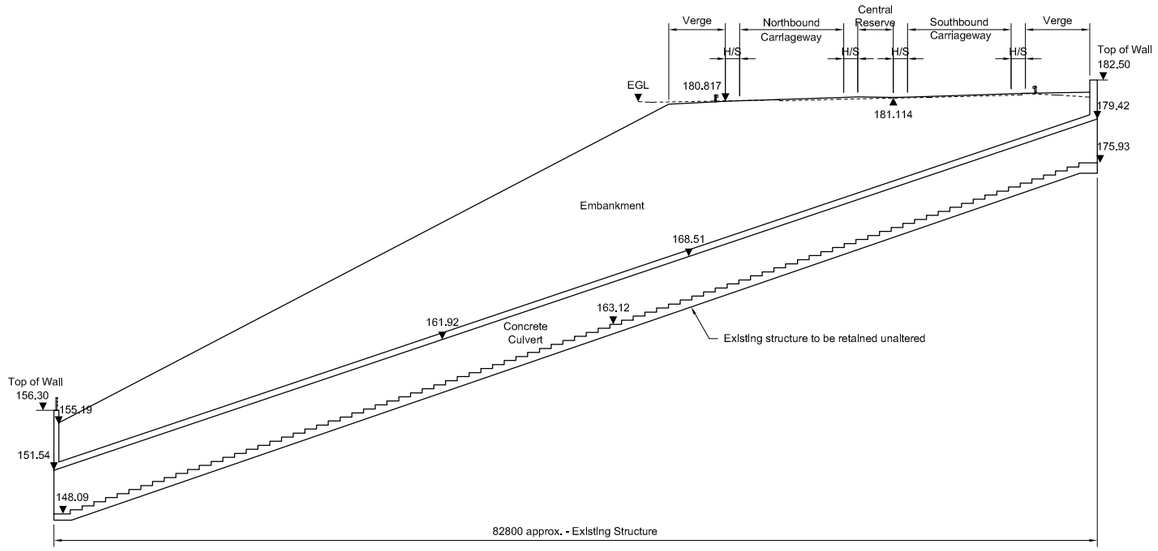
Notes.

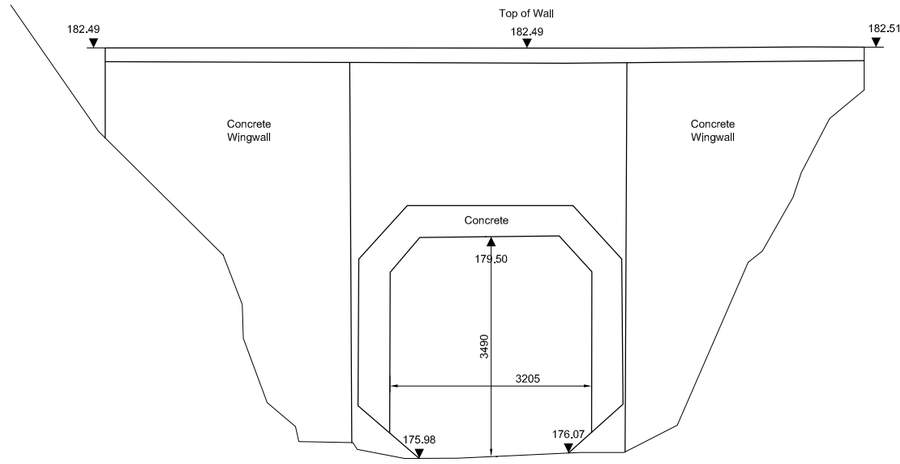
1. All dimensions are in millimetres unless noted otherwise.
2. All levels are In metres Above Ordnance Datum.
3. All chainages are in metres.
4. All exposed arrlses to have 25x25 chamfers unless noted otherwise.
5. All details shown on this drawing are indicative only and subject to development.

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 · Service survey required pre-construction · 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



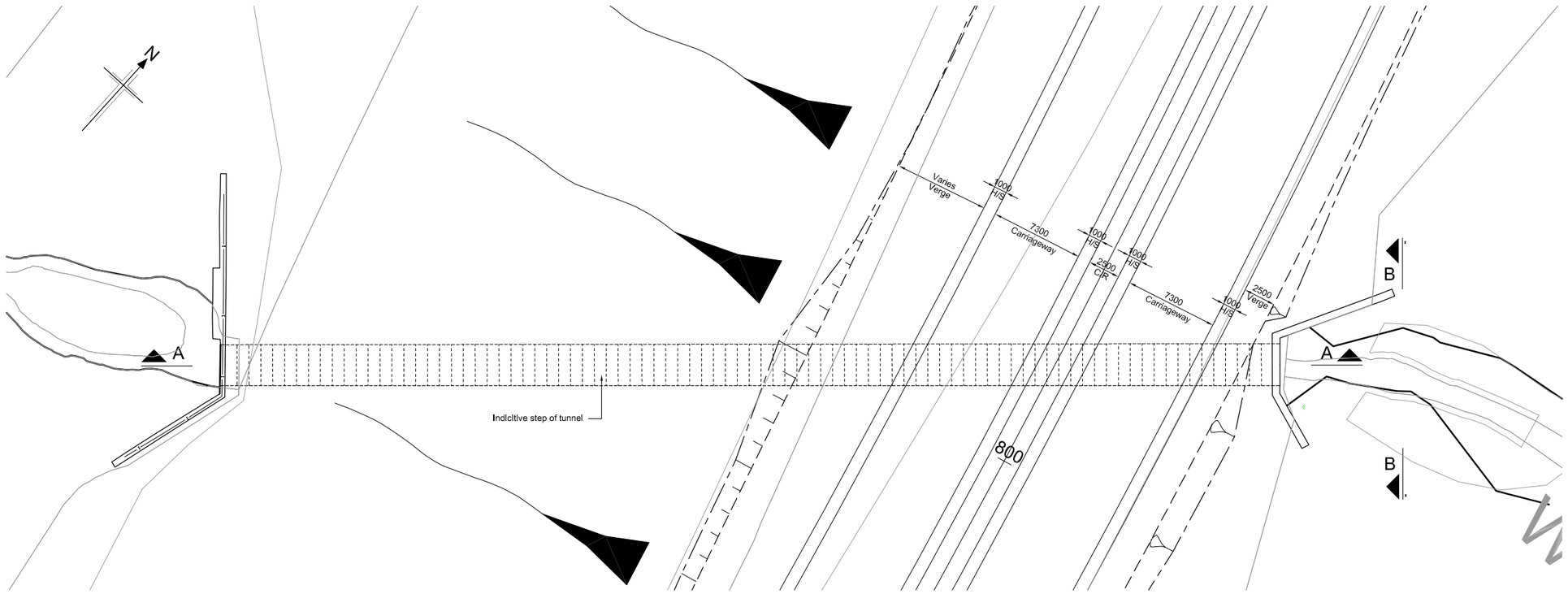
SECTION A-A

Scale 1:250



ELEVATION B-B

Scale 1:50



PLAN

Scale 1:200

Rev	Rev. Date	Purpose of revision	Drawn	Checkd	Rev'd	Apprv'd
P2	11/0517	DMRB Stage 3 Report - Draft	MG	IA	MAM	ELM
P1	07/10/16	Design Fix 3	MR	MAM	MAM	ELM

JACOBS
95 Bothwell St, Glasgow, G2 7HX
Tel:+44(0)141 243 8000 Fax:+44(0)141 226 3109
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Client: TRANSPORT SCOTLAND / CÒMHDHAIL ALBA

Project: A9 DUALLING PERTH TO INVERNESS Killiecrankie to Glen Garry

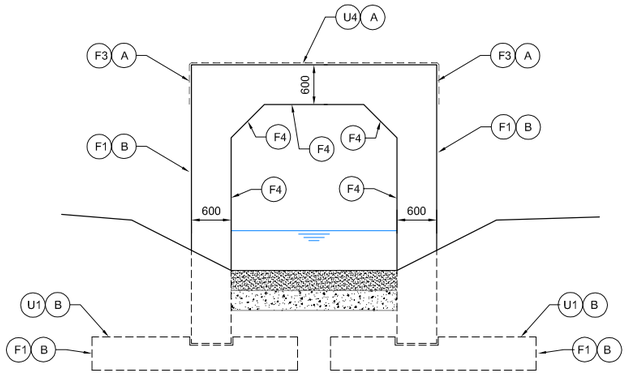
Drawing title

KILLIECRANKIE TO GLEN GARRY EACHAINN BURN CULVERT GENERAL ARRANGEMENT

Drawing status

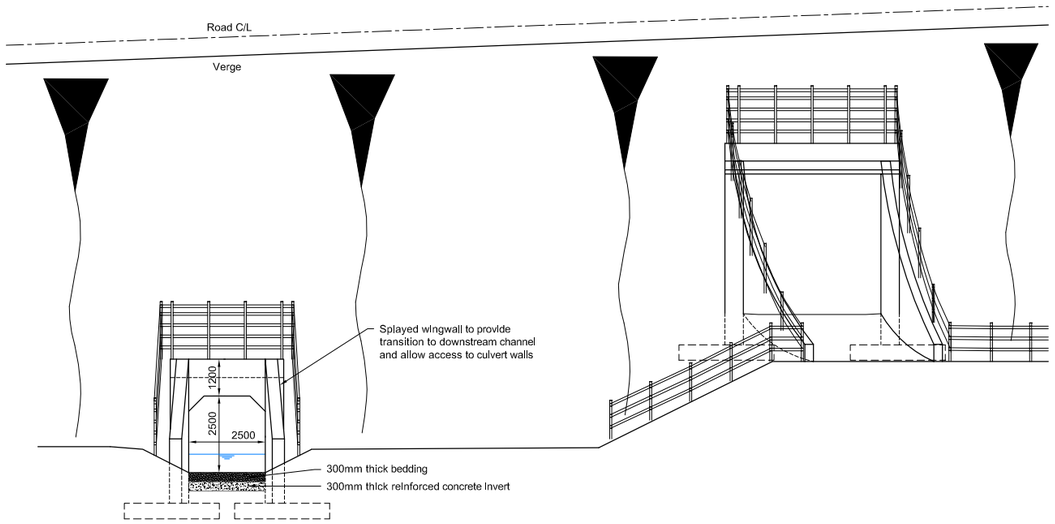
Scale	AS SHOWN @ A1	DO NOT SCALE
Jacobs No.	B2140005	

Drawing number: Figure A.11.8.1 — Rev: P2



SECTION C-C

Scale 1:50



ELEVATION A-A

Scale 1:100

Notes.

1. All dimensions are in millimetres unless noted otherwise.
2. All levels are in metres Above Ordnance Datum.
3. All chainages are in metres.
4. All exposed arrises to have 25x25 chamfers unless noted otherwise.
5. Concrete finishes denoted thus:

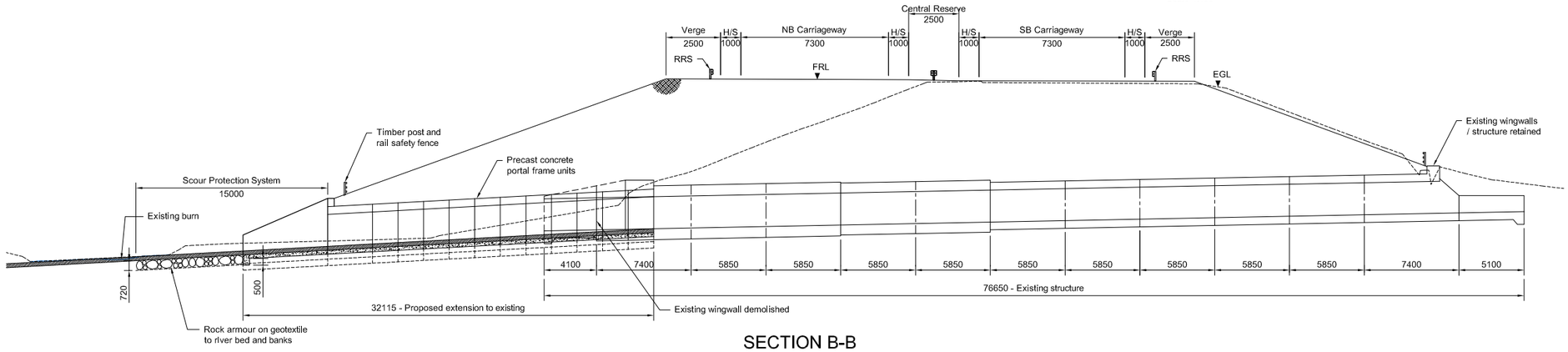
   F - Formed

   U - Unformed
6. Concrete protection to be as follows:

   S - Surface impregnation in accordance with BD43 of the DMRB

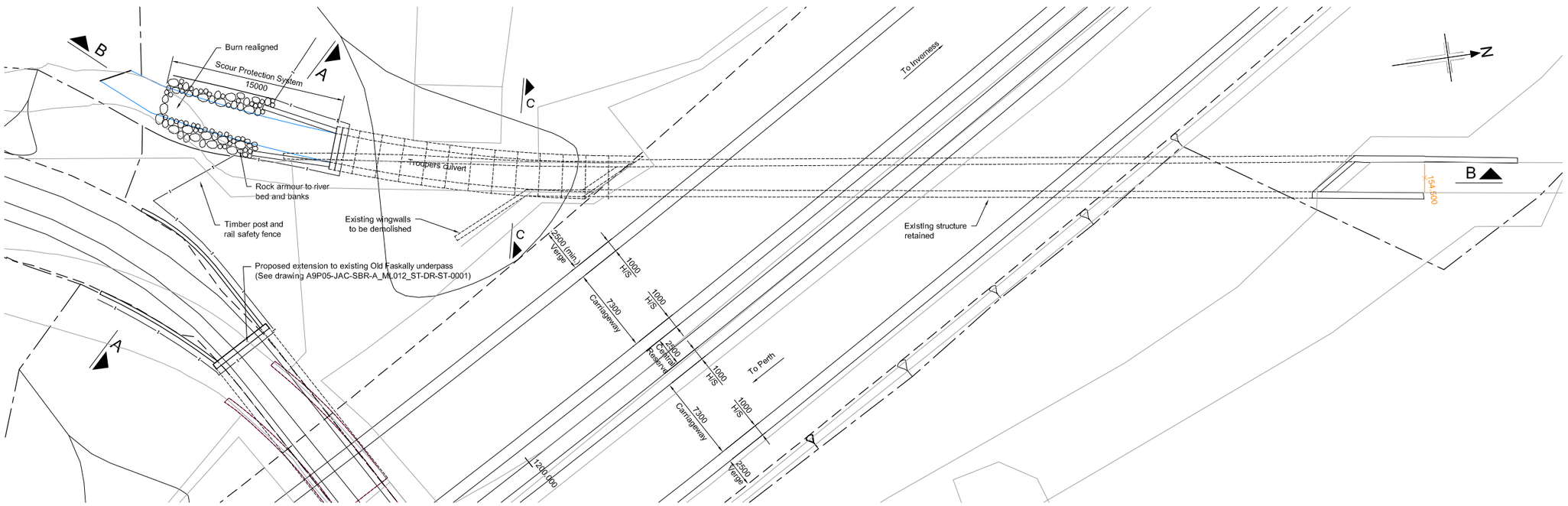
   A - Spray applied waterproofing in accordance with Cl 2003 of the Specification.

   B - Waterproofing of all buried concrete surfaces in accordance with Cl 2004 of the Specification.
7. The downstream culvet outlet structure shall provide a minimum 500mm downstand at it's leading edge and provision of a scour protection system extending 15m downstream. The design of the scour protection system shall be in accordance with DMRB. Rock armour shown has Dn50 0.36m and Wn50 125kg.
8. All details shown on this drawing are indicative only and subject to development.



SECTION B-B

Scale 1:200



PLAN

Scale 1:200

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 • 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

Rev	Rev. Date	Purpose of revision	Drawn	Checkd	Rev'd	Apprv'd
P2	10/0517	DMRB Stage 3 Report - Draft	MG	IA	MAM	ELM
P1	07/10/16	Design Fix 3	MR	MM	MM	ELM

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95 Bothwell St, Glasgow, G2 7HX
Tel:+44(0)141 243 8000 Fax:+44(0)141 226 3109
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Client: TRANSPORT SCOTLAND / CÒMHDHAIL ALBA

Project: A9 DUALLING PERTH TO INVERNESS Killiecrankie to Glen Garry

Drawing title

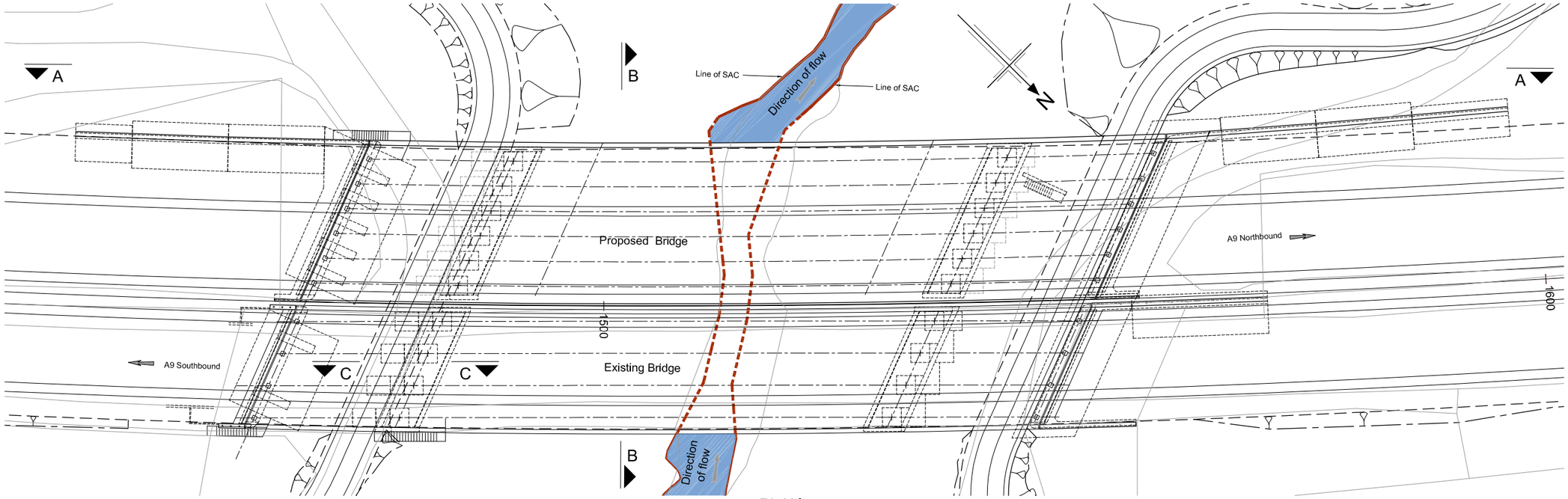
KILLIECRANKIE TO GLEN GARRY TROOPERS CULVERT GENERAL ARRANGEMENT

Drawing status

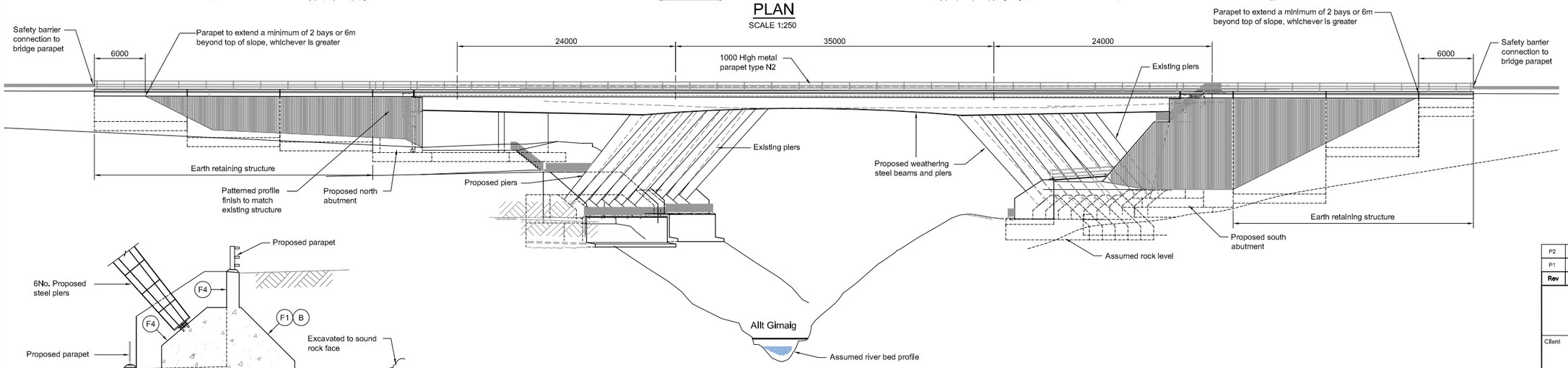
Scale	AS SHOWN @ A1	DO NOT SCALE
Jacobs No.	B2140005	

Drawing number: Figure A.11.8.2 — Rev: P2

File: A:\B2140005 Killiecrankie to Pitagowan\CAD\Watercourse Modifications\A9P05-JAC-SBR-A_ML012_ST-M2-ST-0002 Rev P2 - A9 620 C5 Troopers' Culvert.dwg Date: Nov 16, 2017 - 5:35pm Plotted by: WOODJA

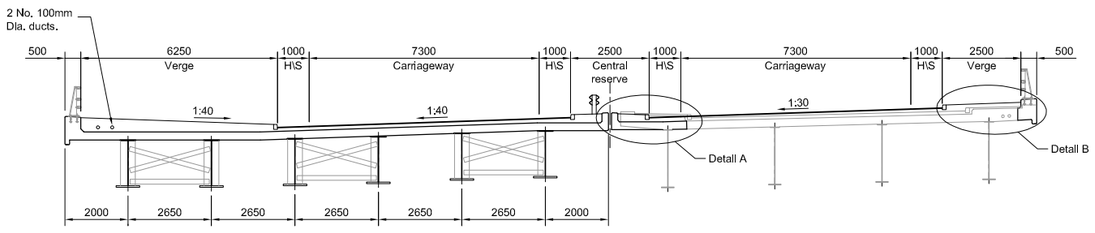


PLAN
SCALE 1:250

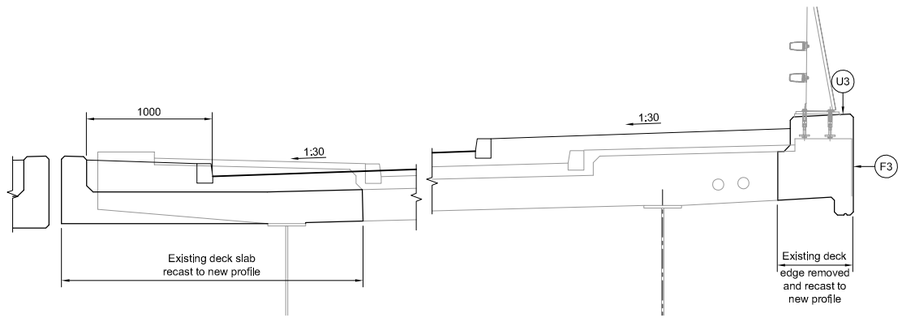


ELEVATION A - A
SCALE 1:250

SECTION C - C
TYPICAL PIER SUPPORT DETAIL
SCALE 1:100



SECTION B - B
SCALE 1:100



DETAIL A
SCALE 1:25

DETAIL B
SCALE 1:25

Notes

1. All dimensions are in millimetres unless noted otherwise.
2. All levels in metres Above Ordnance Datum.
3. All chainages are in metres.
4. All exposed arrises to have 25x25 chamfers unless noted otherwise.
5. All details shown on this drawing are indicative only and subject to development.
6. Do not scale from this drawing.
7. Concrete finishes :
   - (F) - Formed surfaces.
   - (U) - Unformed surfaces.
8. Concrete protection :
   - (B) - Buried surfaces.
   - (W) - Spray applied waterproofing.

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
- Service survey required pre-construction
- Potential presence in existing structure of harmful substances causing damage to health to be established before any remedial works are undertaken
- Structure stability to be checked during break-out 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

Rev	Rev. Date	Purpose of revision	Drawn	Checkd	Revd	Apprv'd
P2	15/05/17	DMRB Stage 3 Report - Draft	MG	IA	MAM	ELM
P1	10/10/16	Design Fix 3	GPA	PG	MAM	ELM

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Tel:+44(0)141 243 8000 Fax:+44(0)141 226 3109
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Client: TRANSPORT SCOTLAND / CÒMHDHAIL ALBA

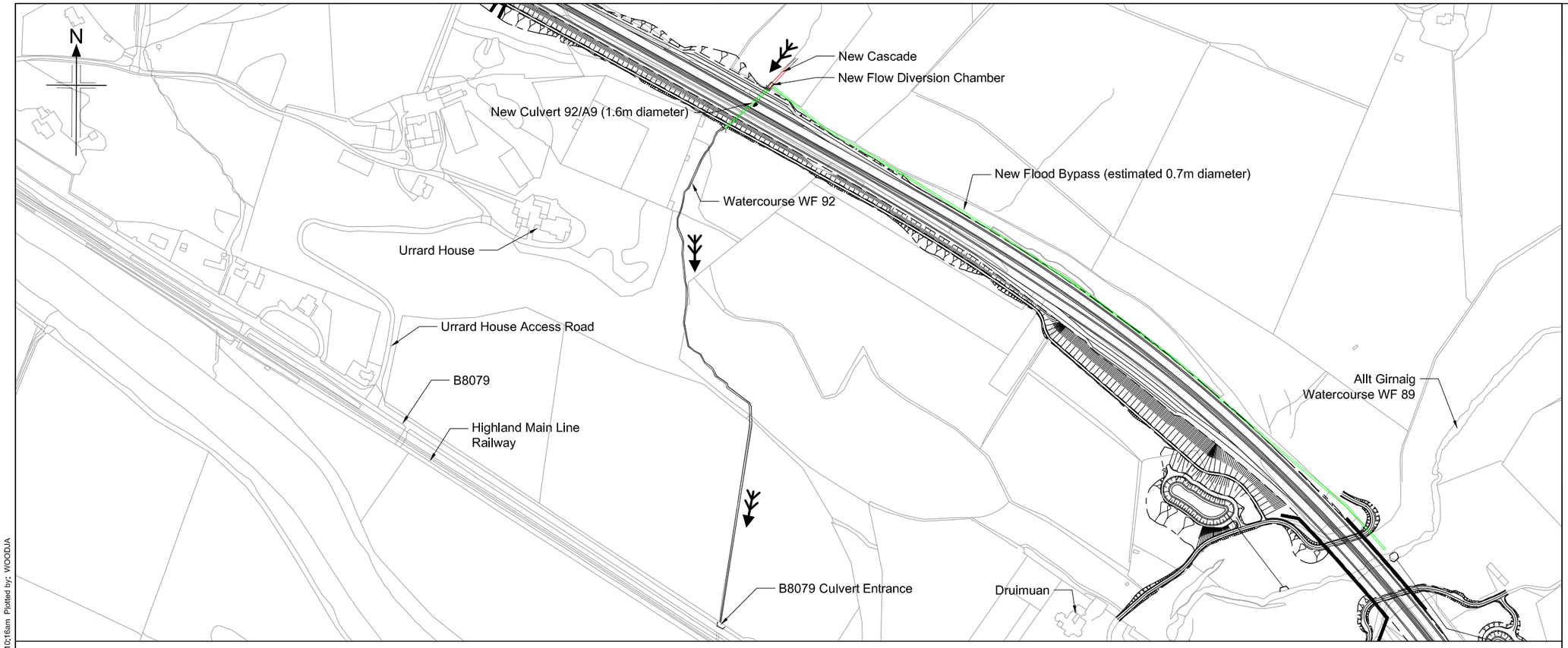
Project: A9 DUALLING PERTH TO INVERNESS — Killiecrankie to Glen Garry

Drawing title

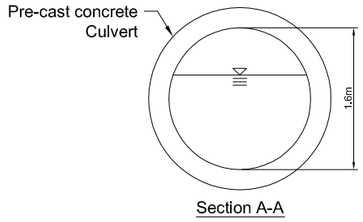
KILLECRANKIE TO GLEN GARRY ALLT GIRNAIG UNDERBRIDGE GENERAL ARRANGEMENT

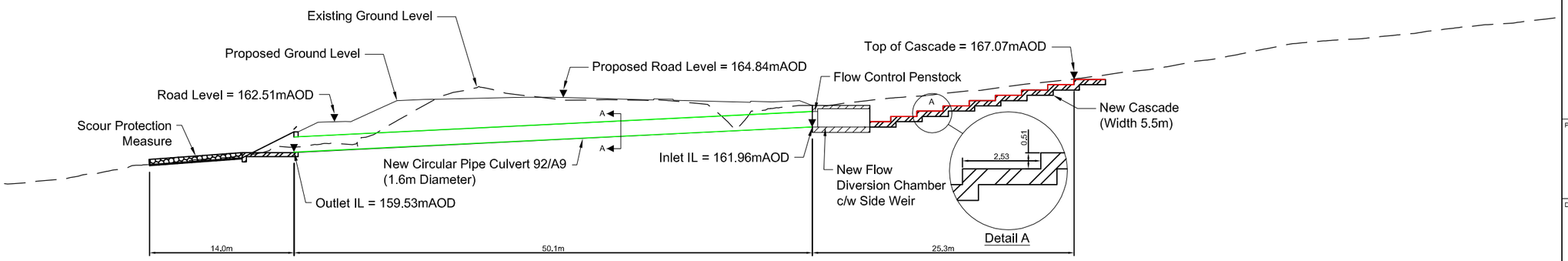
Drawing status: PRELIMINARY

Scale	@ A1 — DO NOT SCALE
Jacobs No.	B2140005
Drawing number	Figure A.11.8.3
Rev	P2



SCHEMATIC PLAN





WATERCOURSE 92 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	31/10/17	FOR INFORMATION	CO'N	JW	LMcG	

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Tel:+44(0)141 243 8000 Fax:+44(0)141 226 3109
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Client: TRANSPORT SCOTLAND / CÒMHDHAIL ALBA

Project: A9 DUALLING PERTH TO INVERNESS — Killiecrankie to Glen Garry

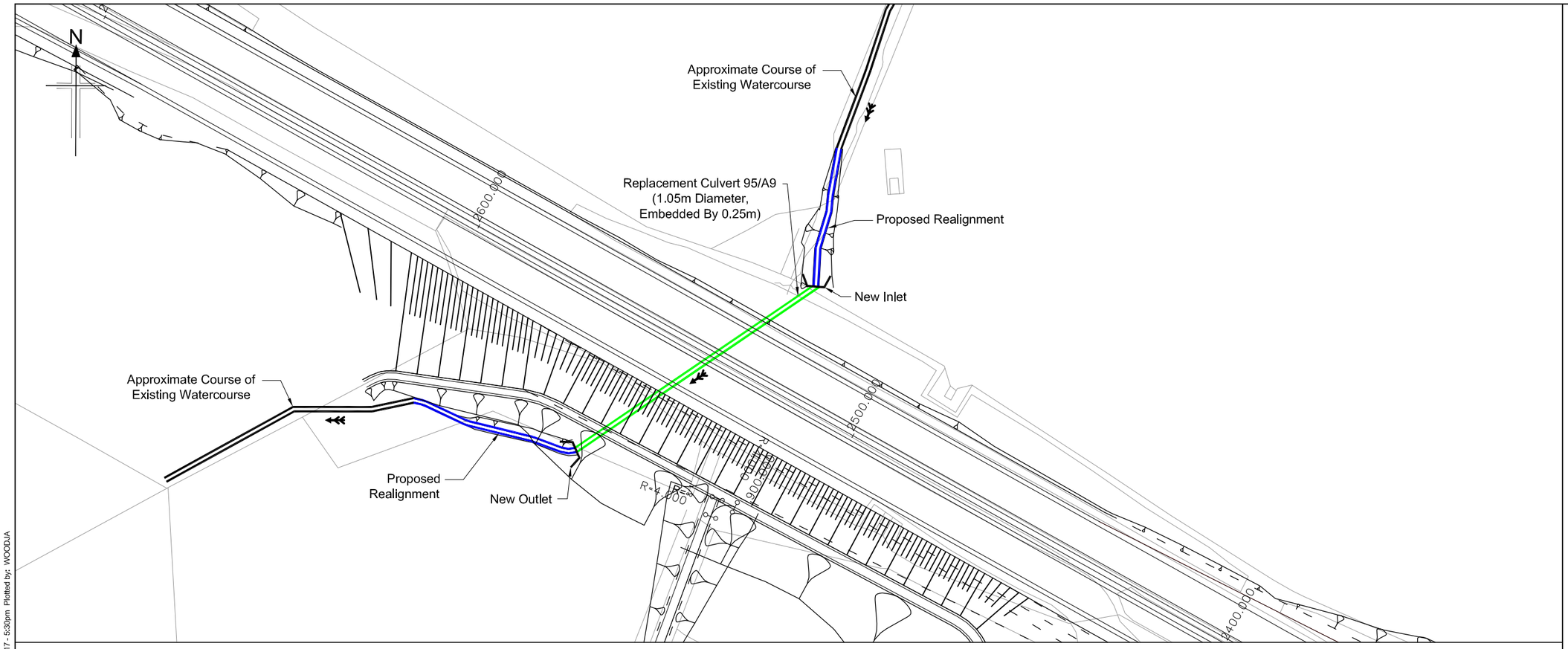
Drawing title

KILLIECRANKIE TO GLEN GARRY PROPOSED MODIFICATIONS TO CULVERT ON WATERCOURSE WF92

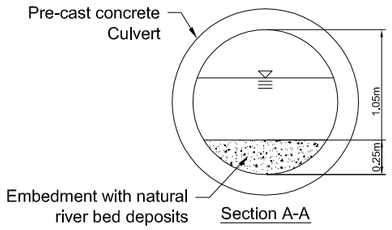
Drawing status: FOR INFORMATION

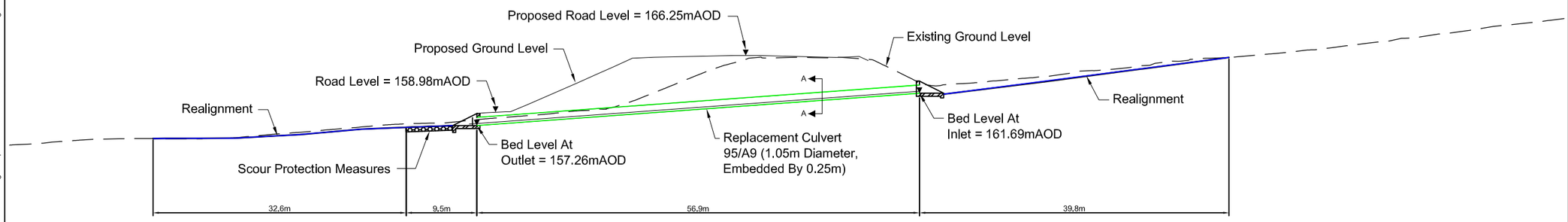
Scale	NTS @ A1	DO NOT SCALE
Jacobs No.	B2140005	
Drawing number	Figure A.11.8.4	Rev 0

File: \\Glsfil07\PV01\ECBC\BWA_Jobs\B2140000 A9 Dualling Temp folder\B2140005 Killiecrankie to Pitlagowan\CAD\Watercourse Modifications\WF92.dwg Date: Oct 31, 2017 - 10:16am Plotted by: WOODJA



SCHEMATIC PLAN





WATERCOURSE 95 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	10/01/17	FOR INFORMATION	CON	JW	LMcG	

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Client: TRANSPORT SCOTLAND / CÒMHDHAIL ALBA

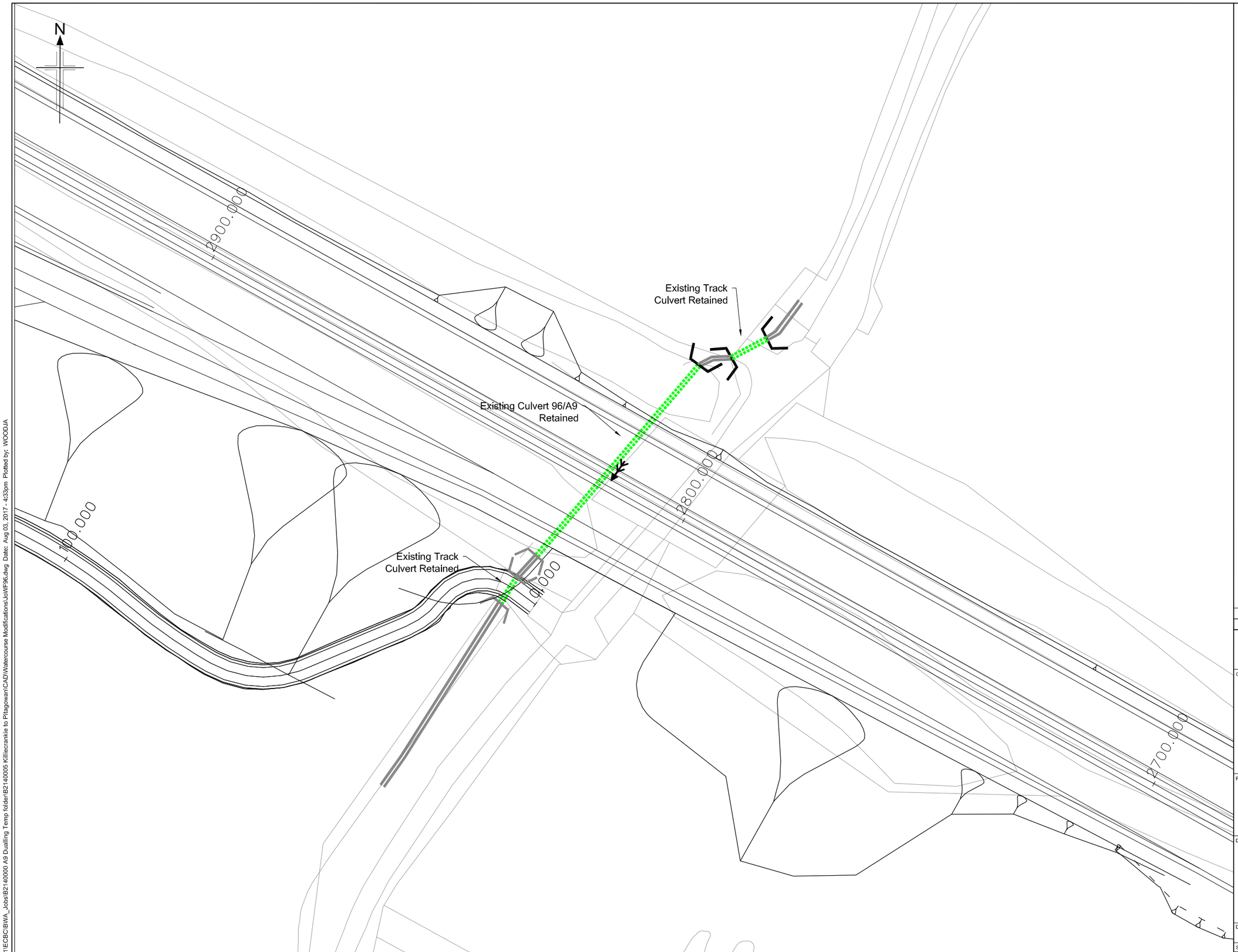
Project: A9 DUALLING PERTH TO INVERNESS Killiecrankie to Glen Garry

Drawing title

KILLIECRANKIE TO GLEN GARRY PROPOSED MODIFICATIONS TO CULVERT ON WATERCOURSE WF95

Drawing status	FOR INFORMATION	
Scale	NTS @ A1	DO NOT SCALE
Jacobs No.	B2140005	
Drawing number	Figure A.11.8.5	Rev 0

File: \\Glafil07\PV01\ECBC\BWA_Jobs\B2140000 A9 Dualling Temp folder\B2140005 Killiecrankie to Pitagowan\CAD\Watercourse Modifications\JoWF95.dwg Date: Aug 02, 2017 - 5:30pm Plotted by: WOODJA



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	10/01/17	FOR INFORMATION	CON			

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Client: TRANSPORT SCOTLAND / CÒMHDHAIL ALBA

Project: A9 DUALLING PERTH TO INVERNESS — Killiecrankie to Glen Garry

Drawing title

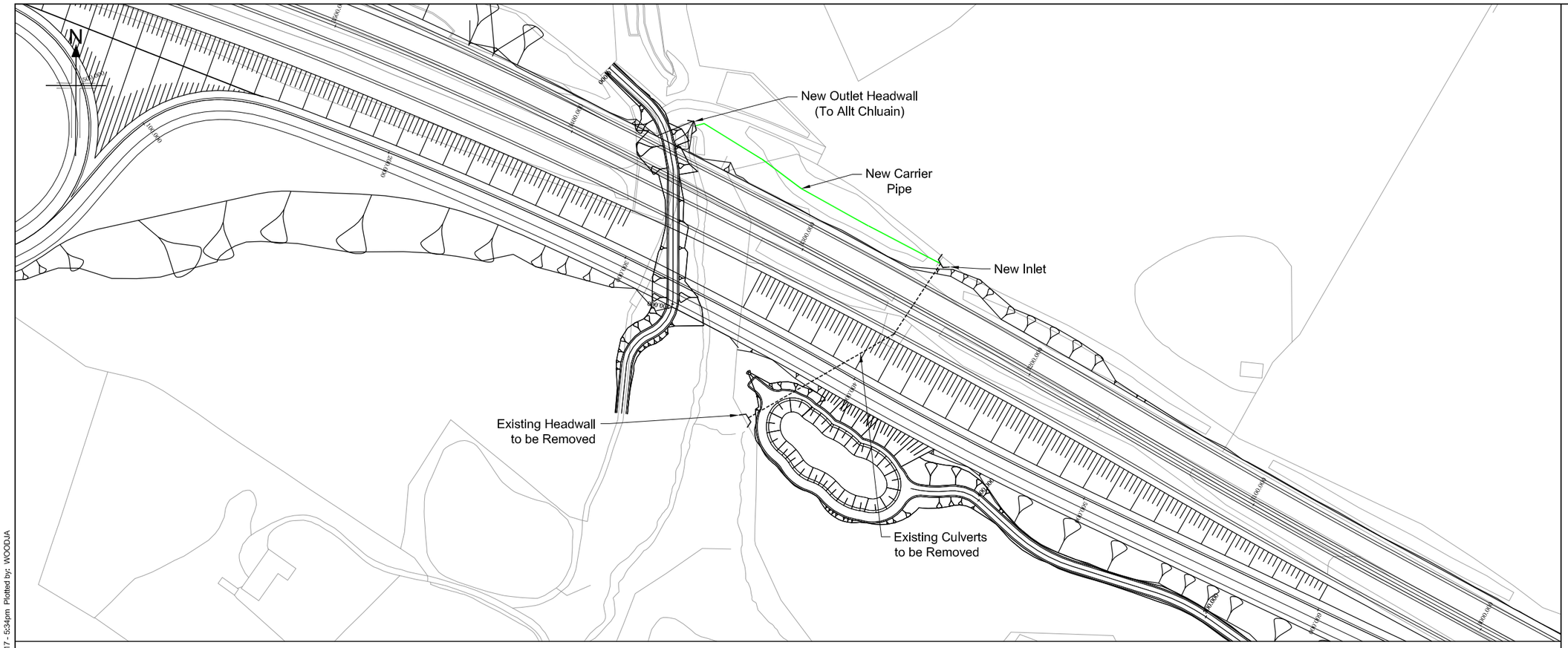
KILLIECRANKIE TO GLEN GARRY PROPOSED MODIFICATIONS TO CULVERT ON WATERCOURSE WF96

Drawing status: FOR INFORMATION

Scale	NTS @ A1	DO NOT SCALE
Jacobs No.	B2140005	

Drawing number: Figure A.11.8.6 — Rev: 0

File: \\Glafil07PV01\ECBC\BWA_Jobs\B2140000 A9 Dualling Temp folder\B2140005 Killiecrankie to Pitagowan\CAD\Watercourse Modifications\JoWF96.dwg Date: Aug 03, 2017 - 4:33pm Plotted by: WOODJA



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
- Culvert to be removed

Notes:

1. All dimensions are in meters unless noted otherwise.
2. All details shown on this drawing are indicative only and subject to development at Detailed Design Stage.

Rev	Rev. Date	Purpose of revision	Drawn	Checkd	Rev'd	Apprv'd
0	10/01/17	FOR INFORMATION	CON			

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Client: TRANSPORT SCOTLAND / CÒMHDHAIL ALBA

Project: A9 DUALLING PERTH TO INVERNESS Killiecrankie to Glen Garry

Drawing title

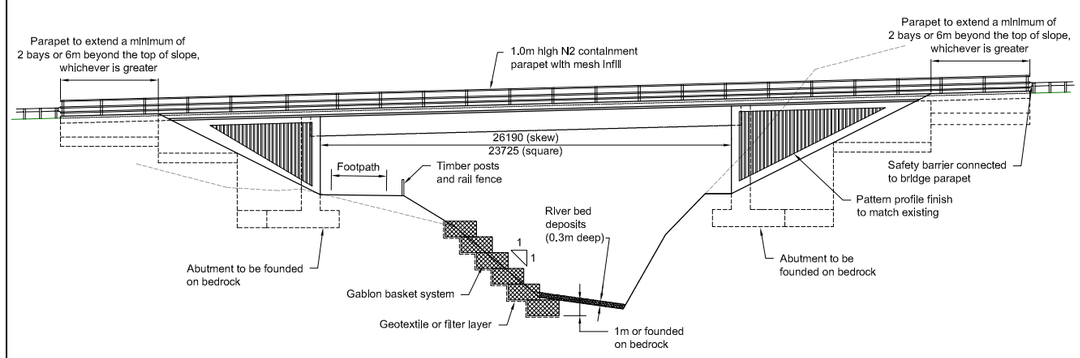
KILLIECRANKIE TO GLEN GARRY PROPOSED MODIFICATIONS TO CULVERT ON WATERCOURSE WF97

Drawing status: FOR INFORMATION

Scale	NTS @ A1	DO NOT SCALE
Jacobs No.	B2140005	

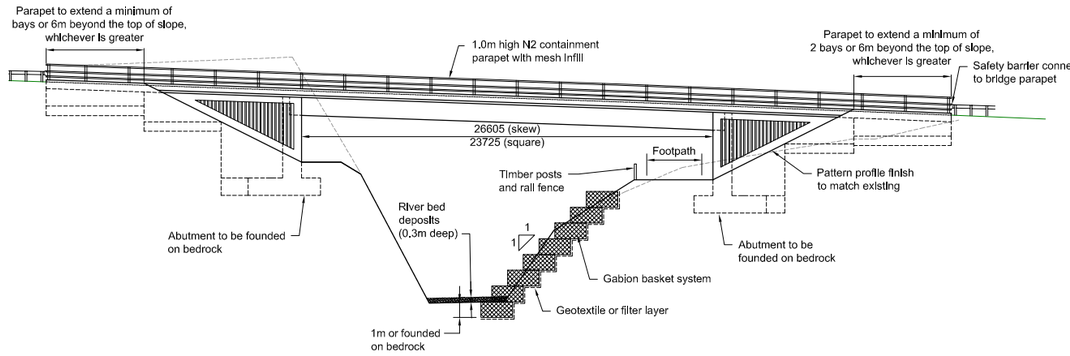
Drawing number: Figure A.11.8.7 Rev: 0

File: \\Glafil07\PV01\ECBC\BWA_Jobs\B2140000 A9 Dualling Temp folder\B2140005 Killiecrankie to Pitagowan\CAD\Watercourse Modifications\JoWF97.dwg Date: Aug 02, 2017 - 5:34pm Plotted by: WOODJA



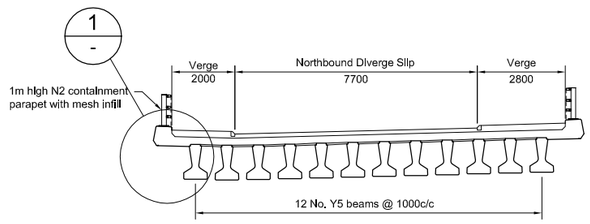
ELEVATION A-A

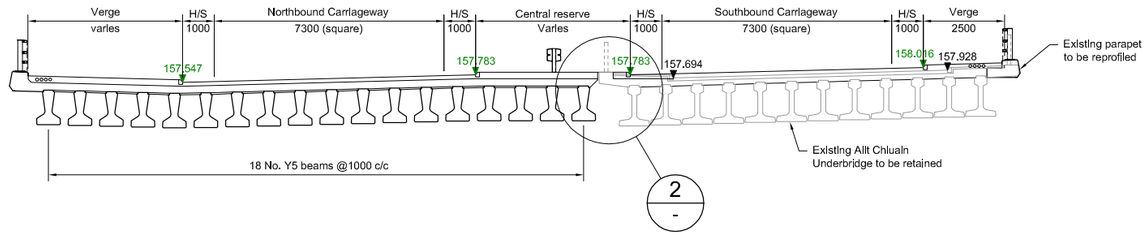
SCALE 1:200



ELEVATION B-B

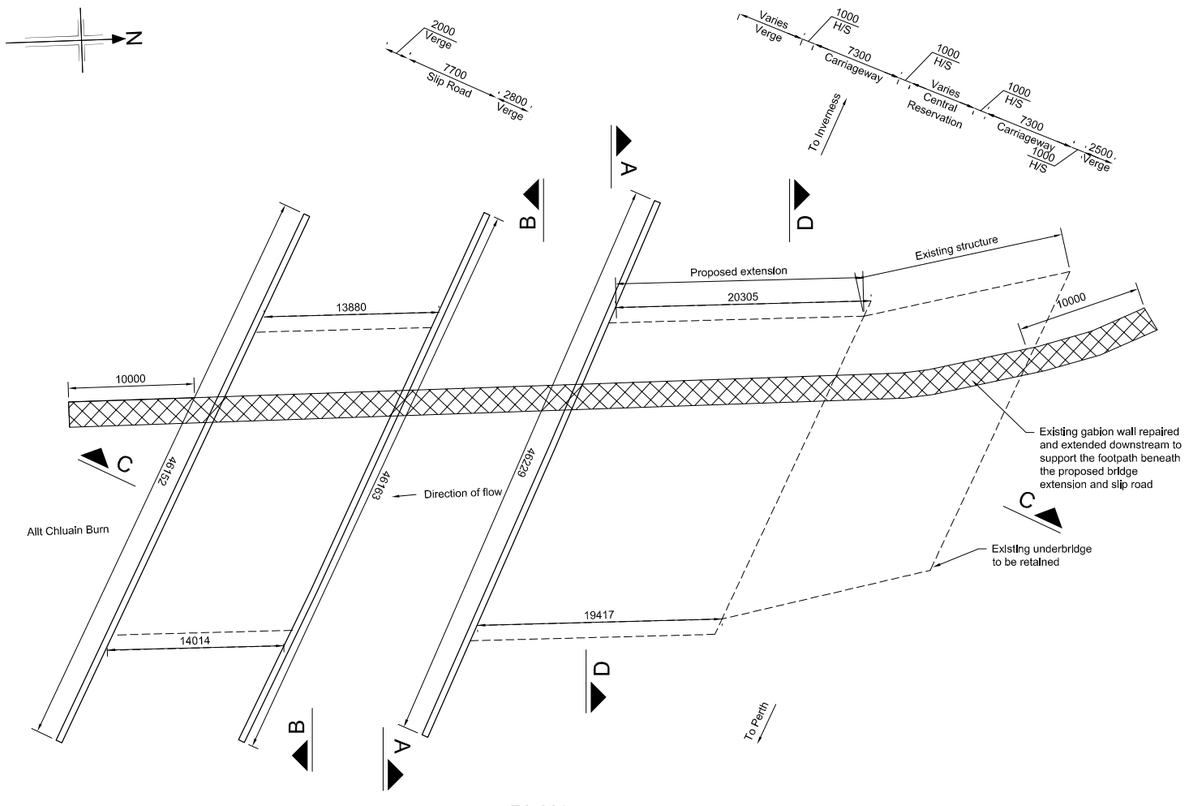
SCALE 1:200





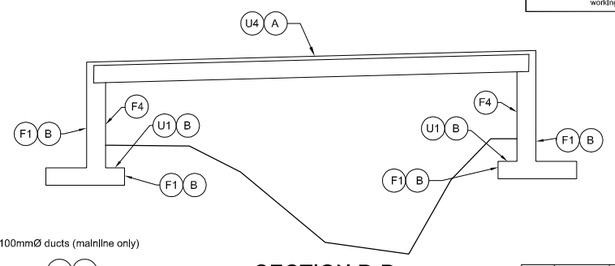
SECTION C-C

SCALE 1:100



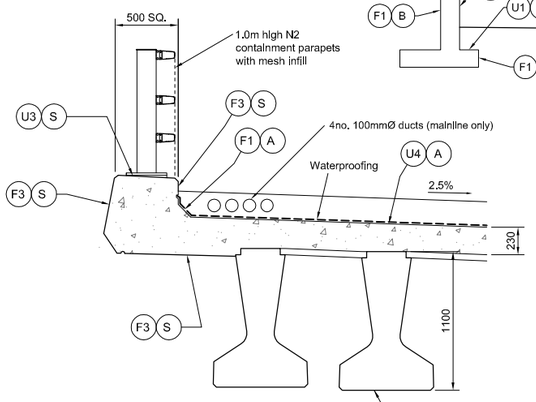
PLAN

SCALE 1:250



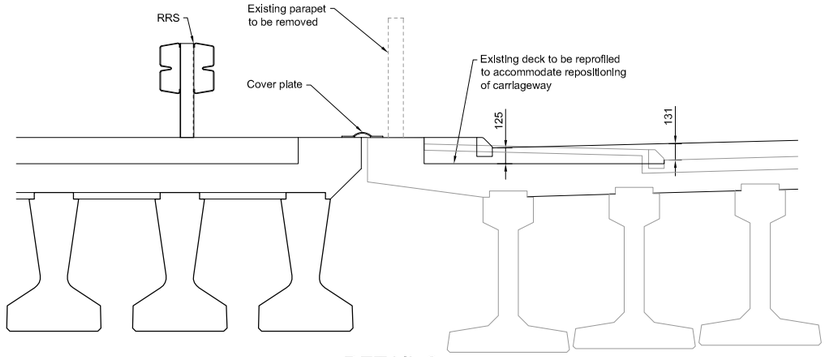
SECTION D-D

SCALE 1:200



DETAIL 1

SCALE 1:25



DETAIL 2

SCALE 1:25

Notes.

1. All dimensions are in millimetres unless noted otherwise.
2. All levels are in metres Above Ordnance Datum.
3. All chainages are in metres.
4. All exposed arrises to have 25x25 chamfers unless noted otherwise.
5. Concrete finishes denoted thus:
   - (F) - Formed
   - (U) - Unformed
6. Concrete protection to be as follows:
   - (S) - Surface Impregnation in accordance with Cl 1709 of the Specification.
   - (A) - Spray applied waterproofing in accordance with Cl 2003 of the Specification.
   - (B) - Waterproofing of all buried concrete surfaces in accordance with Cl 2004 of the Specification.
7. All details shown on this drawing are indicative only and subject to development.
8. Where required the existing gabion wall system shall be either repaired or replaced along the existing alignment and extended downstream to support/protect the proposed footpath. The nature and extent of the gabion wall system will be further developed at detail design stage in accordance with DMRB.

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 Service survey required pre-construction Potential presence in existing structure of harmful substances causing damage to health to be established pre-alteration 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

Rev	Rev. Date	Purpose of revision	Drawn	Checkd	Rev'd	Apprv'd
P2	17/05/17	DMRB Stage 3 Report - Draft	MG	IA	MAM	ELM
P1	11/10/16	Design Fix 4 - Issued for Review	MR	MM	MM	ELM

JACOBS
95 Bothwell St, Glasgow, G2 7HX
Tel:+44(0)141 243 8000 Fax:+44(0)141 226 3109
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Client: TRANSPORT SCOTLAND / CÒMHDHAIL ALBA

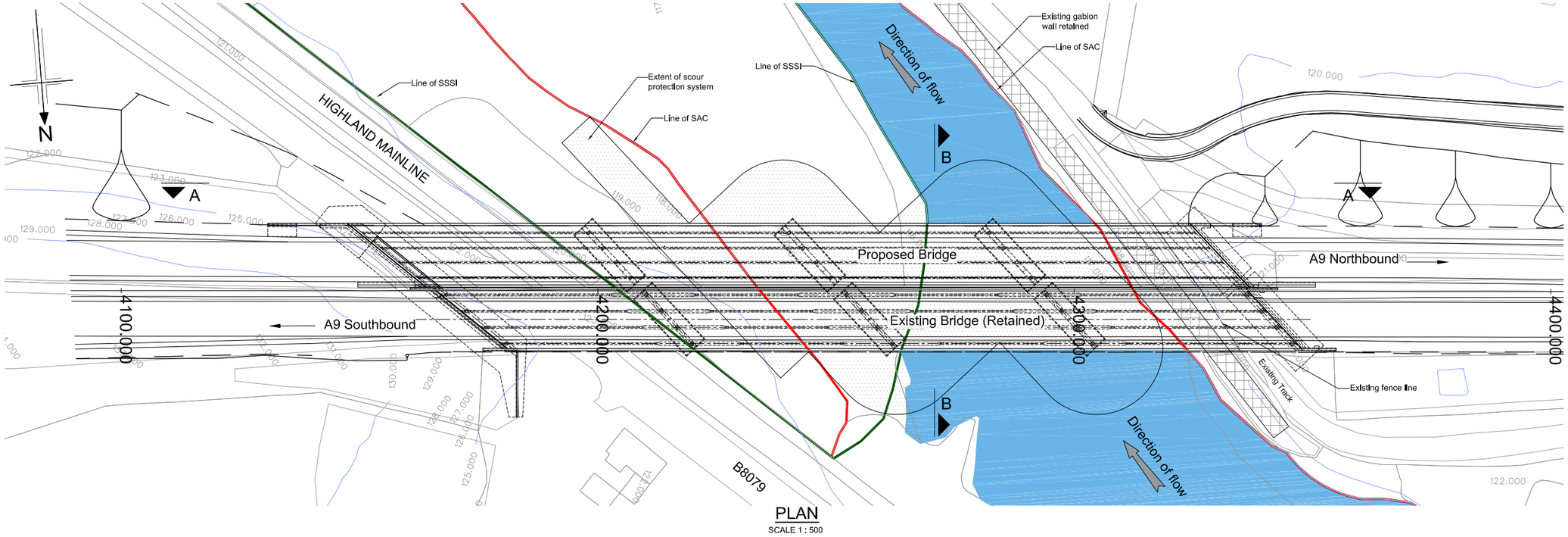
Project: A9 DUALLING PERTH TO INVERNESS — Killiecrankie to Glen Garry

Drawing title

KILLIECRANKIE TO GLEN GARRY ALLT CHLUAIN UNDERBRIDGE GENERAL ARRANGEMENT

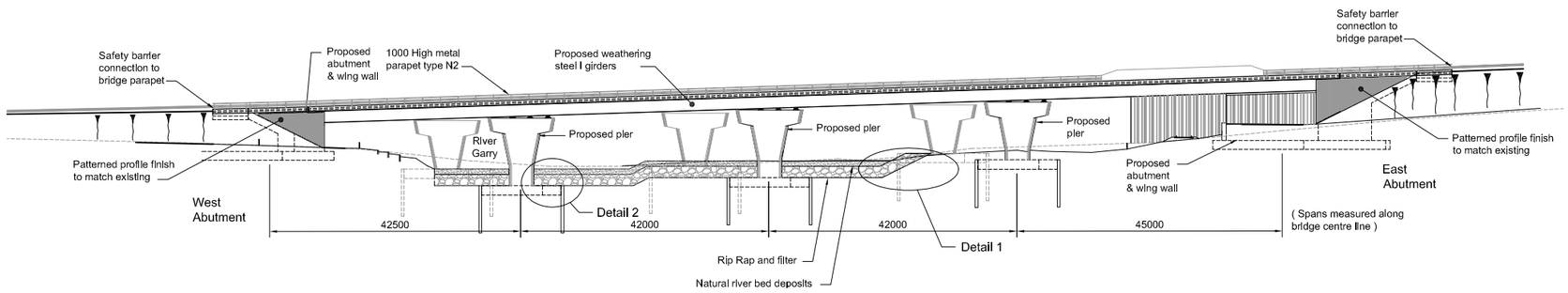
Drawing status

Scale	AS SHOWN @ A1	DO NOT SCALE
Jacobs No.	B2140005	
Drawing number	Figure A.11.8.8	Rev P2



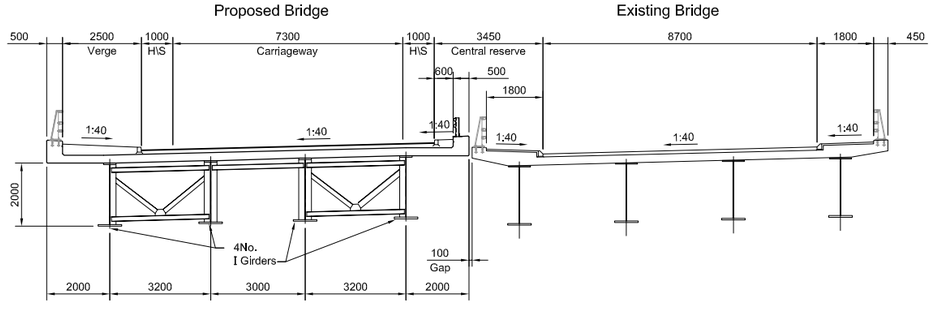
PLAN

SCALE 1 : 500



ELEVATION A - A

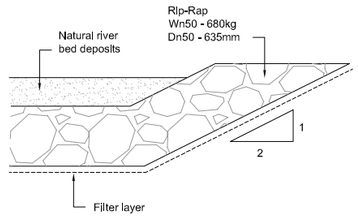
SCALE 1 : 500



SECTION B - B

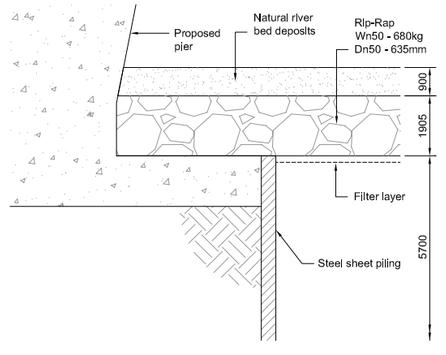
(Existing deck untouched)

SCALE 1 : 100



DETAIL 1

SCALE 1 : 100



DETAIL 2

SCALE 1 : 100

Notes

1. All dimensions are in millimetres unless noted otherwise.
2. All levels in metres Above Ordnance Datum.
3. All chainages are in metres.
4. All exposed arrises to have 25x25 chamfers unless noted otherwise.
5. All details shown on this drawing are indicative only and subject to development.
6. Do not scale from this drawing.
7. Concrete finishes :
   - (F) - Formed surfaces.
   - (U) - Unformed surfaces.
8. Concrete protection :
   - (B) - Buried surfaces.
   - (W) - Spray applied waterproofing.
   - (S) - Surface Impregnation
9. Where required a scour protection system shall be provided within the zone indicated on this drawing. The nature and extent of the scour protection system will be further developed at detail design stage in accordance with DMRB, but may consist of a rock armour system as shown on this drawing.
10. Bedrock had been observed local to the bridge. Where sound bedrock exists within the scour protection zone and at a level conflicting with the proposed scour protection system, an appropriate detail will be designed to terminate the scour protection system.
11. The existing gabion mattress system surrounding the existing bridge foundations will be removed and replaced with the proposed scour protection system.

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 - Temporary longitudinal fixity to be provided to deck steelwork at both abutments during deck concreting.
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

Rev	Rev. Date	Purpose of revision	Drawn	Checkd	Rev'd	Apprv'd
P1	16/05/17	DMRB Stage 3 Report - Draft	MG	IA	MAM	ELM

JACOBS
95 Bothwell St, Glasgow, G2 7HX
Tel:+44(0)141 243 8000 Fax:+44(0)141 226 3109
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Client: TRANSPORT SCOTLAND / CÒMHDHAIL ALBA

Project: A9 DUALLING PERTH TO INVERNESS — Killiecrankie to Glen Garry

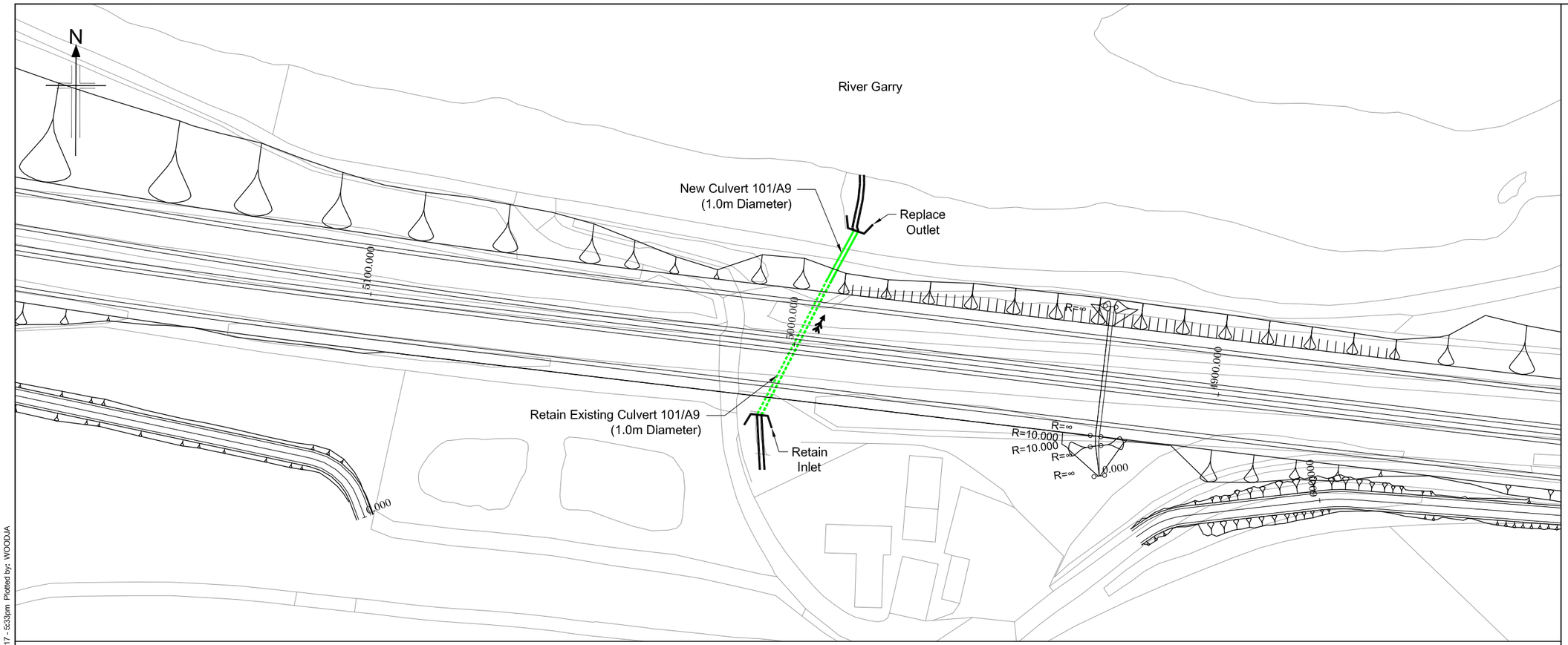
Drawing title

KILLIECRANKIE TO PITAGOWAN ESSANGAL UNDERBRIDGE GENERAL ARRANGEMENT

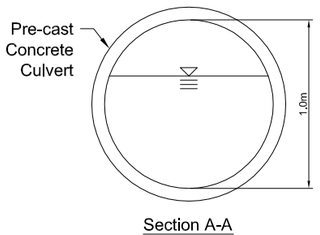
Drawing status: PRELMINARY

Scale	AS SHOWN @ A1	DO NOT SCALE
Jacobs No.		

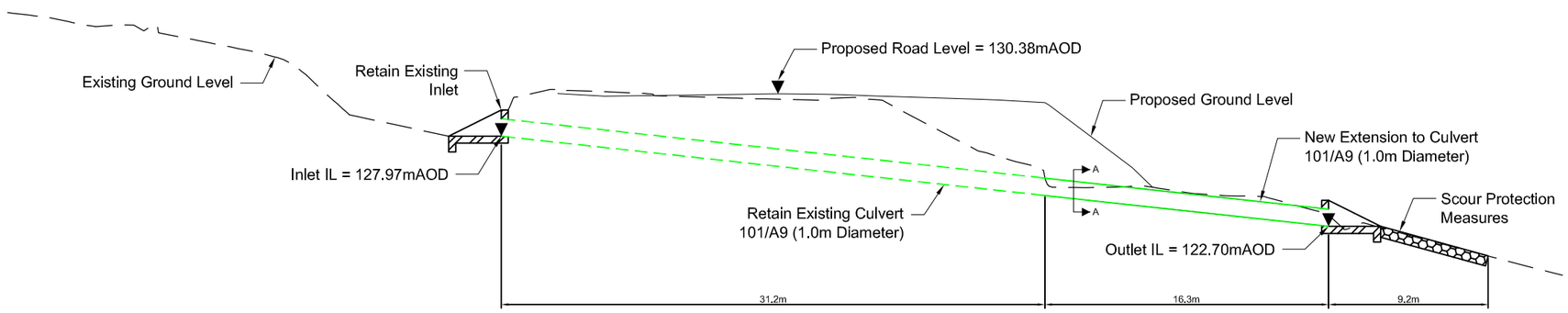
Drawing number: Figure A.11.8.9(a) — Rev: P1



SCHEMATIC PLAN



Section A-A



WATERCOURSE 101 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	10/01/17	FOR INFORMATION	CON	JW	LMcG	

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Client: TRANSPORT SCOTLAND / CÒMHDHAIL ALBA

Project: A9 DUALLING PERTH TO INVERNESS — Killiecrankie to Glen Garry

Drawing title

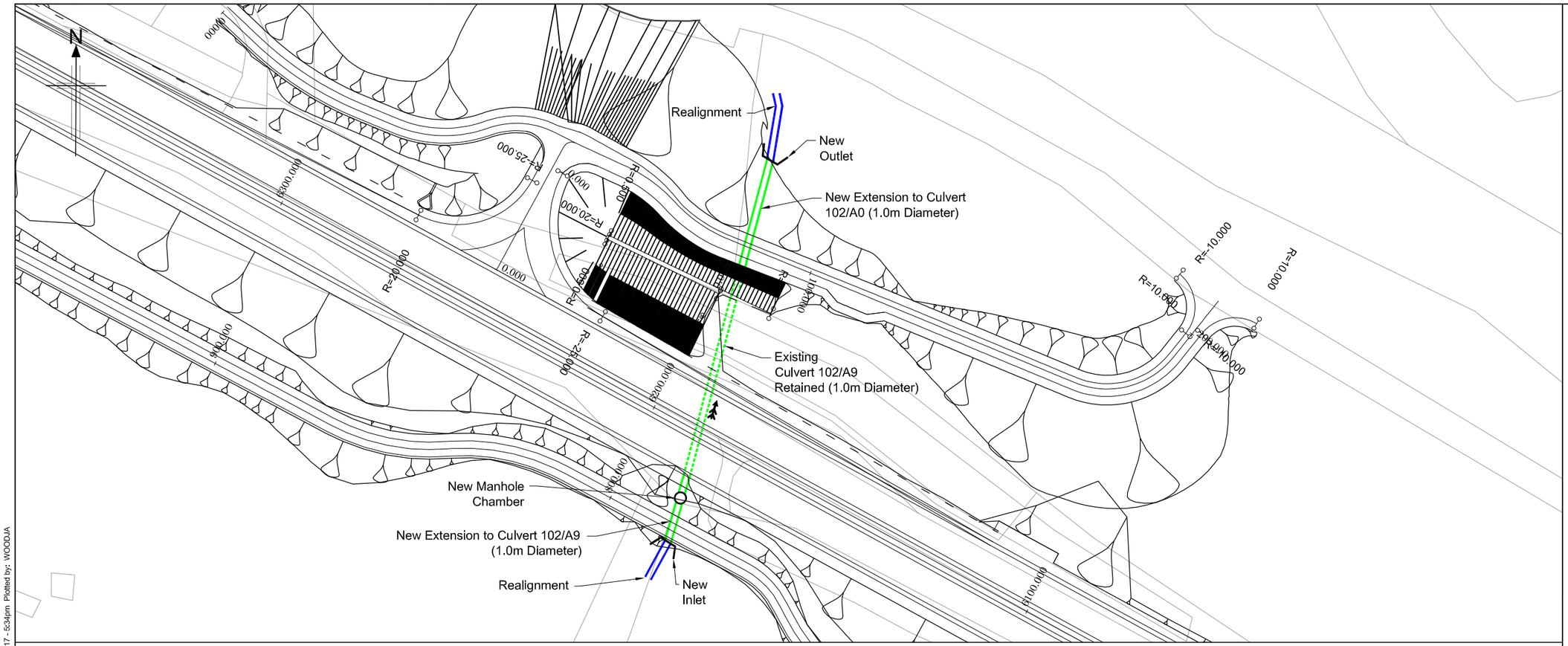
KILLIECRANKIE TO GLEN GARRY PROPOSED MODIFICATIONS TO CULVERT ON WATERCOURSE WF101

Drawing status: FOR INFORMATION

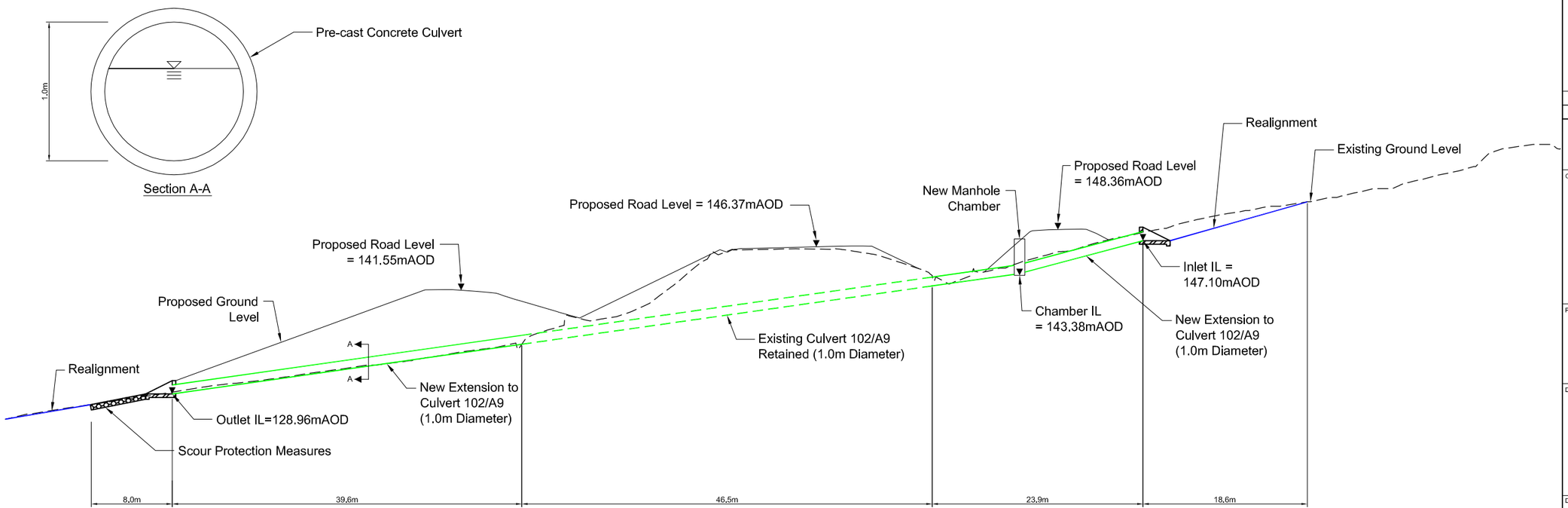
Scale	NTS @ A1	DO NOT SCALE
Jacobs No.	B2140005	

Drawing number: Figure A.11.8.10 — Rev: 0

File: \\Glarll07\PV01\ECBC\BWA_Jobs\B2140000 A9 Dualling Temp folder\B2140005 Killiecrankie to Pitagowan\CAD\Watercourse Modifications\JoWF101.dwg Date: Aug 02, 2017 - 5:33pm Plotted by: WOODJA



SCHEMATIC PLAN



WATERCOURSE 102 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	20/01/17	FOR INFORMATION	CON	JW	LMcG	

JACOBS
95 Bothwell St, Glasgow, G2 7HX
Tel:+44(0)141 243 8000 Fax:+44(0)141 226 3109
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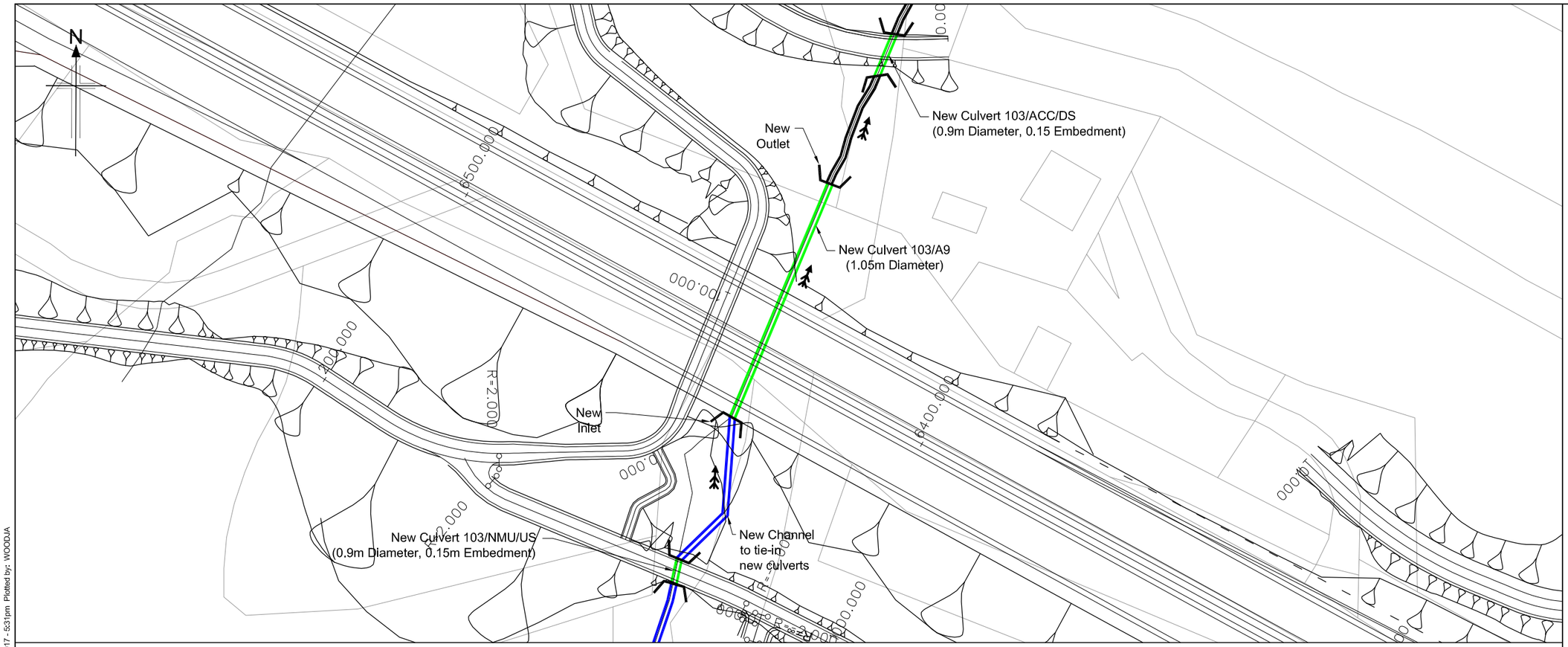
Client: TRANSPORT SCOTLAND / CÒMHDHAIL ALBA

Project: A9 DUALLING PERTH TO INVERNESS — Killiecrankie to Glen Garry

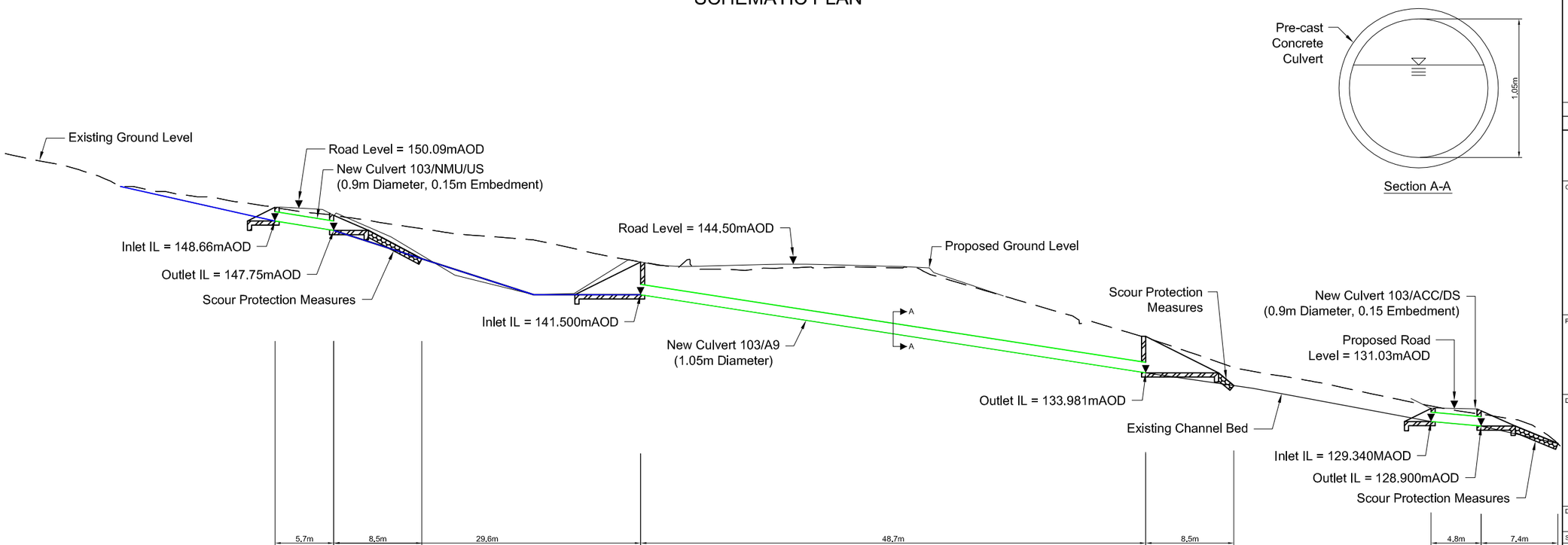
Drawing title: KILLIECRANKIE TO GLEN GARRY PROPOSED MODIFICATIONS TO CULVERT ON WATERCOURSE WF102

Drawing status: FOR INFORMATION

Scale	NTS @ A1	DO NOT SCALE
Jacobs No.	B2140005	
Drawing number	Figure A.11.8.11	Rev 0



SCHEMATIC PLAN



WATERCOURSE 103 LONGSECTION

Section A-A

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	13/01/17	FOR INFORMATION	CON	JW	LMcG	

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95 Bothwell St, Glasgow, G2 7HX
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Client: TRANSPORT SCOTLAND / CÒMHDHAIL ALBA

Project: A9 DUALLING PERTH TO INVERNESS — Killiecrankie to Glen Garry

Drawing title

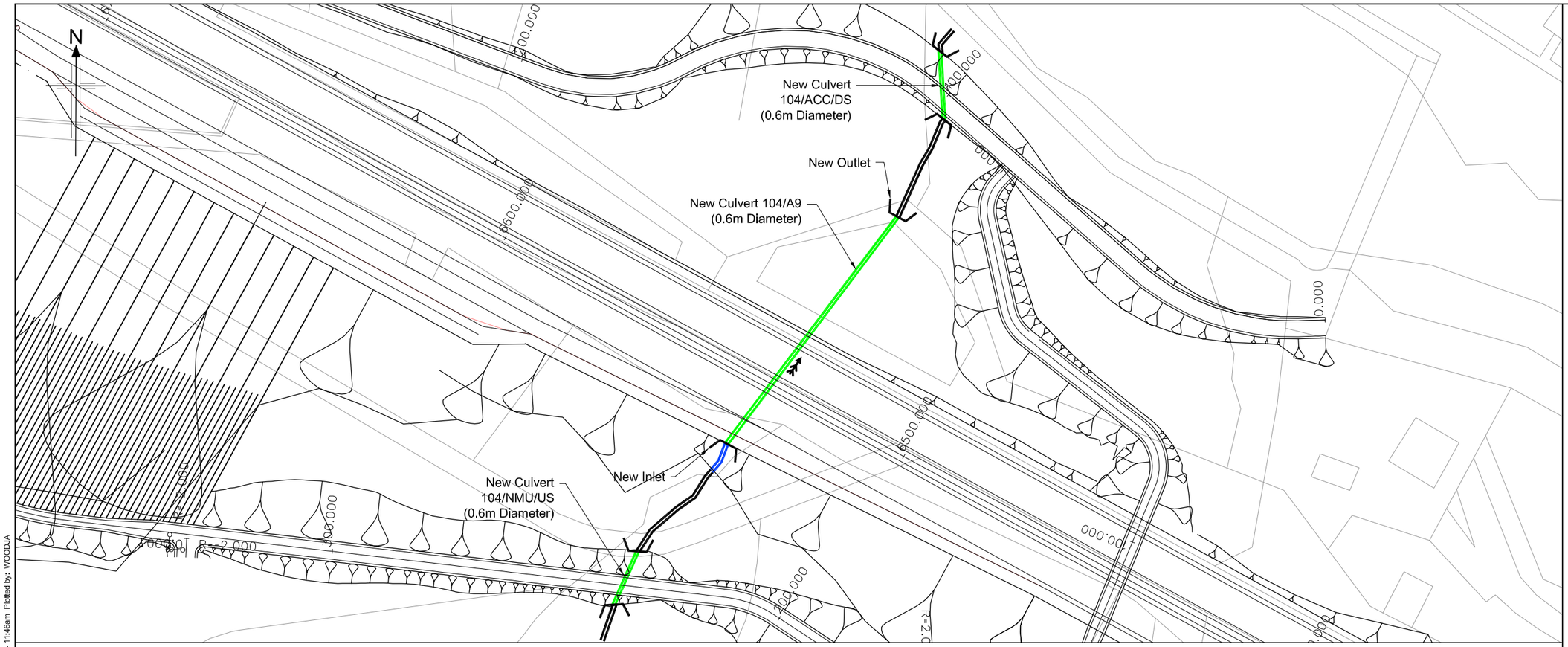
KILLIECRANKIE TO GLEN GARRY PROPOSED MODIFICATIONS TO CULVERT ON WATERCOURSE WF103

Drawing status: FOR INFORMATION

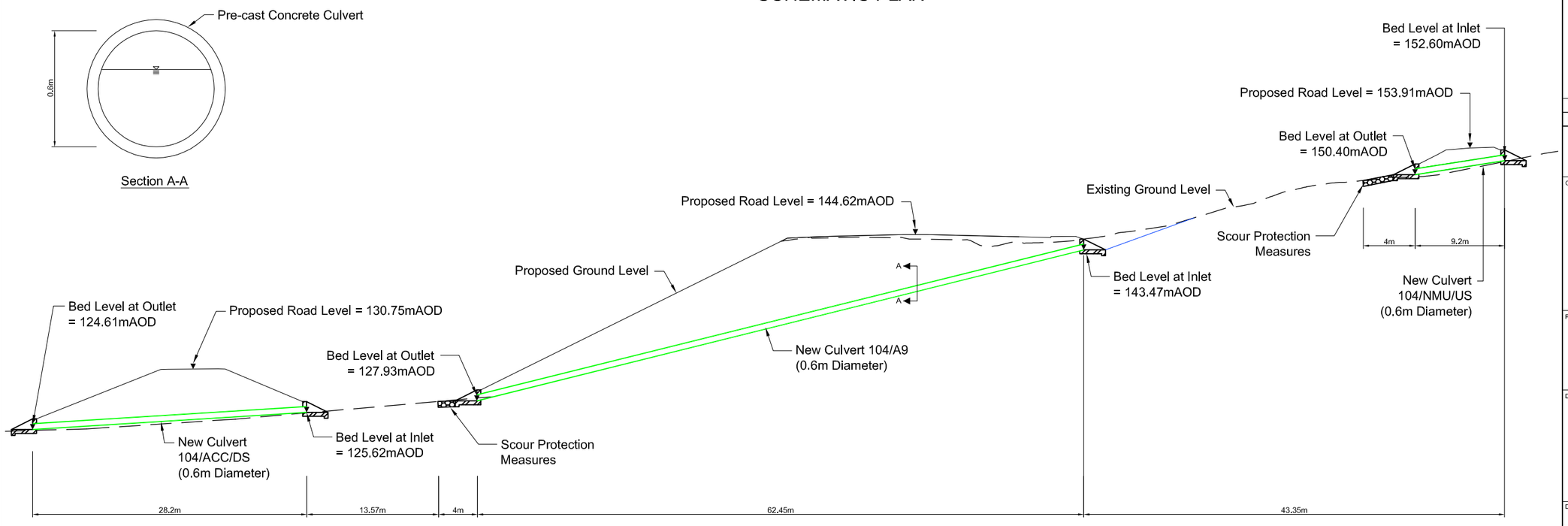
Scale	NTS @ A1	DO NOT SCALE
Jacobs No.	B2140005	

Drawing number: Figure A.11.8.12 — Rev: 0

File: \\Glafil07\PV01\ECBC\BWA_Jobs\B2140000 A9 Dualling Temp folder\B2140005 Killiecrankie to Pitagowan\CAD\Watercourse Modifications\JoWF103.dwg Date: Aug 02, 2017 - 5:31pm Plotted by: WOODJA



SCHEMATIC PLAN



WATERCOURSE 104 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	20/01/17	FOR INFORMATION	CON	JW	LMcG	

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Client: TRANSPORT SCOTLAND / CÒMHDHAIL ALBA

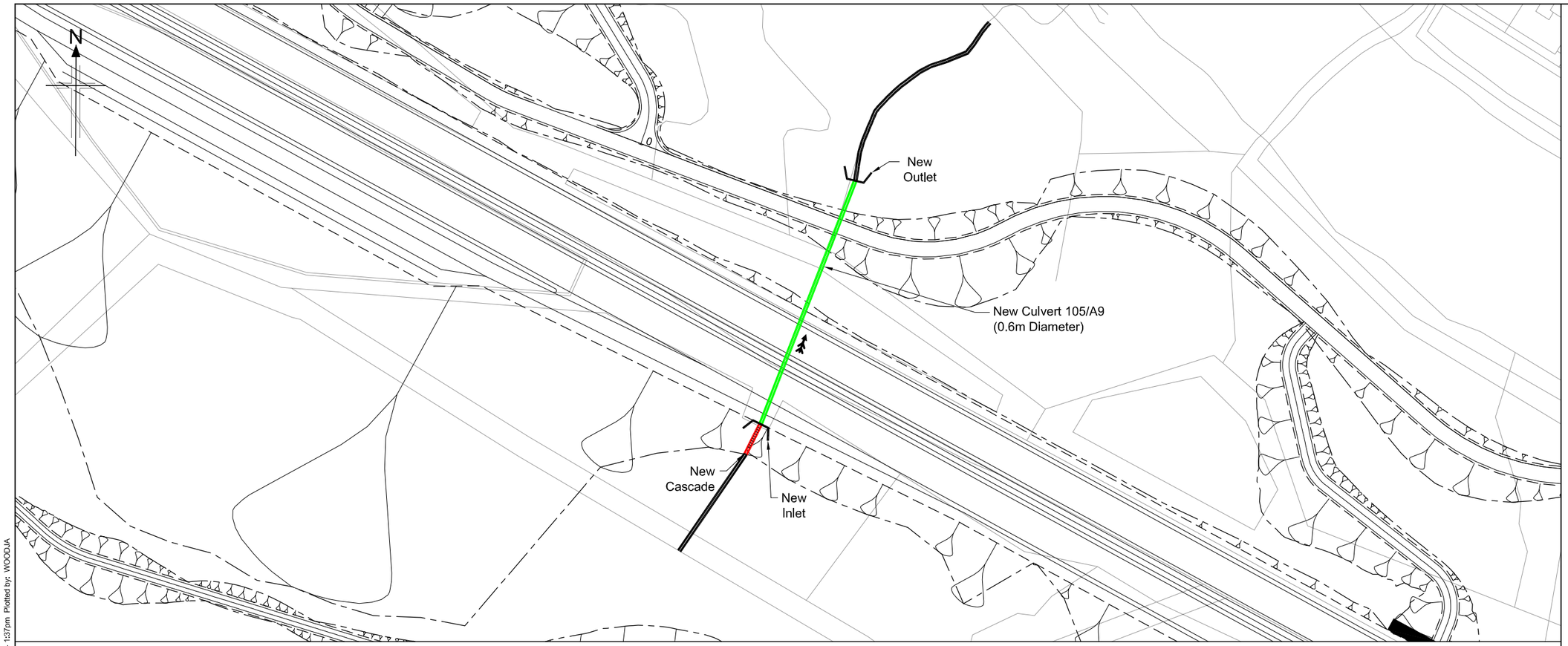
Project: A9 DUALLING PERTH TO INVERNESS — Killiecrankie to Glen Garry

Drawing title

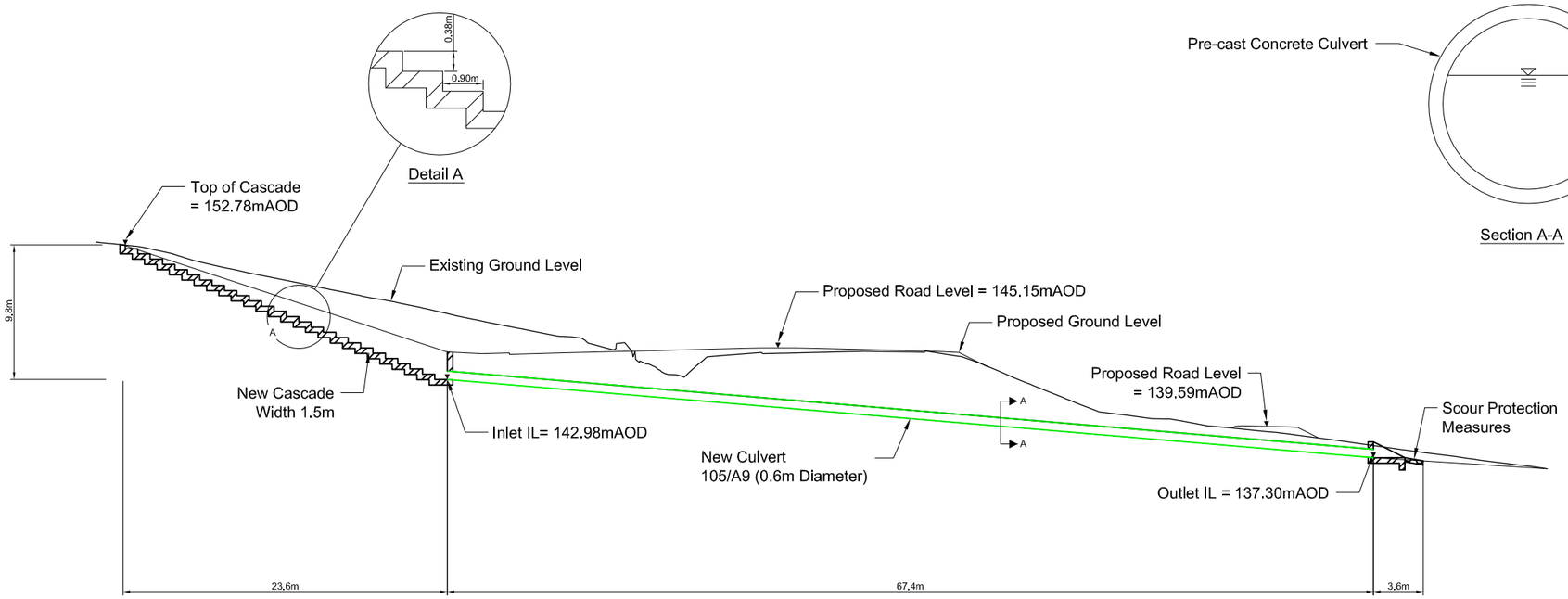
KILLIECRANKIE TO GLEN GARRY PROPOSED MODIFICATIONS TO CULVERT ON WATERCOURSE WF104

Drawing status: FOR INFORMATION

Scale	NTS @ A1	DO NOT SCALE
Jacobs No.	B2140005	
Drawing number	Figure A.11.8.13	Rev 0



SCHEMATIC PLAN



WATERCOURSE 105 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	10/01/17	FOR INFORMATION	CON	JW	LMcG	

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95 Bothwell St, Glasgow, G2 7HX
Tel:+44(0)141 243 8000 Fax:+44(0)141 226 3109
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Client: TRANSPORT SCOTLAND / CÒMHDHAIL ALBA

Project: A9 DUALLING PERTH TO INVERNESS — Killiecrankie to Glen Garry

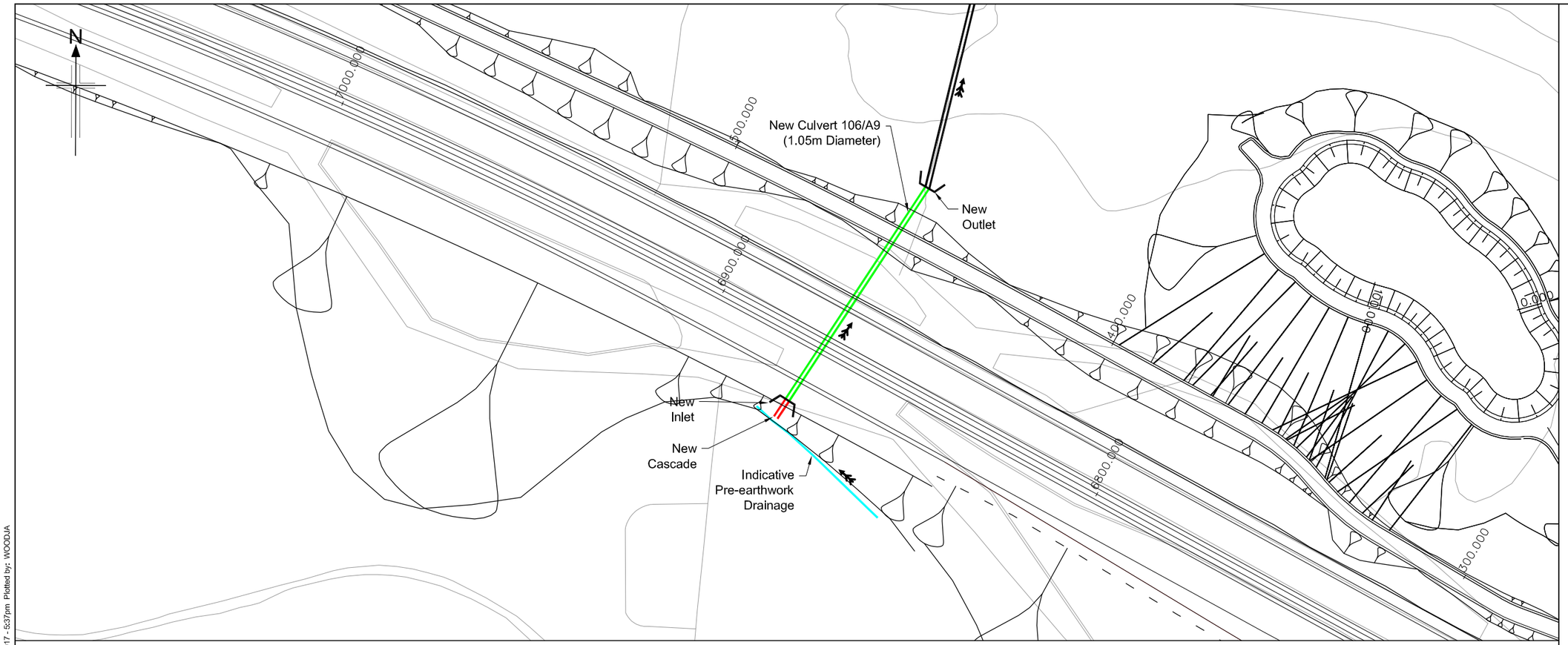
Drawing title

KILLIECRANKIE TO GLEN GARRY PROPOSED MODIFICATIONS TO CULVERT ON WATERCOURSE WF105

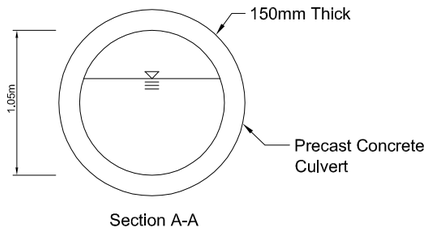
Drawing status: FOR INFORMATION

Scale	NTS @ A1	DO NOT SCALE
Jacobs No.	B2140005	
Drawing number	Figure A.11.8.14	Rev 0

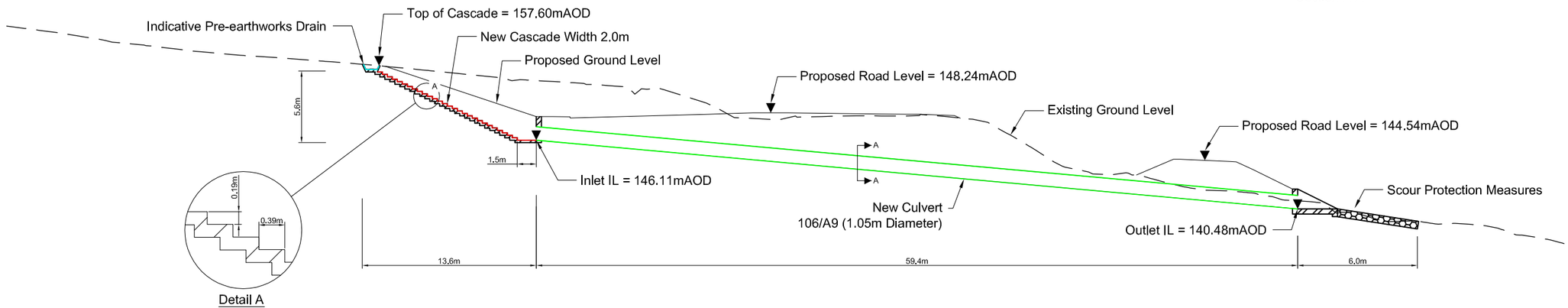
File: \\Glarfil07\PV01\ECBC\BWA_Jobs\B2140000 A9 Dualling Temp folder\B2140005 Killiecrankie to Pitagowan\CAD\Watercourse Modifications\WF105.dwg Date: Jul 27, 2017 - 1:37pm Plotted by: WOODJA



SCHEMATIC PLAN



Section A-A



Detail A

WATERCOURSE 106 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.
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Rev	Rev. Date	Purpose of revision	Drawn	Checkd	Rev'd	Apprv'd
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JACOBS
95 Bothwell St, Glasgow, G2 7HX
Tel:+44(0)141 243 8000 Fax:+44(0)141 226 3109
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Client: TRANSPORT SCOTLAND / CÒMHDHAIL ALBA

Project: A9 DUALLING PERTH TO INVERNESS — Killiecrankie to Glen Garry

Drawing title

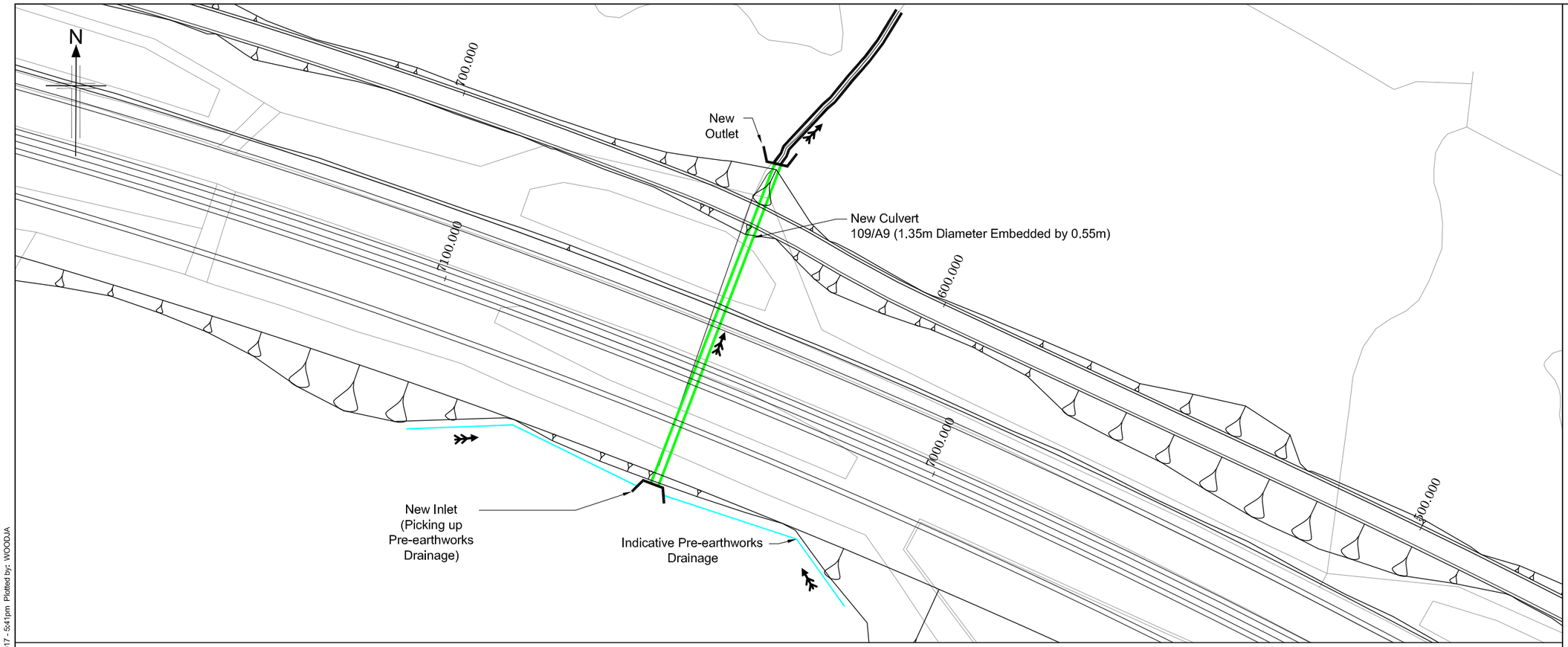
KILLIECRANKIE TO GLEN GARRY PROPOSED MODIFICATIONS TO CULVERT ON WATERCOURSE WF106

Drawing status: FOR INFORMATION

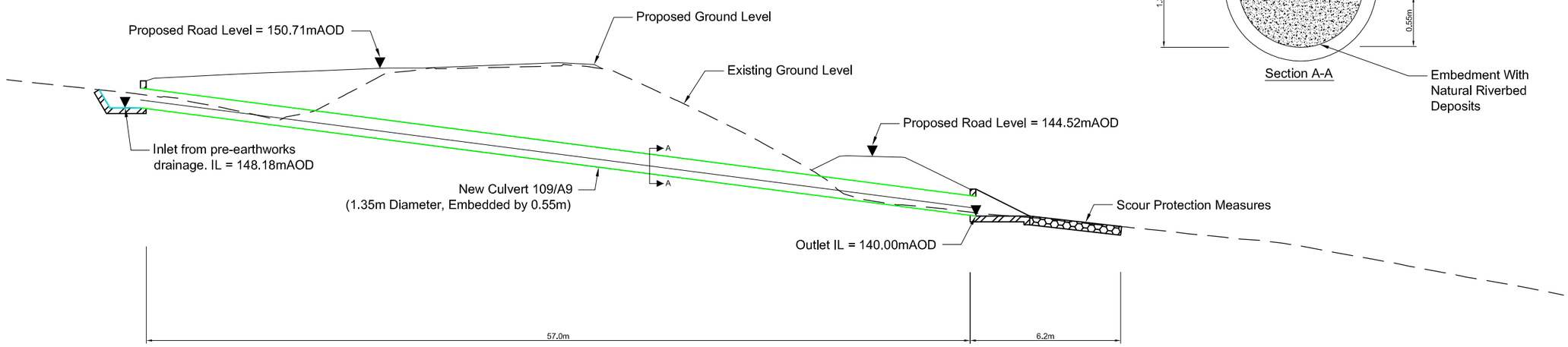
Scale	NTS @ A1	DO NOT SCALE
Jacobs No.	B2140005	

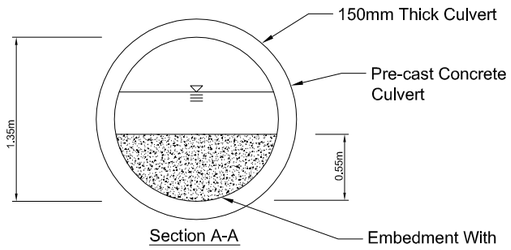
Drawing number: Figure A.11.8.15 — Rev: 0

File: \\Glarli07\PV01\ECBC\BWA_Jobs\B2140000 A9 Dualling Temp folder\B2140005 Killiecrankie to Pitagowan\CAD\Watercourse Modifications\JoWF106.dwg Date: Aug 02, 2017 - 5:37pm Plotted by: WOODJA



SCHEMATIC PLAN





WATERCOURSE 107 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:

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95 Bothwell St, Glasgow, G2 7HX
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Client: TRANSPORT SCOTLAND / CÒMHDHAIL ALBA

Project: A9 DUALLING PERTH TO INVERNESS — Killiecrankie to Glen Garry

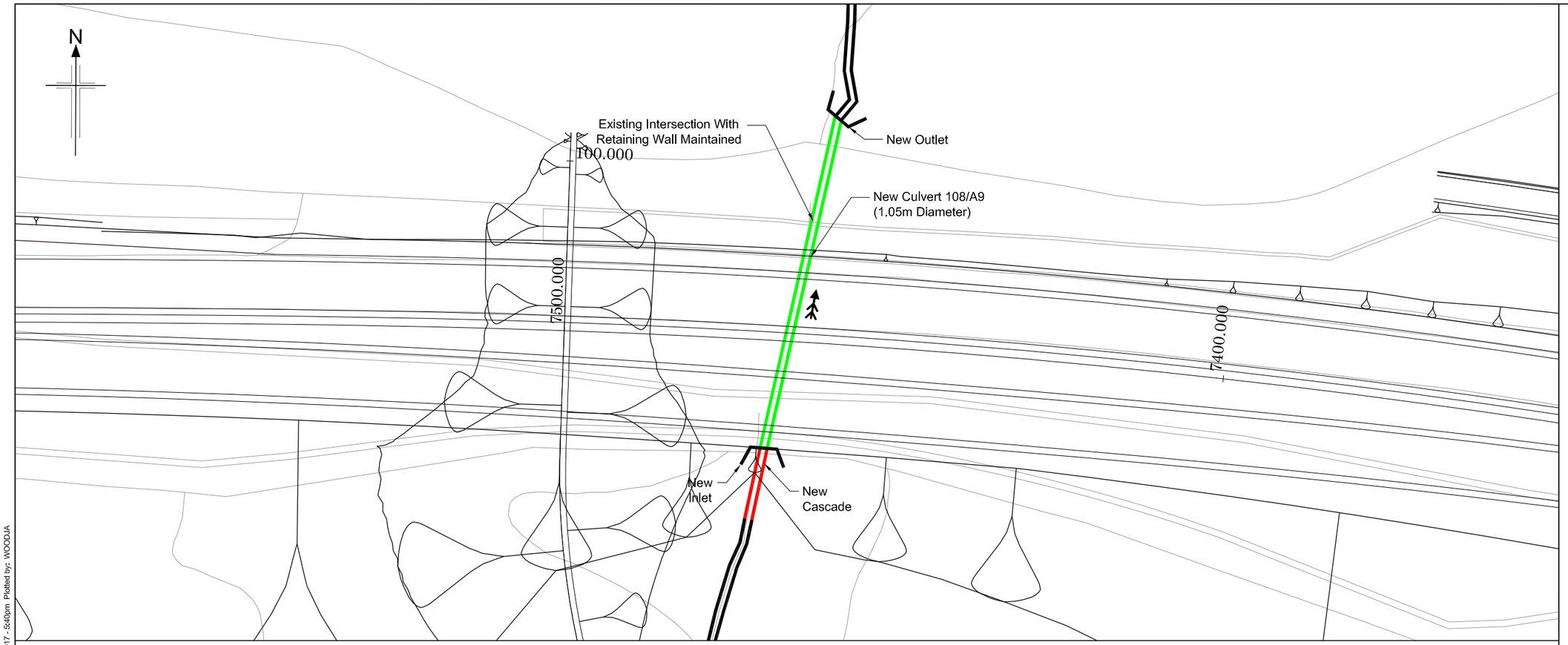
Drawing title

KILLIECRANKIE TO GLEN GARRY PROPOSED MODIFICATIONS TO CULVERT ON WATERCOURSE WF107

Drawing status: FOR INFORMATION

Scale	NTS @ A1	DO NOT SCALE
Jacobs No.	B2140005	
Drawing number	Figure A.11.8.16	Rev 0

File: \\Glarli07\PV01\ECBC\BWA_Jobs\B2140000 A9 Dualling Temp folder\B2140005 Killiecrankie to Pitagowan\CAD\Watercourse Modifications\JoWF107.dwg Date: Aug 02, 2017 - 5:41pm Plotted by: WOODJA



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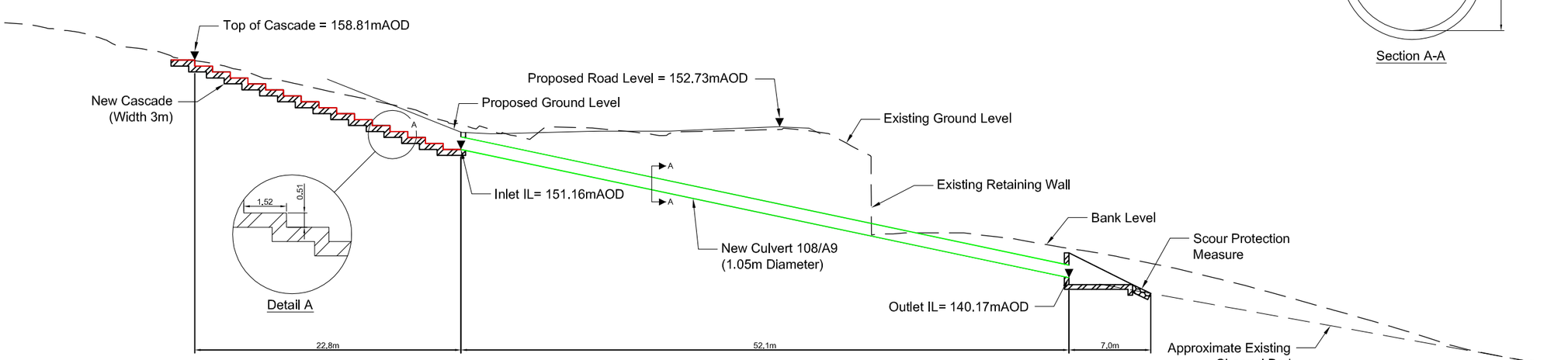

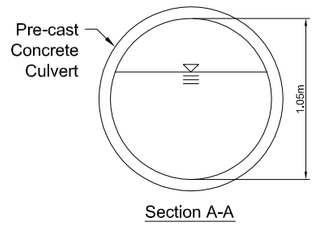

WATERCOURSE 108 LONGSECTION

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:

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95 Bothwell St, Glasgow, G2 7HX
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Client: TRANSPORT SCOTLAND / CÒMHDHAIL ALBA

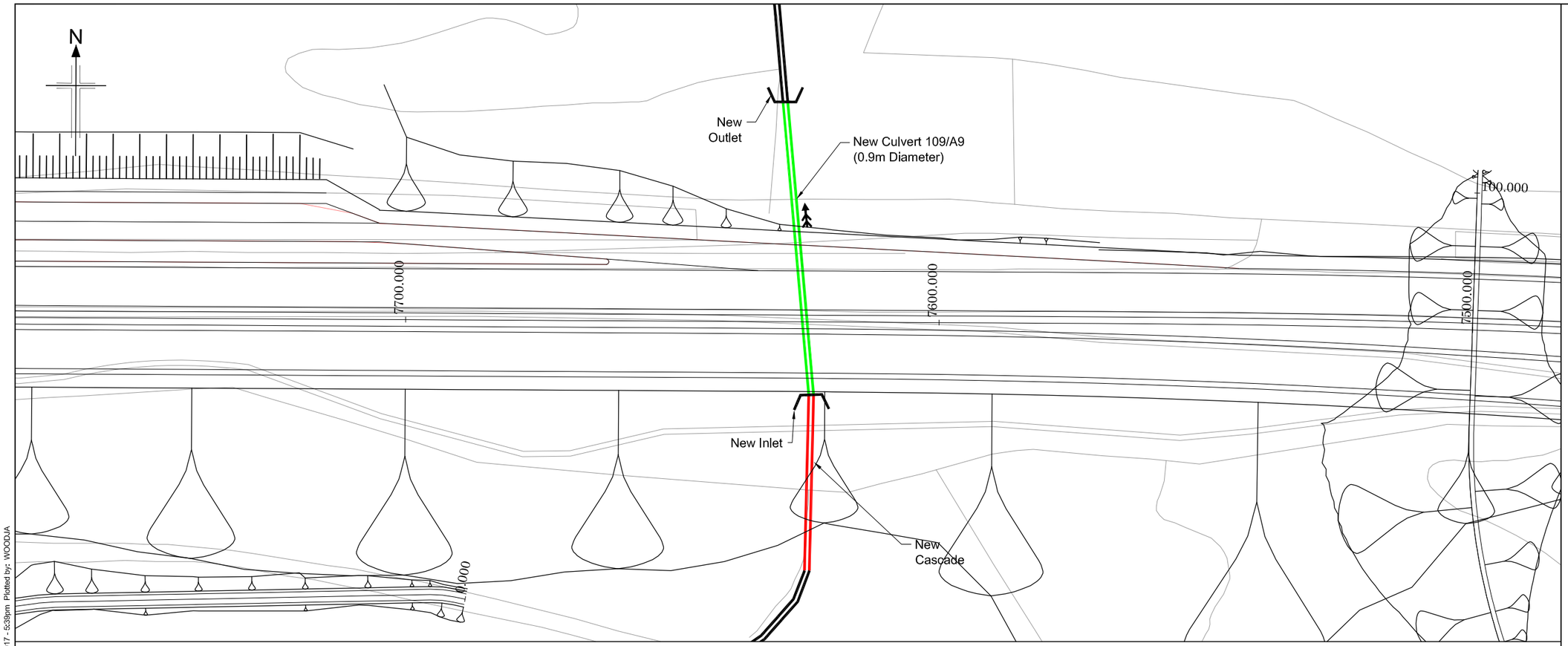
Project: A9 DUALLING PERTH TO INVERNESS — Killiecrankie to Glen Garry

Drawing title

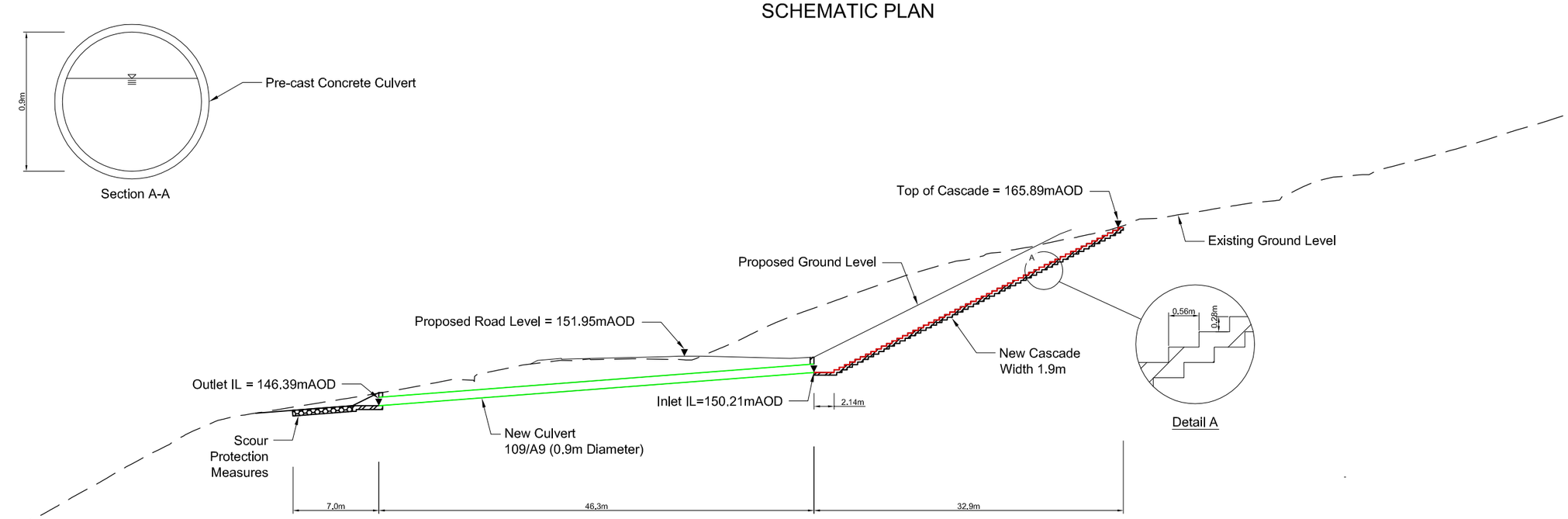
KILLIECRANKIE TO GLEN GARRY PROPOSED MODIFICATIONS TO CULVERT ON WATERCOURSE WF108

Drawing status: FOR INFORMATION

Scale	NTS @ A1	DO NOT SCALE
Jacobs No.	B2140005	
Drawing number	Figure A.11.8.17	Rev 0



SCHEMATIC PLAN



WATERCOURSE 109 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:

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Client: TRANSPORT SCOTLAND / CÒMHDHAIL ALBA

Project: A9 DUALLING PERTH TO INVERNESS — Killiecrankie to Glen Garry

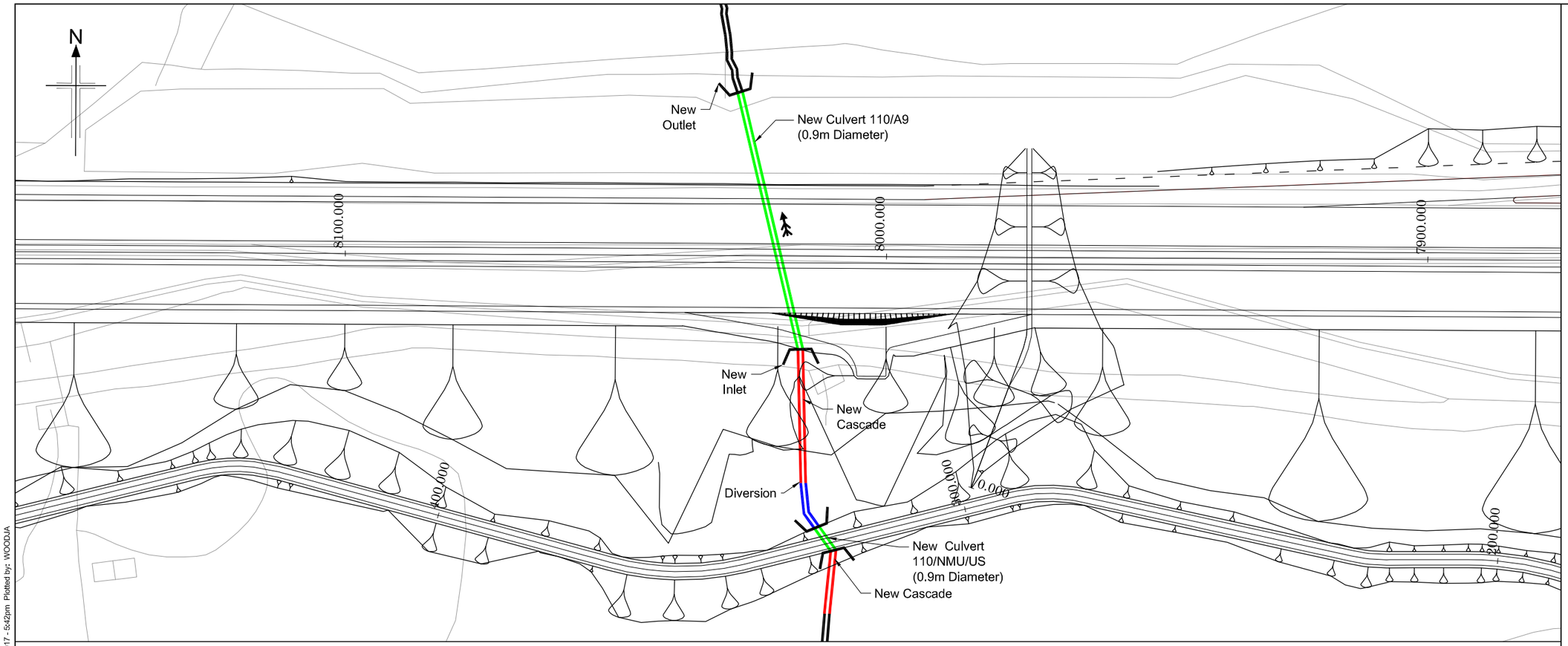
Drawing title

KILLIECRANKIE TO GLEN GARRY PROPOSED MODIFICATIONS TO CULVERT ON WATERCOURSE WF109

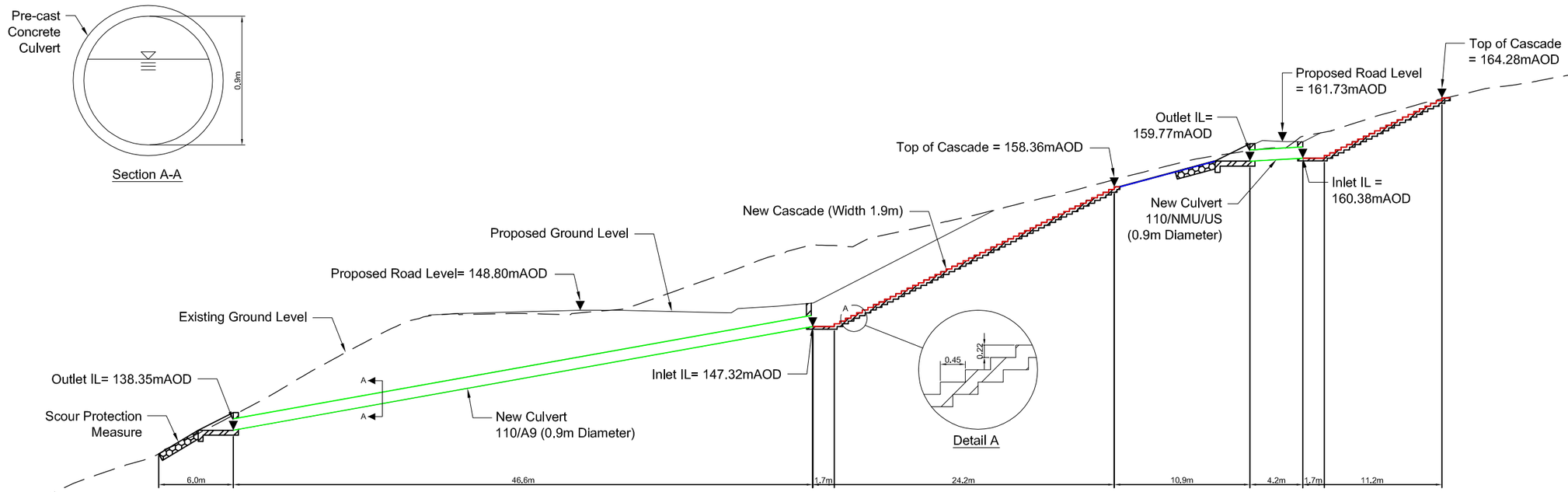
Drawing status: FOR INFORMATION

Scale	NTS @ A1	DO NOT SCALE
Jacobs No.	B2140005	
Drawing number	Figure A.11.8.18	Rev 0

File: \\Glarli07\PV01\ECBC\BWA_Jobs\B2140000 A9 Dualling Temp folder\B2140005 Killiecrankie to Pitagowan\CAD\Watercourse Modifications\JoWF109.dwg Date: Aug 02, 2017 - 5:39pm Plotted by: WOODJA



SCHEMATIC PLAN



WATERCOURSE 110 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:

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Client: TRANSPORT SCOTLAND / CÒMHDHAIL ALBA

Project: A9 DUALLING PERTH TO INVERNESS — Killiecrankie to Glen Garry

Drawing title

KILLIECRANKIE TO GLEN GARRY PROPOSED MODIFICATIONS TO CULVERT ON WATERCOURSE WF110

Drawing status: FOR INFORMATION

Scale	NTS @ A1	DO NOT SCALE
Jacobs No.	B2140005	

Drawing number: Figure A.11.8.19 — Rev: 0

N

Retain Outlet

New Culvert 111/A9
(1.05m Diameter)

8200.000

8100.000

New Cascade

8000.000

7900.000

New Culvert
111/NMU/US
(1.05 Diameter,
0.15m Embedment)

SCHEMATIC PLAN

Pre-cast
Concrete
Culvert

1.05m

Section A-A

Bed Level At Inlet =
159.35mAOD

Road Level = 160.89mAOD

Top of Cascade = 158.22mAOD

New Culvert 111/NMU/US
(1.05m Diameter)

New Cascade
(Width 2.0m)

Proposed Ground Level

Proposed Road Level = 147.88mAOD

Existing Ground Level

A

A

A

Detail A

0.42

1.06

Inlet IL = 146.00mAOD

Outlet IL= 138.67mAOD

New Culvert 111/A9
(1.05m Diameter)

Scour Protection
Measures

31.8m

3.1m

50.1m

8.7m

WATERCOURSE 111 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

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95 Bothwell St, Glasgow, G2 7HX
Tel:+44(0)141 243 8000 Fax:+44(0)141 226 3109
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Client: TRANSPORT SCOTLAND / CÒMHDHAIL ALBA

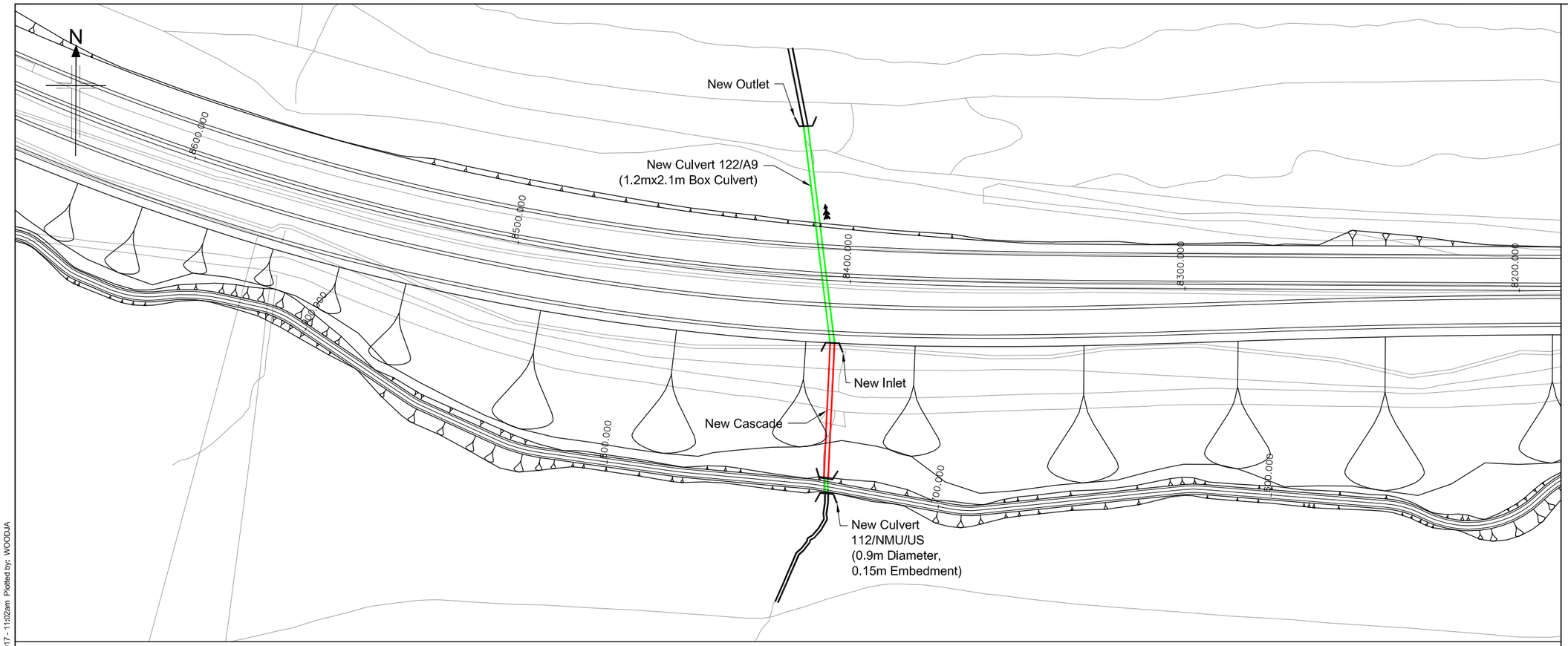
Project: A9 DUALLING PERTH TO INVERNESS
Killiecrankie to Glen Garry

Drawing title

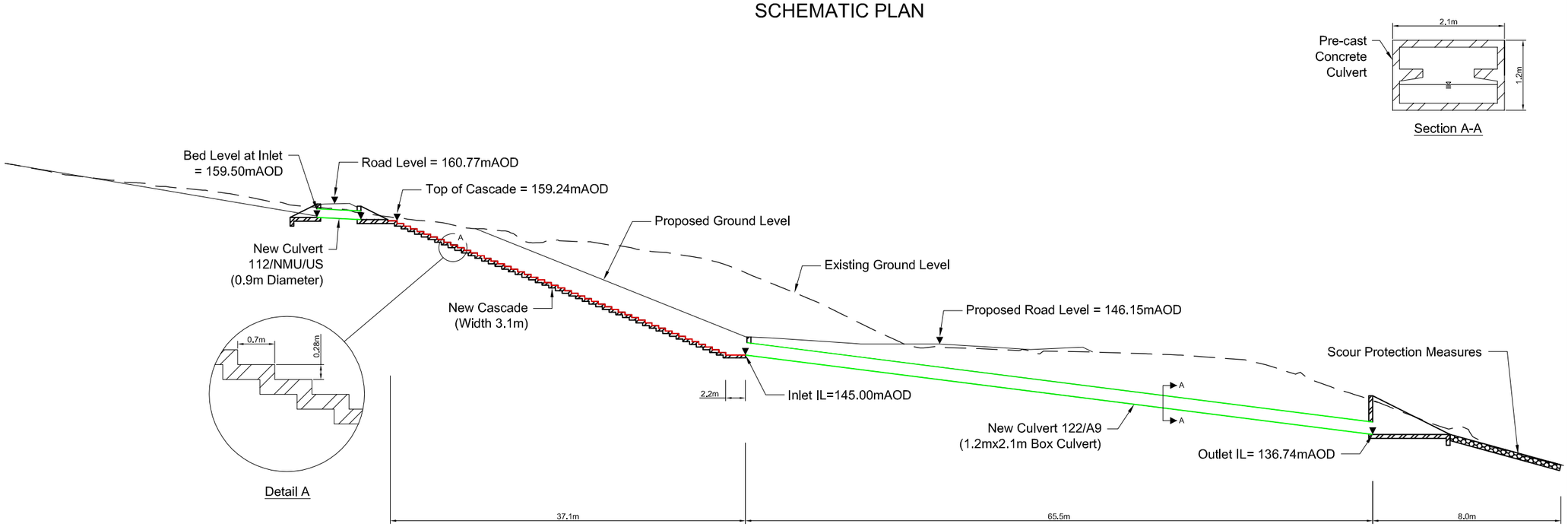
KILLIECRANKIE TO GLEN GARRY PROPOSED MODIFICATIONS TO CULVERT ON WATERCOURSE WF111

Drawing status: FOR INFORMATION

Scale	NTS @ A1	DO NOT SCALE
Jacobs No.	B2140005	
Drawing number	Figure A.11.8.20	Rev 0



SCHEMATIC PLAN



WATERCOURSE 112 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:

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JACOBS
95 Bothwell St, Glasgow, G2 7HX
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Client: TRANSPORT SCOTLAND / CÒMHDHAIL ALBA

Project: A9 DUALLING PERTH TO INVERNESS — Killiecrankie to Glen Garry

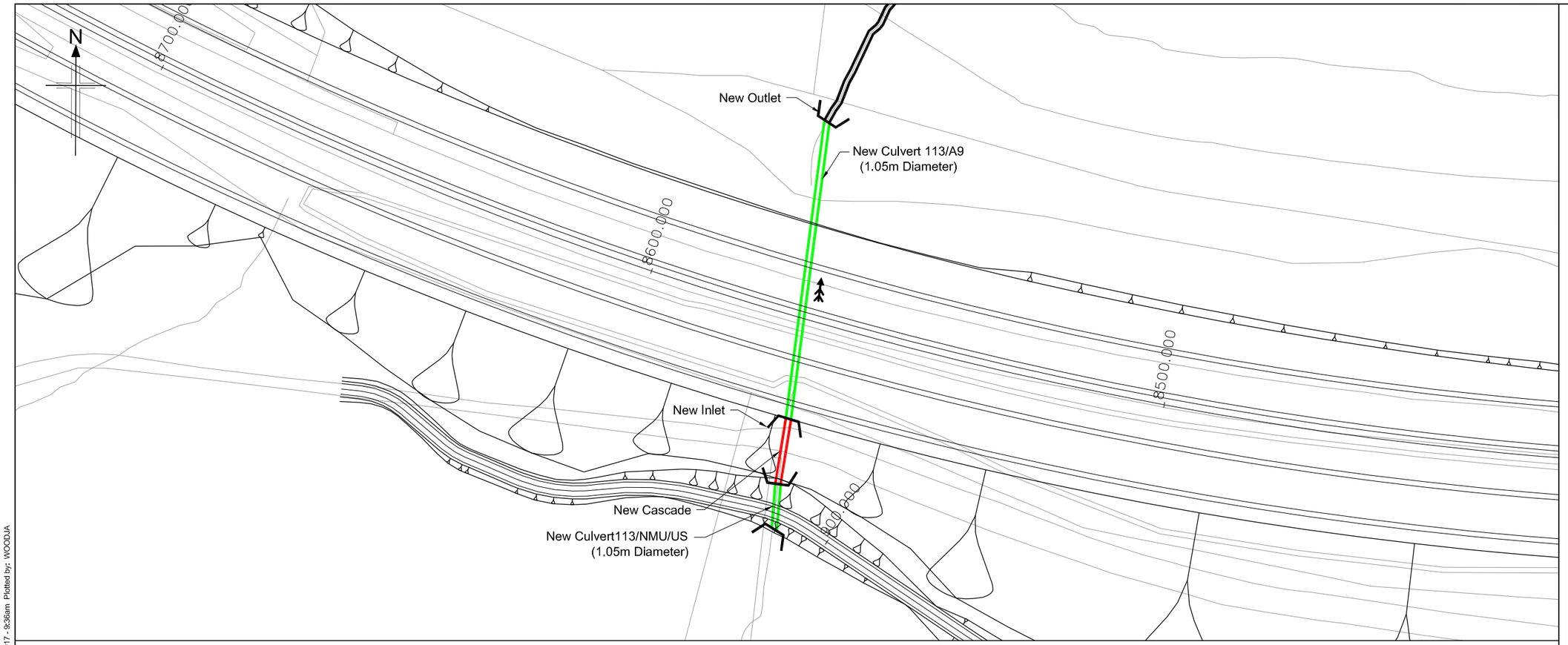
Drawing title

KILLIECRANKIE TO GLEN GARRY PROPOSED MODIFICATIONS TO CULVERT ON WATERCOURSE WF112

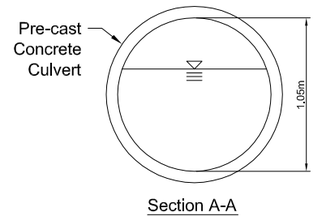
Drawing status: FOR INFORMATION

Scale	NTS @ A1	DO NOT SCALE
Jacobs No.	B2140005	
Drawing number	Figure A.11.8.21	Rev 0

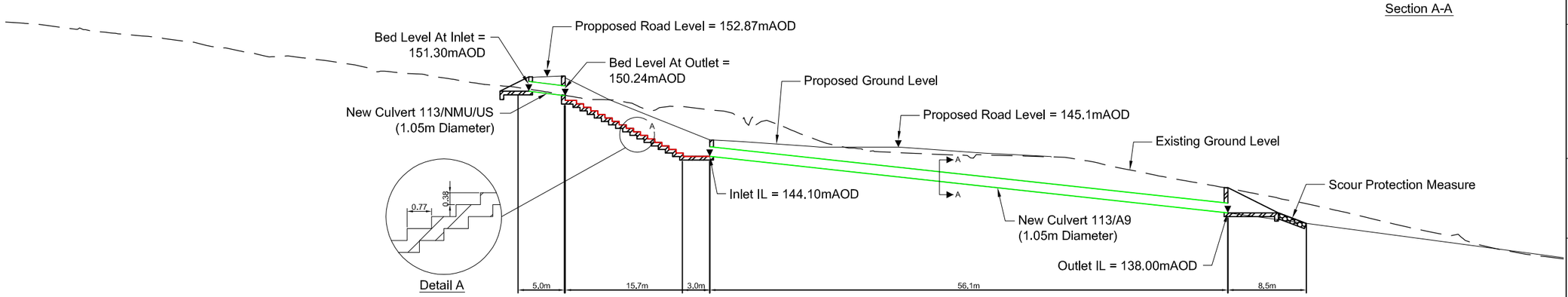
File: \\Glafil07\PV01\ECBC\BWA_Jobs\B2140000 A9 Dualling Temp folder\B2140005 Killiecrankie to Pitagowan\CAD\Watercourse Modifications\JoWF112.dwg Date: Aug 03, 2017 - 11:02am Plotted by: WOODJA



SCHEMATIC PLAN



Section A-A



WATERCOURSE 113 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:

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95 Bothwell St, Glasgow, G2 7HX
Tel:+44(0)141 243 8000 Fax:+44(0)141 226 3109
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Client: TRANSPORT SCOTLAND / CÒMHDHAIL ALBA

Project: A9 DUALLING PERTH TO INVERNESS — Killiecrankie to Glen Garry

Drawing title

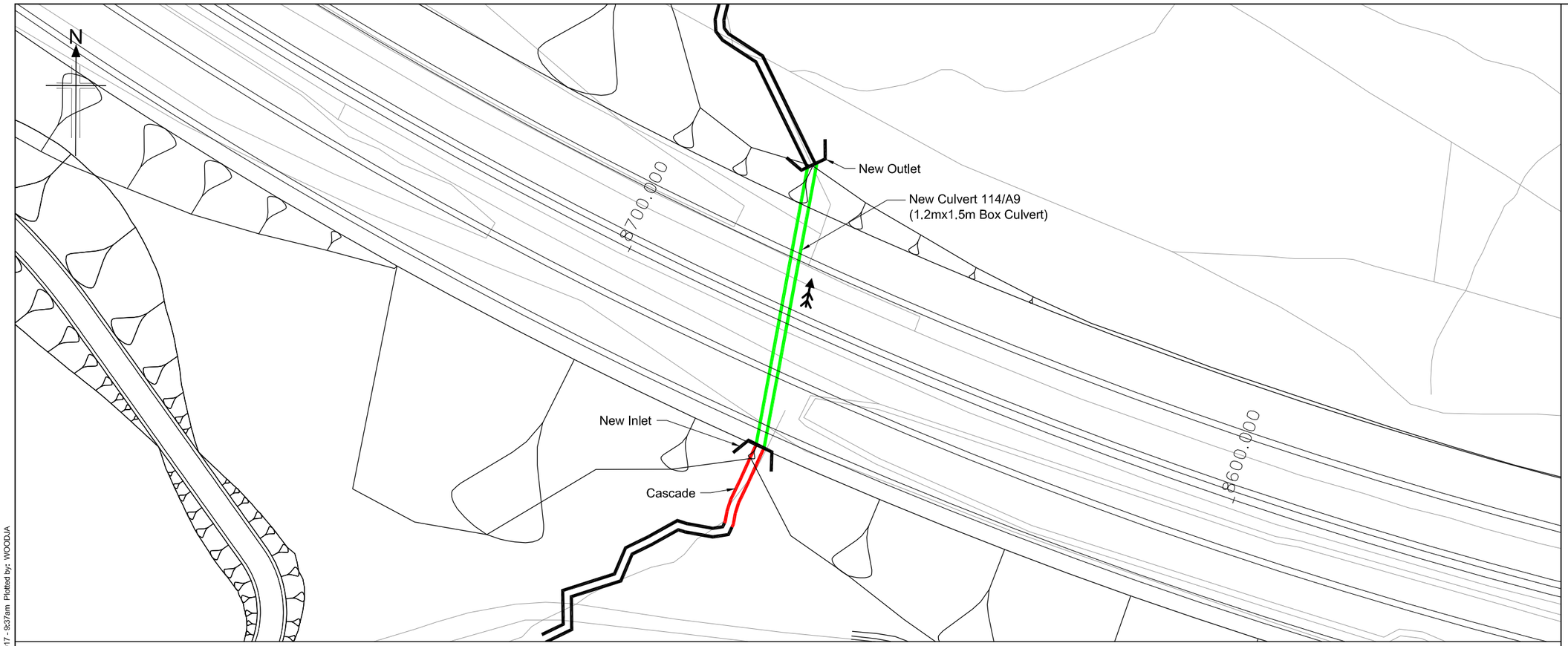
KILLIECRANKIE TO GLEN GARRY PROPOSED MODIFICATIONS TO CULVERT ON WATERCOURSE WF113

Drawing status: FOR INFORMATION

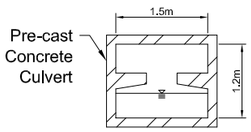
Scale	NTS @ A1	DO NOT SCALE
Jacobs No.	B2140005	

Drawing number: Figure A.11.8.22 — Rev: 0

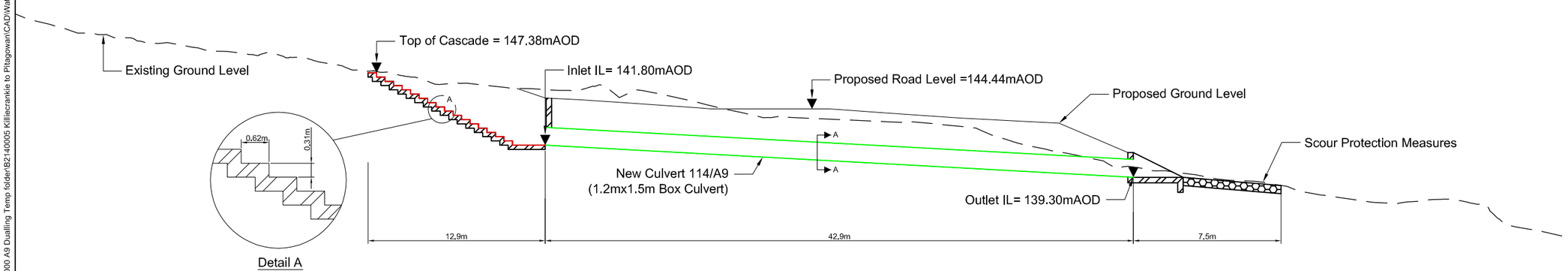
File: \\Glarli07\PV01\ECBC\BWA_Jobs\B2140000 A9 Dualling Temp folder\B2140005 Killiecrankie to Pitagowan\CAD\Watercourse Modifications\JoWF113.dwg Date: Aug 03, 2017 - 9:38am Plotted by: WOODJA



SCHEMATIC PLAN



Section A-A



Detail A

WATERCOURSE 114 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	10/01/17	FOR INFORMATION	CON	JW	LMcG	

JACOBS
95 Bothwell St, Glasgow, G2 7HX
Tel:+44(0)141 243 8000 Fax:+44(0)141 226 3109
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Client: TRANSPORT SCOTLAND / CÒMHDHAIL ALBA

Project: A9 DUALLING PERTH TO INVERNESS — Killiecrankie to Glen Garry

Drawing title

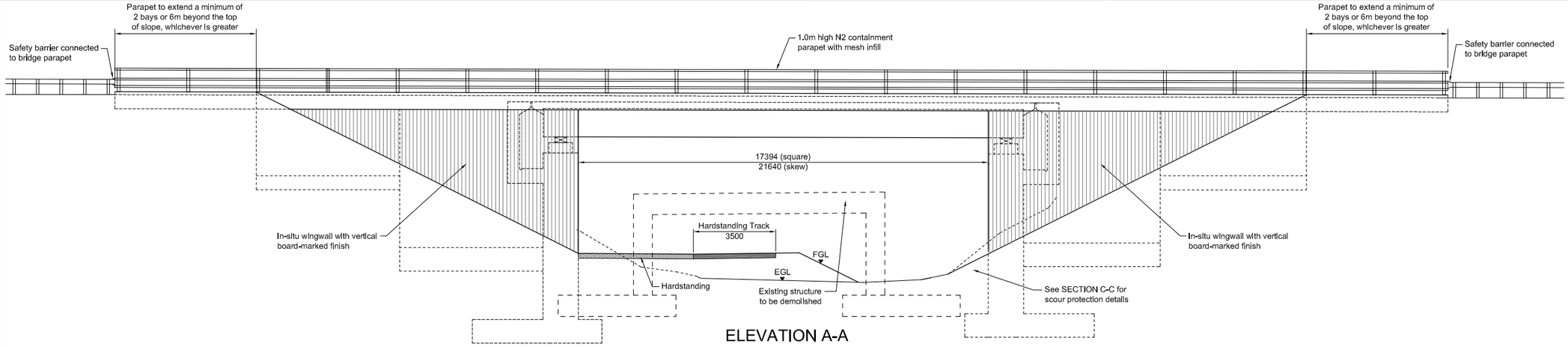
KILLIECRANKIE TO GLEN GARRY PROPOSED MODIFICATIONS TO CULVERT ON WATERCOURSE WF114

Drawing status: FOR INFORMATION

Scale	NTS @ A1	DO NOT SCALE
Jacobs No.	B2140005	

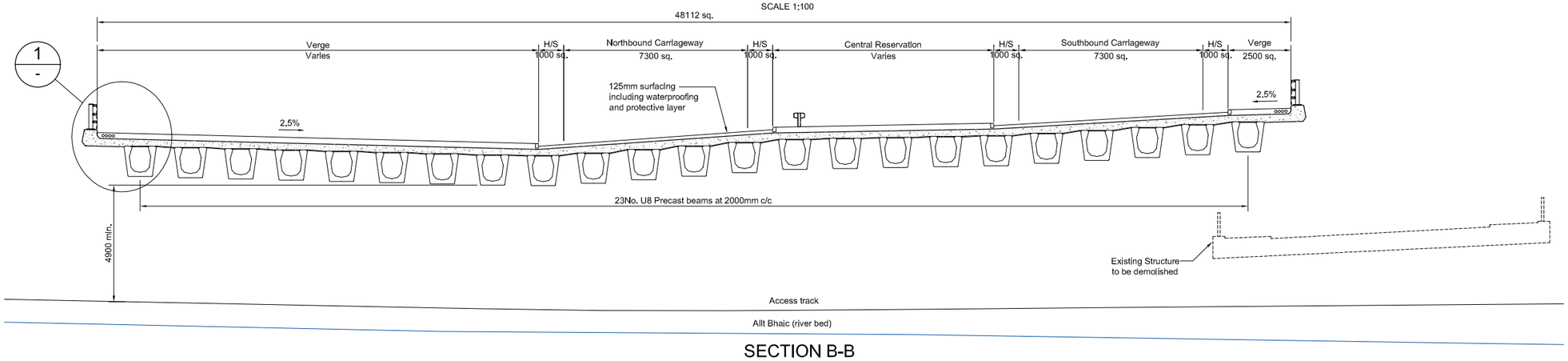
Drawing number: Figure A.11.8.23 — Rev: 0

File: \\Glarli07\PV01\ECBC\BWA_Jobs\B2140000 A9 Dualling Temp folder\B2140005 Killiecrankie to Pitagowan\CAD\Watercourse Modifications\JoWF114.dwg Date: Aug 03, 2017 - 9:37am Plotted by: WOODJA



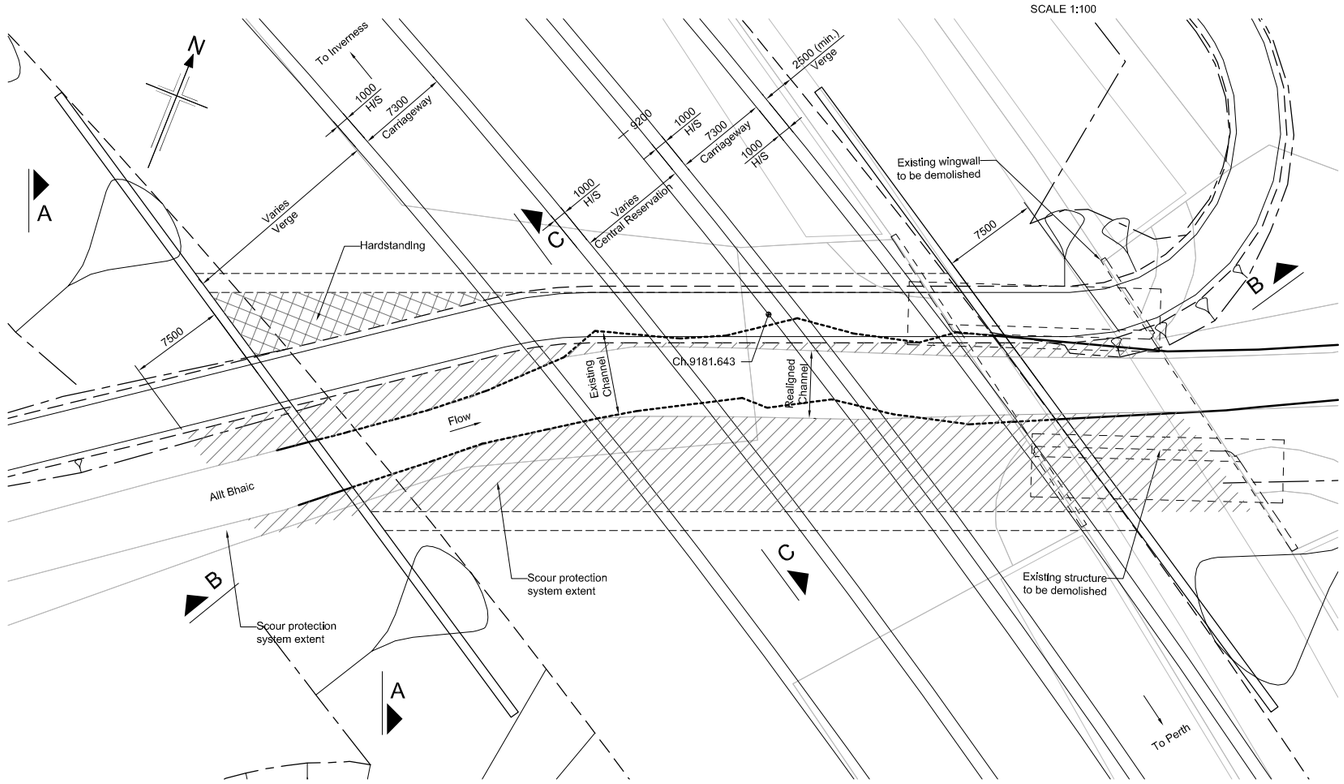
ELEVATION A-A

SCALE 1:100



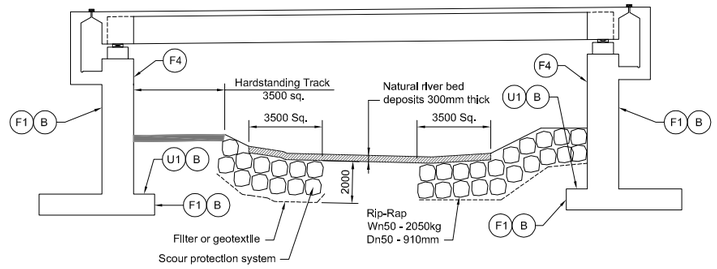
SECTION B-B

SCALE 1:100



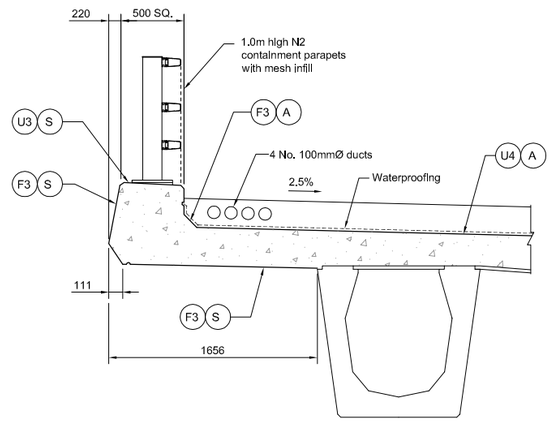
PLAN

SCALE 1:250



SECTION C-C

N.T.S



Detail 1

SCALE 1:25

Notes.

1. All dimensions are in millimetres unless noted otherwise.
2. All levels are in metres Above Ordnance Datum.
3. All chainages are in metres.
4. All exposed arrises to have 25x25 chamfers unless noted otherwise.
5. Concrete finishes denoted thus:
   - (F) - Formed
   - (U) - Unformed
6. Concrete protection to be as follows:
   - (S) - Surface Impregnation in accordance with BD43 of the DMRB
   - (A) - Spray applied waterproofing in accordance with Cl 2003 of the Specification.
   - (B) - Waterproofing of all buried concrete surfaces in accordance with Cl 2004 of the Specification.
7. All details shown on this drawing are indicative only and subject to development.
8. Where required a scour protection system shall be provided within the area indicated on the drawing. The nature and extent of the scour protection system will be further developed at detail design stage in accordance with DMRB, but may consist of a rock armour (rip-rap) system as shown.
9. The hardstanding track beneath the bridge shall be resistant to fluvial scour and extend between the top of the scour protecting system and the bridge abutment face and also extend 7.5m upstream and downstream of the bridge.

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 · Service survey required pre-construction · Nature and position of the existing structure foundations to be verified pre-construction by undertaking investigations · 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

Rev	Rev. Date	Purpose of revision	Drawn	Checkd	Revd	Apprv'd
P2	15/05/17	DMRB Stage 3 Report - Draft	MG	IA	MAM	ELM
P1	11/10/16	Design Flx 3	MR	MAM	MAM	ELM

JACOBS
95 Bothwell St, Glasgow, G2 7HX
Tel:+44(0)141 243 8000 Fax:+44(0)141 226 3109
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Client: TRANSPORT SCOTLAND / CÒMHDHAIL ALBA

Project: A9 DUALLING PERTH TO INVERNESS Killiecrankie to Glen Garry

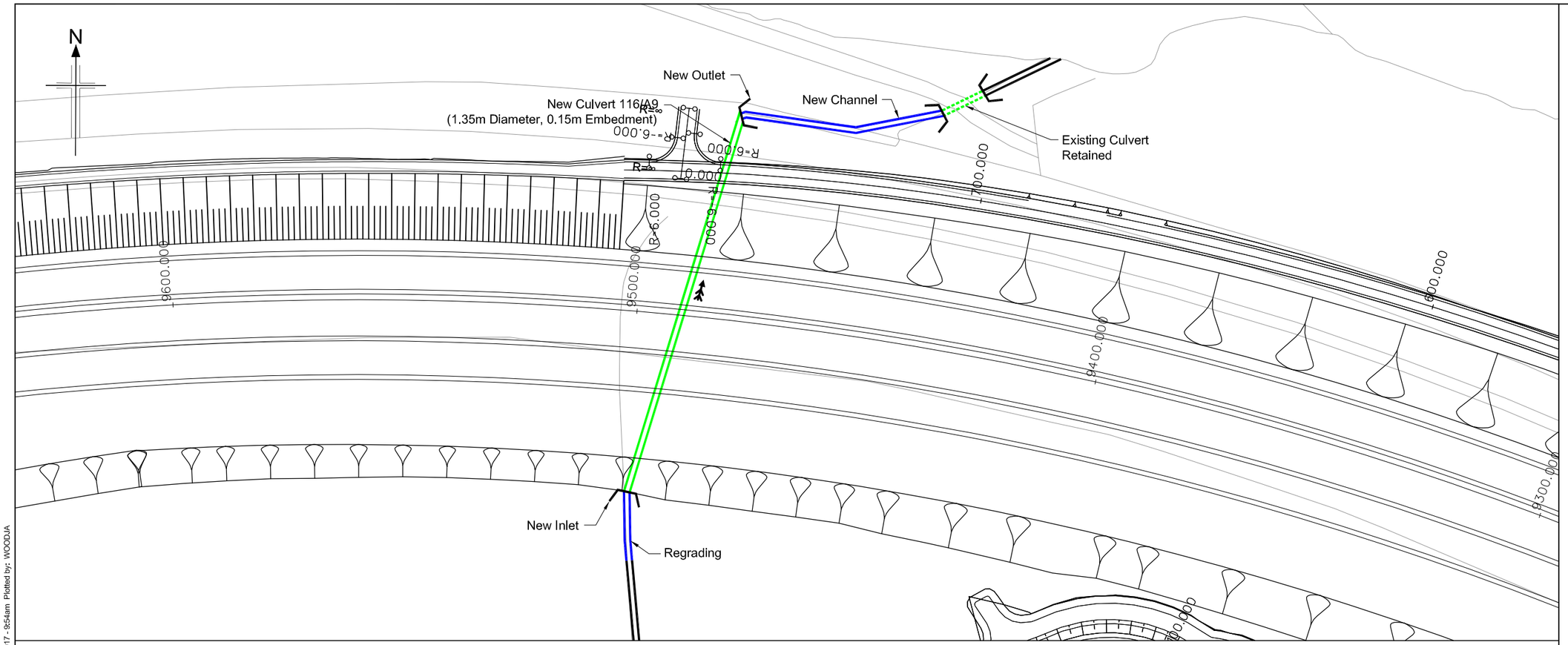
Drawing title

KILLIECRANKIE TO GLEN GARRY ALLT BHAIC UNDERBRIDGE GENERAL ARRANGEMENT

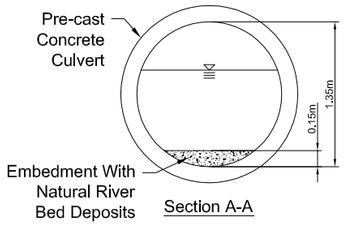
Drawing status

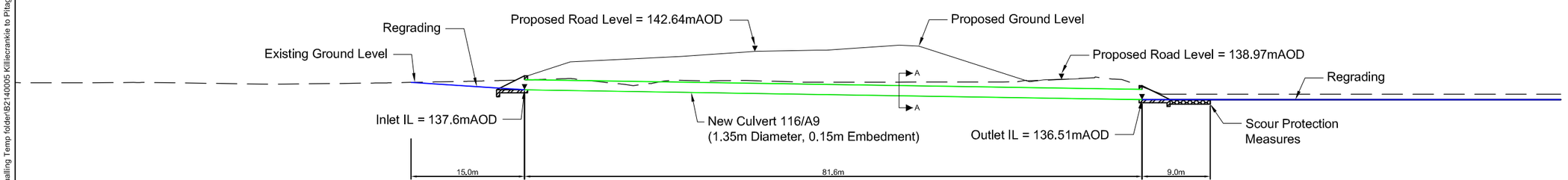
Scale	AS SHOWN @ A1	DO NOT SCALE
Jacobs No.	B2140005	

Drawing number: Figure A.11.8.24 — Rev: P2



SCHEMATIC PLAN





WATERCOURSE 116 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.

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0	10/01/17	FOR INFORMATION	CON	JW	LMcG	

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95 Bothwell St, Glasgow, G2 7HX
Tel:+44(0)141 243 8000 Fax:+44(0)141 226 3109
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Client: TRANSPORT SCOTLAND / CÒMHDHAIL ALBA

Project: A9 DUALLING PERTH TO INVERNESS — Killiecrankie to Glen Garry

Drawing title

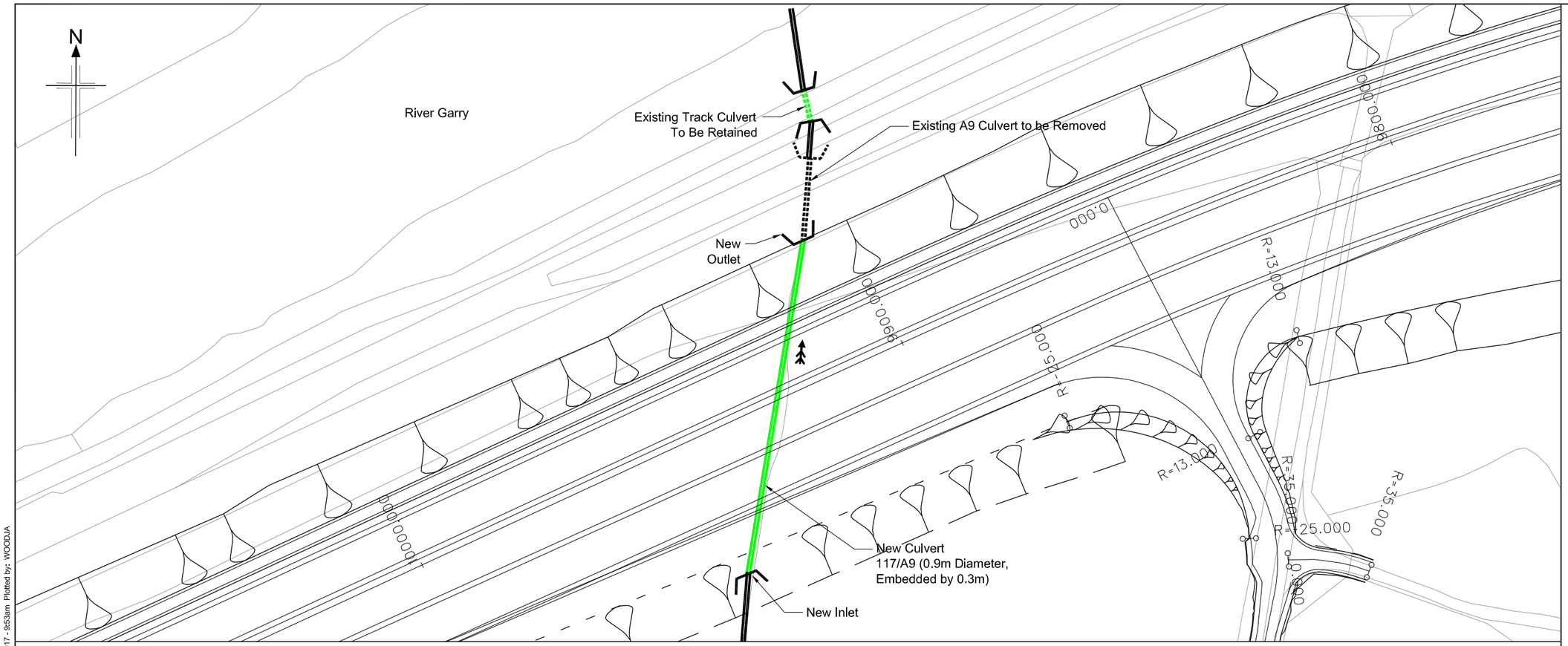
KILLIECRANKIE TO GLEN GARRY PROPOSED MODIFICATIONS TO CULVERT ON WATERCOURSE WF116

Drawing status: FOR INFORMATION

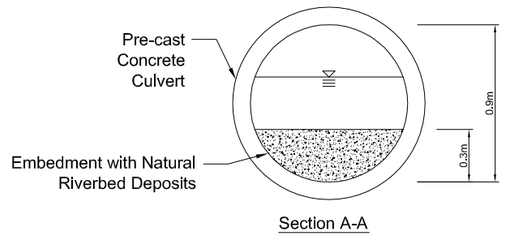
Scale	NTS @ A1	DO NOT SCALE
Jacobs No.	B2140005	

Drawing number: Figure A.11.8.25 — Rev: 0

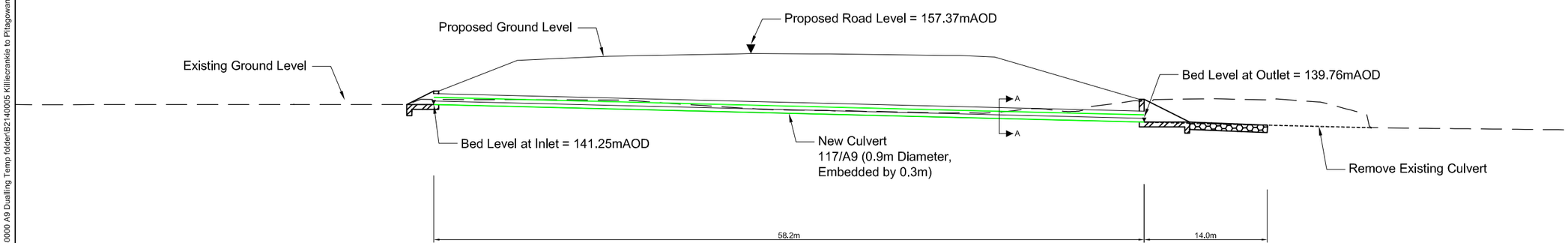
File: \\Glarli07\PV01\ECBC\BWA_Jobs\B2140000 A9 Dualling Temp folder\B2140005 Killiecrankie to Ptlagowan\CAD\Watercourse Modifications\JoWF116.dwg Date: Aug 03, 2017 - 8:54am Plotted by: WOODJA



SCHEMATIC PLAN



Section A-A



WATERCOURSE 117 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.
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   - 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	16/01/17	FOR INFORMATION	CON	JW	LMcG	

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95 Bothwell St, Glasgow, G2 7HX
Tel:+44(0)141 243 8000 Fax:+44(0)141 226 3109
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Client: TRANSPORT SCOTLAND / CÒMHDHAIL ALBA

Project: A9 DUALLING PERTH TO INVERNESS — Killiecrankie to Glen Garry

Drawing title

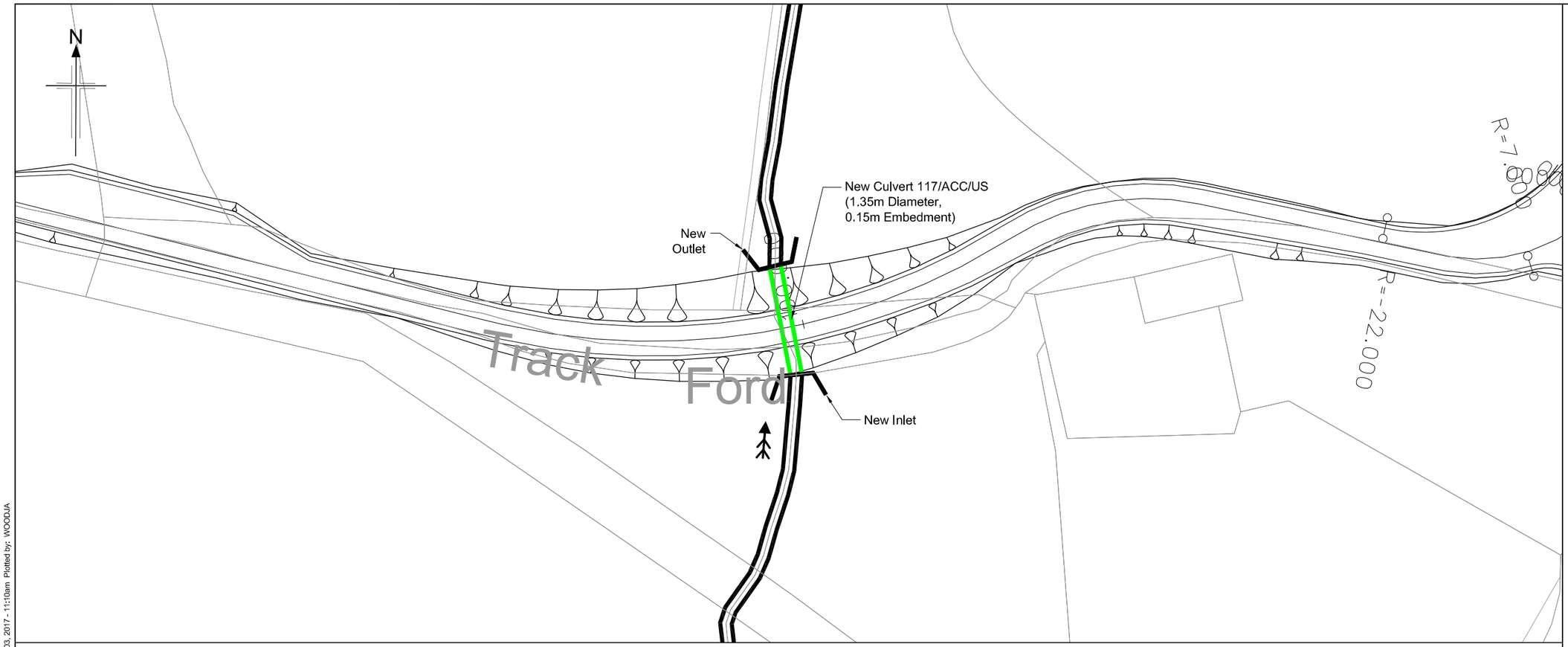
KILLIECRANKIE TO GLEN GARRY PROPOSED MODIFICATIONS TO CULVERT ON WATERCOURSE WF117

Drawing status: FOR INFORMATION

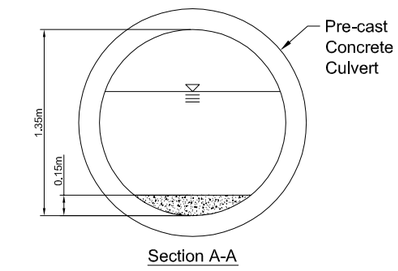
Scale	NTS @ A1	DO NOT SCALE
Jacobs No.	B2140005	

Drawing number: Figure A.11.8.26 — Rev: 0

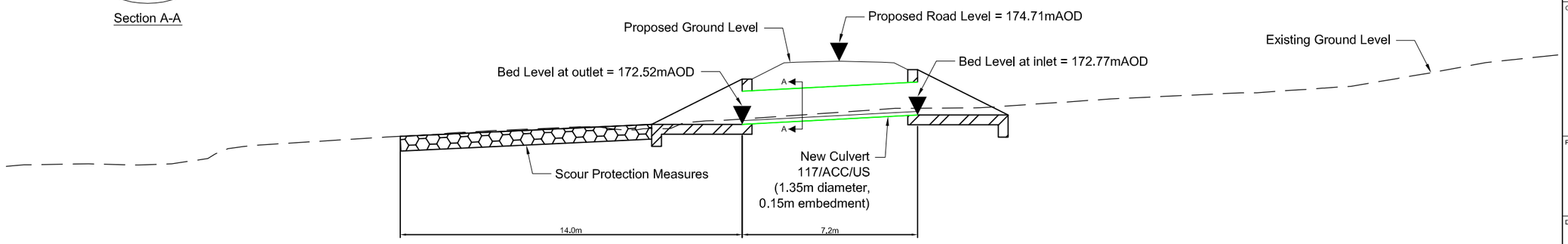
File: \\Glarli07\PV01\ECBC\BWA_Jobs\B2140000 A9 Dualling Temp folder\B2140005 Killiecrankie to Pitagowan\CAD\Watercourse Modifications\JoWF117.dwg Date: Aug 03, 2017 - 9:53am Plotted by: WOODJA



SCHEMATIC PLAN



Section A-A



WATERCOURSE 117/ACC/US 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:

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7. Where shown culverts shall be 'embedded' with natural river deposits to the depth shown.
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   - 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	17/01/17	FOR INFORMATION	CON	JW	LMcG	

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95 Bothwell St, Glasgow, G2 7HX
Tel:+44(0)141 243 8000 Fax:+44(0)141 226 3109
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Client: TRANSPORT SCOTLAND / CÒMHDHAIL ALBA

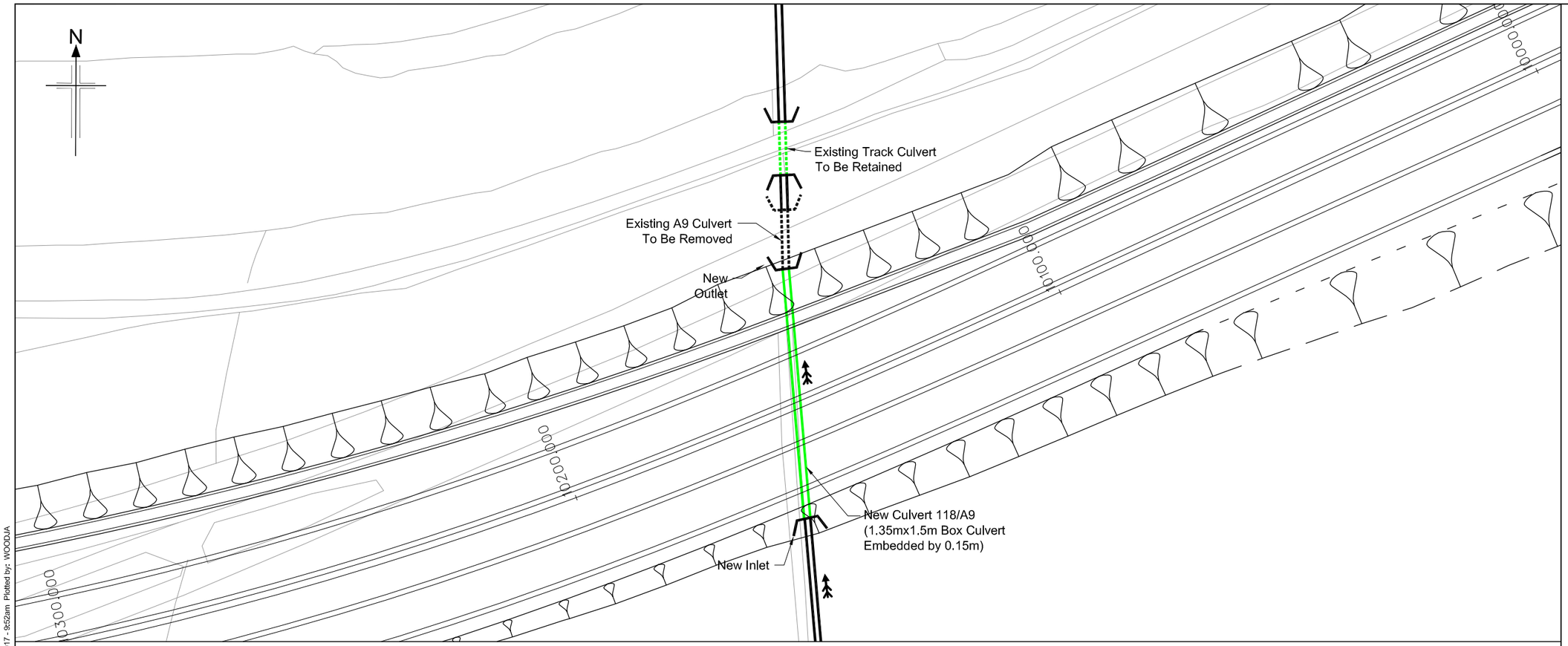
Project: A9 DUALLING PERTH TO INVERNESS, Killiecrankie to Glen Garry

Drawing title

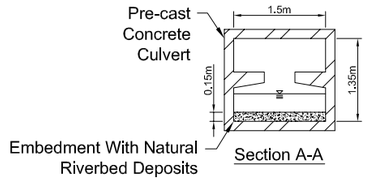
KILLIECRANKIE TO GLEN GARRY
PROPOSED NEW SIDE
ROAD CULVERT ON
WATERCOURSE WF117

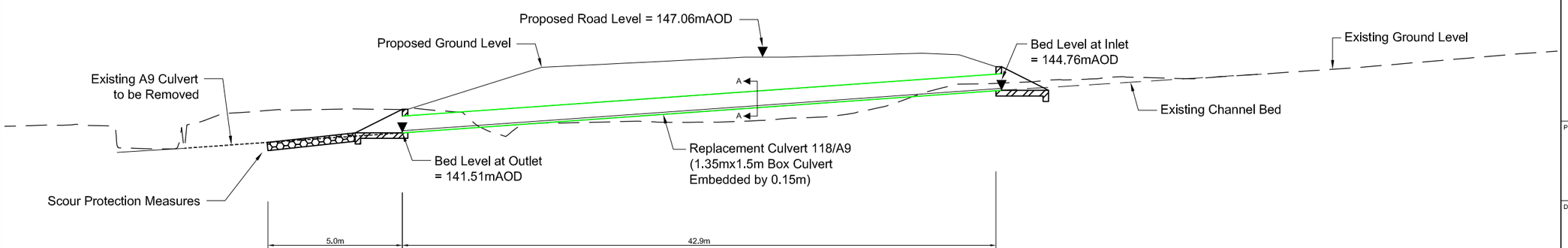
Drawing status	FOR INFORMATION	
Scale	NTS @ A1	DO NOT SCALE
Jacobs No.	B2140005	
Drawing number	Figure A.11.8.27	Rev 0

File: \\Glafil07PV01\ECBC\BWA_Jobs\B2140000 A9 Dualling Temp folder\B2140005 Killiecrankie to Pitagowan\CAD\Watercourse Modifications\WF117ACCUS.dwg Date: Aug 03, 2017 - 11:10am Plotted by: WOODJA



SCHEMATIC PLAN





WATERCOURSE 118 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:

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2. All levels are In meters above ordnance datum.
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   - 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
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95 Bothwell St, Glasgow, G2 7HX
Tel:+44(0)141 243 8000 Fax:+44(0)141 226 3109
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Client: TRANSPORT SCOTLAND / CÒMHDHAIL ALBA

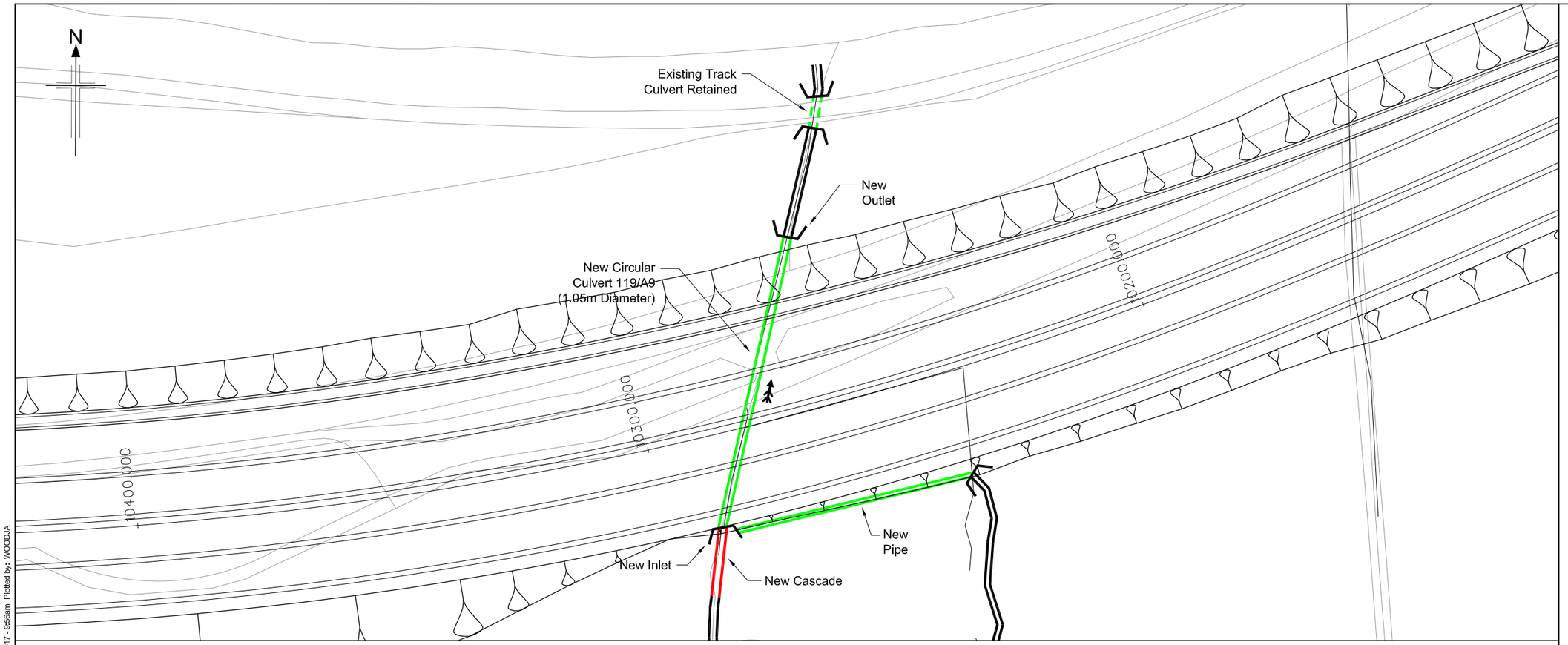
Project: A9 DUALLING PERTH TO INVERNESS — Killiecrankie to Glen Garry

Drawing title

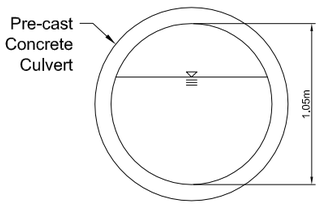
KILLIECRANKIE TO GLEN GARRY PROPOSED MODIFICATIONS TO CULVERT ON WATERCOURSE WF118

Drawing status	FOR INFORMATION
Scale	NTS @ A1 — DO NOT SCALE
Jacobs No.	B2140005
Drawing number	Figure A.11.8.28
Rev	0

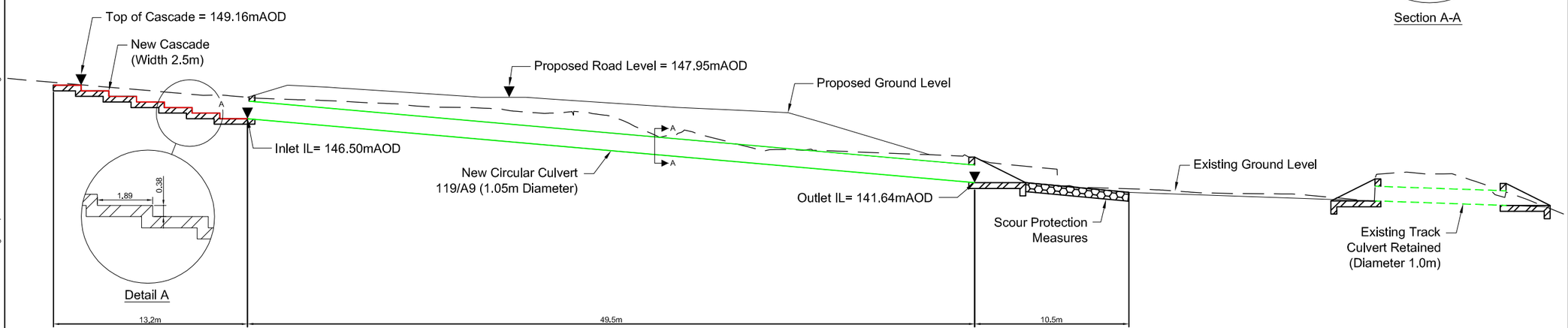
File: \\Glarli07\PV01\ECBC\BWA_Jobs\B2140000 A9 Dualling Temp folder\B2140005 Killiecrankie to Pitagowan\CAD\Watercourse Modifications\JoWF118.dwg Date: Aug 03, 2017 - 9:52am Plotted by: WOODJA



SCHEMATIC PLAN



Section A-A



WATERCOURSE 119 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.
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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	16/01/17	FOR INFORMATION	CON	JW	LMcG	

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

Client: TRANSPORT SCOTLAND / CÒMHDHAIL ALBA

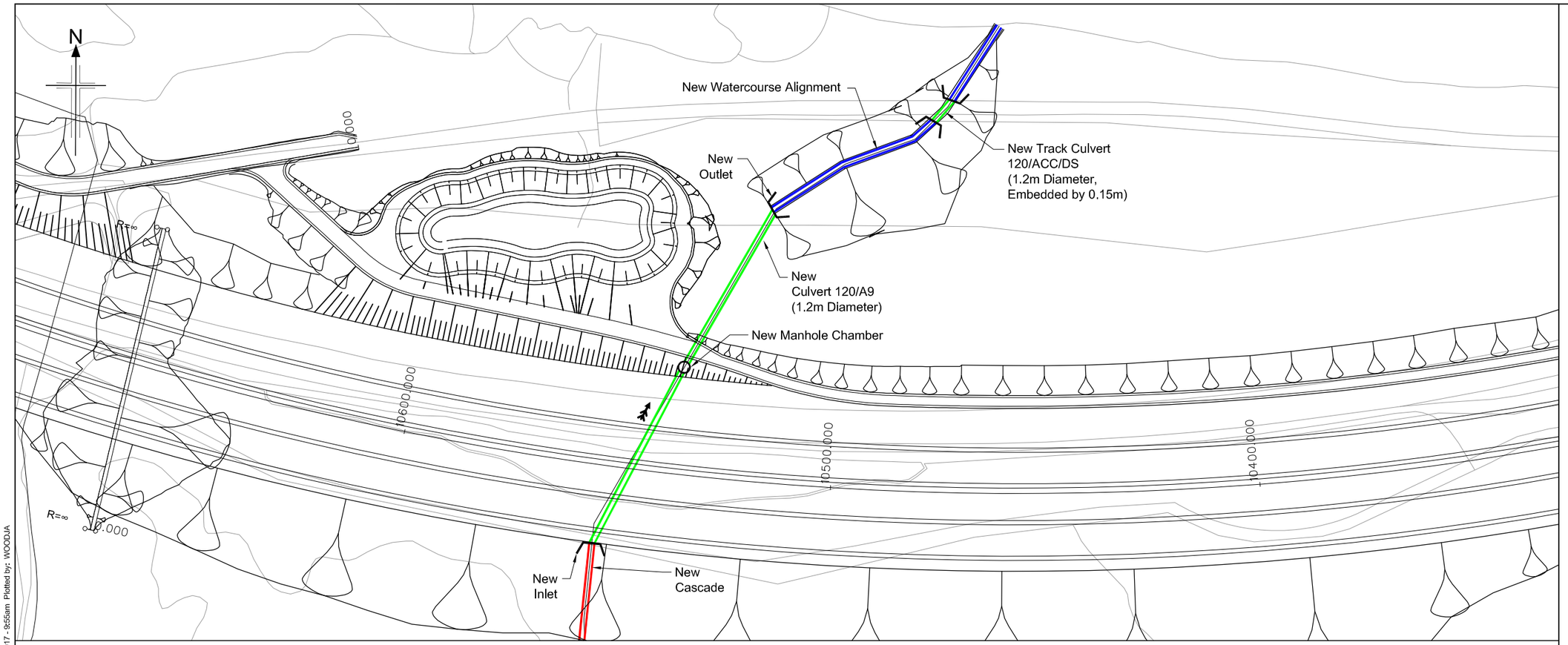
Project: A9 DUALLING PERTH TO INVERNESS — Killiecrankie to Glen Garry

Drawing title

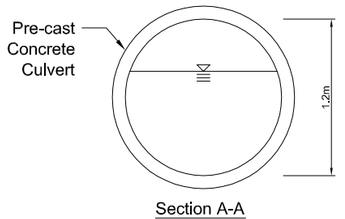
KILLIECRANKIE TO GLEN GARRY PROPOSED MODIFICATIONS TO CULVERT ON WATERCOURSE WF119

Drawing status: FOR INFORMATION

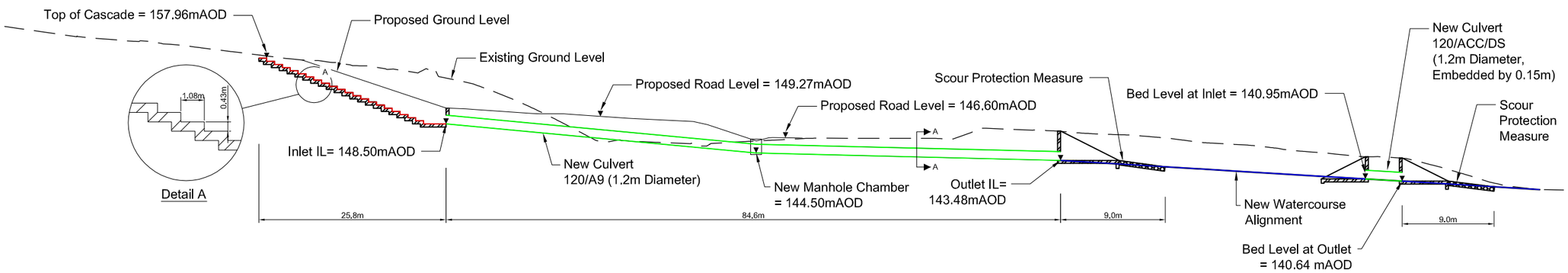
Scale	NTS @ A1	DO NOT SCALE
Jacobs No.	B2140005	
Drawing number	Figure A.11.8.29	Rev 0



SCHEMATIC PLAN



Section A-A



Detail A

WATERCOURSE 120 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.
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   - 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.

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95 Bothwell St, Glasgow, G2 7HX
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www.jacobs.com

Client: TRANSPORT SCOTLAND / CÒMHDHAIL ALBA

Project: A9 DUALLING PERTH TO INVERNESS Killiecrankie to Glen Garry

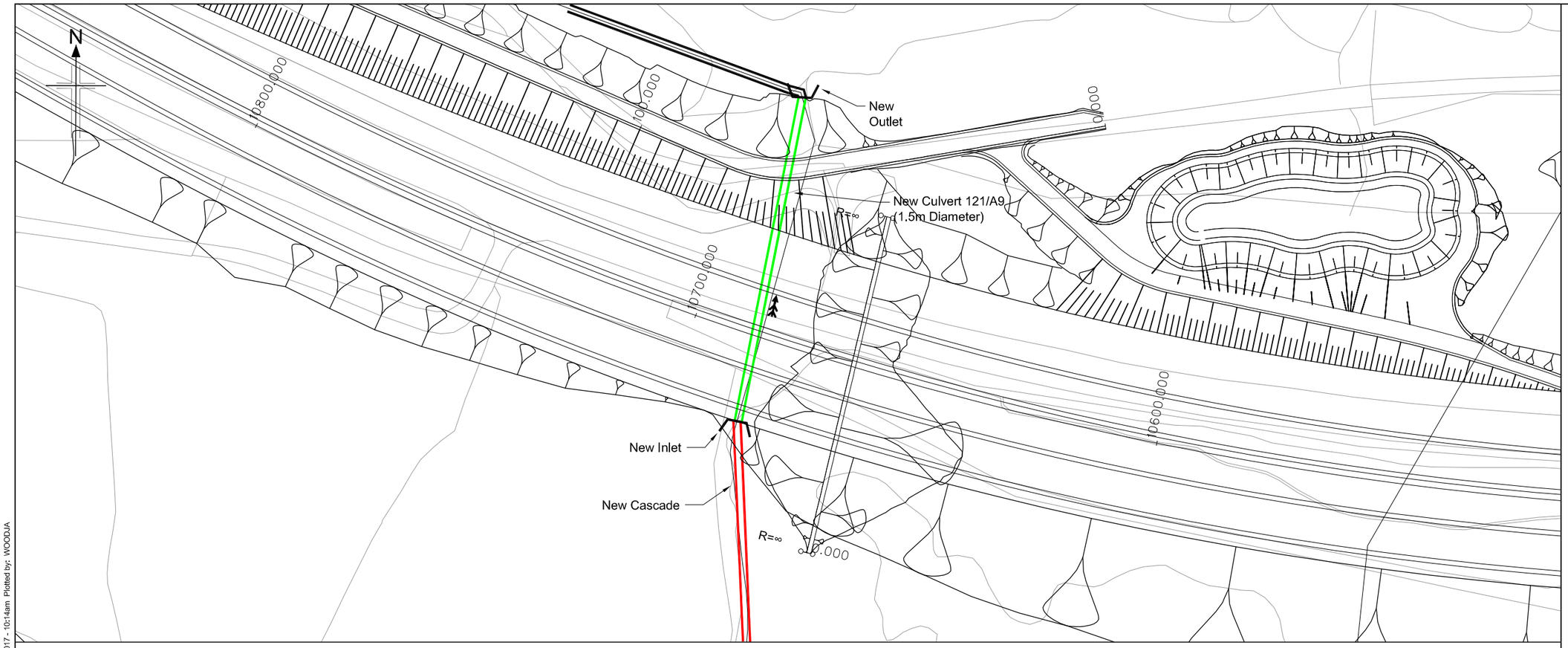
Drawing title

KILLIECRANKIE TO GLEN GARRY PROPOSED MODIFICATIONS TO CULVERT ON WATERCOURSE WF120

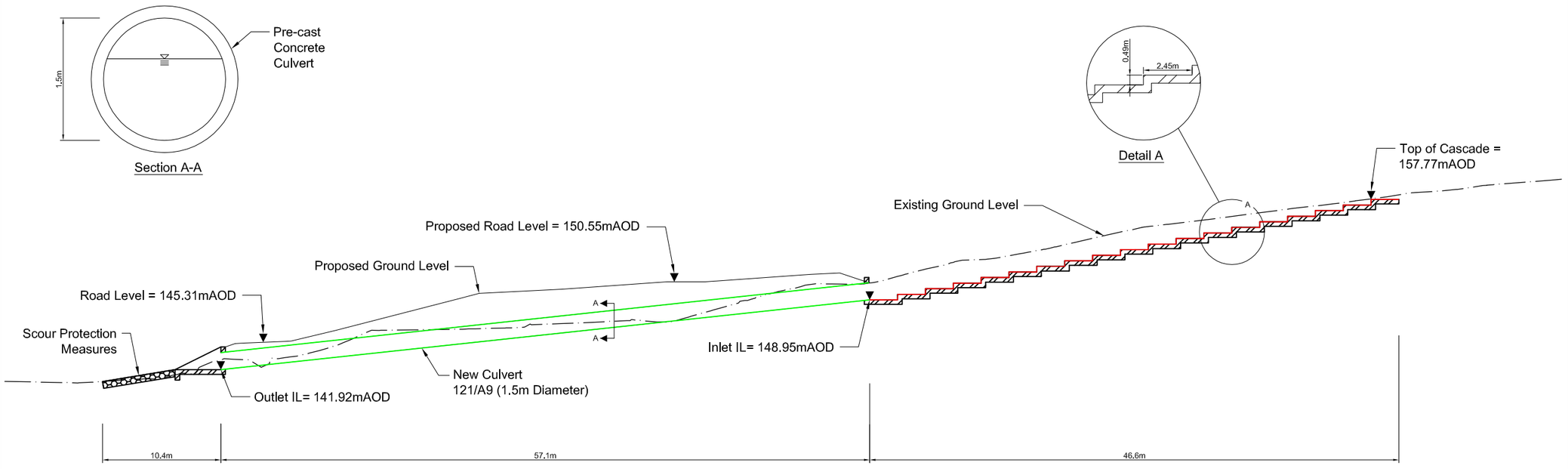
Drawing status: FOR INFORMATION

Scale	NTS @ A1	DO NOT SCALE
Jacobs No.	B2140005	

Drawing number: Figure A.11.8.30 — Rev: 0



SCHEMATIC PLAN



WATERCOURSE 121 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.
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   - 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.
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95 Bothwell St. Glasgow. G2 7HX
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Client: TRANSPORT SCOTLAND / CÒMHDHAIL ALBA

Project: A9 DUALLING PERTH TO INVERNESS — Killiecrankie to Glen Garry

Drawing title

KILLIECRANKIE TO GLEN GARRY
PROPOSED MODIFICATIONS
TO CULVERT ON
WATERCOURSE WF121

Drawing status: FOR INFORMATION

Scale	NTS @ A1	DO NOT SCALE
Jacobs No.	B2140005	

Drawing number: Figure A.11.8.31 — Rev: 0

File: \\Glafil07\PV01\ECBC\BWA_Jobs\B2140000 A9 Dualling Temp folder\B2140005 Killiecrankie to Pitagowan\CAD\Watercourse Modifications\JoWF121.dwg Date: Aug 03, 2017 - 10:14am Plotted by: WOODJA