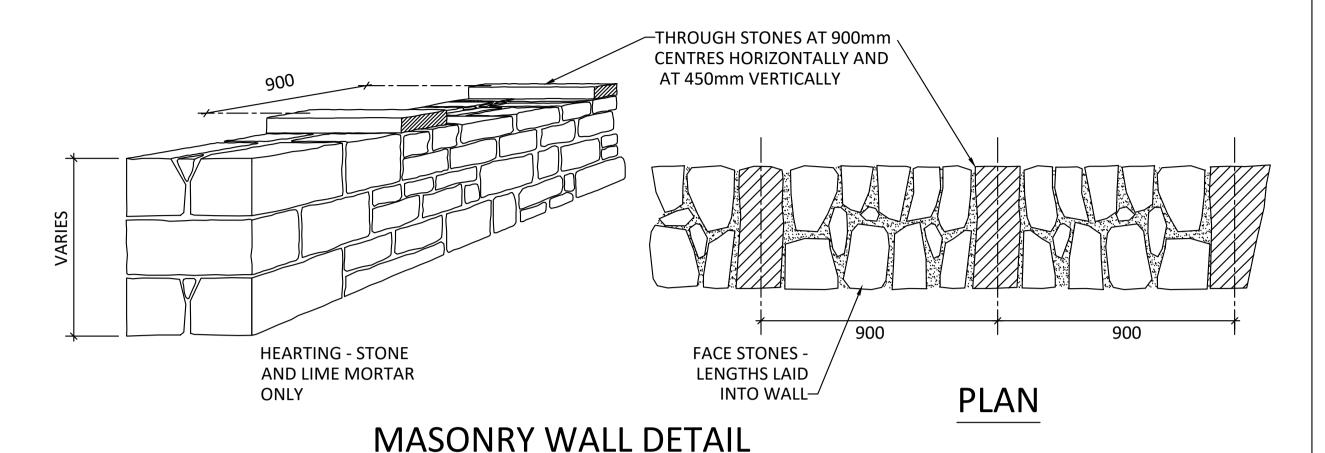
ELEVATION

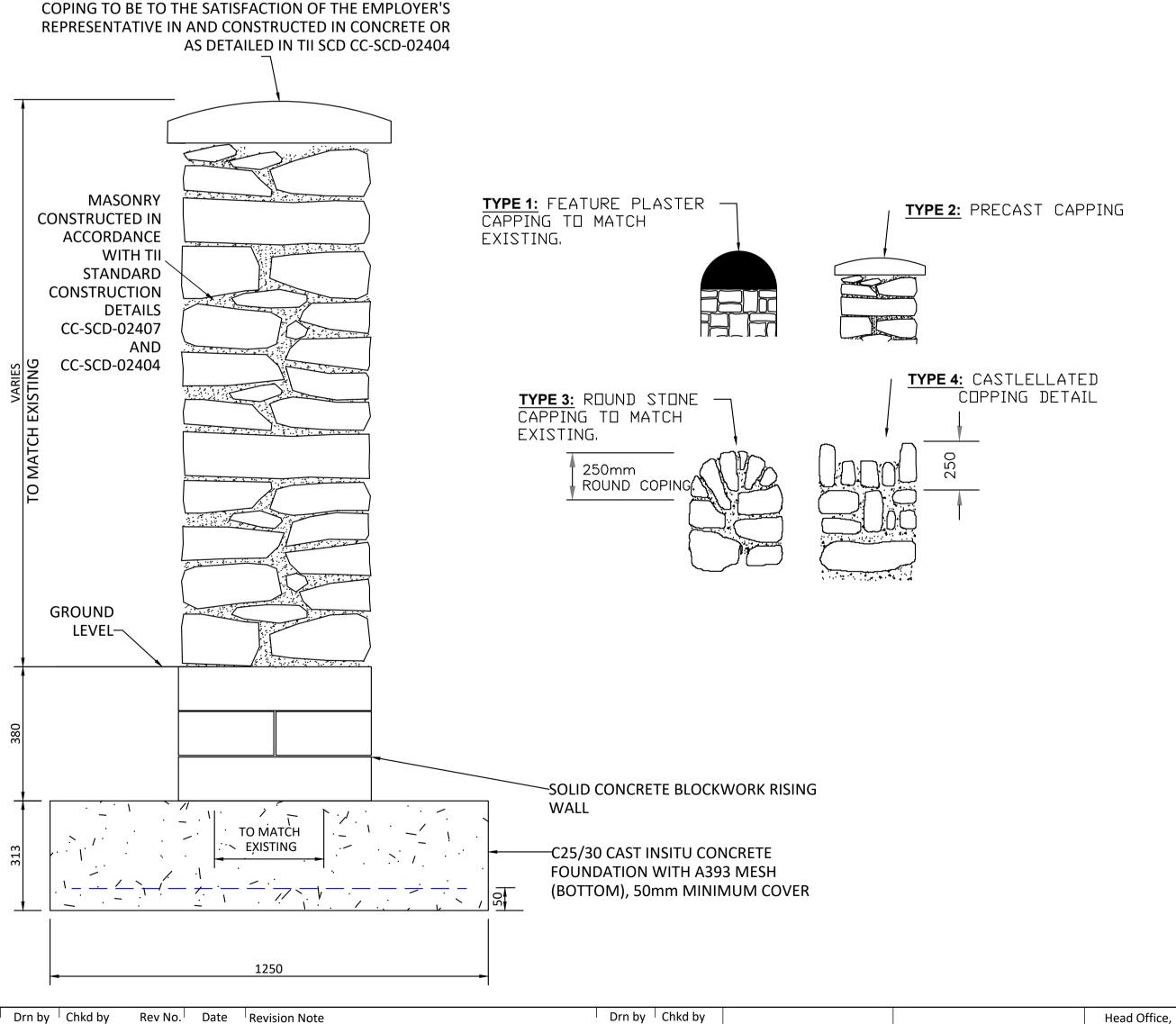
RUBBLE STONE - IRREGULAR SHAPES AND SIZES OF STONE WITH SNECK AND PINNING

ALL NEW PARAPETS ARE TO BE CONSTRUCTED AS PER TII STANDARD CONSTRUCTION **DETAIL - 02407:**



C01 03/04/20 Suitable for Tender





GENERAL NOTES:

- 1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS NOTED OTHERWISE.
- 2. DO NOT SCALE FROM THIS DRAWING. USE FIGURED **DIMENSIONS ONLY.**
- 3. THIS DRAWING SHALL BE USED FOR THE DESIGN ELEMENT NOTED ONLY.
- 4. ALL STRUCTURES SHALL BE CLEANED USING A HIGH PRESSURE WATER JET TO REMOVE ALL DIRT; SURFACE DEPOSITS AND VEGETATION FROM THE SURFACE OF THE STRUCTURE.
- 5. ALL REPAIR WORKS SHALL BE CARRIED OUT IN ACCORDANCE WITH THE RELEVANT DRAWING AND SPECIFICATION AND TO THE SATISFACTION OF THE **EMPLOYERS REPRESENTATIVE**
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE STABILITY OF ALL STRUCTURES IN THE TEMPORARY CASE DURING THE CONSTRUCTION.
- 7. WHERE CRACKING / DISTORTION OF A STRUCTURE HAS BEEN IDENTIFIED, DETAILED RECORDS SHALL BE MADE OF SUCH DEFECTS BEFORE AND AFTER REMEDIATION, INCLUDING DRAWINGS AND MEASUREMENTS AND PHOTOGRAPHS. THIS IS TO INSURE THAT THE DEFECT IS NOT MASKED FROM FUTURE INSPECTIONS AND TO FACILITATE LONG TERM MONITORING.

All new and repaired masonry works to comprise stone type and size to match existing stonework. Joint thickness and details of new/repaired masonry to match existing joints thickness and details. The naximum joint width shall be limited to 15mm where joint widths exceed 15mm pinning stones shall be used to reduce joint width. The contractor shall construct a 1mx1m trial panel of masonry adjacent to the works area for the employer's representative's approval. All new and repaired masonry works to e undertaken in accordance with the trial panel approved by the employer's representative

MASONRY PARAPET REPAIR NOTES:

- 1. WHERE ISOLATED STONE ELEMENTS ARE MISSING FROM MASONRY ACCORDANCE WITH THE REPAIRS SPECIFIED IN THE DETAIL MASONRY **REPAIR - MISSING STONE REPLACEMENT.**
- 2. WHERE MASONRY PARAPETS HAVE BEEN DAMAGED BEYOND REPAIR, THE PARAPETS SHALL BE RECONSTRUCTED IN ACCORDANCE WITH THE DETAILS PRESENTED HERE AND TII STANDARD CONSTRUCTION DETAIL CC-SCD-02407.
- 3. THE EMPLOYER'S REPRESENTATIVE SHALL DETERMINE THE EXTENT OF THE REPAIR/RECONSTRUCTION OF MASONRY PARAPETS REQUIRED.
- 4. WHERE PARAPETS ARE REQUIRED TO BE RECONSTRUCTED, THE PARAPETS SHALL BE POSITIVELY CONNECTED TO THE EXISTING STONE VOUSOIR OR PARAPET EDGE BEAM OF THE BRIDGE USING GROUTED SOCK DOWELS. 12mm DIAMETER STAINLESS STEEL BARS SHALL BE USED AS DOWELS, THE SPACING AND NUMBER OF THE STAINLESS STEEL DOWELS SHALL BE AGREED WITH THE EMPLOYER'S REPRESENTATIVE PRIOR TO INSTALLATION.
- 5. THE GROUT TO BE USED SHALL BE A DRY PRE-MIXED PRE-BAGGED SHRINK COMPENSATED CEMENTITIOUS GROUT WITH A MINIMUM 1 DAY STRENGTH OF 15N/mm2, A 28 DAY COMPRESSIVE STRENGTH OF 50N/mm2 AND AN APPROXIMATE 28 DAY FLEXURAL STRENGTH OF 13N/mm2. THIS PRODUCT SHALL BE MIXED AND USED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
- 6. HOLES FOR DOWEL BARS SHALL BE FLUSHED CLEAR OF ALL DUST AND DEBRIS AND WHEREVER REASONABLY PRACTICABLE BE FORMED THROUGH MASONRY UNITS AND NOT THROUGH JOINTS.

Client: Kildare County Council

Remedial Works

Remediation Works

7. ALL MORTAR FOR BEDDING AND POINTING SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF THE MASONRY REPOINTING DETAIL.

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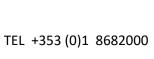
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- ARCHITECTURAL AND ENGINEERING DRAWINGS AND ALL OTHER RELEVANT DRAWINGS AND SPECIFICATIONS. • DO NOT SCALE THIS DRAWING. USE FIGURED DIMENSIONS ONLY.
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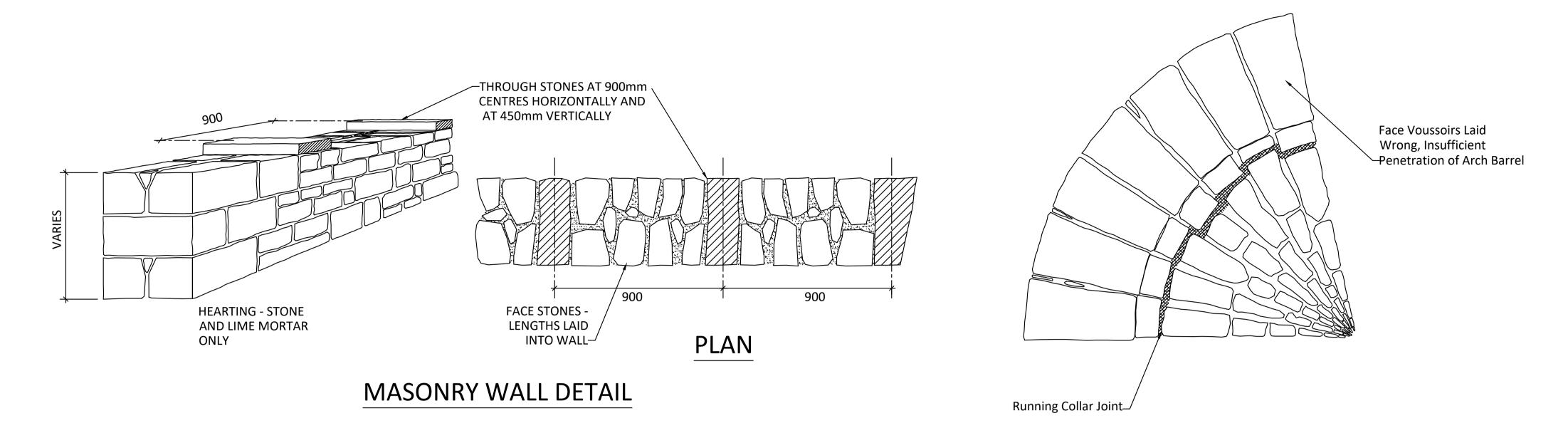
Standard Detail Sheet 4 of 13

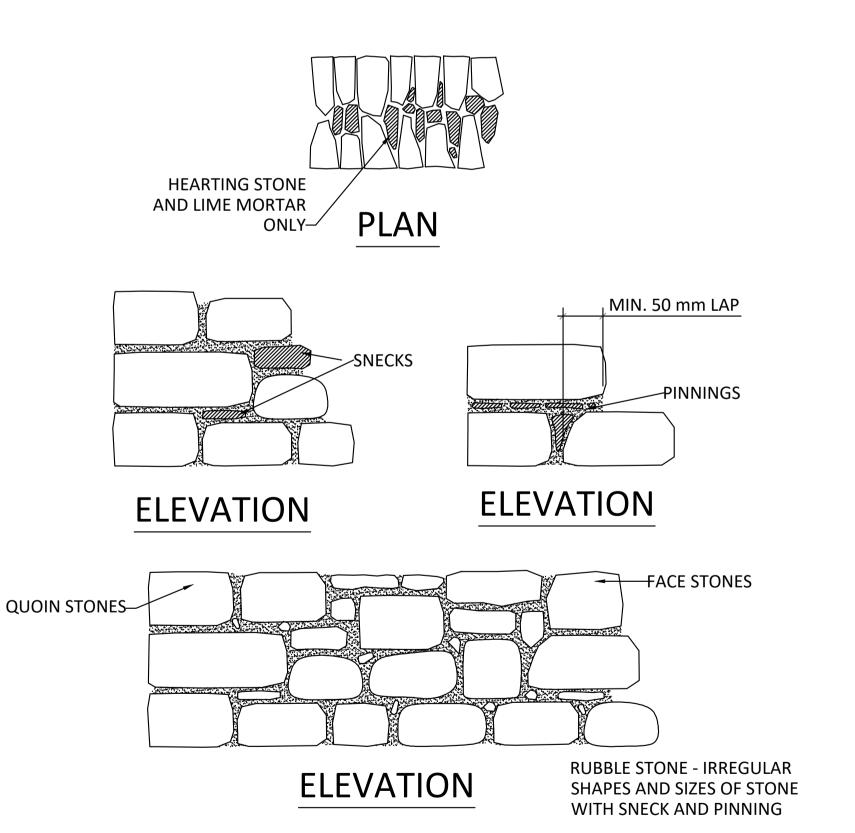
Code |Originator| Zone | Level | Type | Role |Number | Status | Revision K431 · OCSC · XX · XX · DR · C · 0303 A3 C01 Date: 03/04/20Scale: NTS @ A1 Drn by:QA Chkd by:MF Aprvd by:BO'R/Bi

Project: Brooke, Old River, Stephenstown Bridge

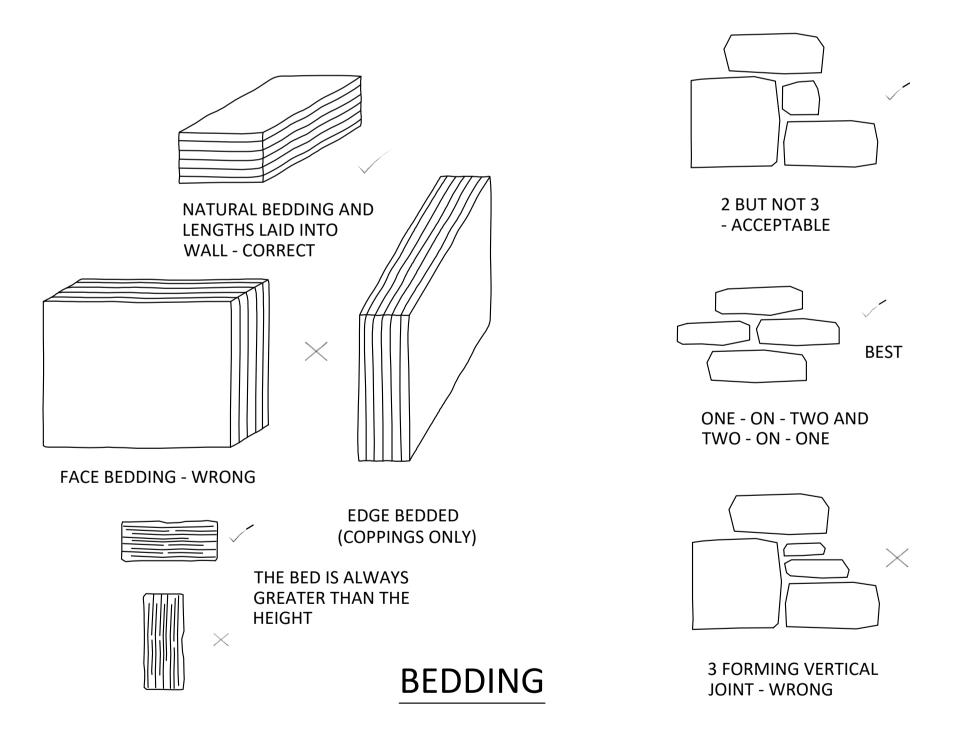
DETAIL 5 MASONRY SPANREL REPAIR

Scale: NTS





ALL NEW PARAPETS ARE TO BE CONSTRUCTED AS PER TII STANDARD CONSTRUCTION **DETAIL - 02407:**



GENERAL NOTES:

- 1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS NOTED OTHERWISE.
- 2. DO NOT SCALE FROM THIS DRAWING. USE FIGURED DIMENSIONS ONLY.
- 3. THIS DRAWING SHALL BE USED FOR THE DESIGN ELEMENT NOTED ONLY.
- 4. ALL STRUCTURES SHALL BE CLEANED USING A HIGH PRESSURE WATER JET TO REMOVE ALL DIRT; SURFACE DEPOSITS AND VEGETATION FROM THE SURFACE OF THE STRUCTURE.
- 5. ALL REPAIR WORKS SHALL BE CARRIED OUT IN ACCORDANCE WITH THE RELEVANT DRAWING AND SPECIFICATION AND TO THE SATISFACTION OF THE **EMPLOYERS REPRESENTATIVE**
- 6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE STABILITY OF ALL STRUCTURES IN THE TEMPORARY CASE DURING THE CONSTRUCTION.
- 7. WHERE CRACKING / DISTORTION OF A STRUCTURE HAS BEEN IDENTIFIED, DETAILED RECORDS SHALL BE MADE OF SUCH DEFECTS BEFORE AND AFTER REMEDIATION, INCLUDING DRAWINGS AND MEASUREMENTS AND PHOTOGRAPHS. THIS IS TO INSURE THAT THE DEFECT IS NOT MASKED FROM FUTURE INSPECTIONS AND TO FACILITATE LONG TERM MONITORING.

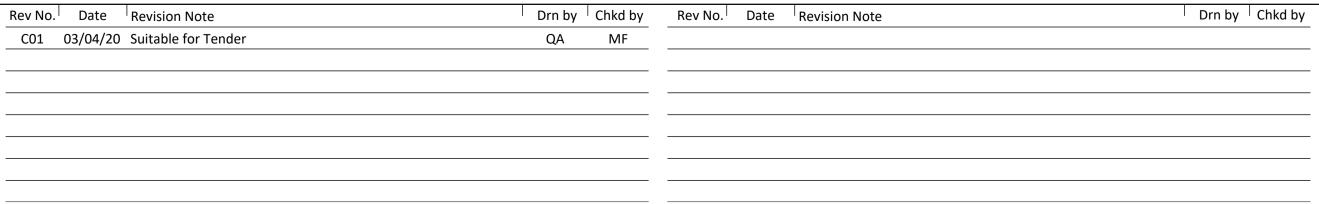
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MASONRY STRUCTURE **REPAIR NOTES:**

- 1. MASONRY STRUCTURE REFERS TO ANY OF THE FOLLOWING: SPANDREL WALL, RETAINING WALL, WING WALL, ABUTMENT, PIERS AND ARCH BARREL
- 2. WHERE ISOLATED STONE ELEMENTS ARE MISSING FROM THE MASONRY STRUCTURE, THE STRUCTURE SHALL BE REPAIRED LOCALLY IN ACCORDANCE WITH THE REPAIRS SPECIFIED IN THE DETAIL, MASONRY REPAIR - MISSING STONE REPLACEMENT.
- 3. WHERE MASONRY STRUCTURES HAVE BEEN DAMAGED BEYOND REPAIR, THE STRUCTURE SHALL BE RECONSTRUCTED IN ACCORDANCE WITH THE DETAILS PRESENTED HERE AND TII STANDARD CONSTRUCTION DETAIL CC-SCD-02407.
- 4. THE EMPLOYER'S REPRESENTATIVE SHALL DETERMINE THE EXTENT OF THE REPAIR/RECONSTRUCTION OF MASONRY STRUCTURE REQUIRED.
- 5. ALL MORTAR FOR BEDDING AND POINTING SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF THE MASONRY REPOINTING DETAIL.

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- RELEVANT DRAWINGS AND SPECIFICATIONS.
- DO NOT SCALE THIS DRAWING. USE FIGURED DIMENSIONS ONLY. NO PART OF THIS DOCUMENT MAY BE REPRODUCED OR TRANSMITTED IN ANY FORM OR STORED IN ANY RETRIEVAL SYSTEM OF ANY NATURE WITHOUT THE WRITTEN PERMISSION OF O'CONNOR SUTTON CRONIN AS COPYRIGHT HOLDER EXCEPT AS AGREED FOR USE ON THE PROJECT FOR WHICH THE DOCUMENT WAS ORIGINALLY ISSUED.

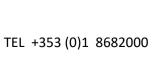












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Client: Kildare County Council Project: Brooke, Old River, Stephenstown Bridge **Remediation Works**

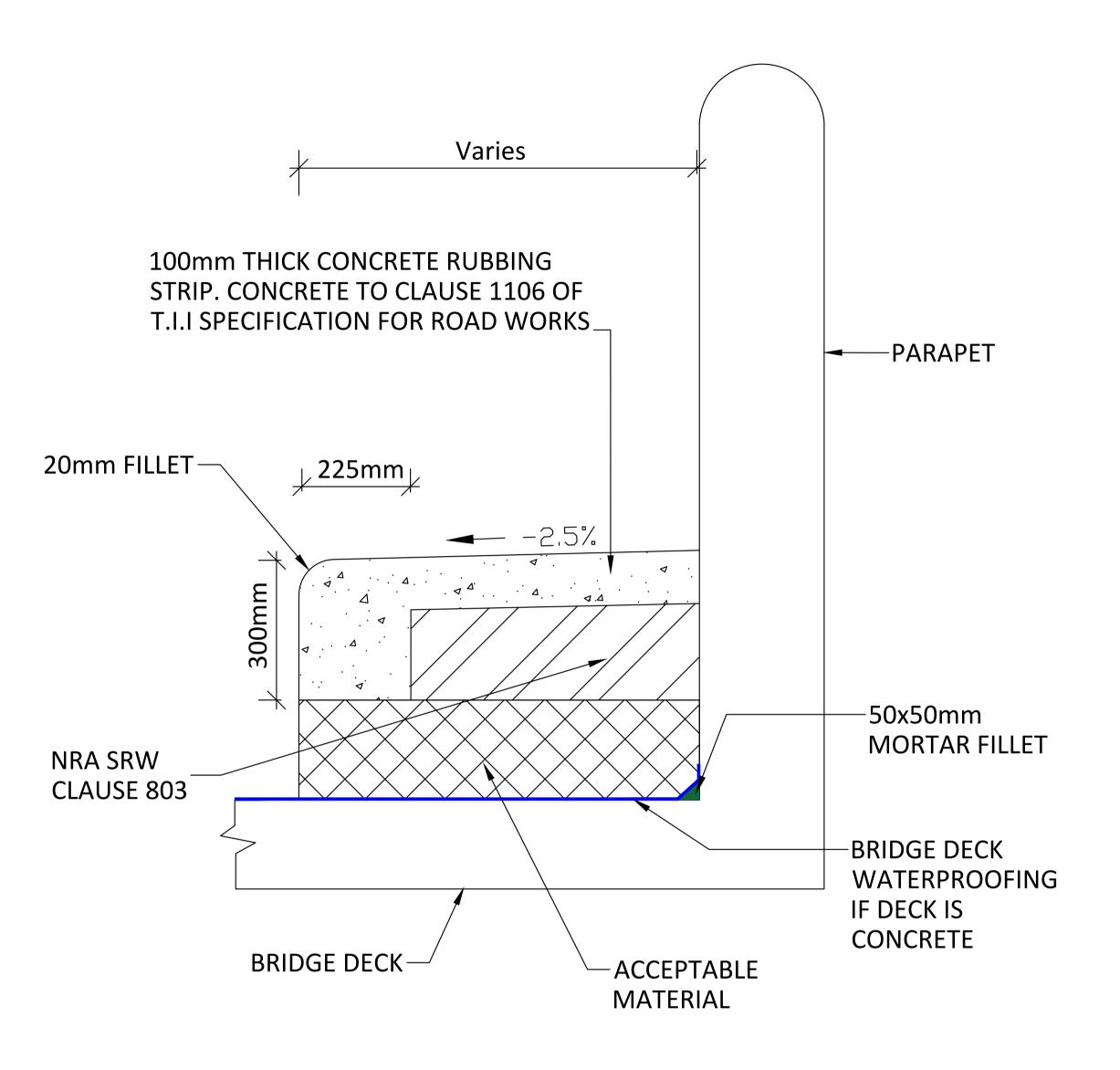
Remedial Works Standard Detail

Sheet 5 of 13

Code | Originator | Zone | Level | Type | Role | Number | Status | Revision K431 - OCSC - XX - XX - DR - C - 0304 A3 C01 Date: 03/04/20Scale: NTS @ A1 Drn by:QA Chkd by:MF Aprvd by:BO'R/Bi

DETAIL 6: CONCRETE RUBBING STRIP

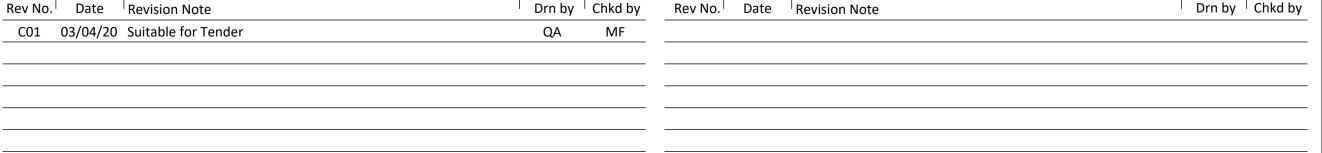
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TYPICAL CROSS-SECTION (OVER BRIDGE ONLY)

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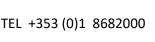














Client: Kildare County Council

GENERAL NOTES:

NOTED OTHERWISE.

DIMENSIONS ONLY.

ELEMENT NOTED ONLY.

SURFACE OF THE STRUCTURE.

EMPLOYERS REPRESENTATIVE

TERM MONITORING.

CASE DURING THE CONSTRUCTION.

1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS

2. DO NOT SCALE FROM THIS DRAWING. USE FIGURED

4. ALL STRUCTURES SHALL BE CLEANED USING A HIGH PRESSURE WATER JET TO REMOVE ALL DIRT;

SURFACE DEPOSITS AND VEGETATION FROM THE

ACCORDANCE WITH THE RELEVANT DRAWING AND

SPECIFICATION AND TO THE SATISFACTION OF THE

STABILITY OF ALL STRUCTURES IN THE TEMPORARY

6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE

7. WHERE CRACKING / DISTORTION OF A STRUCTURE

REMEDIATION, INCLUDING DRAWINGS AND

CONCRETE RUBBING

1. WHERE REQUIRED, CONCRETE RUBBING STRIPS SHALL BE PROVIDED AT BOTH

SIDES OF THE CARRIAGEWAY TO REPLACE

EXISTING GRASS VERGES PREVENTING

WATER INGRESS DOWN TO THE ARCH

2. CONCRETE RUBBING STRIP SHALL BE LAID

WITH A FALL OF 2.5% TO ENSURE

3. SEE DETAIL EXISTING SURFACE TIE IN TO

4. IT MAY BE NECESSARY TO WIDEN THE

CONCRETE RUBBING STRIP FOR ROAD

CARRIAGEWAY LOCALLY AT THE RUBBING STRIPS TO SEAL OVER THE ARCH BARREL

REFER TO DETAIL ON EXISTING SURFACE

TIE IN TO CONCRETE RUBBING STRIP FOR DETAILS ON CARRIAGEWAY WIDENING. THE CARRIAGEWAY SHALL BE WIDENED

IN THE RANGE OF 500mm - 300mm

STRIP NOTES:

POSITIVE DRAINAGE.

BARREL.

BUILDUP.

HAS BEEN IDENTIFIED, DETAILED RECORDS SHALL BE MADE OF SUCH DEFECTS BEFORE AND AFTER

MEASUREMENTS AND PHOTOGRAPHS. THIS IS TO INSURE THAT THE DEFECT IS NOT MASKED FROM FUTURE INSPECTIONS AND TO FACILITATE LONG

3. THIS DRAWING SHALL BE USED FOR THE DESIGN

5. ALL REPAIR WORKS SHALL BE CARRIED OUT IN

Project: Brooke, Old River, Stephenstown Bridge **Remediation Works**

Remedial Works Standard Detail Sheet 6 of 13

Code |Originator| Zone | Level | Type | Role |Number | Status | Revision K431 - OCSC - XX - XX - DR - C - 0305 A3 C01 Date: 03/04/20Scale: NTS @ A1 Drn by:QA Chkd by:MF Aprvd by:BO'R/Bi



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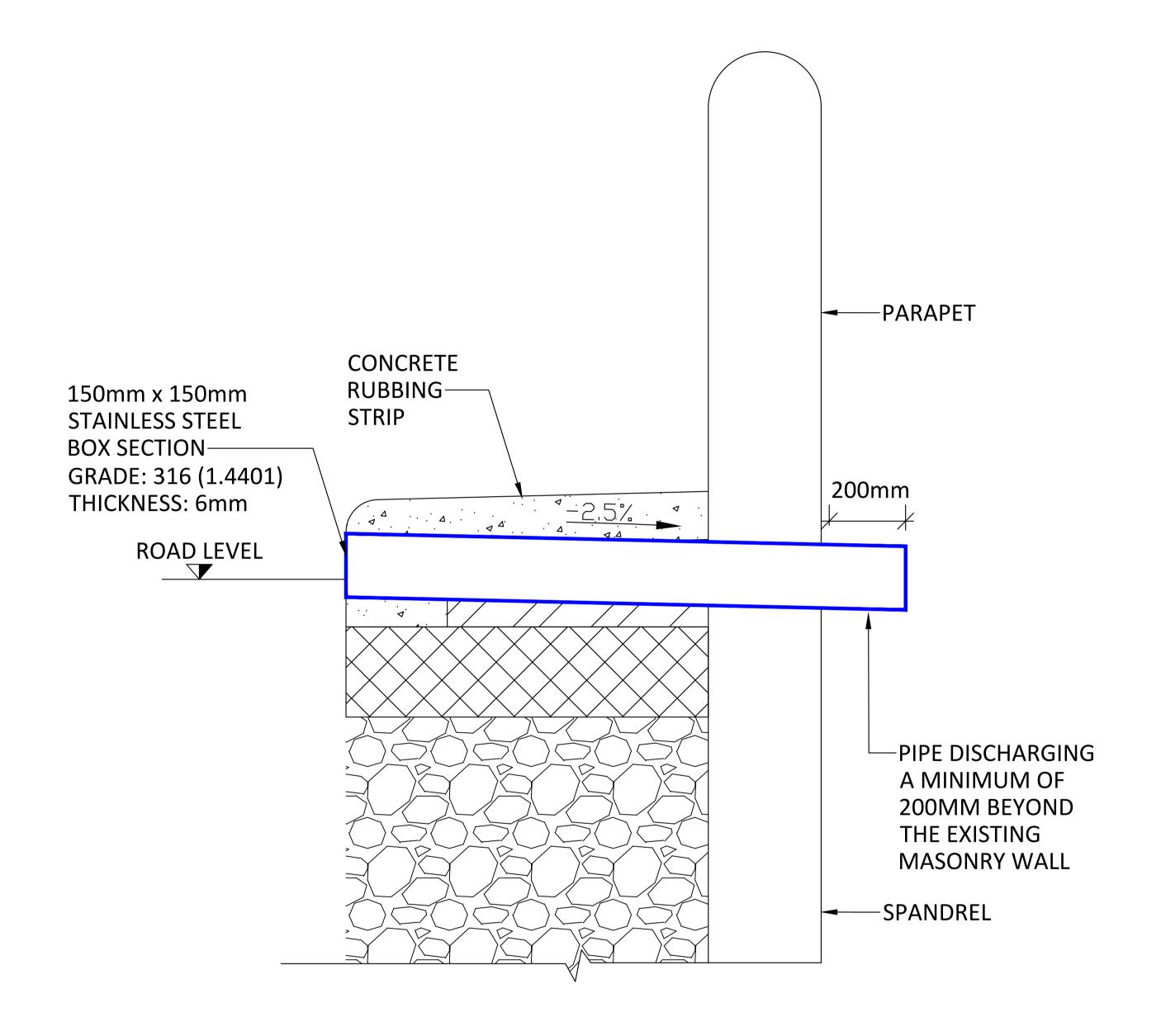
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DETAIL 7: INTEGRATED STAINLESS STEEL DRAIN IN CONCRETE RUBBING STRIP

Scale: NTS



TYPICAL CROSS-SECTION

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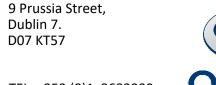
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GENERAL NOTES:

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DIMENSIONS ONLY.

ELEMENT NOTED ONLY.

SURFACE OF THE STRUCTURE.

EMPLOYERS REPRESENTATIVE

TERM MONITORING.

STRIPS.

POSITIVE DRAINAGE.

MASONRY WALL

3. THE OUTFALL SHALL DISCHARGE A

CASE DURING THE CONSTRUCTION.

1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS

3. THIS DRAWING SHALL BE USED FOR THE DESIGN

5. ALL REPAIR WORKS SHALL BE CARRIED OUT IN

2. DO NOT SCALE FROM THIS DRAWING. USE FIGURED

4. ALL STRUCTURES SHALL BE CLEANED USING A HIGH PRESSURE WATER JET TO REMOVE ALL DIRT;

6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE

7. WHERE CRACKING / DISTORTION OF A STRUCTURE

REMEDIATION, INCLUDING DRAWINGS AND

INTEGRATED STAINLESS

1. WHERE REQUIRED, 150mm x 150mm BOX

STAINLESS STEEL SECTIONS (GRADE 316

2. THE STAINLESS STEEL BOX SECTIONS SHALL

MINIMUM OF 200mm BEYOND THE

BE LAID WITH A FALL OF 2.5% TO ENSURE

(1.4401, THICKNESS 6MM)) SHALL BE CAST IN SITU INTO THE CONCRETE RUBBING

STEEL DRAIN NOTES:

HAS BEEN IDENTIFIED, DETAILED RECORDS SHALL BE MADE OF SUCH DEFECTS BEFORE AND AFTER

MEASUREMENTS AND PHOTOGRAPHS. THIS IS TO INSURE THAT THE DEFECT IS NOT MASKED FROM

FUTURE INSPECTIONS AND TO FACILITATE LONG

SURFACE DEPOSITS AND VEGETATION FROM THE

ACCORDANCE WITH THE RELEVANT DRAWING AND SPECIFICATION AND TO THE SATISFACTION OF THE

STABILITY OF ALL STRUCTURES IN THE TEMPORARY

Project: Brooke, Old River, Stephenstown Bridge

Remediation Works Remedial Works Standard Detail Sheet 7 of 13

Code |Originator| Zone | Level | Type | Role |Number | Status | Revision K431 - OCSC - XX - XX - DR - C - 0306 A3 C01 Date: 03/04/20Scale: NTS @ A1 Drn by:QA Chkd by:MF Aprvd by:BO'R/BH



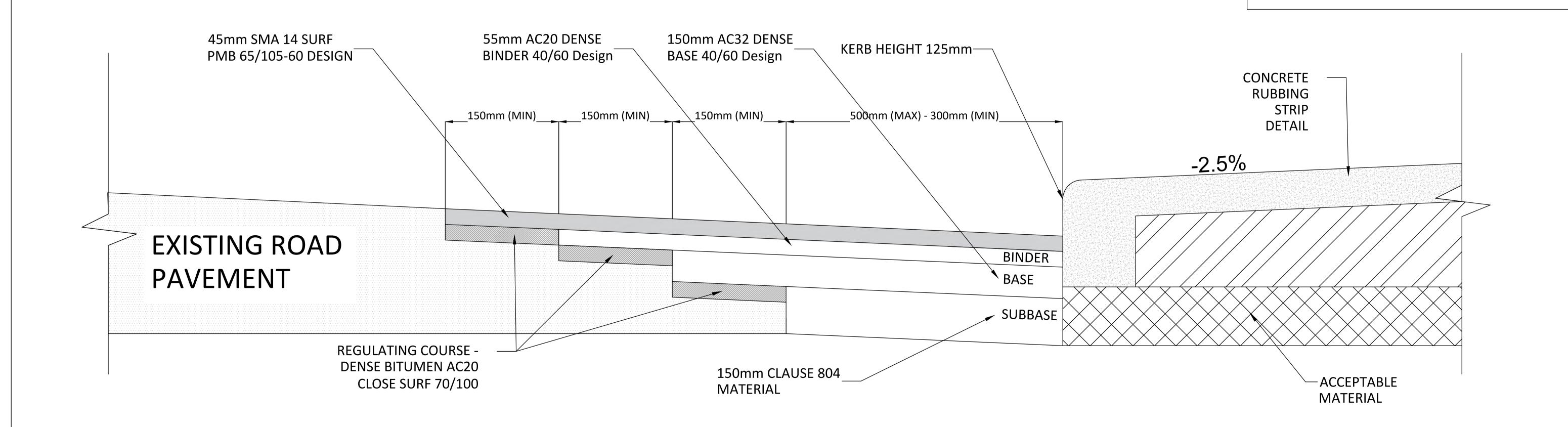
Head Office,

DETAIL 8: EXISTING SURFACE TIE IN TO CONCRETE RUBBING STRIP

Scale: NTS

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- 1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS NOTED OTHERWISE.
- 2. DO NOT SCALE FROM THIS DRAWING. USE FIGURED DIMENSIONS ONLY.
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- 5. ALL REPAIR WORKS SHALL BE CARRIED OUT IN ACCORDANCE WITH THE RELEVANT DRAWING AND SPECIFICATION AND TO THE SATISFACTION OF THE **EMPLOYERS REPRESENTATIVE**
- 6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE STABILITY OF ALL STRUCTURES IN THE TEMPORARY CASE DURING THE CONSTRUCTION.
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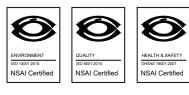


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Project: Brooke, Old River, Stephenstown Bridge **Remediation Works**

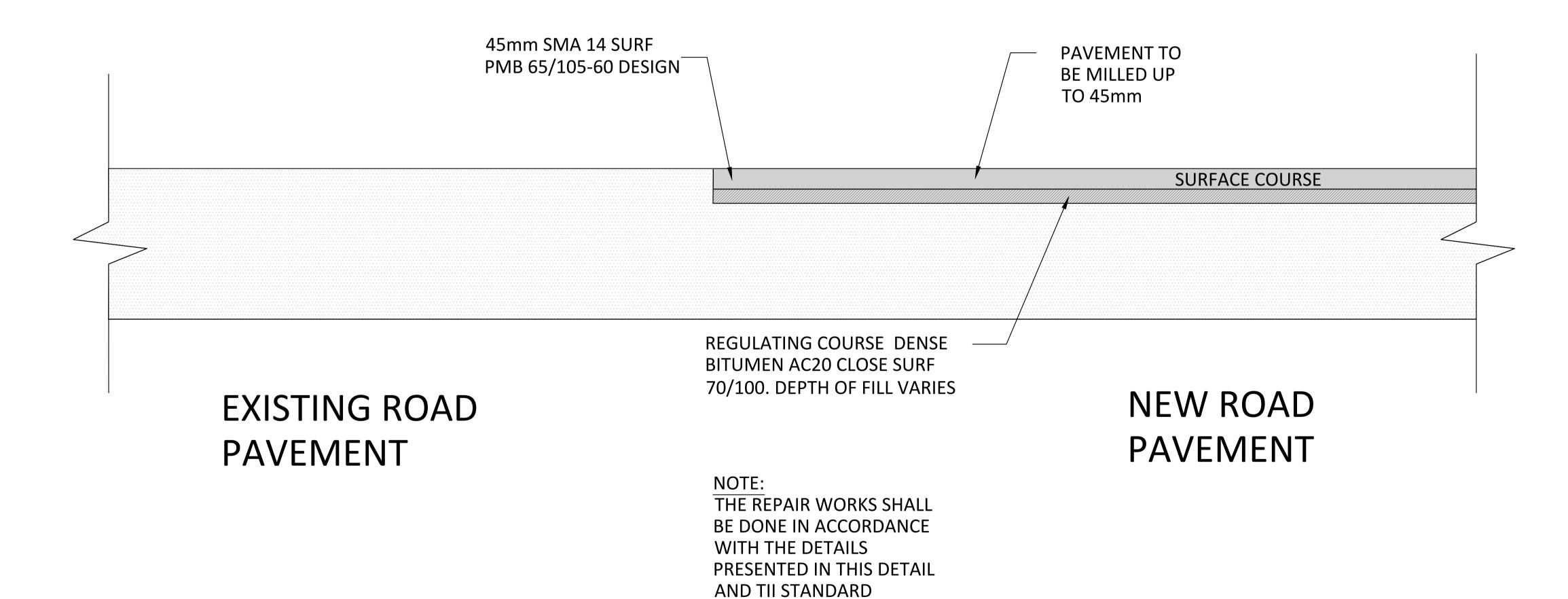
Remedial Works Standard Detail Sheet 8 of 13

Client: Kildare County Council

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DETAIL 9: EXISTING SURFACE AND NEW SURFACE TIE IN

Scale: NTS



CONSTRUCTION DETAIL

CC-SCD-00703.

GENERAL NOTES:

- 1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS NOTED OTHERWISE.
- 2. DO NOT SCALE FROM THIS DRAWING. USE FIGURED DIMENSIONS ONLY.
- 3. THIS DRAWING SHALL BE USED FOR THE DESIGN ELEMENT NOTED ONLY.
- 4. ALL STRUCTURES SHALL BE CLEANED USING A HIGH PRESSURE WATER JET TO REMOVE ALL DIRT; SURFACE DEPOSITS AND VEGETATION FROM THE SURFACE OF THE STRUCTURE.
- 5. ALL REPAIR WORKS SHALL BE CARRIED OUT IN ACCORDANCE WITH THE RELEVANT DRAWING AND SPECIFICATION AND TO THE SATISFACTION OF THE **EMPLOYERS REPRESENTATIVE**
- 6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE STABILITY OF ALL STRUCTURES IN THE TEMPORARY CASE DURING THE CONSTRUCTION.
- 7. WHERE CRACKING / DISTORTION OF A STRUCTURE HAS BEEN IDENTIFIED, DETAILED RECORDS SHALL BE MADE OF SUCH DEFECTS BEFORE AND AFTER REMEDIATION, INCLUDING DRAWINGS AND MEASUREMENTS AND PHOTOGRAPHS. THIS IS TO INSURE THAT THE DEFECT IS NOT MASKED FROM FUTURE INSPECTIONS AND TO FACILITATE LONG TERM MONITORING.

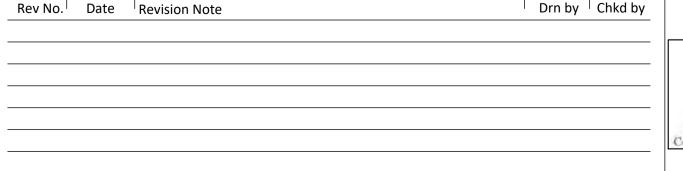
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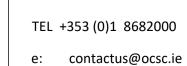
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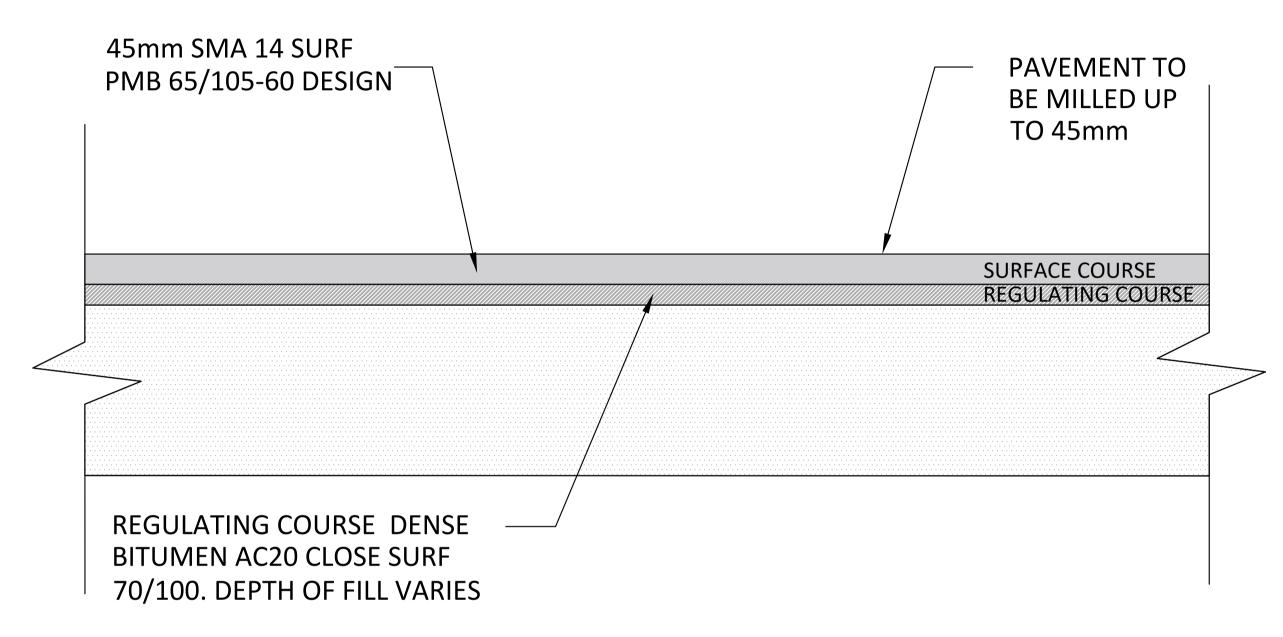
Client: Kildare County Council Project: Brooke, Old River, Stephenstown Bridge **Remediation Works**

Remedial Works Standard Detail

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DETAIL 10: REPLACEMENT OF DAMAGED ROAD SURFACE

Scale: NTS



NEW ROAD SURFACE

NOTE: THE REPAIR WORKS SHALL BE DONE IN ACCORDANCE WITH THE DETAILS PRESENTED IN THIS DETAIL AND TII STANDARD CONSTRUCTION DETAIL CC-SCD-00703.

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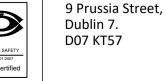
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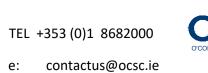






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Client: Kildare County Council Project: Brooke, Old River, Stephenstown Bridge

> **Remediation Works** Remedial Works Standard Detail Sheet 10 of 13

GENERAL NOTES:

NOTED OTHERWISE.

DIMENSIONS ONLY.

ELEMENT NOTED ONLY.

SURFACE OF THE STRUCTURE.

EMPLOYERS REPRESENTATIVE

TERM MONITORING.

CASE DURING THE CONSTRUCTION.

1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS

3. THIS DRAWING SHALL BE USED FOR THE DESIGN

5. ALL REPAIR WORKS SHALL BE CARRIED OUT IN

2. DO NOT SCALE FROM THIS DRAWING. USE FIGURED

4. ALL STRUCTURES SHALL BE CLEANED USING A HIGH PRESSURE WATER JET TO REMOVE ALL DIRT;

SURFACE DEPOSITS AND VEGETATION FROM THE

ACCORDANCE WITH THE RELEVANT DRAWING AND SPECIFICATION AND TO THE SATISFACTION OF THE

STABILITY OF ALL STRUCTURES IN THE TEMPORARY

6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE

7. WHERE CRACKING / DISTORTION OF A STRUCTURE

REMEDIATION, INCLUDING DRAWINGS AND

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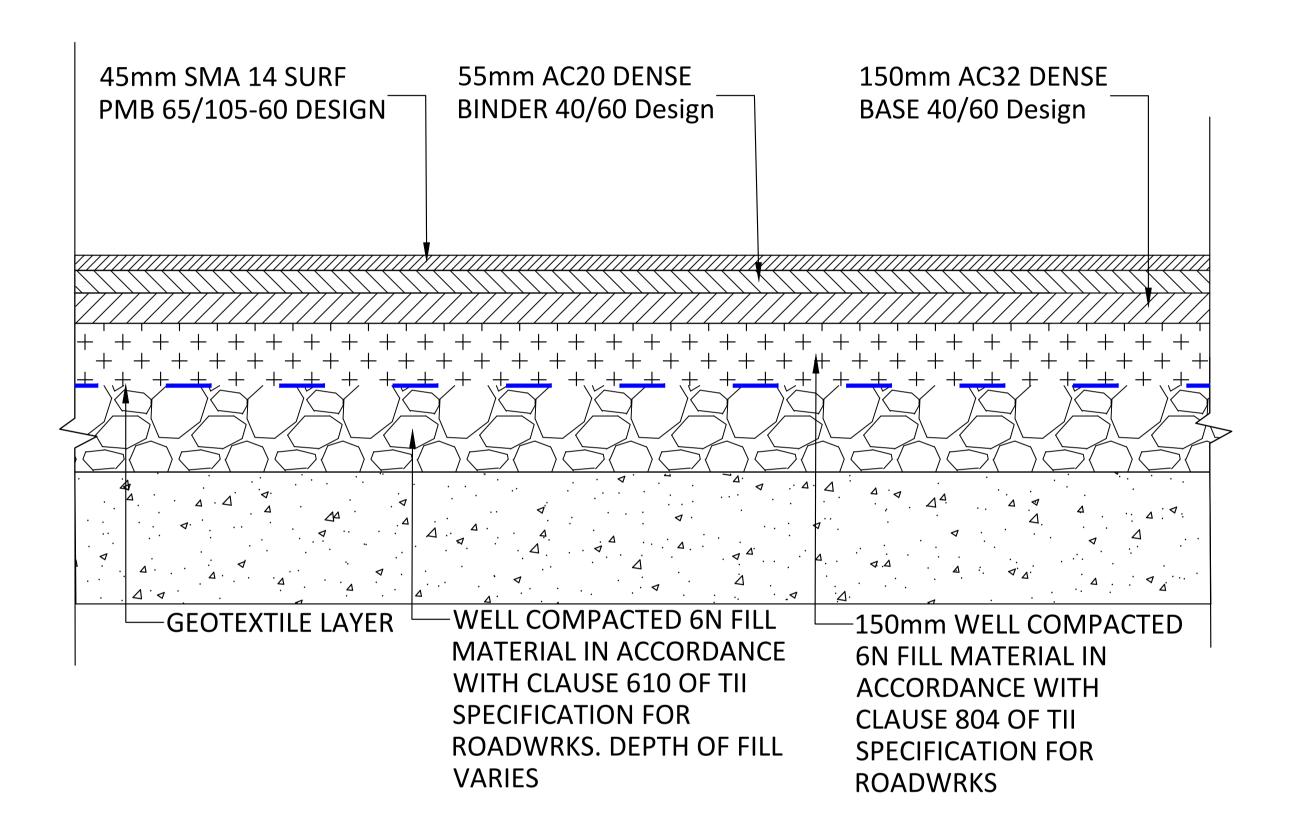
MEASUREMENTS AND PHOTOGRAPHS. THIS IS TO INSURE THAT THE DEFECT IS NOT MASKED FROM FUTURE INSPECTIONS AND TO FACILITATE LONG

BE MADE OF SUCH DEFECTS BEFORE AND AFTER

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DETAIL 11: TYPICAL ROAD BUILDUP

Scale: NTS



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SURFACE DEPOSITS AND VEGETATION FROM THE

ACCORDANCE WITH THE RELEVANT DRAWING AND SPECIFICATION AND TO THE SATISFACTION OF THE

STABILITY OF ALL STRUCTURES IN THE TEMPORARY

3. THIS DRAWING SHALL BE USED FOR THE DESIGN

5. ALL REPAIR WORKS SHALL BE CARRIED OUT IN

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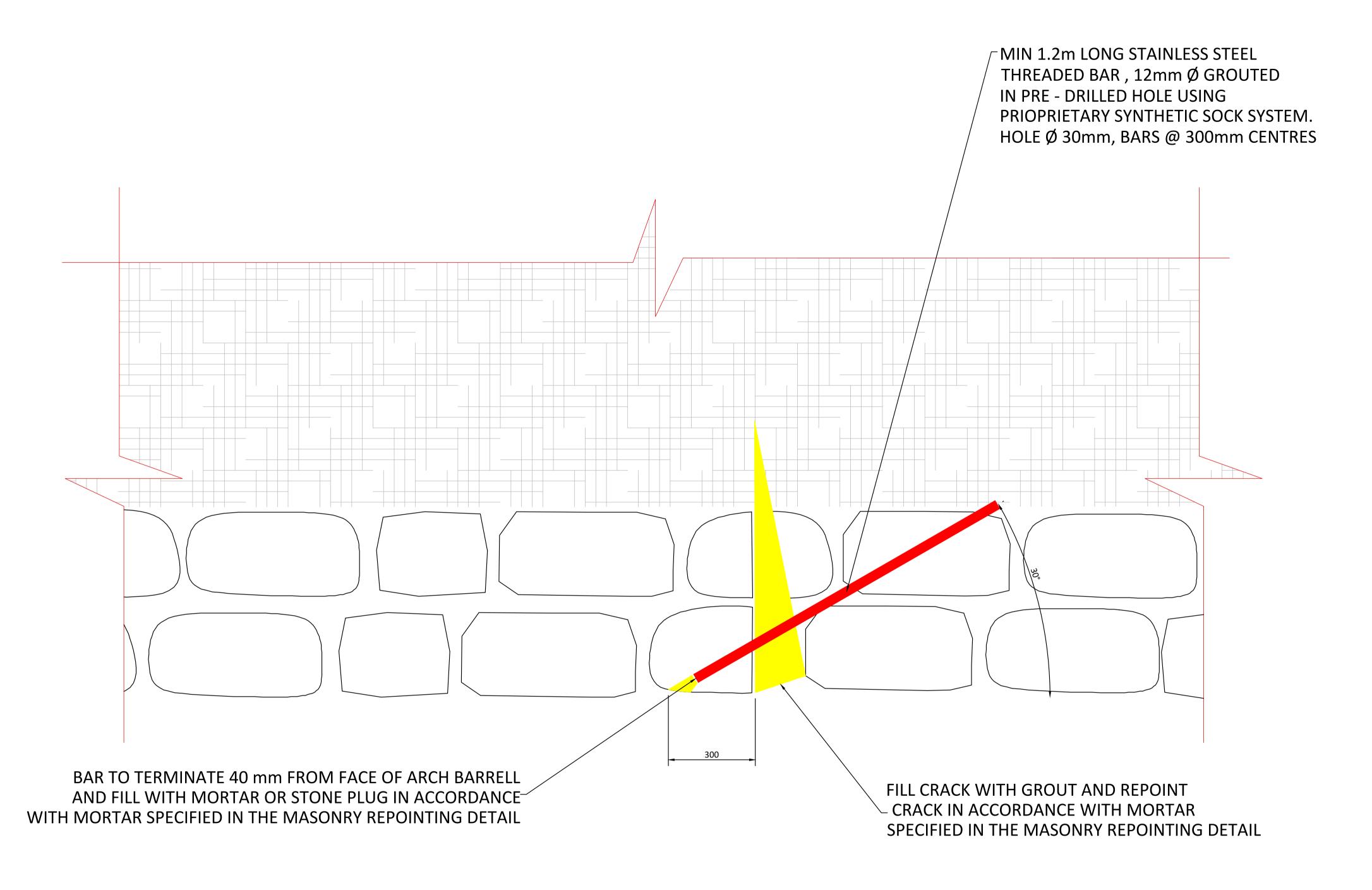
> Remedial Works Standard Detail

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DETAIL 12: STITCH REPAIR TO CRACK IN ABUTMENT/ARCH BARREL

Scale: NTS



TYPICAL SECTION TROUGH ARCH BARRELL CRACK

SCALE: NTS

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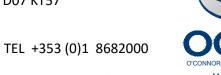












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SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S

GENERAL NOTES:

NOTED OTHERWISE.

DIMENSIONS ONLY.

ELEMENT NOTED ONLY.

SURFACE OF THE STRUCTURE.

EMPLOYERS REPRESENTATIVE

TERM MONITORING.

EMPLOYER'S REPRESENTATIVE.

INJECTING OF GROUT.

REPRESENTATIVE.

MASONRY REPOINTING.

RECOMMENDATIONS.

STITCH REPAIR NOTES

CASE DURING THE CONSTRUCTION.

ALL DIMENSIONS ARE IN MILLIMETERS UNLESS

2. DO NOT SCALE FROM THIS DRAWING. USE FIGURED

4. ALL STRUCTURES SHALL BE CLEANED USING A HIGH PRESSURE WATER JET TO REMOVE ALL DIRT;

SURFACE DEPOSITS AND VEGETATION FROM THE

ACCORDANCE WITH THE RELEVANT DRAWING AND

SPECIFICATION AND TO THE SATISFACTION OF THE

STABILITY OF ALL STRUCTURES IN THE TEMPORARY

6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE

7. WHERE CRACKING / DISTORTION OF A STRUCTURE

REMEDIATION, INCLUDING DRAWINGS AND

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MEASUREMENTS AND PHOTOGRAPHS. THIS IS TO INSURE THAT THE DEFECT IS NOT MASKED FROM FUTURE INSPECTIONS AND TO FACILITATE LONG

1. WHERE A CRACK IN THE BARREL OF AN ARCH HAS BEEN IDENTIFIED

2. WHERE THE MASONRY IN THE VICINITY OF THE CRACK REQUIRES

APPROXIMATELY 1000mm EITHER SIDE OF THE CRACK USING A

DEBRIS AND WHEREVER REASONABLY PRACTICABLE BE FORMED

5. THE GROUT TO BE INJECTED INTO THE PRE-DRILLED HOLE SHALL BE

GROUT TRAVELS AND PERMEATES INTO THE MASONRY WITHOUT

COMPENSATED CEMENTITIOUS GROUT WITH A MINIMUM 1 DAY STRENGTH OF 15N/mm2, A 28 DAY COMPRESSIVE STRENGTH OF

50N/mm2 AND AN APPROXIMATE 28 DAY FLEXURAL STRENGTH OF

REINFORCEMENT BARS GRADE 1.4436 IN ACCORDANCE WITH EN

DRAWINGS UNLESS OTHERWISE AGREED WITH THE EMPLOYER'S

8. THE LENGTH OF ADJACENT ANCHOR BARS SHALL BE STAGGERED TO PREVENT A NEW LONGITUDINAL CRACK FORMING. ANCHORS TO BE STAGGERED IN A "3 BAR STAGGER" ARRANGEMENT WITH 250mm

9. FOLLOWING THE INSTALLATION OF ANCHORS, SURPLUS GROUT SHALL BE REMOVED, AND ALL REMAINING HOLES AND JOINTS SHALL BE PLUGGED

AND POINTED IN ACCORDANCE WITH THE REQUIREMENTS OF DETAIL

10. THE CONTRACTOR SHALL PREPARE A METHOD STATEMENT WITH

MATERIALS TO BE USED ENSURING NO DAMAGE OCCURS TO THE

DETAILS OF THE CRACKS TO BE INJECTED, THE PROCEDURE FOR THE

CLEANING OUT OF CRACKS, THE INJECTION PROCESS AND THE PROPOSED

EXISTING STRUCTURE. CRACK INJECTION USING A PROPRIETARY SYSTEM

100881:2005. BAR AND SOCK DIAMETER TO BE AS SPECIFIED ON THE

WITH THE MANUFACTURER'S RECOMMENDATIONS.

7. STAINLESS STEEL RODS USED SHALL BE TYPE II DEFORMED

DIFFERENCE IN LENGTH BETWEEN ADJACENT ANCHORS.

13N/mm2. THIS PRODUCT SHALL BE MIXED AND USED IN ACCORDANCE

INJECTED AT A PRESSURE AND CONSISTENCY THAT WILL ENSURE THE

IMMEDIATELY RUNNING OUT. LEAKAGE IS TO BE MINIMISED DURING THE

6. THE GROUT TO BE USED SHALL BE A DRY PRE-MIXED PRE-BAGGED SHRINK

HIGH-PRESSURE WATER JET TO REMOVE ALL DIRT, SURFACE DEPOSITS

4. ALL HOLES SHALL BE PRE-DRILLED AND FLUSHED CLEAR OF ALL DUST AND

REPLACEMENT, REFER TO DETAIL - MASONRY REPOINTING. 3. THE AREA SURROUNDING THE CRACK SHALL BE CLEANED TO

AND VEGETATION FROM THE SURFACE OF THE STRUCTURE.

THROUGH MASONRY UNITS AND NOT THROUGH JOINTS.

(TRANSVERSE, LONGITUDINAL OR SEPARATING CRACK) THE REPAIR DETAILS GIVEN AS PART OF THIS DETAIL SHALL BE IMPLEMENTED. THE DETAIL TO BE IMPLEMENTED WILL DEPEND ON THE LOCATION OF THE CRACK. THE DETAIL PROPOSED SHALL BE TO THE SATISFACTION OF THE

3. THIS DRAWING SHALL BE USED FOR THE DESIGN

5. ALL REPAIR WORKS SHALL BE CARRIED OUT IN

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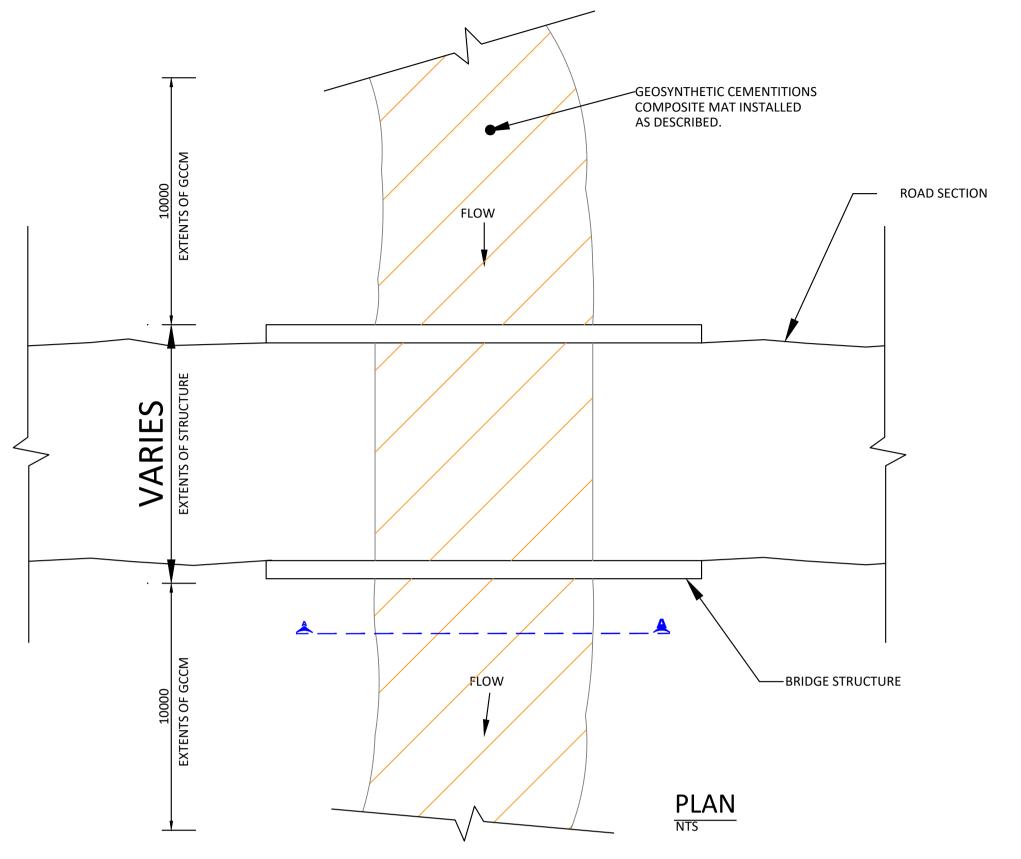
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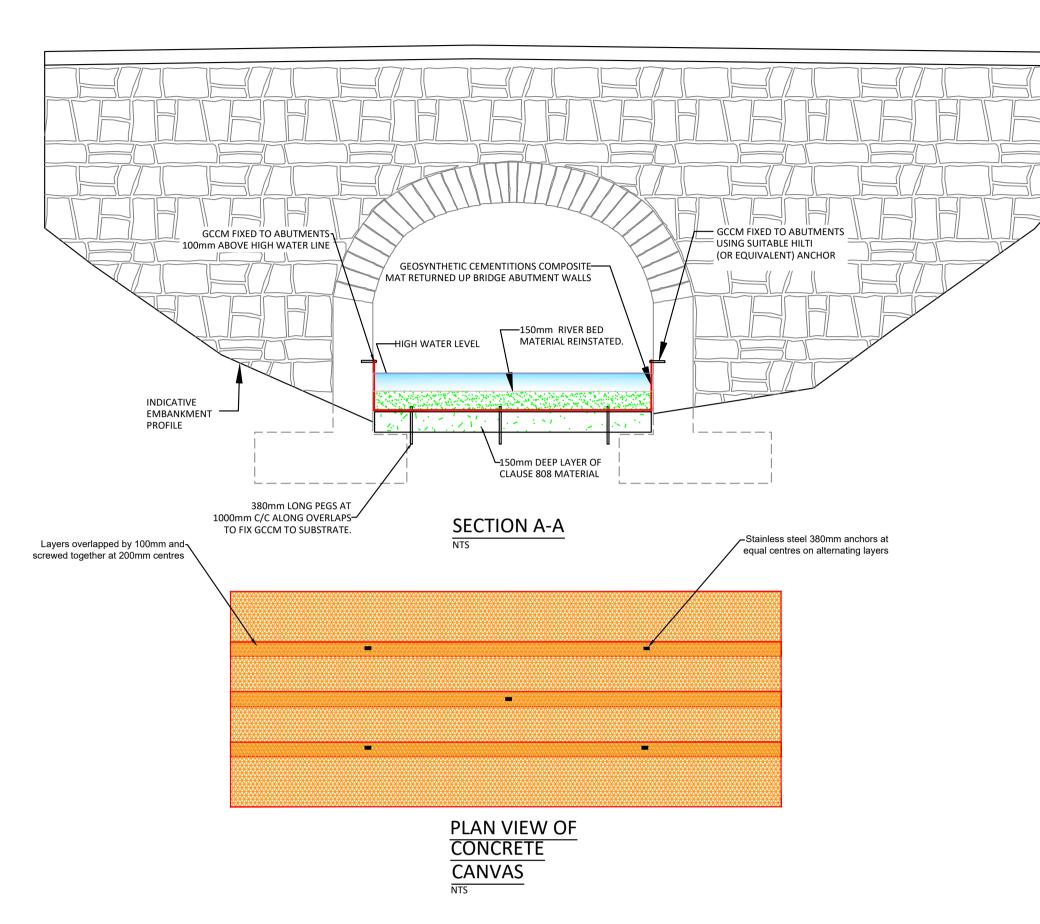
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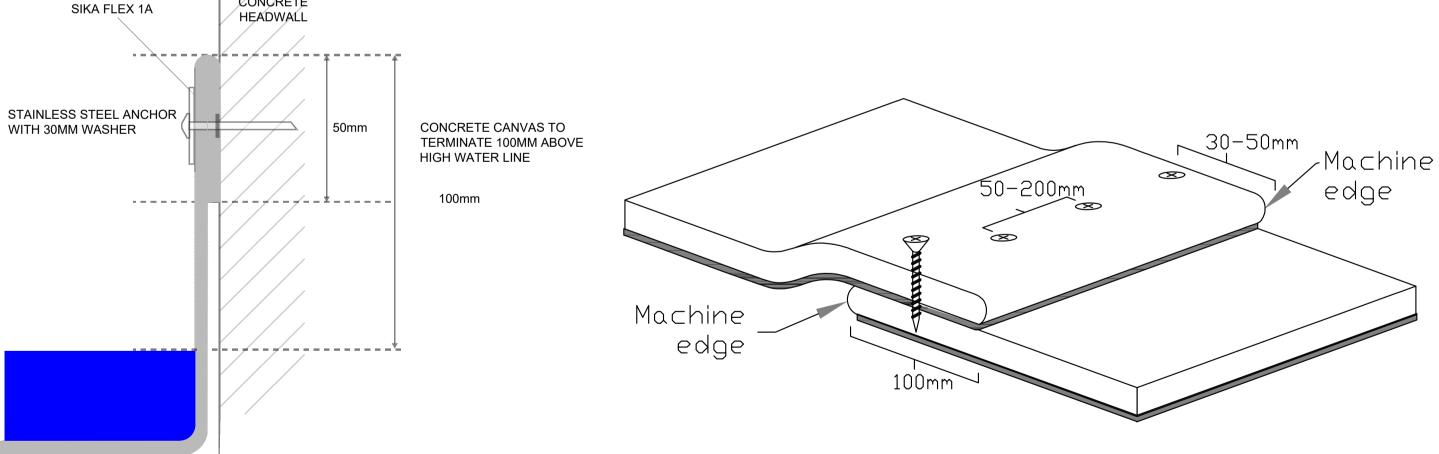
DETAIL 13: SCOUR PROTECTION - CONCRETE CANVAS SCALE: NTS



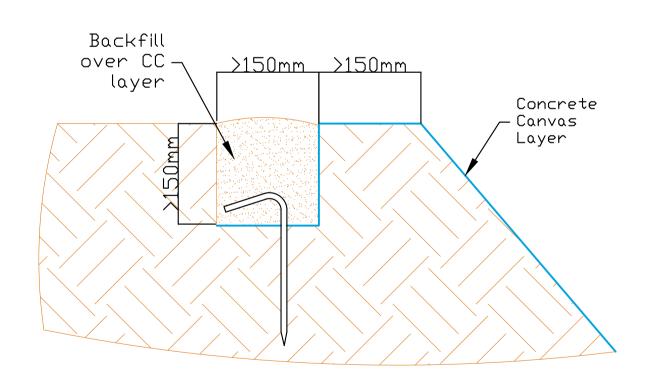


TERMINATION OF CONCRETE CANVAS TO CONCRETE HEADWALL / BUTTRESS





Pegged Anchor Trench



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SCOUR PROTECTION -**CONCRETE CANVAS NOTES:**

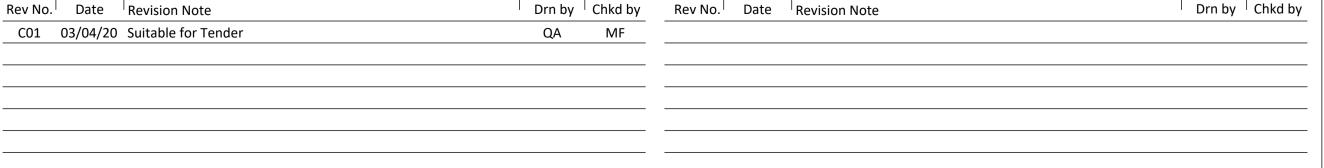
- 1. STREAM TO BE DIVERTED PRIOR TO BEGINNING INSTALLATION OF GEOSYNTHETIC CEMENTITIONS COMPOSITE MAT (GCCM).
- 2. EXCAVATE RIVER BED TO THE REQUIRED DEPTH TO ENSURE THE FINAL BED LEVEL MATCHES THE EXISTING.
- 3. FORMATION LEVEL TO BE INSPECTED BY EMPLOYERS REPRESENTATIVE PRIOR TO INSTALLATION. WHERE SOFT SPOTS ARE PRESENT, POOR MATERIAL IS TO BE EXCAVATED AND REPLACED WITH WELL COMPACTED CLAUSE 808 MATERIAL, TO THE SATISFACTION OF THE EMPLOYERS REPRESENTATIVE.
- 4. INSTALL 150mm DEEP WELL COMPACTED LAYER OF CLAUSE 808 MATERIAL TO THE SATISFACTION OF THE EMPLOYERS REPRESENTATIVE.
- 5. LAY GCCM TRANSVERSELY ACROSS WIDTH OF STREAM FROM DOWNSTREAM END WORKING BACK UP TO UPSTREAM END; AND RETURN VERTICALLY UP BRIDGE ABUTMENTS. THE GCCM SHOULD TERMINATE 100mm ABOVE THE HIGH WATER LEVEL. MAT TO BE FIXED TO BRIDGE ABUTMENT USING CONTRACTOR DESIGNED FIXING. GCCMs TO HAVE MINIMUM 100mm LAPS AND FIXED TOGETHER AT 200mm c/c.
- 6. GCCM TO BE FIXED TO SUBSTRATE USING 380mm LONG PEGS AT 1000mm c/c ALONG EACH **OVERLAP**

NOTE: PLAN AND ELEVATION OF A TYPICAL MASONRY ARCH BRIDGE SHOWN; FOR CONCRETE BRIDGE STRUCTURES, A SIMILAR DETAIL IS TO BE USED.

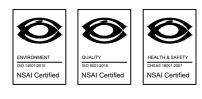
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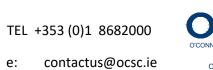








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Remedial Works Standard Detail

Sheet 13 of 13 Code |Originator| Zone | Level | Type | Role | Number | Status | Revision K431 - OCSC - XX - XX - DR - C - 0312 A3 C01 Date: 03/04/20Scale: NTS @ A1 Drn by: QA Chkd by: MF Aprvd by: BO'R/BH

