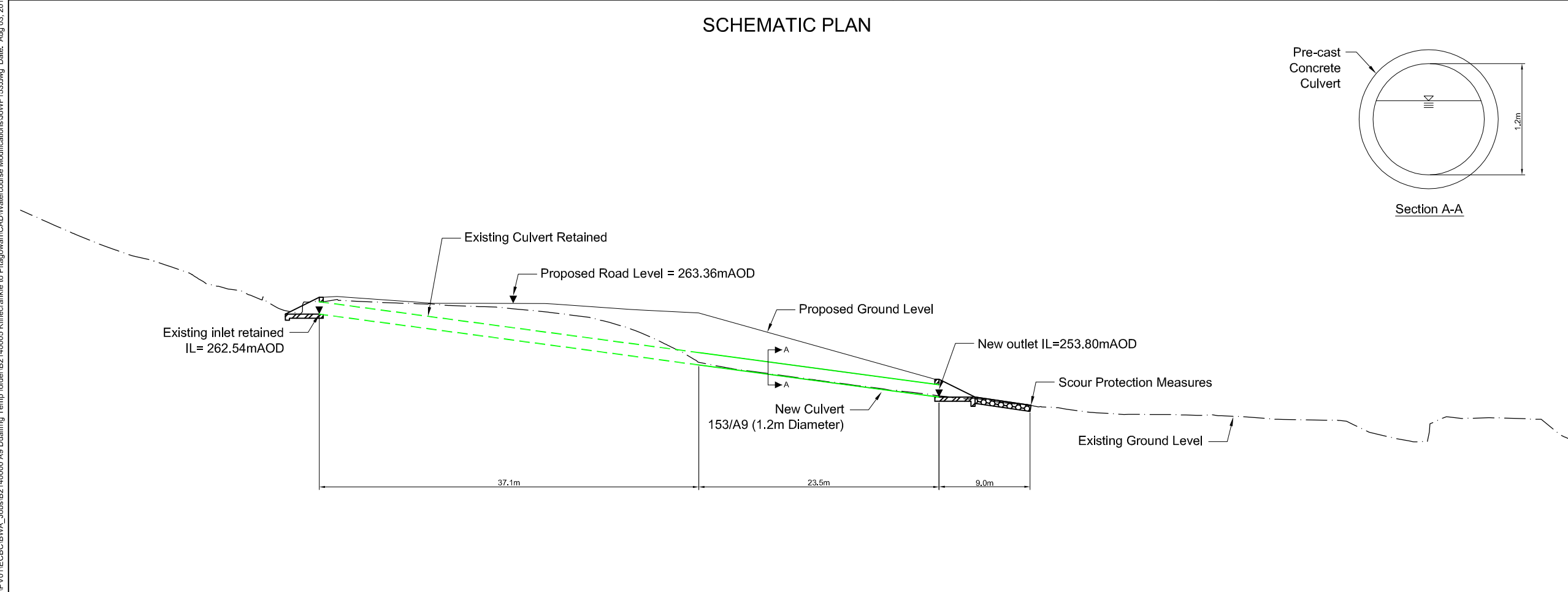
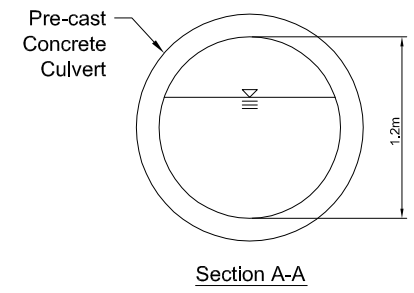


SCHMATIC PLAN

Legend:

- New culvert/extension
- - - Retained culvert
- Realigned/regraded channel
- Cascade
- Inlet/outlet headwall (new)
- - - Inlet/outlet headwall (retained)
- Pre-earthworks drain and outfall
- Access chamber
- Flow direction
- IL Invert Level

- Notes:
1. All dimensions are in meters unless noted otherwise.
 2. All levels are in meters above ordnance datum.
 3. All details shown on this drawing are indicative only and subject to development at detailed design.
 4. This drawing shall be read in conjunction with the 'Watercourse Crossing report' only and not in isolation.
 5. All 'new' and 'extended' culverts have been designed in accordance with the relevant provisions of DMRB.
 6. Where required 'scour protection measures' shall be provided within the zone indicated on the drawing. The nature and the extent of the scour protection measure will be further developed at detailed design stage in accordance with the relevant provisions of DMRB, taking into account flow hydraulics, channel geometry and channel morphology.
 7. Where shown culverts shall be 'embedded' with natural river deposits to the depth shown.
 8. Where shown 'cascades' are required to safely convey the design flood event (0.5% AEP (200-year) plus allowance for climate change). The cascade geometry shown on the drawing is indicative only and will be subject to further development at detailed design stage. The nature of the cascade will take one of the following forms,
 - Bedrock channel cascade.
 - Natural cascade with natural gravels, cobbles and rock forming individual steps.
 - Concrete cascade with stone pitching.
 The nature of the cascade will be determined at the detailed design stage taking into account hydraulic requirements, topography and nature of the underlying strata and its susceptibility to fluvial erosion.
 9. Where shown mammal ledges will be provided within the culvert in accordance with the relevant provisions of DMRB.



WATERCOURSE 153 LONGSECTION

Rev	Rev. Date	Purpose of revision	Drawn	Checked	Rev'd	Appr'd
0	18/01/17	FOR INFORMATION				

JACOBS
 95 Bothwell St, Glasgow, G2 7HX
 Tel: +44(0)141 243 9000 Fax: +44(0)141 226 3109
 www.jacobs.com



Drawing title
**KILLIECRANKIE TO GLEN GARRY
 PROPOSED MODIFICATIONS
 TO CULVERT ON
 WATERCOURSE WF153**

Drawing status: **FOR INFORMATION**

Scale	NTS @ A1	DO NOT SCALE
Jacobs No.	B2140005	
Drawing number	Figure A.11.8.55	
Rev	0	

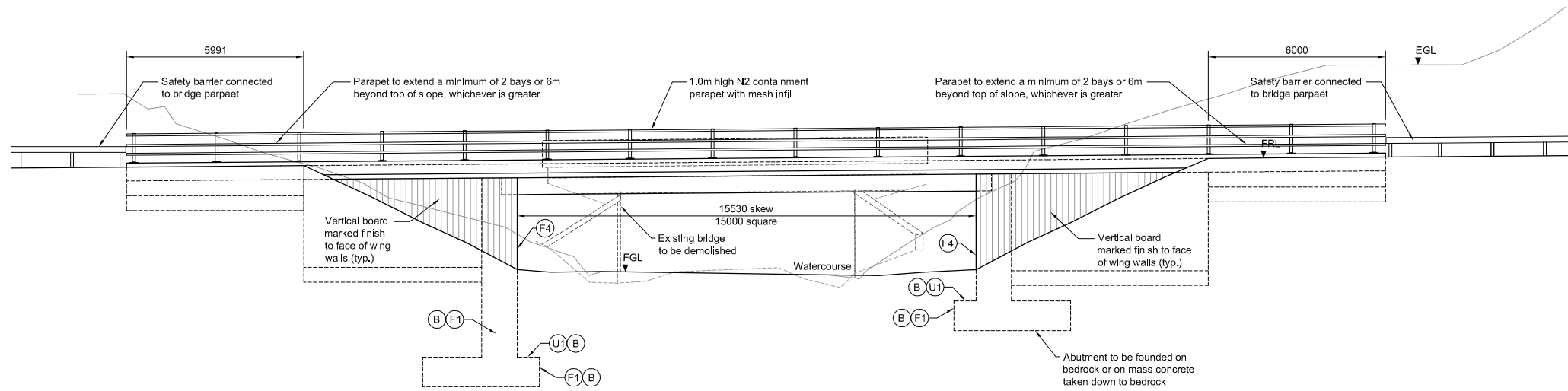
File: I:\Glarif\07\PV01\ECBC\BWA_Jobs\B2140005 A9 Dualling Temp folder\B2140005 Killiecrankie to Pitagowan\CAD\Watercourse Modifications\WF153.dwg Date: Aug 03, 2017 - 10:42am Plotted by: WOODJA

Reproduced by permission of Ordnance Survey on behalf of HMSO.
 © Crown copyright and database right 2017. All rights reserved.
 Ordnance Survey Licence number 100046668.

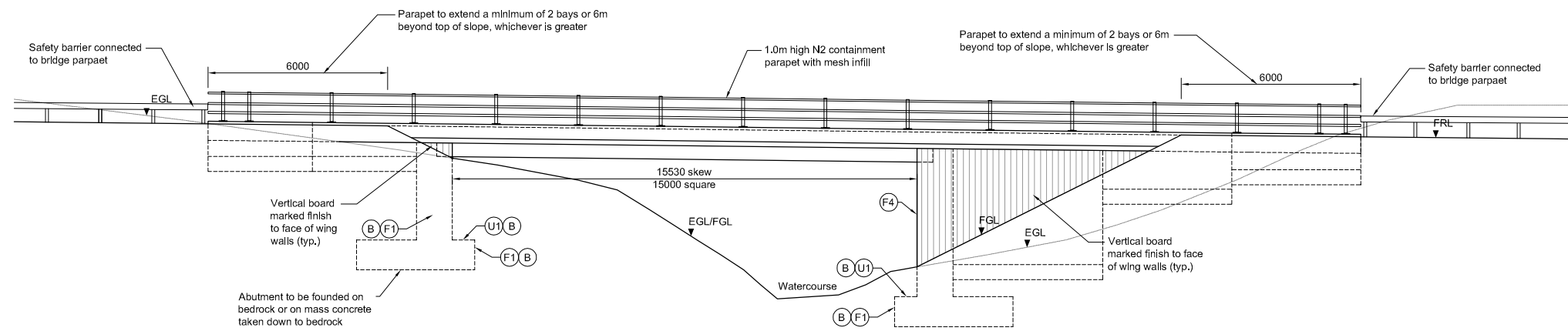
© Copyright 2017 Jacobs U.K. Limited. The concepts and information contained in this document are the property of Jacobs. Use or copying of this document in whole or in part without the written permission of Jacobs constitutes an infringement of copyright. Limitation: This drawing has been prepared on behalf of, and for the exclusive use of Jacobs Client, and is subject to, and issued in accordance with, the provisions of the contract between Jacobs and the Client. Jacobs accepts no liability or responsibility whatsoever for, or in respect of, any use of, or reliance upon, this drawing by any third party.

Notes.

- For Notes see Drawing No. A9P05-JAC-SBR-A_ML182_ST-DR-ST-0001



ELEVATION A-A
SCALE 1:100



ELEVATION C-C
SCALE 1:100

P2	18/05/17	DMRB Stage 3 Report - Draft	MG	IA	MAM	ELM
P1	18/10/16	Design Ftx 4 - Issued for Review	MG	IA	MAM	ELM
Rev	Rev. Date	Purpose of revision	Drawn	Checked	Rev'd	Appr'd



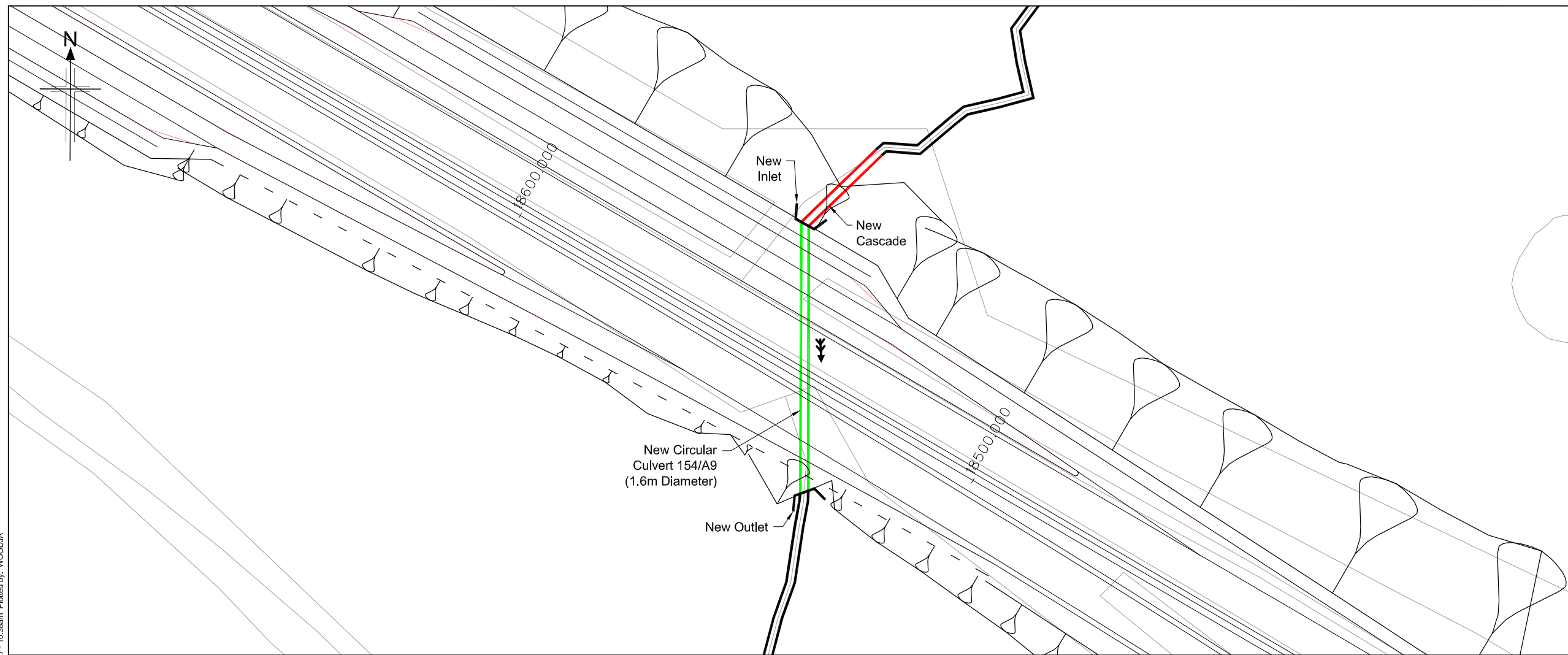
95 Bothwell St, Glasgow, G2 7HX
Tel:+44(0)141 243 8000 Fax:+44(0)141 226 3109
www.jacobs.com



Drawing title		
KILLIECRANKIE TO GLEN GARRY ALLT CROM BHRUTHAICH UNDERBRIDGE GENERAL ARRANGEMENT		
Drawing status		
Scale	AS SHOWN @ A1	DO NOT SCALE
Jacobs No.	B2140005	
Drawing number	Figure A.11.8.56	Rev P2
This drawing is not to be used in whole or part other than for the intended purpose and project as defined on this drawing. Refer to the contract for full terms and conditions.		

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION	
In addition to the hazards/risks normally associated with the types of work detailed on this drawing, note the following:	
CONSTRUCTION	
<ul style="list-style-type: none"> Service survey required pre-construction. Potential presence in existing structure of harmful substances causing damage to health to be established pre-demolition. Structure stability to be checked during break-out / demolition of existing structure Nature and position of the existing structure foundations to be verified pre-construction by undertaking investigations. Condition of existing structure may not be as anticipated. Existing structure may not be accurately represented by record drawings. Position of existing structure may not be as shown. 	
MAINTENANCE / CLEANING	
None	
DECOMMISSIONING / DEMOLITION	
None	
It is assumed that all works will be carried out by a competent contractor working, where appropriate, to an approved method statement	

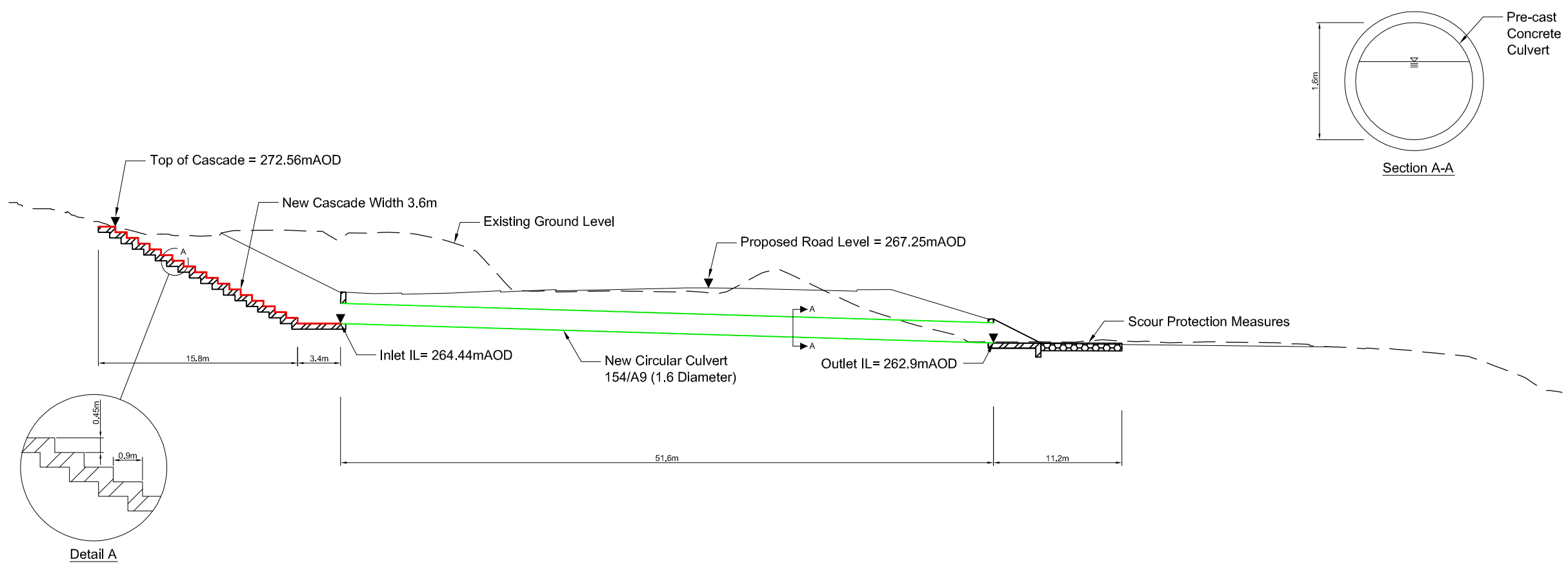
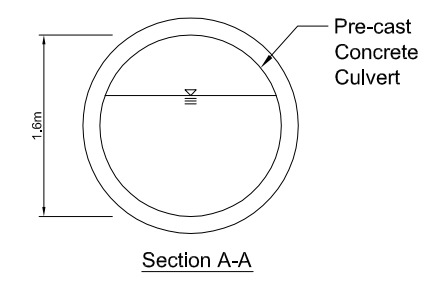
File: A:\B2140005 Killiecrankie to Pitagowan\CAD\Watercourse Modifications\A9P05-JAC-SBR-A_ML182_ST-M2-ST-0001 - Rev P2 - A9 740 Allt Crom Bhruthaich.dwg Date: Nov 16, 2017 - 6:13pm Plotted by: WOODJJA



- Legend:**
- New culvert/extension
 - - - Retained culvert
 - Realigned/regraded channel
 - Cascade
 - Inlet/outlet headwall (new)
 - - - Inlet/outlet headwall (retained)
 - Pre-earthworks drain and outfall
 - Access chamber
 - Flow direction
 - IL Invert Level

- Notes:**
1. All dimensions are in meters unless noted otherwise.
 2. All levels are in meters above ordnance datum.
 3. All details shown on this drawing are indicative only and subject to development at detailed design.
 4. This drawing shall be read in conjunction with the 'Watercourse Crossing report' only and not in isolation.
 5. All 'new' and 'extended' culverts have been designed in accordance with the relevant provisions of DMRB.
 6. Where required 'scour protection measures' shall be provided within the zone indicated on the drawing. The nature and the extent of the scour protection measure will be further developed at detailed design stage in accordance with the relevant provisions of DMRB, taking into account flow hydraulics, channel geometry and channel morphology.
 7. Where shown culverts shall be 'embedded' with natural river deposits to the depth shown.
 8. Where shown 'cascades' are required to safely convey the design flood event (0.5% AEP (200-year) plus allowance for climate change). The cascade geometry shown on the drawing is indicative only and will be subject to further development at detailed design stage. The nature of the cascade will take one of the following forms,
 - Bedrock channel cascade.
 - Natural cascade with natural gravels, cobbles and rock forming individual steps.
 - Concrete cascade with stone pitching.
 The nature of the cascade will be determined at the detailed design stage taking into account hydraulic requirements, topography and nature of the underlying strata and its susceptibility to fluvial erosion.
 9. Where shown mammal ledges will be provided within the culvert in accordance with the relevant provisions of DMRB.

SCHEMATIC PLAN



WATERCOURSE 154 LONGSECTION

D	18/01/17	FOR INFORMATION	CON	JW	LMG	
Rev	Rev. Date	Purpose of revision	Drawn	Checked	Rev'd	Apprv'd



KILLIECRANKIE TO GLEN GARRY PROPOSED MODIFICATIONS TO CULVERT ON WATERCOURSE WF154

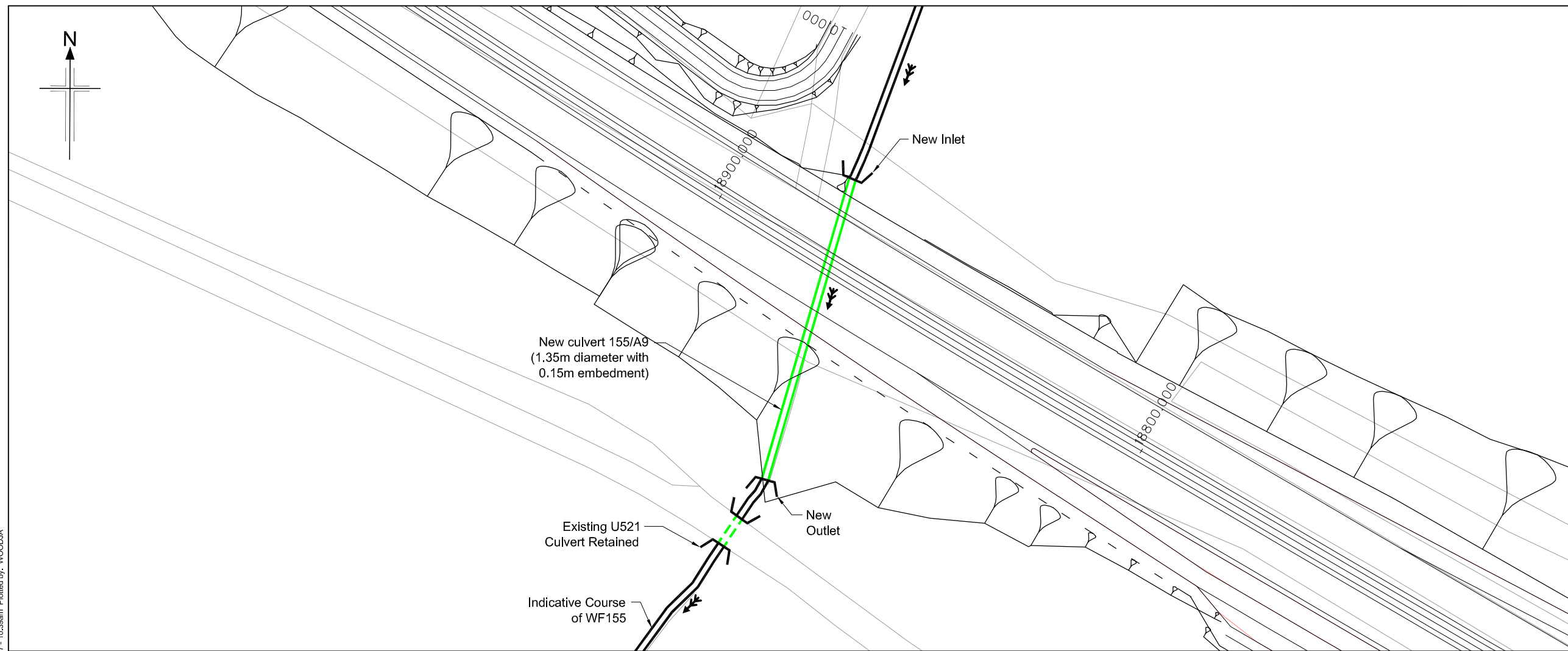
Drawing status: **FOR INFORMATION**

Scale	NTS @ A1	DO NOT SCALE
Jacobs No.	B2140005	
Drawing number	Figure A.11.8.57	
Rev	0	

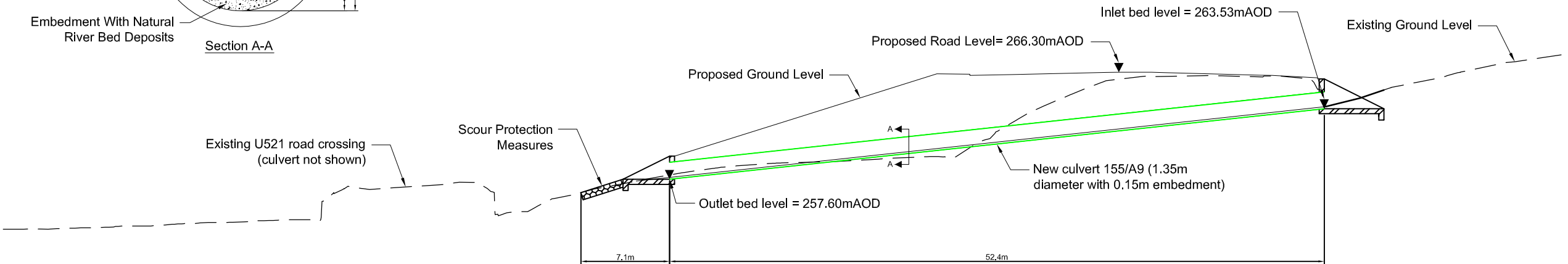
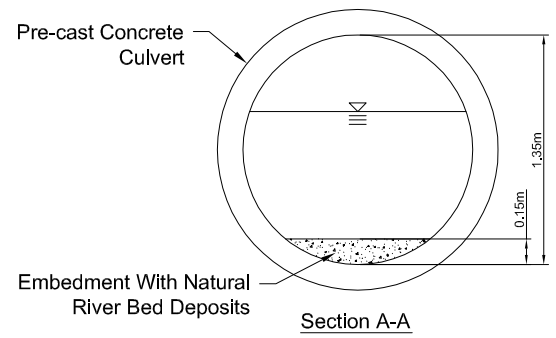
File: I:\Glarif\07\PV01\ECBC\BWA_Joos\B2140005 A9 Dualing Temp folder\B2140005 Killiecrankie to Pitegowan\CAD\Watercourse Modifications\WF154.dwg Date: Aug 03, 2017 - 10:38am Plotted by: WOODJA

Reproduced by permission of Ordnance Survey on behalf of HMSO. © Crown copyright and database right 2017. All rights reserved. Ordnance Survey Licence number 100046668.

© Copyright 2017 Jacobs UK Limited. The concepts and information contained in this document are the property of Jacobs. Use or copying of this document in whole or in part without the written permission of Jacobs constitutes an infringement of copyright. Limitation: This drawing has been prepared on behalf of, and for the exclusive use of, Jacobs Client, and is subject to, and issued in accordance with, the provisions of the contract between Jacobs and the Client. Jacobs accepts no liability or responsibility whatsoever for, or in respect of, any use of, or reliance upon, this drawing by any third party.



SCHEMATIC PLAN



WATERCOURSE 155 LONGSECTION

- Legend:**
- New culvert/extension
 - - - Retained culvert
 - Realigned/regraded channel
 - Cascade
 - Inlet/outlet headwall (new)
 - Inlet/outlet headwall (retained)
 - Pre-earthworks drain and outfall
 - Access chamber
 - Flow direction
 - IL

- Notes:**
1. All dimensions are in meters unless noted otherwise.
 2. All levels are in meters above ordnance datum.
 3. All details shown on this drawing are indicative only and subject to development at detailed design.
 4. This drawing shall be read in conjunction with the 'Watercourse Crossing report' only and not in isolation.
 5. All 'new' and 'extended' culverts have been designed in accordance with the relevant provisions of DMRB.
 6. Where required 'scour protection measures' shall be provided within the zone indicated on the drawing. The nature and the extent of the scour protection measure will be further developed at detailed design stage in accordance with the relevant provisions of DMRB, taking into account flow hydraulics, channel geometry and channel morphology.
 7. Where shown culverts shall be 'embedded' with natural river deposits to the depth shown.
 8. Where shown 'cascades' are required to safely convey the design flood event (0.5% AEP (200-year) plus allowance for climate change). The cascade geometry shown on the drawing is indicative only and will be subject to further development at detailed design stage. The nature of the cascade will take one of the following forms,
 - Bedrock channel cascade.
 - Natural cascade with natural gravels, cobbles and rock forming individual steps.
 - Concrete cascade with stone pitching.
 The nature of the cascade will be determined at the detailed design stage taking into account hydraulic requirements, topography and nature of the underlying strata and its susceptibility to fluvial erosion.
 9. Where shown mammal ledges will be provided within the culvert in accordance with the relevant provisions of DMRB.

D	18/01/17	FOR INFORMATION	CON	JW	LMG	
Rev	Rev. Date	Purpose of revision	Drawn	Checkd	Rev'd	Apprv'd



95 Bothwell St, Glasgow, G2 7HX
Tel: +44(0)141 243 9000 Fax: +44(0)141 226 3109
www.jacobs.com



Drawing title
 KILLIECRANKIE TO GLEN GARRY
 PROPOSED MODIFICATIONS
 TO CULVERT ON
 WATERCOURSE WF155

Drawing status
 FOR INFORMATION

Scale: NTS @ A1 DO NOT SCALE

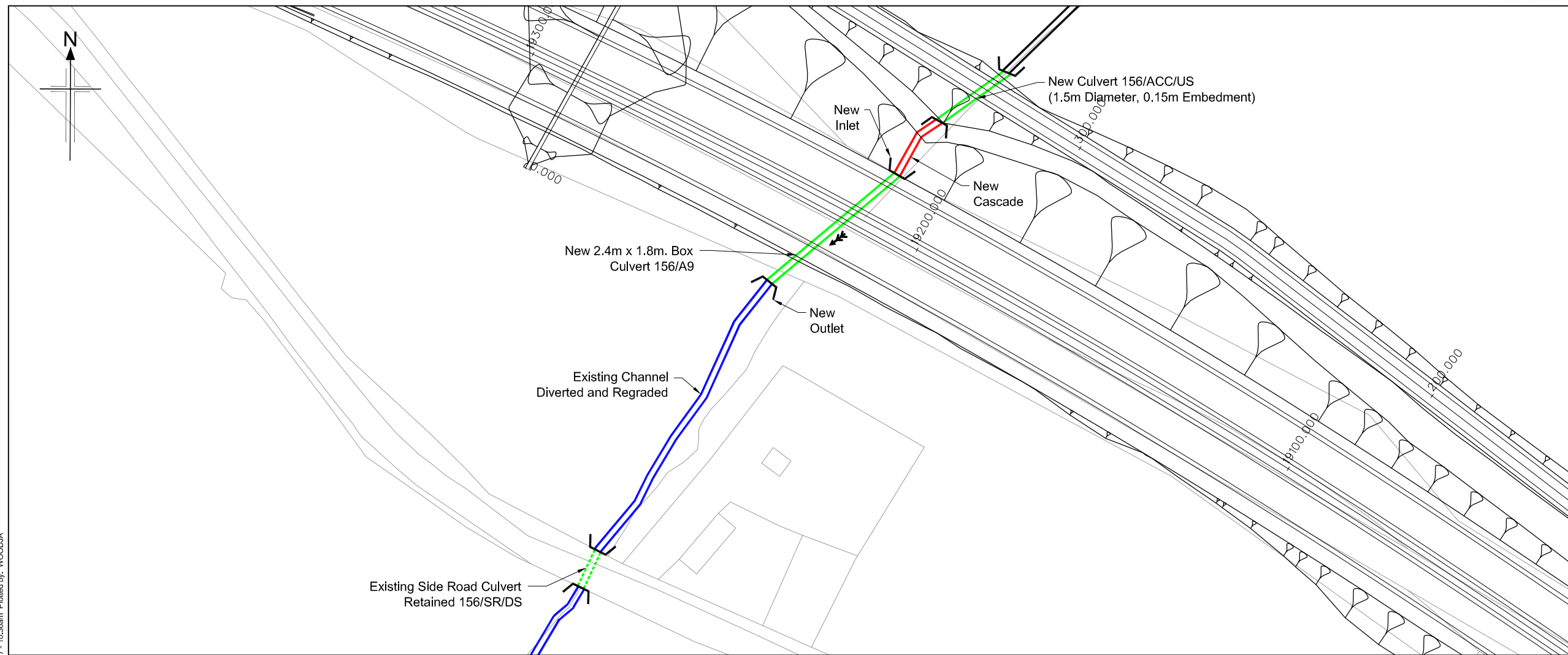
Jacobs No. B2140005

Drawing number: Figure A.11.8.58 Rev: 0

File: I:\Glarif\07\PV01\ECBC\BWA_Jobs\B2140005 A9 Dualing Temp folder\B2140005 A9 Dualing Modifications\WF155.dwg Date: Aug 03, 2017 - 10:59am Plotted by: WOODJA

Reproduced by permission of Ordnance Survey on behalf of HMSO.
 © Crown copyright and database right 2017. All rights reserved.
 Ordnance Survey Licence number 100046668.

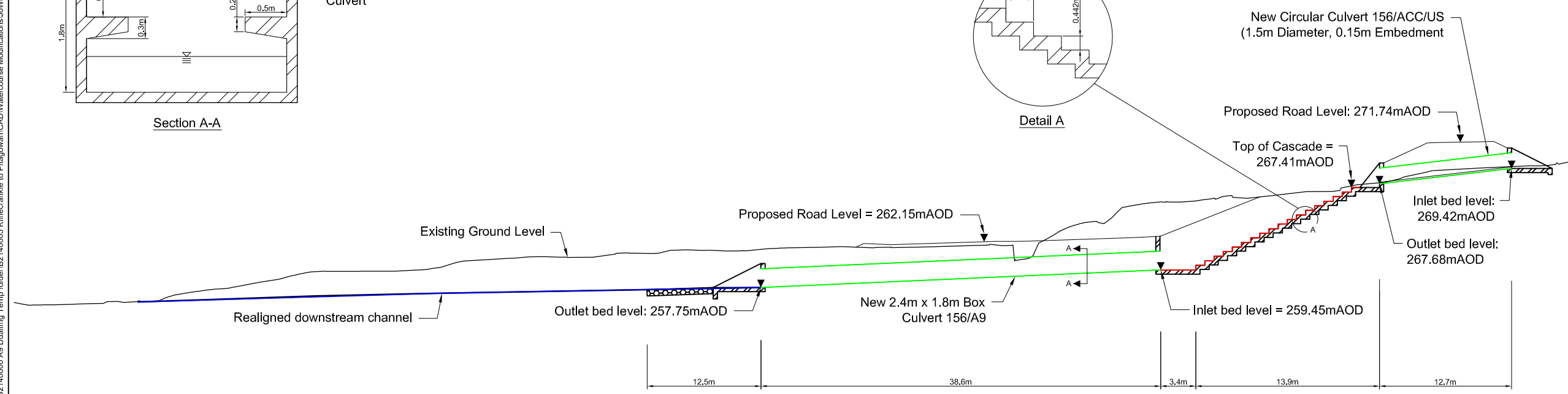
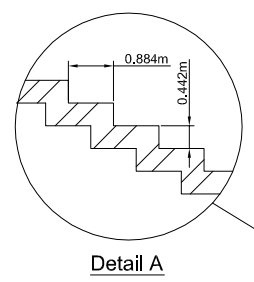
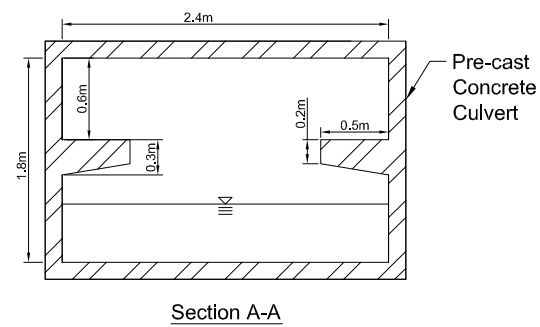
© Copyright 2017 Jacobs U.K. Limited. The concepts and information contained in this document are the property of Jacobs.
 Use or copying of this document in whole or in part without the written permission of Jacobs constitutes an infringement of
 copyright. Limitation: This drawing has been prepared on behalf of, and for the exclusive use of Jacobs Client, and is subject
 to, and limited in accordance with, the provisions of the contract between Jacobs and the Client. Jacobs accepts no liability or
 responsibility whatsoever for, or in respect of, any use of, or reliance upon, this drawing by any third party.



- Legend:
- New culvert/extension
 - - - Retained culvert
 - Realigned/regraded channel
 - Cascade
 - Inlet/outlet headwall (new)
 - - - Inlet/outlet headwall (retained)
 - Pre-earthworks drain and outfall
 - Access chamber
 - Flow direction
 - IL Invert Level

- Notes:
1. All dimensions are in meters unless noted otherwise.
 2. All levels are in meters above ordnance datum.
 3. All details shown on this drawing are indicative only and subject to development at detailed design.
 4. This drawing shall be read in conjunction with the 'Watercourse Crossing report' only and not in isolation.
 5. All 'new' and 'extended' culverts have been designed in accordance with the relevant provisions of DMRB.
 6. Where required 'scour protection measures' shall be provided within the zone indicated on the drawing. The nature and the extent of the scour protection measure will be further developed at detailed design stage in accordance with the relevant provisions of DMRB, taking into account flow hydraulics, channel geometry and channel morphology.
 7. Where shown culverts shall be 'embedded' with natural river deposits to the depth shown.
 8. Where shown 'cascades' are required to safely convey the design flood event (0.5% AEP (200-year) plus allowance for climate change). The cascade geometry shown on the drawing is indicative only and will be subject to further development at detailed design stage. The nature of the cascade will take one of the following forms,
 - Bedrock channel cascade.
 - Natural cascade with natural gravels, cobbles and rock forming individual steps.
 - Concrete cascade with stone pitching.
 The nature of the cascade will be determined at the detailed design stage taking into account hydraulic requirements, topography and nature of the underlying strata and its susceptibility to fluvial erosion.
 9. Where shown mammal ledges will be provided within the culvert in accordance with the relevant provisions of DMRB.

SCHEMATIC PLAN



Rev	Rev. Date	Purpose of revision	Drawn	Checkd	Rev'd	Apprv'd
0	20/01/17	FOR INFORMATION	COM	JW	LMG	



Drawing title
KILLIECRANKIE TO GLEN GARRY PROPOSED MODIFICATIONS TO CULVERT ON WATERCOURSE WF156

Drawing status
FOR INFORMATION

Scale
 NTS @ A1 DO NOT SCALE

Jacobs No.
 B2140005

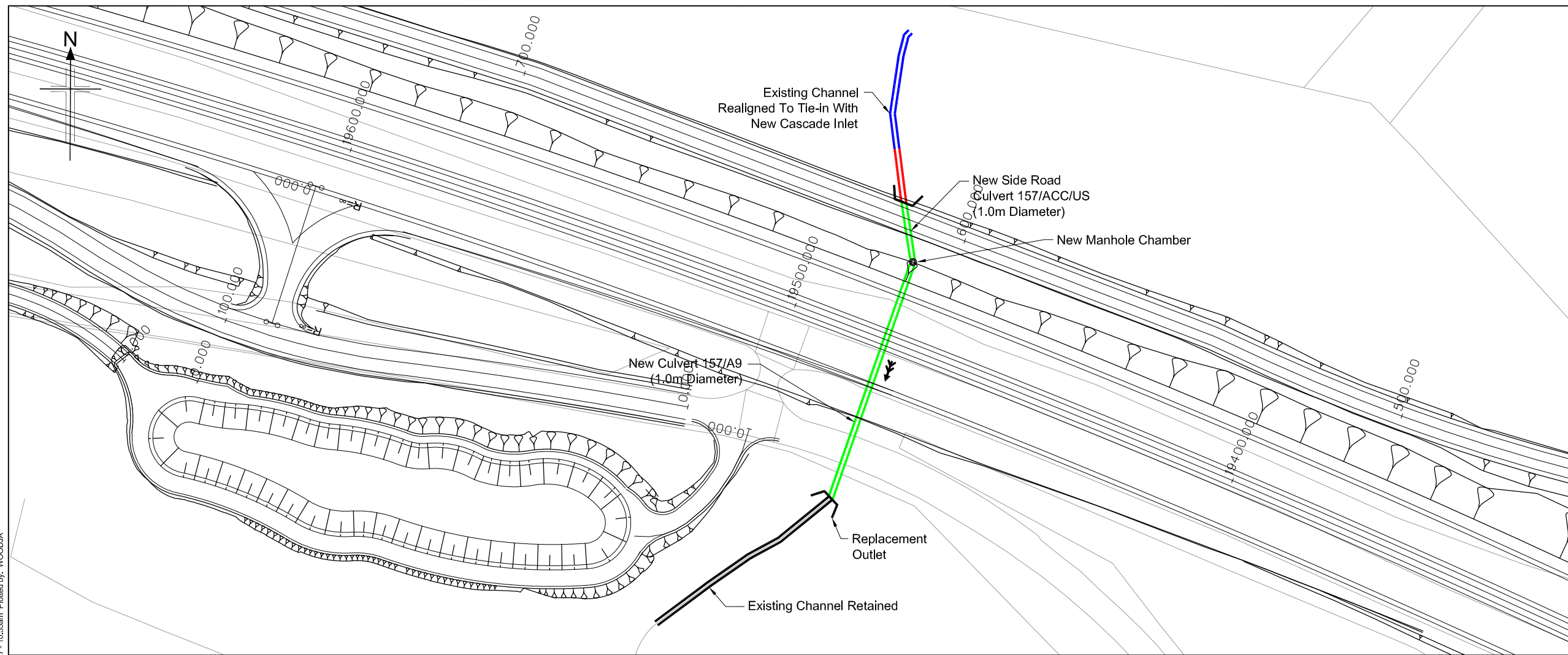
Drawing number
Figure A.11.8.59

Rev
0

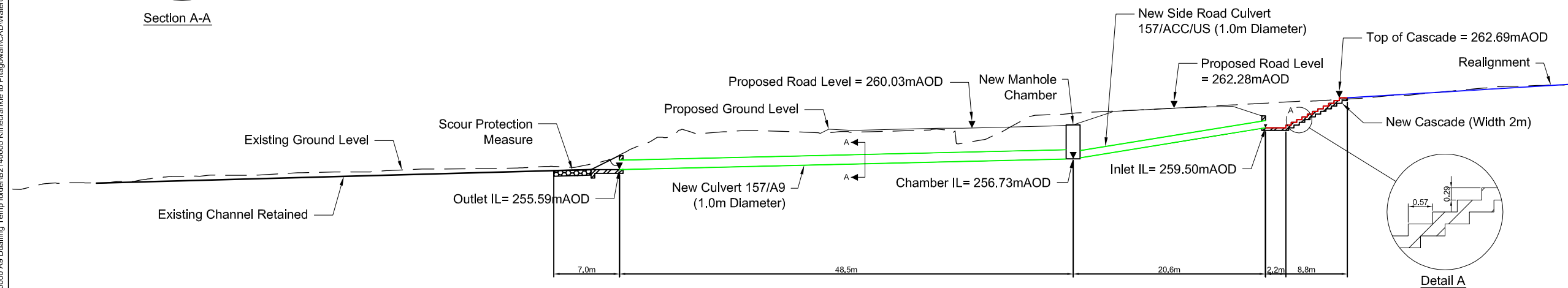
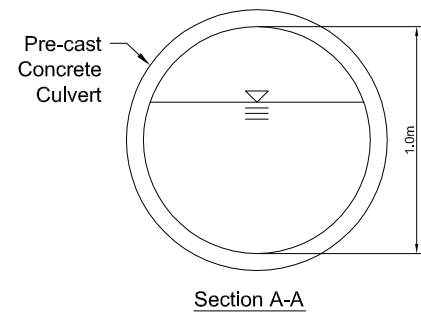
Reproduced by permission of Ordnance Survey on behalf of HMSO. © Crown copyright and database right 2017. All rights reserved. Ordnance Survey Licence number 100046668.

WATERCOURSE 156 LONGSECTION

File: I:\Glen\07\PV01\ECBC\BWA_Jobs\B2140005_Killiecrankie to Pitegown\CAD\Watercourse Modifications\WF156.dwg Date: Aug 03, 2017 - 10:38am Plotted by: WOODJA



SCHEMATIC PLAN



WATERCOURSE 157 LONGSECTION

- Legend:
- New culvert/extension
 - - - Retained culvert
 - Realigned/regraded channel
 - Cascade
 - Inlet/outlet headwall (new)
 - - - Inlet/outlet headwall (retained)
 - Pre-earthworks drain and outfall
 - Access chamber
 - Flow direction
 - IL Invert Level

- Notes:
1. All dimensions are in meters unless noted otherwise.
 2. All levels are in meters above ordnance datum.
 3. All details shown on this drawing are indicative only and subject to development at detailed design.
 4. This drawing shall be read in conjunction with the 'Watercourse Crossing report' only and not in isolation.
 5. All 'new' and 'extended' culverts have been designed in accordance with the relevant provisions of DMRB.
 6. Where required 'scour protection measures' shall be provided within the zone indicated on the drawing. The nature and the extent of the scour protection measure will be further developed at detailed design stage in accordance with the relevant provisions of DMRB, taking into account flow hydraulics, channel geometry and channel morphology.
 7. Where shown culverts shall be 'embedded' with natural river deposits to the depth shown.
 8. Where shown 'cascades' are required to safely convey the design flood event (0.5% AEP (200-year) plus allowance for climate change). The cascade geometry shown on the drawing is indicative only and will be subject to further development at detailed design stage. The nature of the cascade will take one of the following forms,
 - Bedrock channel cascade.
 - Natural cascade with natural gravels, cobbles and rock forming individual steps.
 - Concrete cascade with stone pitching.
 The nature of the cascade will be determined at the detailed design stage taking into account hydraulic requirements, topography and nature of the underlying strata and its susceptibility to fluvial erosion.
 9. Where shown mammal ledges will be provided within the culvert in accordance with the relevant provisions of DMRB.

Rev	Rev. Date	Purpose of revision	Drawn	Checkd	Rev'd	Apprv'd
0	18/01/17	FOR INFORMATION	CON	JW	LMG	

JACOBS
 95 Bothwell St, Glasgow, G2 7HX
 Tel: +44(0)141 243 9000 Fax: +44(0)141 226 3109
 www.jacobs.com



KILLIECRANKIE TO GLEN GARRY PROPOSED MODIFICATIONS TO CULVERT ON WATERCOURSE WF157

Drawing status: **FOR INFORMATION**

Scale: NTS @ A1 DO NOT SCALE

Jacobs No. B2140005

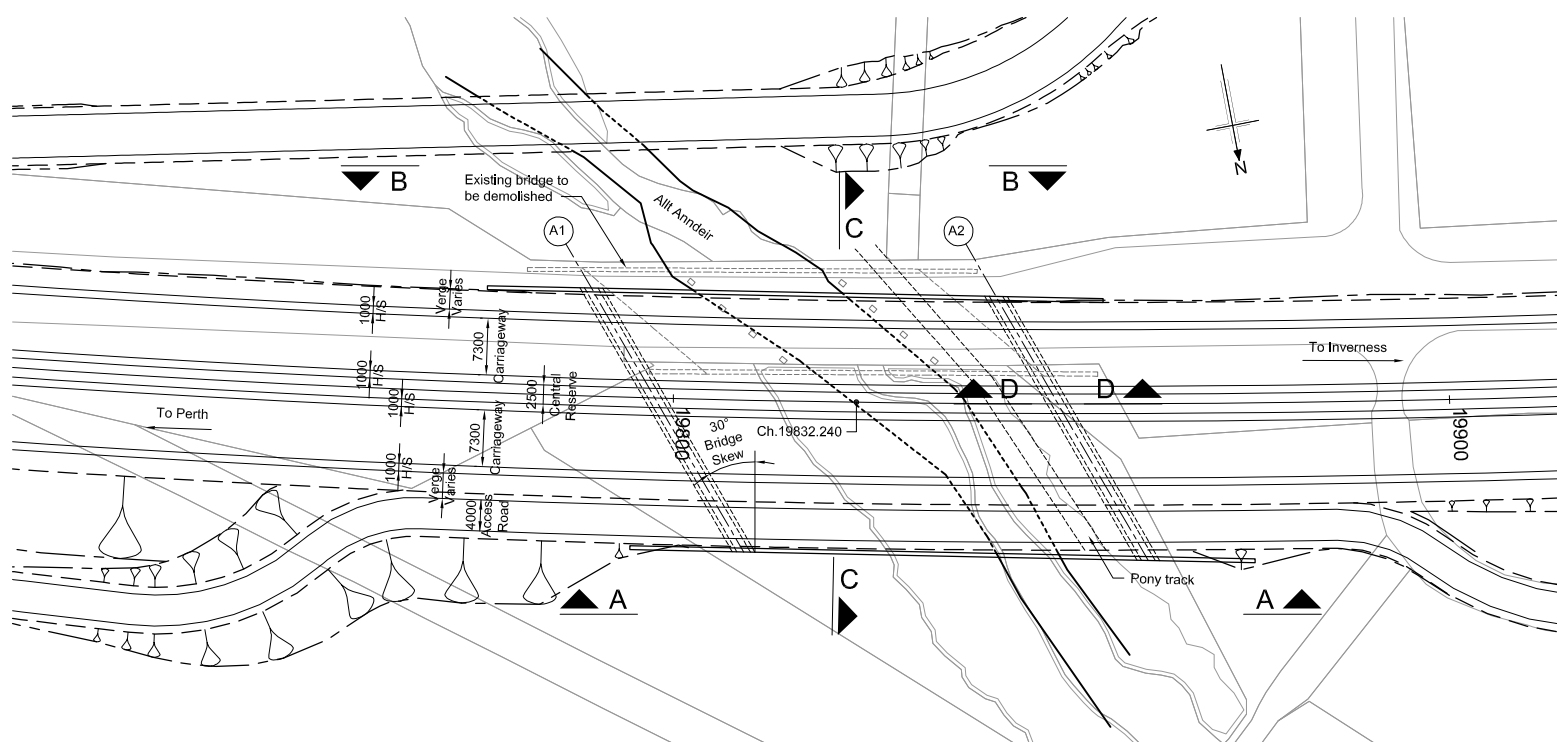
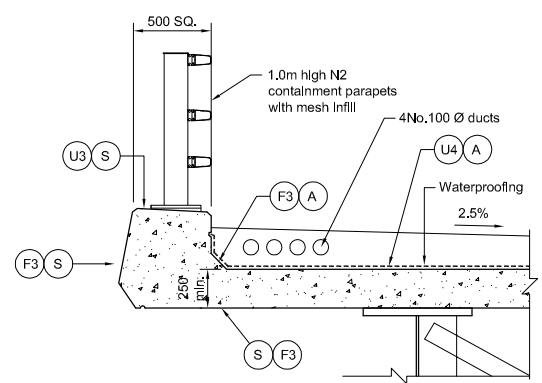
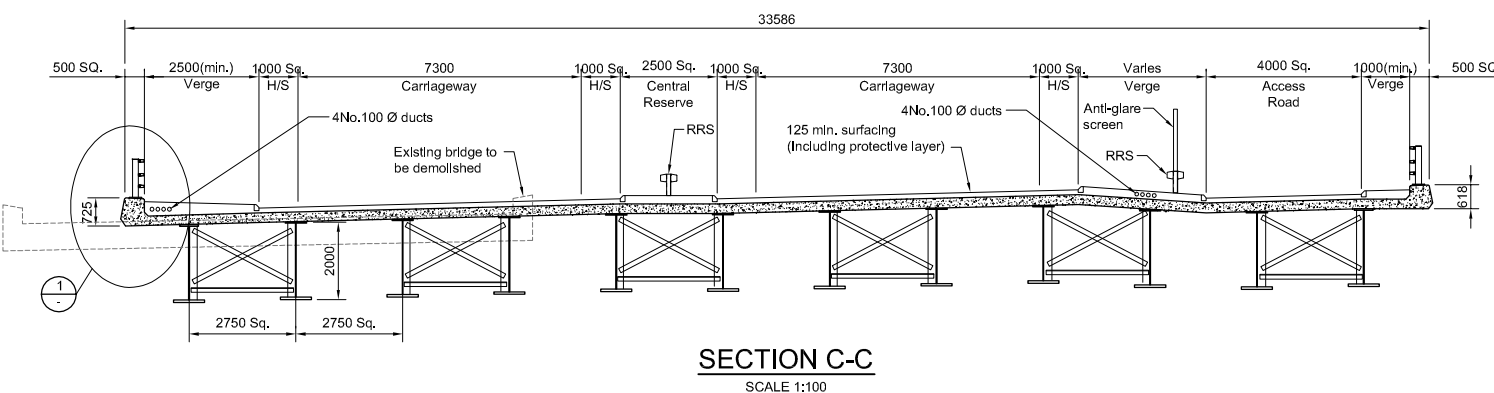
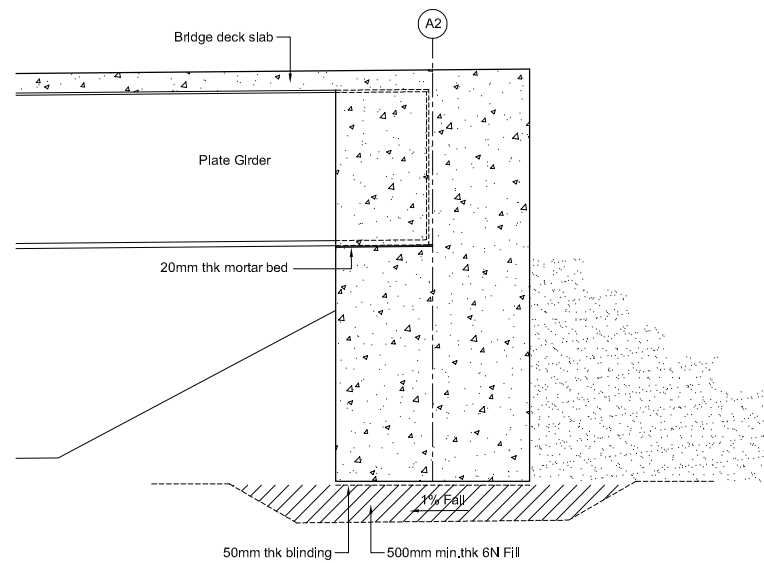
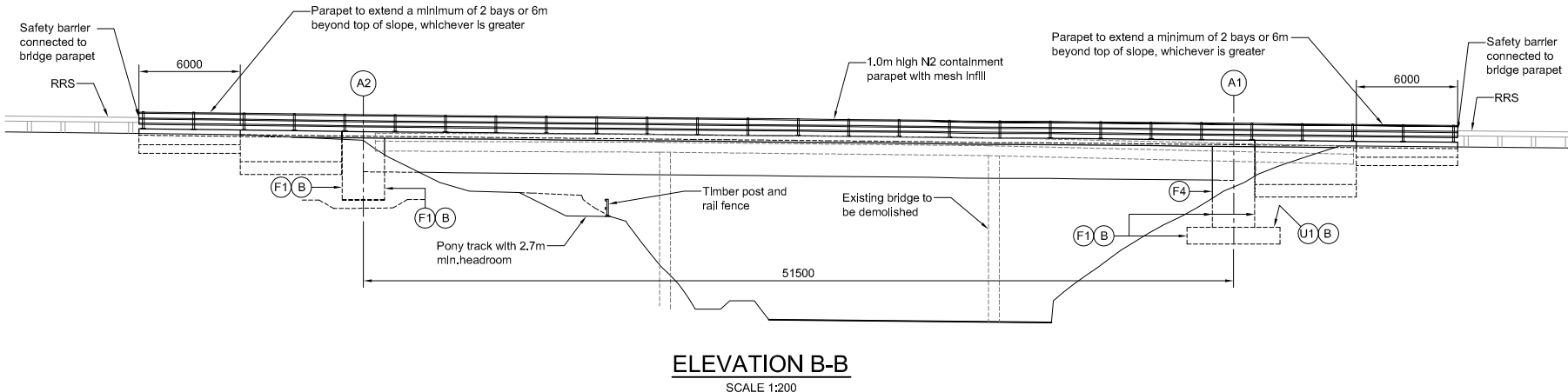
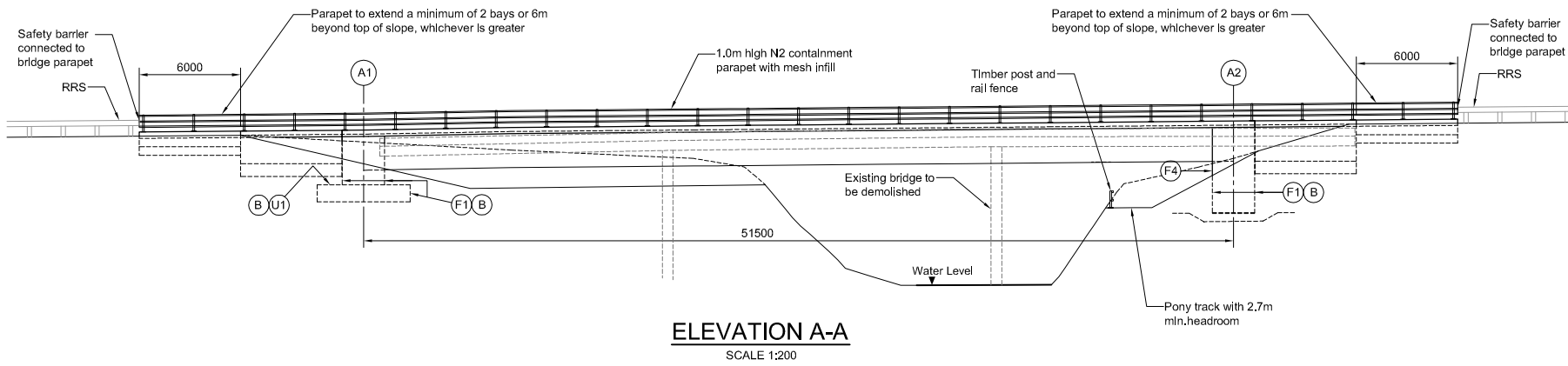
Drawing number: **Figure A.11.8.60** Rev: **0**

Reproduced by permission of Ordnance Survey on behalf of HMSO. © Crown copyright and database right 2017. All rights reserved. Ordnance Survey Licence number 100046668.

© Copyright 2017 Jacobs U.K. Limited. The concepts and information contained in this document are the property of Jacobs. Use or copying of this document in whole or in part without the written permission of Jacobs constitutes an infringement of copyright. Limitation: This drawing has been prepared on behalf of, and for the exclusive use of, Jacobs Client, and is subject to, and issued in accordance with, the provisions of the contract between Jacobs and the Client. Jacobs accepts no liability or responsibility whatsoever for, or in respect of, any use of, or reliance upon, this drawing by any third party.

File: I:\Glarif\07\PV01\1ECBC\BWA_Jobs\B2140005 A9 Dualling Temp folder\B2140005 Killiecrankie to Pitagowan\CAD\Watercourse Modifications\WF157.dwg Date: Aug 03, 2017 - 10:55am Plotted by: WOODJA

File: A:\B2140005 Killiecrankie to Pitagowan\CAD\Watercourse Modifications\A9D05-JAC-SBRA-ML198-ST-M2-ST-0001 Rev P2 - Dalnamein Bridge.dwg Date: Nov 16, 2017 - 6:16pm Plotted by: WOODUA



- Notes.
- All dimensions are in millimetres unless noted otherwise.
 - All levels are in metres Above Ordnance Datum.
 - All chainages are in metres.
 - All exposed arrises to have 25x25 chamfers unless noted otherwise.
 - Concrete finishes denoted thus:
 - (F) - Formed
 - (U) - Unformed
 - Concrete protection to be as follows:
 - (S) - Surface Impregnation in accordance with BD43 of the DMRB.
 - (A) - Spray applied waterproofing in accordance with CI 2003 of the Specification.
 - (B) - Waterproofing of all buried concrete surfaces in accordance with CI 2004 of the Specification.
 - All details shown on this drawing are Indicative only and subject to development.

P2	22/05/17	DMRB Stage 3 Report - Draft	MG	IA	MAM	ELM
P1	06/01/17	Design Flt 4 - Issue for Review	MG	IA	MAM	ELM
Rev	Rev. Date	Purpose of revision	Drawn	Checked	Rev'd	App'd

JACOBS
 95 Bothwell St, Glasgow, G2 7HX
 Tel:+44(0)141 243 8000 Fax:+44(0)141 226 3109
 www.jacobs.com

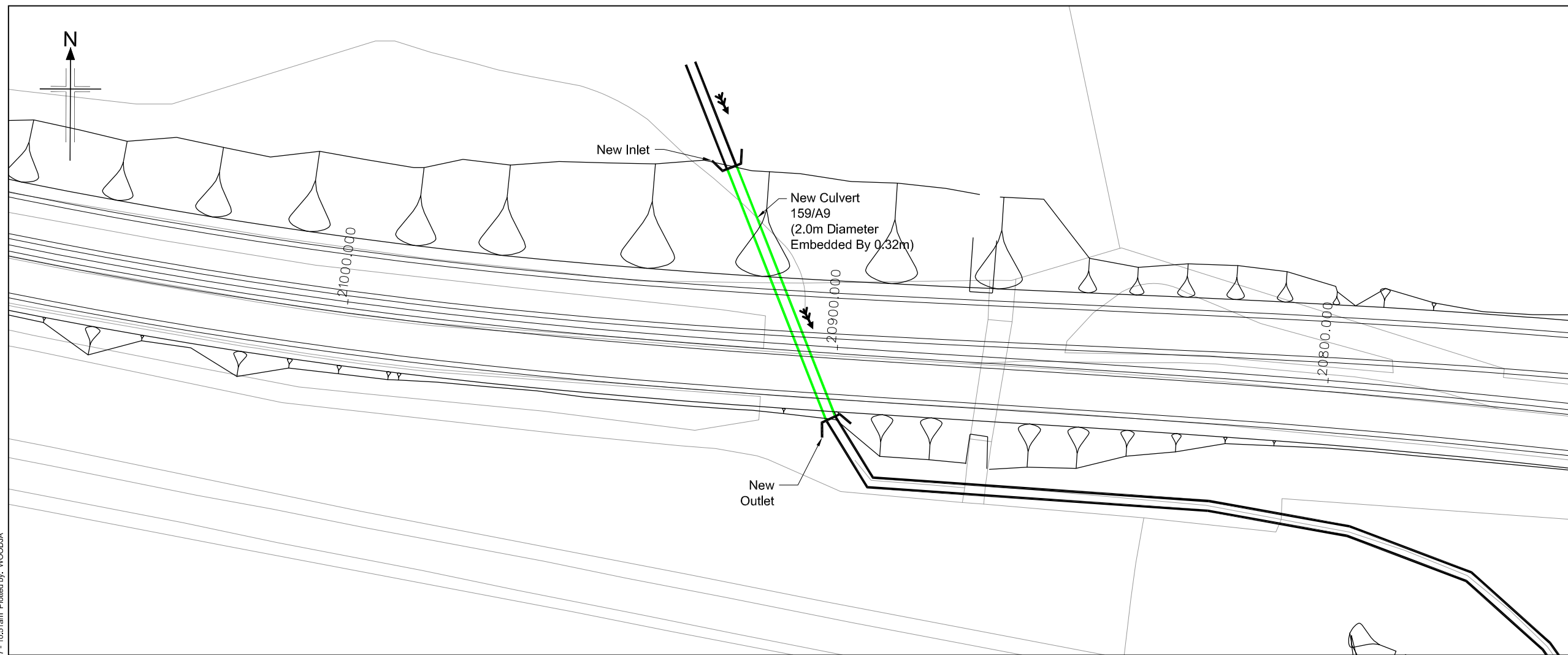


Drawing title		
KILLIECRANKIE TO GLEN GARRY DALNAMEIN UNDERBRIDGE GENERAL ARRANGEMENT		
Drawing status		
Scale	AS SHOWN @ A1	DO NOT SCALE
Jacobs No.	B2140005	
Drawing number	Figure A.11.8.61	Rev P2
This drawing is not to be used in whole or part other than for the intended purpose and project as defined on this drawing. Refer to the contract for full terms and conditions.		

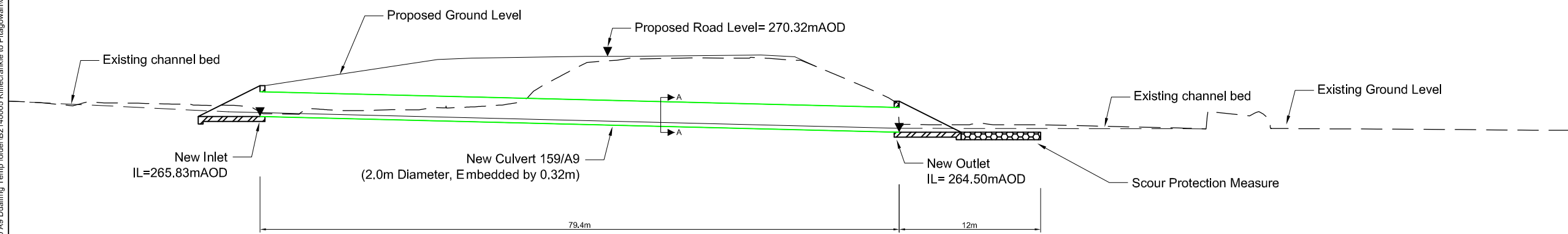
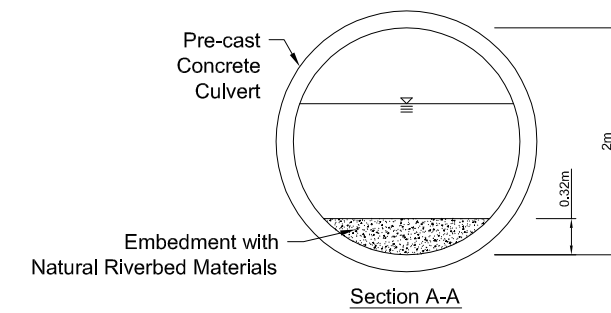
SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION	
In addition to the hazards/risks normally associated with the types of work detailed on this drawing, note the following:	
CONSTRUCTION	
<ul style="list-style-type: none"> Service survey required pre-construction Potential presence in existing structure of harmful substances causing damage to health to be established pre-demolition Structure stability to be checked during break-out / demolition of existing structure Nature and position of the existing structure foundations to be verified pre-construction by undertaking investigations Condition of existing structure may not be as anticipated Existing structure may not be accurately represented by record drawings Position of existing structure may not be as shown 	
MAINTENANCE / CLEANING	
None	
DECOMMISSIONING / DEMOLITION	
None	
It is assumed that all works will be carried out by a competent contractor working, where appropriate, to an approved method statement	

Reproduced by permission of Ordnance Survey on behalf of HMSO.
 © Crown copyright and database right 2016. All rights reserved.
 Ordnance Survey Licence number 100046668.

PLAN
 SCALE 1:500



SCHEMATIC PLAN



WATERCOURSE 159 LONGSECTION

- Legend:
- New culvert/extension
 - - - Retained culvert
 - Realigned/regraded channel
 - Cascade
 - Inlet/outlet headwall (new)
 - - - Inlet/outlet headwall (retained)
 - Pre-earthworks drain and outfall
 - Access chamber
 - ← Flow direction
 - IL Invert Level

- Notes:
1. All dimensions are in meters unless noted otherwise.
 2. All levels are in meters above ordnance datum.
 3. All details shown on this drawing are indicative only and subject to development at detailed design.
 4. This drawing shall be read in conjunction with the 'Watercourse Crossing report' only and not in isolation.
 5. All 'new' and 'extended' culverts have been designed in accordance with the relevant provisions of DMRB.
 6. Where required 'scour protection measures' shall be provided within the zone indicated on the drawing. The nature and the extent of the scour protection measure will be further developed at detailed design stage in accordance with the relevant provisions of DMRB, taking into account flow hydraulics, channel geometry and channel morphology.
 7. Where shown culverts shall be 'embedded' with natural river deposits to the depth shown.
 8. Where shown 'cascades' are required to safely convey the design flood event (0.5% AEP (200-year) plus allowance for climate change). The cascade geometry shown on the drawing is indicative only and will be subject to further development at detailed design stage. The nature of the cascade will take one of the following forms,
 - Bedrock channel cascade.
 - Natural cascade with natural gravels, cobbles and rock forming individual steps.
 - Concrete cascade with stone pitching.
 The nature of the cascade will be determined at the detailed design stage taking into account hydraulic requirements, topography and nature of the underlying strata and its susceptibility to fluvial erosion.
 9. Where shown mammal ledges will be provided within the culvert in accordance with the relevant provisions of DMRB.

Rev	Rev. Date	Purpose of revision	Drawn	Checkd	Rev'd	Apprv'd
0	18/01/17	FOR INFORMATION				

JACOBS
 95 Bothwell St, Glasgow, G2 7HX
 Tel: +44(0)141 243 9000 Fax: +44(0)141 226 3109
 www.jacobs.com



Drawing title
**KILLIECRANKIE TO GLEN GARRY
 PROPOSED MODIFICATIONS
 TO CULVERT ON
 WATERCOURSE WF159**

Drawing status
FOR INFORMATION

Scale
 NTS @ A1 DO NOT SCALE

Jacobs No.
 B2140005

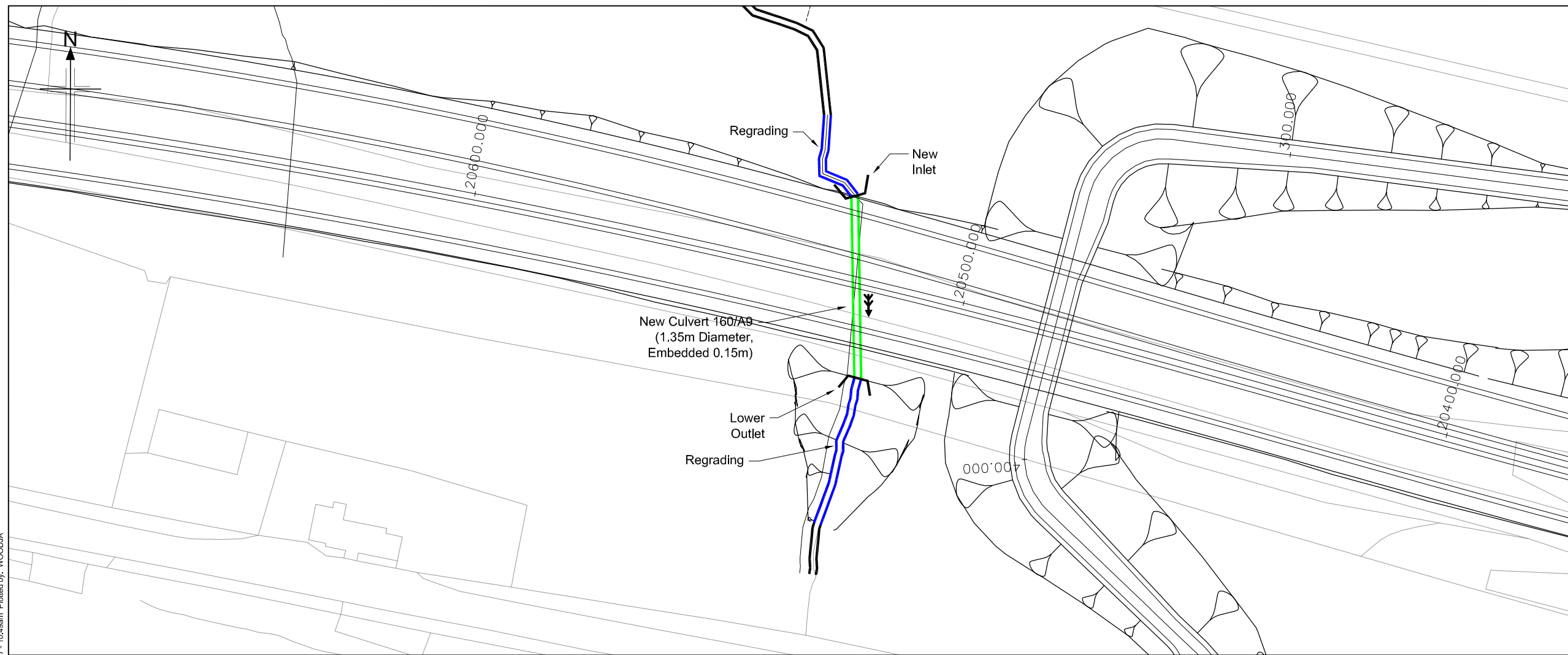
Drawing number
Figure A.11.8.62

Rev
0

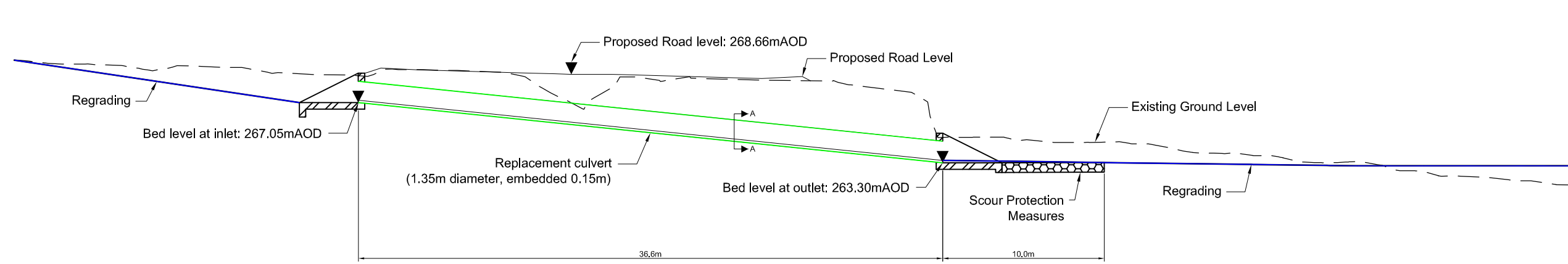
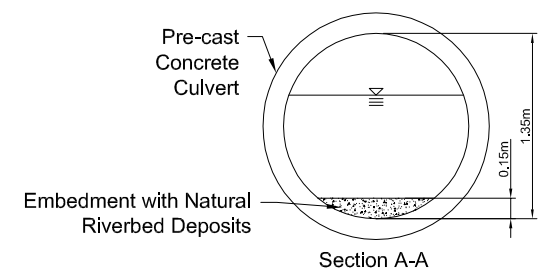
File: I:\Glarif\07\PV01\ECBC\BWA_Joos\B2140000 A9 Dualling Temp folder\B2140000 A9 Dualling CAD\Watercourse Modifications\WF159.dwg Date: Aug 03, 2017 - 10:55 am Plotted by: WOODJA

Reproduced by permission of Ordnance Survey on behalf of HMSO.
 © Crown copyright and database right 2017. All rights reserved.
 Ordnance Survey Licence number 100046668.

© Copyright 2017 Jacobs U.K. Limited. The concepts and information contained in this document are the property of Jacobs. Use or copying of this document in whole or in part without the written permission of Jacobs constitutes an infringement of copyright. Limitation: This drawing has been prepared on behalf of, and for the exclusive use of, Jacobs' Client, and is subject to, and limited in accordance with, the provisions of the contract between Jacobs and the Client. Jacobs accepts no liability or responsibility whatsoever for, or in respect of, any use of, or reliance upon, this drawing by any third party.



SCHMATIC PLAN



WATERCOURSE 160 LONGSECTION

- Legend:
- New culvert/extension
 - - - Retained culvert
 - Realigned/regraded channel
 - Cascade
 - Inlet/outlet headwall (new)
 - - - Inlet/outlet headwall (retained)
 - Pre-earthworks drain and outfall
 - Access chamber
 - Flow direction
 - IL Invert Level

- Notes:
1. All dimensions are in meters unless noted otherwise.
 2. All levels are in meters above ordnance datum.
 3. All details shown on this drawing are indicative only and subject to development at detailed design.
 4. This drawing shall be read in conjunction with the 'Watercourse Crossing report' only and not in isolation.
 5. All 'new' and 'extended' culverts have been designed in accordance with the relevant provisions of DMRB.
 6. Where required 'scour protection measures' shall be provided within the zone indicated on the drawing. The nature and the extent of the scour protection measure will be further developed at detailed design stage in accordance with the relevant provisions of DMRB, taking into account flow hydraulics, channel geometry and channel morphology.
 7. Where shown culverts shall be 'embedded' with natural river deposits to the depth shown.
 8. Where shown 'cascades' are required to safely convey the design flood event (0.5% AEP (200-year) plus allowance for climate change). The cascade geometry shown on the drawing is indicative only and will be subject to further development at detailed design stage. The nature of the cascade will take one of the following forms,
 - Bedrock channel cascade.
 - Natural cascade with natural gravels, cobbles and rock forming individual steps.
 - Concrete cascade with stone pitching.
 The nature of the cascade will be determined at the detailed design stage taking into account hydraulic requirements, topography and nature of the underlying strata and its susceptibility to fluvial erosion.
 9. Where shown mammal ledges will be provided within the culvert in accordance with the relevant provisions of DMRB.

Rev	Rev. Date	Purpose of revision	Drawn	Checked	Rev'd	Apprv'd
0	18/01/17	FOR INFORMATION				

JACOBS
 95 Bothwell St, Glasgow, G2 7HX
 Tel: +44(0)141 243 9000 Fax: +44(0)141 226 3109
 www.jacobs.com



Drawing title
**KILLIECRANKIE TO GLEN GARRY
 PROPOSED MODIFICATIONS
 TO CULVERT ON
 WATERCOURSE WF160**

Drawing status
FOR INFORMATION

Scale
 NTS @ A1 DO NOT SCALE

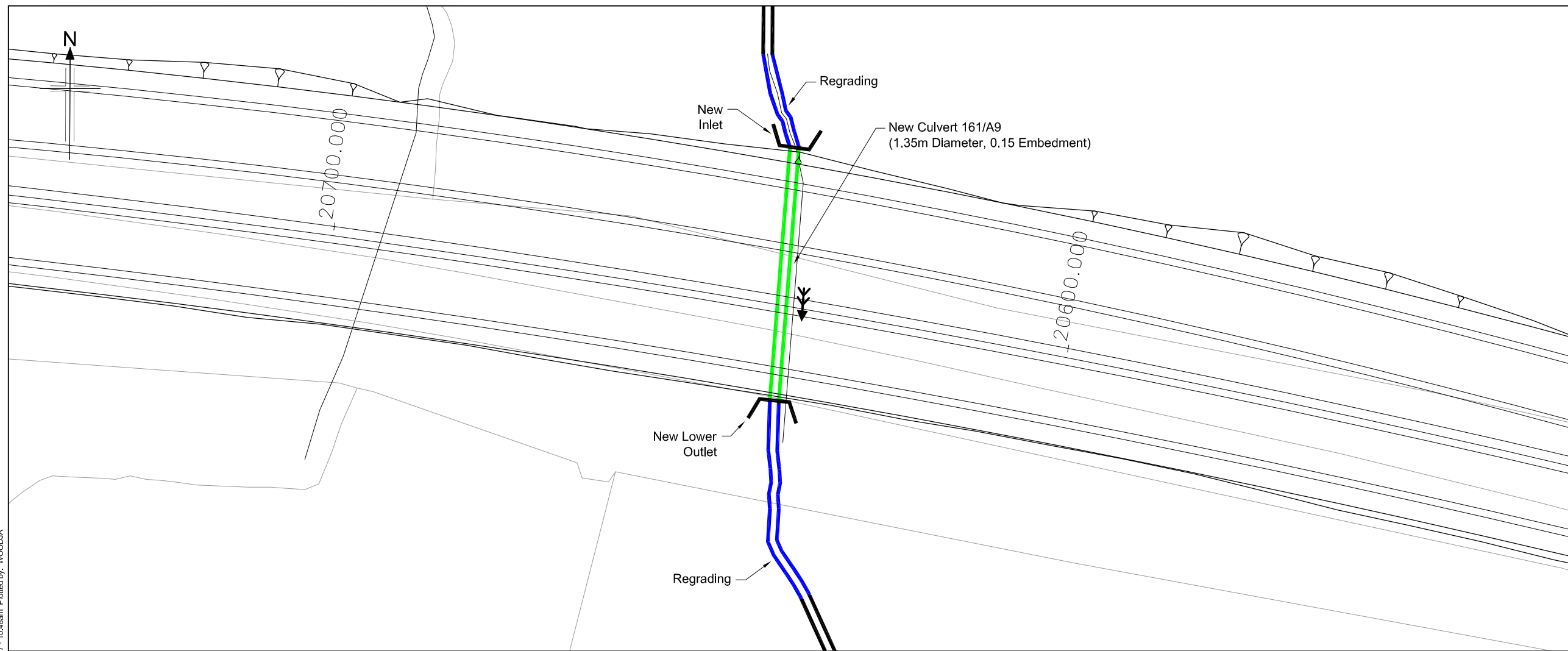
Jacobs No. B2140005

Drawing number
Figure A.11.8.63

Rev
0

File: I:\Glarif\07\PV01\1ECBC\BWA_Joos\B2140005 A9 Dualling Temp folder\B2140005 Killiecrankie to Pitgovan\CAD\Watercourse Modifications\WF160.dwg Date: Aug 03, 2017 - 10:49am Plotted by: WOODJA

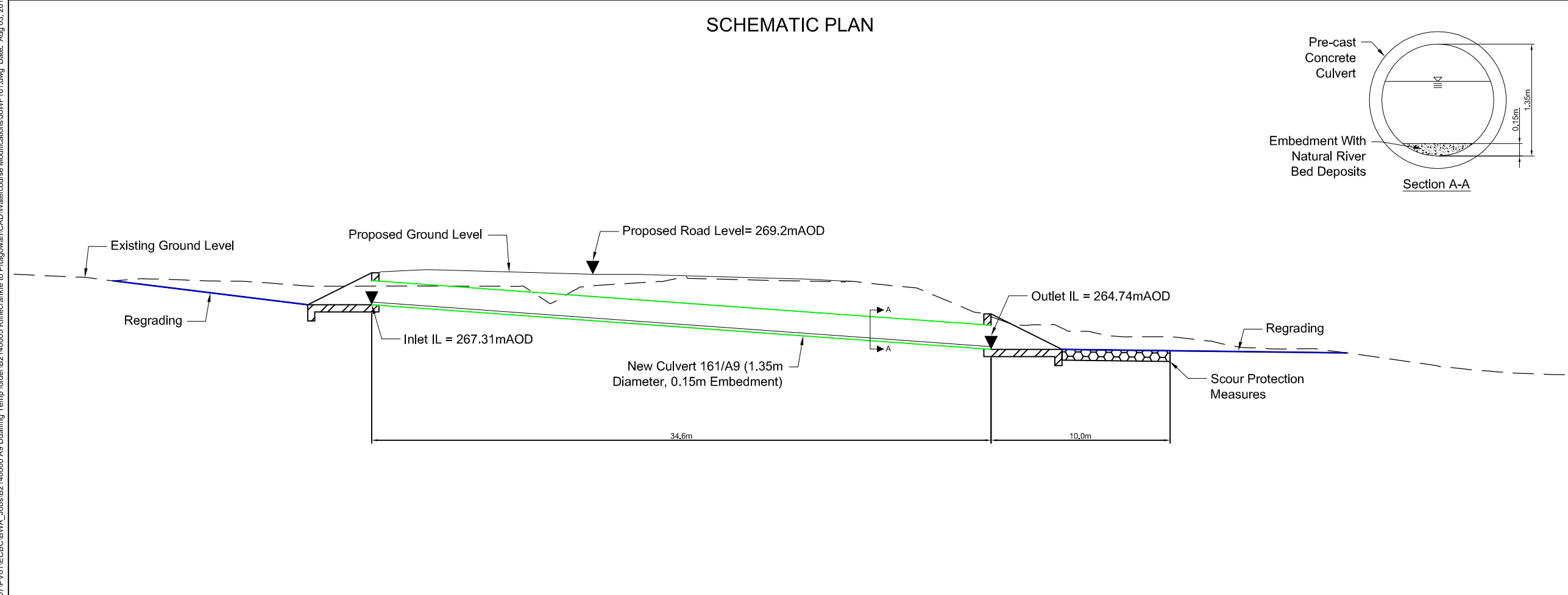
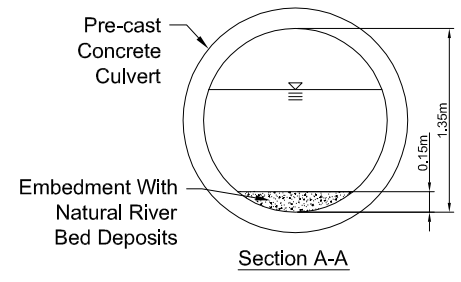
Reproduced by permission of Ordnance Survey on behalf of HMSO.
 © Crown copyright and database right 2017. All rights reserved.
 Ordnance Survey Licence number 100046668.



SCHEMATIC PLAN

- Legend:
- New culvert/extension
 - - - Retained culvert
 - Realigned/regraded channel
 - Cascade
 - Inlet/outlet headwall (new)
 - Inlet/outlet headwall (retained)
 - Pre-earthworks drain and outfall
 - Access chamber
 - Flow direction
 - IL

- Notes:
1. All dimensions are in meters unless noted otherwise.
 2. All levels are in meters above ordnance datum.
 3. All details shown on this drawing are indicative only and subject to development at detailed design.
 4. This drawing shall be read in conjunction with the 'Watercourse Crossing report' only and not in isolation.
 5. All 'new' and 'extended' culverts have been designed in accordance with the relevant provisions of DMRB.
 6. Where required 'scour protection measures' shall be provided within the zone indicated on the drawing. The nature and the extent of the scour protection measure will be further developed at detailed design stage in accordance with the relevant provisions of DMRB, taking into account flow hydraulics, channel geometry and channel morphology.
 7. Where shown culverts shall be 'embedded' with natural river deposits to the depth shown.
 8. Where shown 'cascades' are required to safely convey the design flood event (0.5% AEP (200-year) plus allowance for climate change). The cascade geometry shown on the drawing is indicative only and will be subject to further development at detailed design stage. The nature of the cascade will take one of the following forms,
 - Bedrock channel cascade.
 - Natural cascade with natural gravels, cobbles and rock forming individual steps.
 - Concrete cascade with stone pitching.
 The nature of the cascade will be determined at the detailed design stage taking into account hydraulic requirements, topography and nature of the underlying strata and its susceptibility to fluvial erosion.
 9. Where shown mammal ledges will be provided within the culvert in accordance with the relevant provisions of DMRB.



WATERCOURSE 161 LONGSECTION

Rev	Rev. Date	Purpose of revision	Drawn	Checked	Rev'd	Apprv'd
0	18/01/17	FOR INFORMATION	COM	JW	LMG	

JACOBS
 95 Bothwell St, Glasgow, G2 7HX
 Tel: +44(0)141 243 9000 Fax: +44(0)141 226 3109
 www.jacobs.com



Drawing title
KILLIECRANKIE TO GLEN GARRY PROPOSED MODIFICATIONS TO CULVERT ON WATERCOURSE WF161

Drawing status
FOR INFORMATION

Scale
 NTS @ A1 DO NOT SCALE

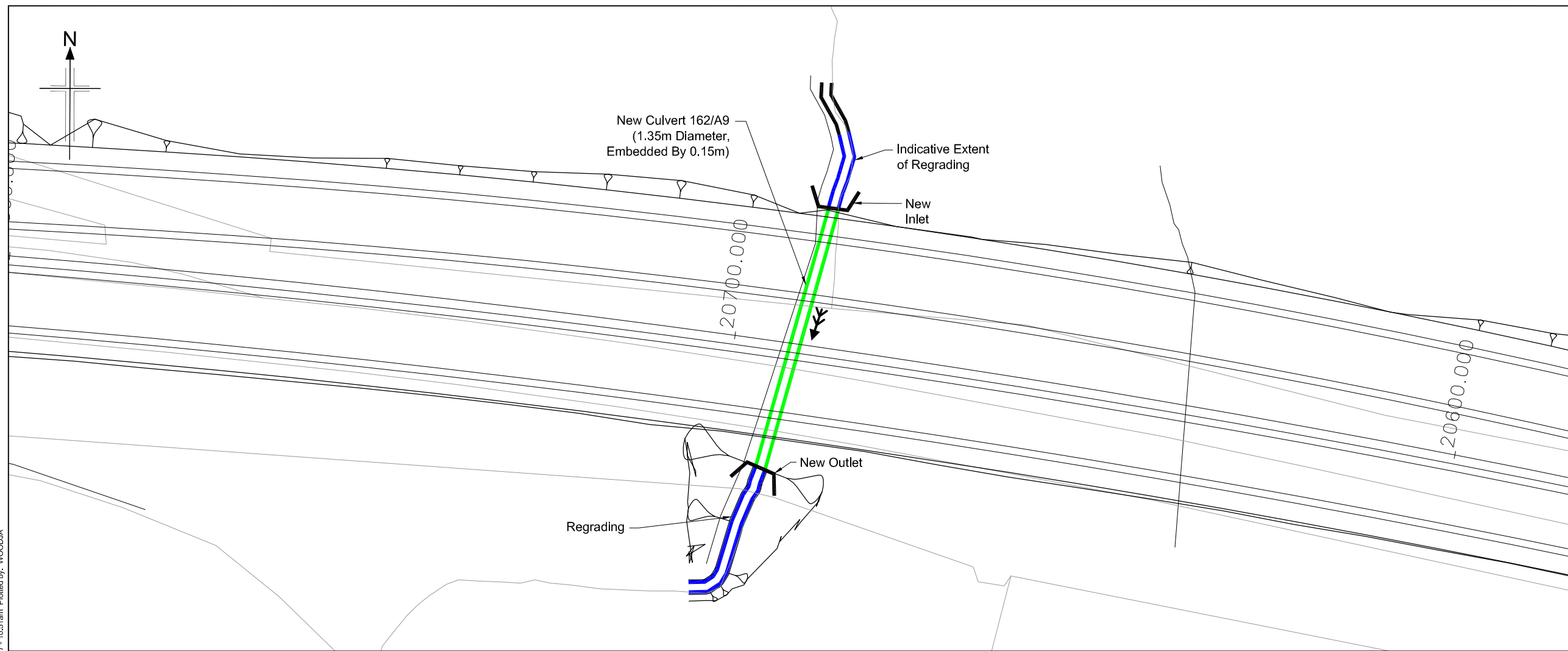
Jacobs No.
 B2140005

Drawing number
Figure A.11.8.64

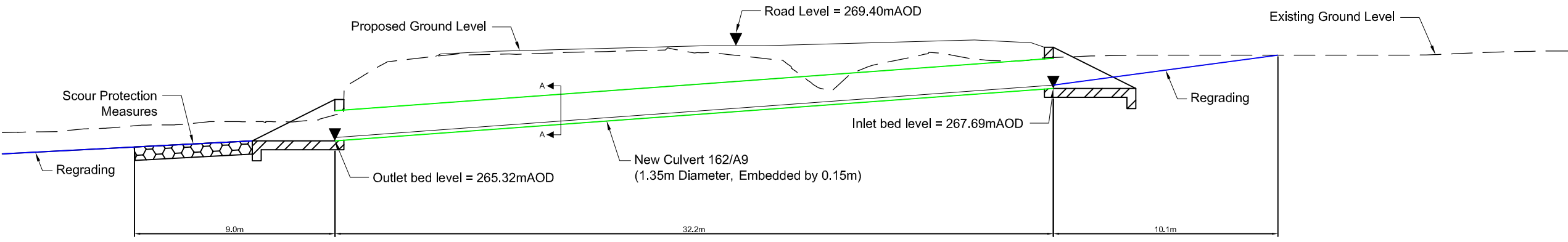
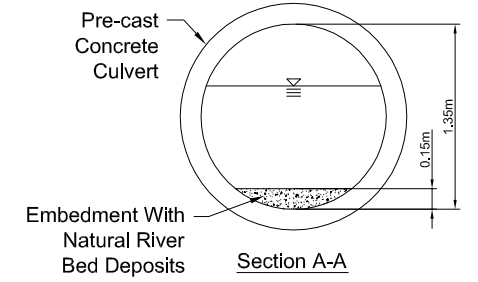
Rev
0

Reproduced by permission of Ordnance Survey on behalf of HMSO.
 © Crown copyright and database right 2017. All rights reserved.
 Ordnance Survey Licence number 100046668.

File: I:\Glarif\07\P\01\ECBC\BWA_Jobs\B2140005 A9 Dualling Temp folder\B2140005 A9 Dualling\CAD\Watercourse Modifications\WF161.dwg Date: Aug 03, 2017 - 10:48am Plotted by: WOODJA



SCHEMATIC PLAN



WATERCOURSE 162 LONGSECTION

Legend:

	New culvert/extension
	Retained culvert
	Realigned/regraded channel
	Cascade
	Inlet/outlet headwall (new)
	Inlet/outlet headwall (retained)
	Pre-earthworks drain and outfall
	Access chamber
	Flow direction
	Invert Level

- Notes:
- All dimensions are in meters unless noted otherwise.
 - All levels are in meters above ordnance datum.
 - All details shown on this drawing are indicative only and subject to development at detailed design.
 - This drawing shall be read in conjunction with the 'Watercourse Crossing report' only and not in isolation.
 - All 'new' and 'extended' culverts have been designed in accordance with the relevant provisions of DMRB.
 - Where required 'scour protection measures' shall be provided within the zone indicated on the drawing. The nature and the extent of the scour protection measure will be further developed at detailed design stage in accordance with the relevant provisions of DMRB, taking into account flow hydraulics, channel geometry and channel morphology.
 - Where shown culverts shall be 'embedded' with natural river deposits to the depth shown.
 - Where shown 'cascades' are required to safely convey the design flood event (0.5% AEP (200-year) plus allowance for climate change). The cascade geometry shown on the drawing is indicative only and will be subject to further development at detailed design stage. The nature of the cascade will take one of the following forms,
 - Bedrock channel cascade.
 - Natural cascade with natural gravels, cobbles and rock forming individual steps.
 - Concrete cascade with stone pitching.
 The nature of the cascade will be determined at the detailed design stage taking into account hydraulic requirements, topography and nature of the underlying strata and its susceptibility to fluvial erosion.
 - Where shown mammal ledges will be provided within the culvert in accordance with the relevant provisions of DMRB.

D	18/01/17	FOR INFORMATION	CON	JW	LMG	
Rev	Rev. Date	Purpose of revision	Drawn	Checked	Rev'd	Appr'd



95 Bothwell St, Glasgow, G2 7HX
Tel: +44(0)141 243 9000 Fax: +44(0)141 226 3109
www.jacobs.com



KILLIECRANKIE TO GLEN GARRY PROPOSED MODIFICATIONS TO CULVERT ON WATERCOURSE WF162

Drawing status: **FOR INFORMATION**

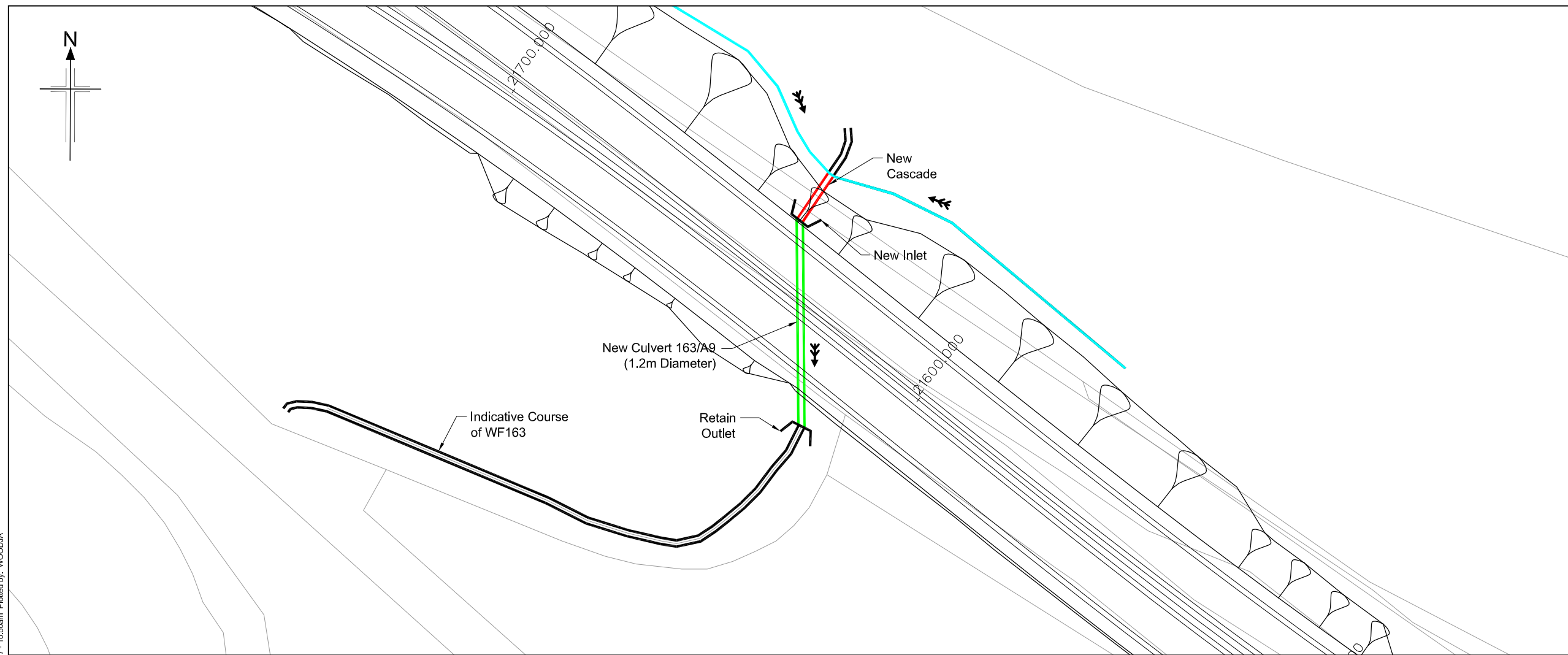
Scale	NTS @ A1	DO NOT SCALE
Jacobs No.	B2140005	

Drawing number: **Figure A.11.8.65** Rev: **0**

Reproduced by permission of Ordnance Survey on behalf of HMSO.
© Crown copyright and database right 2017. All rights reserved.
Ordnance Survey Licence number 100046668.

© Copyright 2017 Jacobs U.K. Limited. The concepts and information contained in this document are the property of Jacobs. Use or copying of this document in whole or in part without the written permission of Jacobs constitutes an infringement of copyright. Limitation: This drawing has been prepared on behalf of, and for the exclusive use of, Jacobs Client, and is subject to, and limited by, the provisions of the contract between Jacobs and the Client. Jacobs accepts no liability or responsibility whatsoever for, or in respect of, any use of, or reliance upon, this drawing by any third party.

File: I:\Glarif\07\PV01\1ECBC\BWA_JoosIB2140005 A9 Dualing Temp folder\B2140005 A9 Dualing CAD\Watercourse Modifications\WF162.dwg Date: Aug 03, 2017 - 10:45 am Plotted by: WOODJA

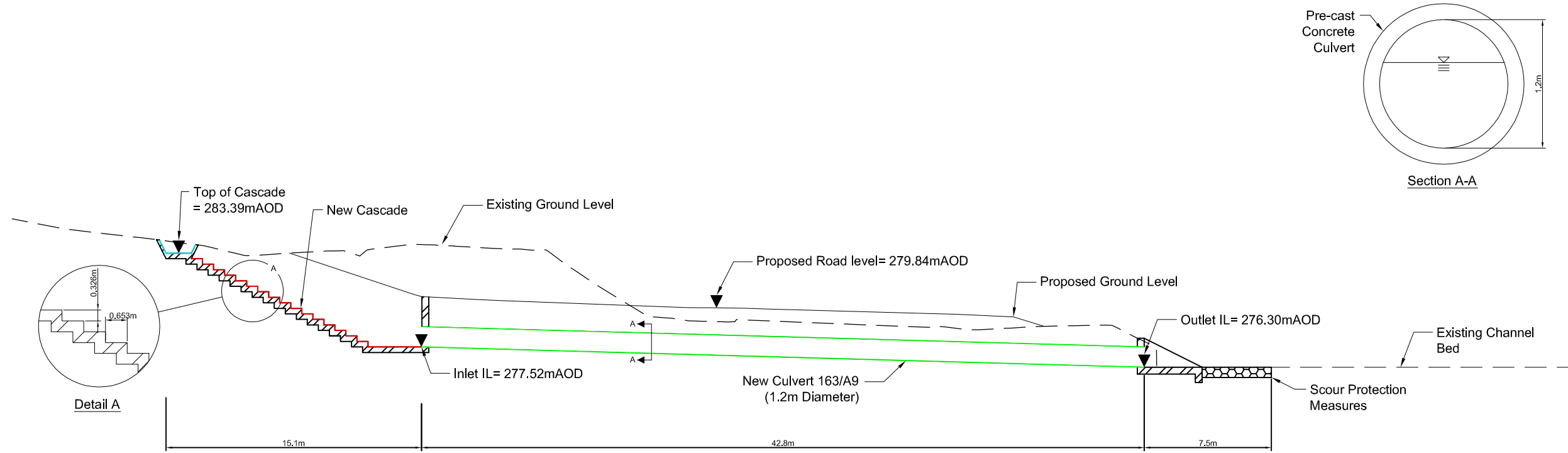


SCHMATIC PLAN

- Legend:
- New culvert/extension
 - - - Retained culvert
 - Realigned/regraded channel
 - Cascade
 - Inlet/outlet headwall (new)
 - - - Inlet/outlet headwall (retained)
 - Pre-earthworks drain and outfall
 - Access chamber
 - Flow direction
 - IL Invert Level

- Notes:
1. All dimensions are in meters unless noted otherwise.
 2. All levels are in meters above ordnance datum.
 3. All details shown on this drawing are indicative only and subject to development at detailed design.
 4. This drawing shall be read in conjunction with the 'Watercourse Crossing report' only and not in isolation.
 5. All 'new' and 'extended' culverts have been designed in accordance with the relevant provisions of DMRB.
 6. Where required 'scour protection measures' shall be provided within the zone indicated on the drawing. The nature and the extent of the scour protection measure will be further developed at detailed design stage in accordance with the relevant provisions of DMRB, taking into account flow hydraulics, channel geometry and channel morphology.
 7. Where shown culverts shall be 'embedded' with natural river deposits to the depth shown.
 8. Where shown 'cascades' are required to safely convey the design flood event (0.5% AEP (200-year) plus allowance for climate change). The cascade geometry shown on the drawing is indicative only and will be subject to further development at detailed design stage. The nature of the cascade will take one of the following forms,
 - Bedrock channel cascade.
 - Natural cascade with natural gravels, cobbles and rock forming individual steps.
 - Concrete cascade with stone pitching.
 The nature of the cascade will be determined at the detailed design stage taking into account hydraulic requirements, topography and nature of the underlying strata and its susceptibility to fluvial erosion.
 9. Where shown mammal ledges will be provided within the culvert in accordance with the relevant provisions of DMRB.

File: I:\Glarif\07\PV01\ECBC\BWA_Joos\B2140005 A9 Dualling Temp folder\B2140005 A9 Dualling CAD\Watercourse Modifications\WF163.dwg Date: Aug 03, 2017 - 10:50am Plotted by: WOODJA



WATERCOURSE 163 LONGSECTION

Rev	Rev. Date	Purpose of revision	Drawn	Checked	Rev'd	Apprv'd
0	18/01/17	FOR INFORMATION				

JACOBS
 95 Bothwell St, Glasgow, G2 7HX
 Tel: +44(0)141 243 9000 Fax: +44(0)141 226 3109
 www.jacobs.com



**KILLIECRANKIE TO GLEN GARRY
 PROPOSED MODIFICATIONS
 TO CULVERT ON
 WATERCOURSE WF163**

Drawing status: **FOR INFORMATION**

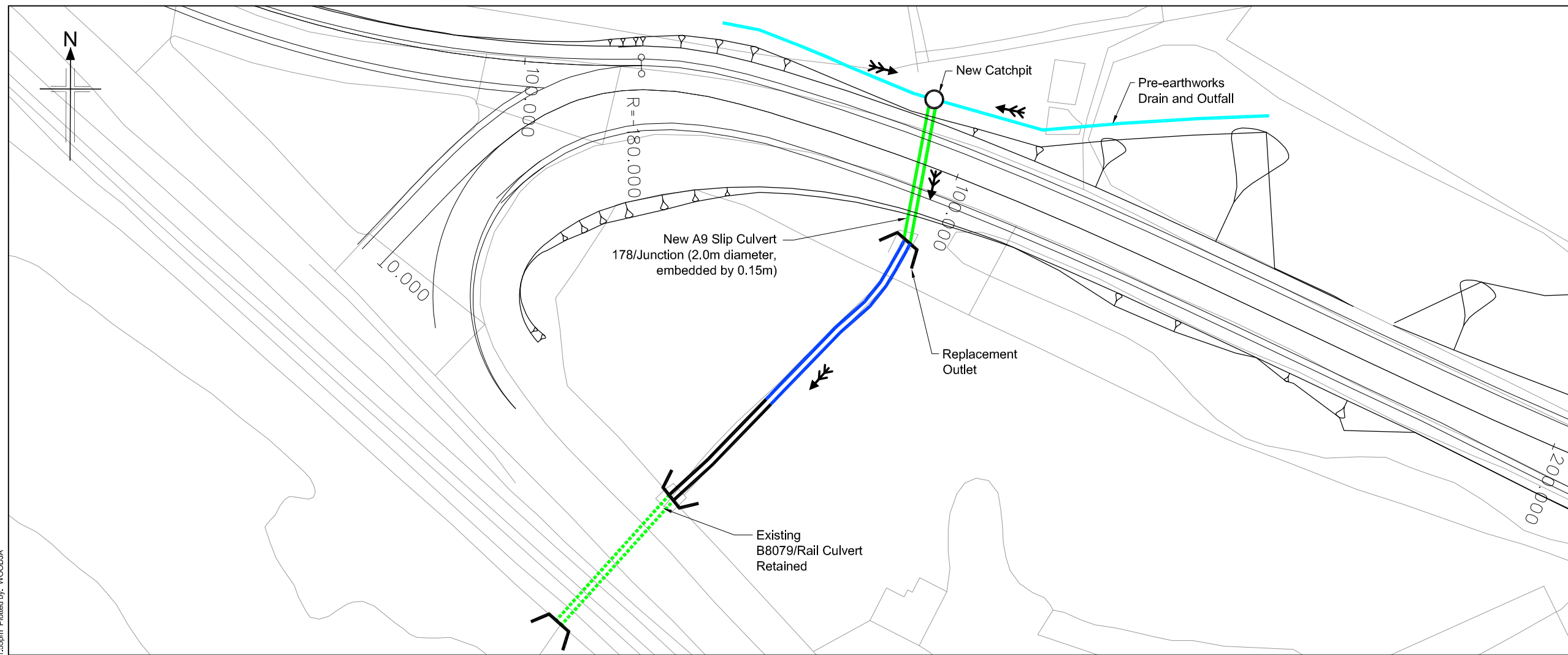
Scale: NTS @ A1 DO NOT SCALE

Jacobs No. B2140005

Drawing number: **Figure A.11.8.66** Rev: **0**

Reproduced by permission of Ordnance Survey on behalf of HMSO.
 © Crown copyright and database right 2017. All rights reserved.
 Ordnance Survey Licence number 100046668.

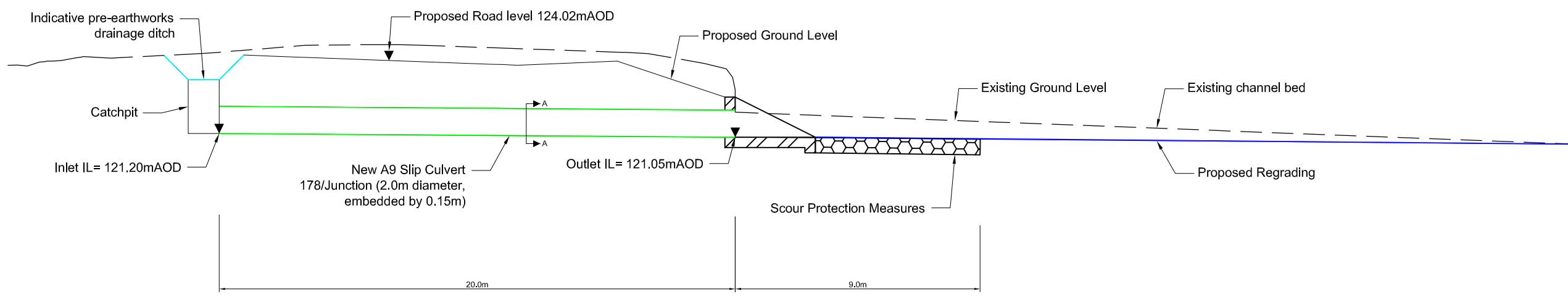
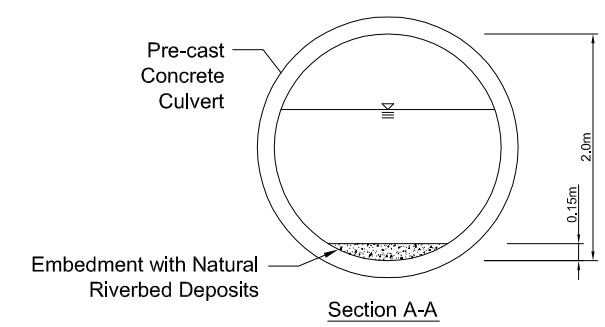
© Copyright 2017 Jacobs U.K. Limited. The concepts and information contained in this document are the property of Jacobs. Use or copying of this document in whole or in part without the written permission of Jacobs constitutes an infringement of copyright. Limitation: This drawing has been prepared on behalf of, and for the exclusive use of, Jacobs Client, and is subject to, and issued in accordance with, the provisions of the contract between Jacobs and the Client. Jacobs accepts no liability or responsibility whatsoever for, or in respect of, any use of, or reliance upon, this drawing by any third party.



SCHEMATIC PLAN

- Legend:
- New culvert/extension
 - - - Retained culvert
 - Realigned/regraded channel
 - Cascade
 - Inlet/outlet headwall (new)
 - - - Inlet/outlet headwall (retained)
 - Pre-earthworks drain and outfall
 - Access chamber
 - Flow direction
 - IL

- Notes:
1. All dimensions are in meters unless noted otherwise.
 2. All levels are in meters above ordnance datum.
 3. All details shown on this drawing are indicative only and subject to development at detailed design.
 4. This drawing shall be read in conjunction with the 'Watercourse Crossing report' only and not in isolation.
 5. All 'new' and 'extended' culverts have been designed in accordance with the relevant provisions of DMRB.
 6. Where required 'scour protection measures' shall be provided within the zone indicated on the drawing. The nature and the extent of the scour protection measure will be further developed at detailed design stage in accordance with the relevant provisions of DMRB, taking into account flow hydraulics, channel geometry and channel morphology.
 7. Where shown culverts shall be 'embedded' with natural river deposits to the depth shown.
 8. Where shown 'cascades' are required to safely convey the design flood event (0.5% AEP (200-year) plus allowance for climate change). The cascade geometry shown on the drawing is indicative only and will be subject to further development at detailed design stage. The nature of the cascade will take one of the following forms,
 - Bedrock channel cascade.
 - Natural cascade with natural gravels, cobbles and rock forming individual steps.
 - Concrete cascade with stone pitching.
 The nature of the cascade will be determined at the detailed design stage taking into account hydraulic requirements, topography and nature of the underlying strata and its susceptibility to fluvial erosion.
 9. Where shown mammal ledges will be provided within the culvert in accordance with the relevant provisions of DMRB.



WATERCOURSE 178 LONGSECTION

Rev	Rev. Date	Purpose of revision	Drawn	Checked	Rev'd	Apprv'd
0	23/01/17	FOR INFORMATION				

JACOBS
 95 Bothwell St, Glasgow, G2 7HX
 Tel: +44(0)141 243 9000 Fax: +44(0)141 226 3109
 www.jacobs.com



Drawing title
**KILLIECRANKIE TO GLEN GARRY
 PROPOSED MODIFICATIONS
 TO CULVERT ON
 WATERCOURSE WF178**

Drawing status
FOR INFORMATION

Scale
 NTS @ A1 DO NOT SCALE

Jacobs No. B2140005

Drawing number
Figure A.11.8.68

Rev
0

File: I:\Glarif\07\PV01\ECBC\BWA_Job\B2140005 A9 Dualling Temp folder\B2140005 A9 Dualling\CAD\Watercourse Modifications\WF178.dwg Date: Jul 27, 2017 - 15:56pm Plotted by: WOODJA

Reproduced by permission of Ordnance Survey on behalf of HMSO.
 © Crown copyright and database right 2017. All rights reserved.
 Ordnance Survey Licence number 100046668.