

Culvert Fishway Planning and Design Guidelines

Part I – Design Drawings for Fishway Projects

Ross Kapitzke

James Cook University

School of Engineering and Physical Sciences

April 2010 – VER2.0

**James Cook University School of Engineering and Physical Sciences
Culvert Fishway Planning and Design Guidelines
Part I – Design Drawings for Fishway Projects**

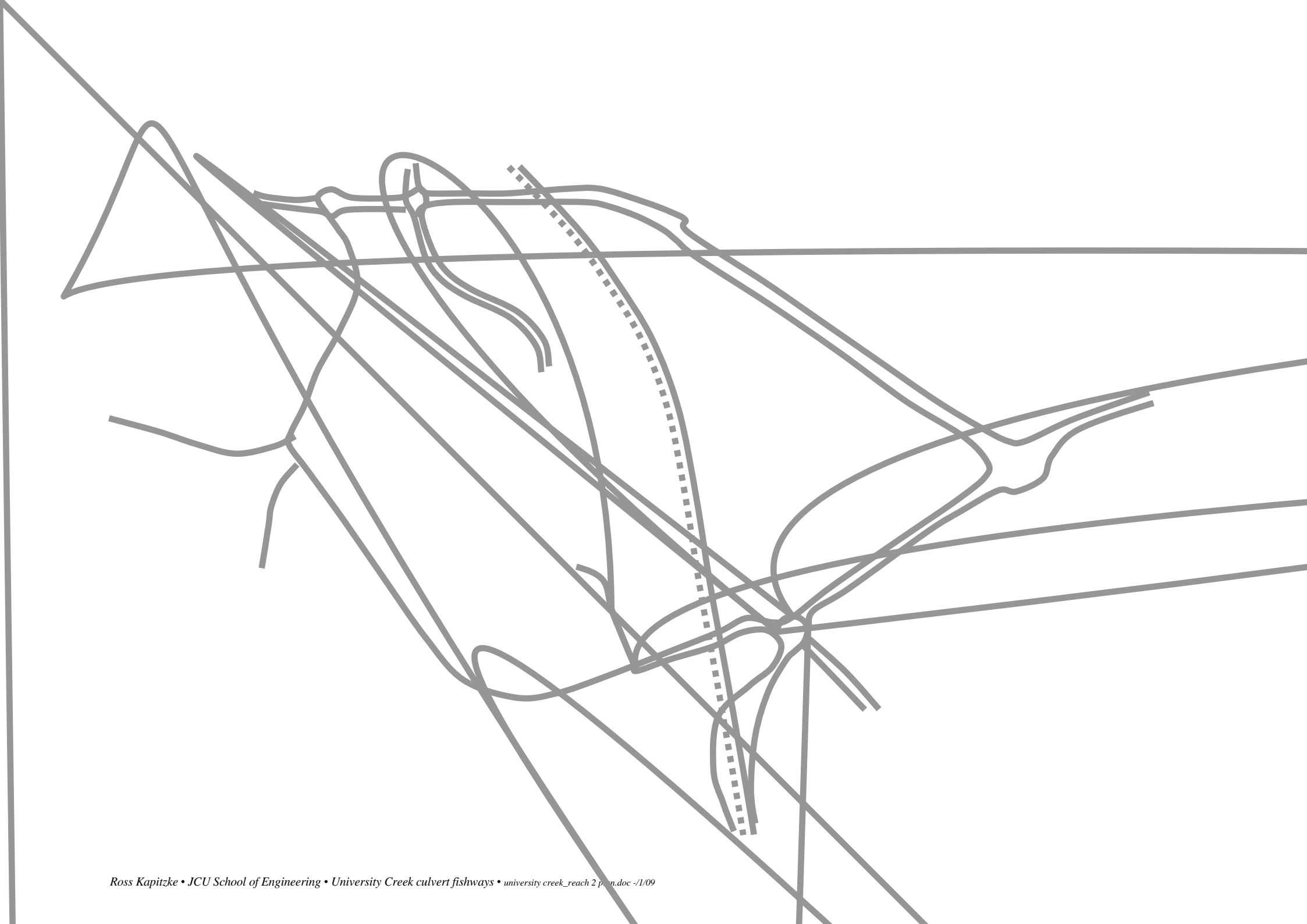
Contents

APPENDIX I1 – UNIVERSITY CREEK PROTOTYPE CULVERT FISHWAYS	1
APPENDIX I2 – BRUCE HIGHWAY CORDUROY CREEK TO TULLY BOX CULVERT AND PIPE CULVERT BAFFLE FISHWAYS: MAUNSELL DRAWINGS	2

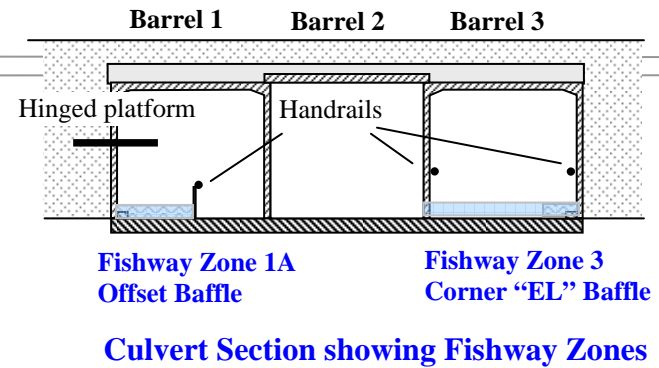
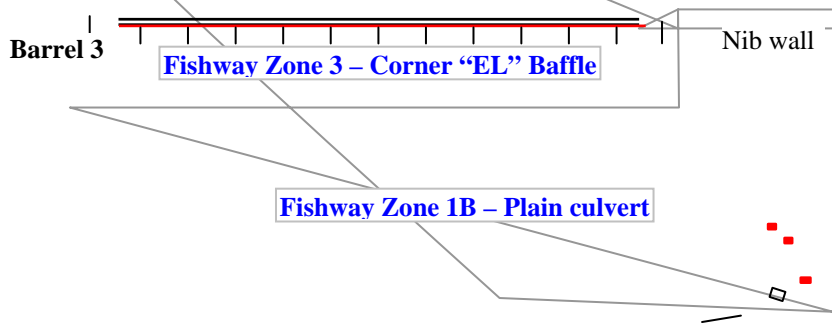
APPENDIX I1 – UNIVERSITY CREEK PROTOTYPE CULVERT FISHWAYS

Drawing	Title
University Creek Reaches, Crossings and Prototype Fishways	
	University Creek Prototype Fishways – Creek Reaches and Crossings
	University Creek Prototype Fishways – Reach 2 Crossings and Fishways
Discovery Drive Prototype Fishway # 1 and Prototype Fishway # 4	
	University Creek Discovery Drive box culvert fishways – General arrangement
	Discovery Drive box culvert – Prototype Fishway # 1 – Offset Baffle fishway
	Discovery Drive box culvert – Prototype Fishway # 4 – Corner “EL” Baffle fishway
Douglas Arterial Project Prototype Fishway # 2	
	University Creek Douglas Arterial Project crossing – Layout plan
	Douglas Arterial Project diversion drain and rock ramps – General arrangement
	Douglas Arterial Project bridge crossing – Elevation
	Douglas Arterial Project – Prototype Fishway # 2 – Rock ramp layout
	Douglas Arterial Project – Prototype Fishway # 2 – Rock ramp details
Solander Road Prototype Fishway # 3	
	University Creek Solander Road pipe culvert – Prototype Fishway # 3 – Plan
	Solander Road pipe culvert – Prototype Fishway # 3 – Long section
	Solander Road pipe culvert – Prototype Fishway # 3 – Rock ramp detail
	Solander Road pipe culvert – Prototype Fishway # 3 – Pipe and apron fishways
	Solander Road pipe culvert – Prototype Fishway # 3 – Offset Baffle fishway
	Solander Road pipe culvert – Prototype Fishway # 3 – Corner “Quad” Baffle fishway

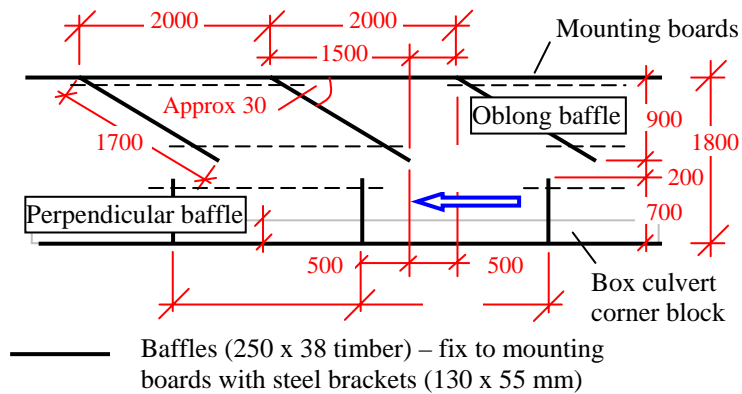
Notes These are pro Prototn5[1533 TD.0009 Tcroject – P.2(p)TJ635Tcrnder Road pipe c.0006 Tc. Tw-2.226635 c.9(e Fi)TJ27.18 Ro



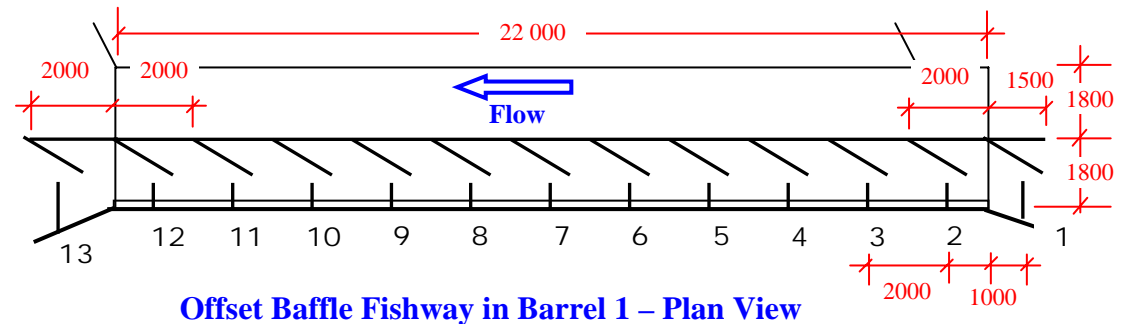
University Creek Discovery Drive Culvert Fishway –



Culvert Plan showing Fishway Zones and Monitoring Facilities



Offset Baffle Fishway – Barrel 1 looking downstream



This is a prototype facility in which the baffle fishway devices are constructed of light duty materials to suit adaptation and performance evaluation, and which includes provisions for monitoring and access that will not normally be incorporated into field installations of culvert fishway facilities

Discovery Drive box culvert – Prototype Fishway # 1 – Offset Baffle configuration

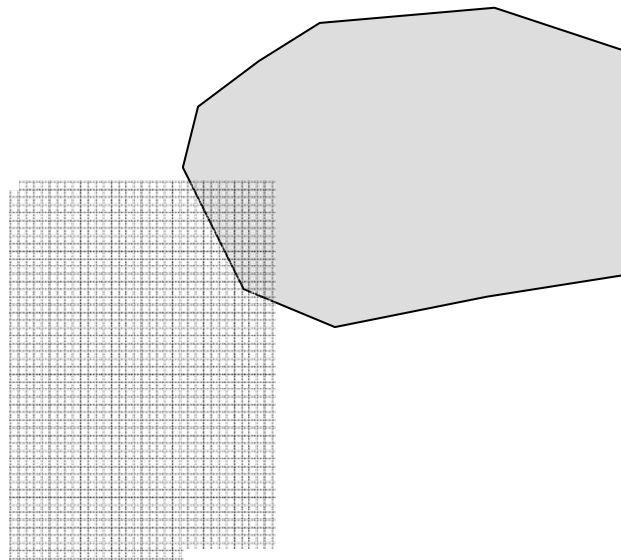
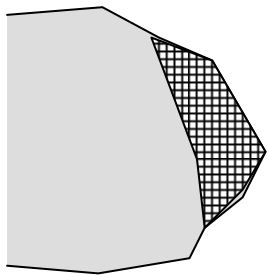


Access platforms
and monitoring cage

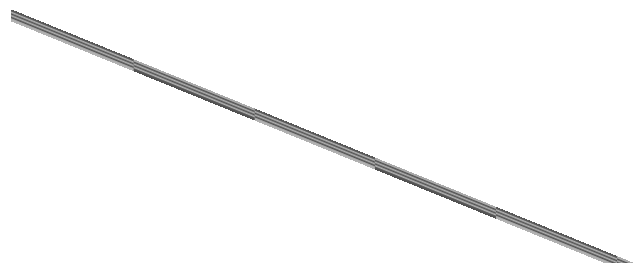
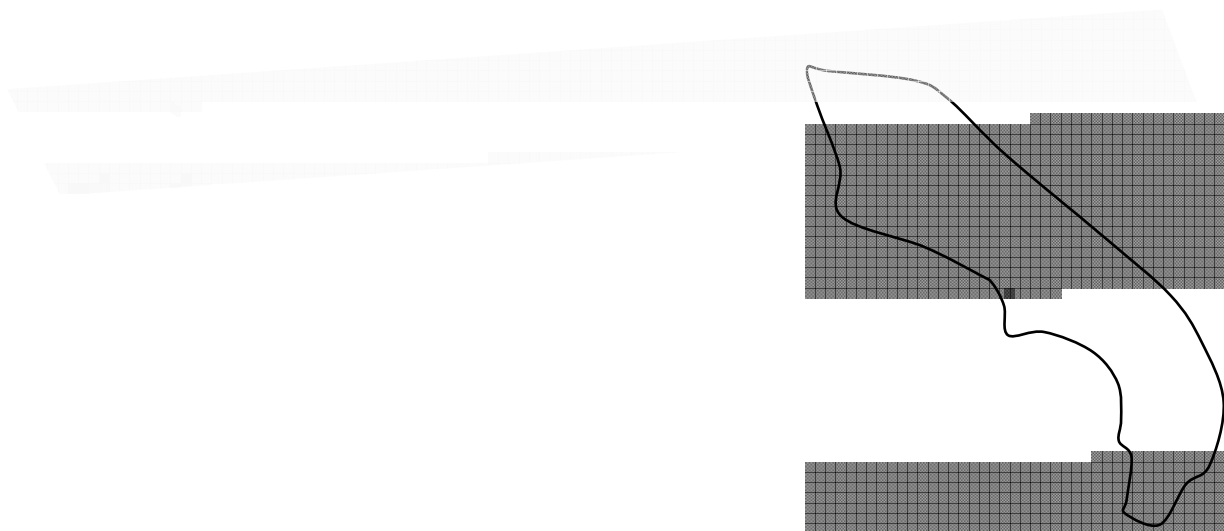
Culvert Plan showing Fishway Zones and Monitoring Facilities

Culvert Section showing Fishway Zones

Discovery Drive box culvert – Prototype Fishway # 4 – Corner “EL” Baffle configuration

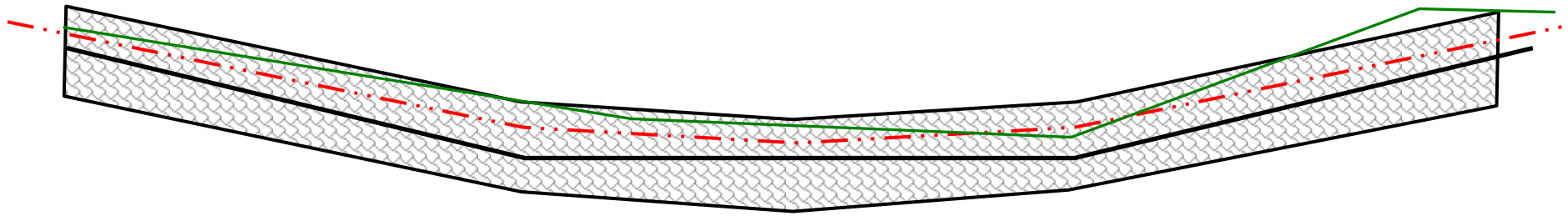


University Creek Douglas Arterial Project Crossing – Layout Plan

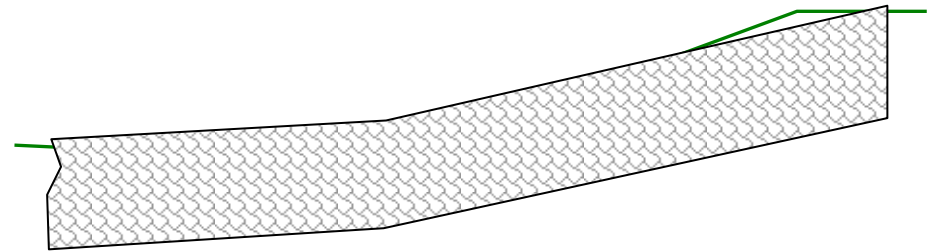






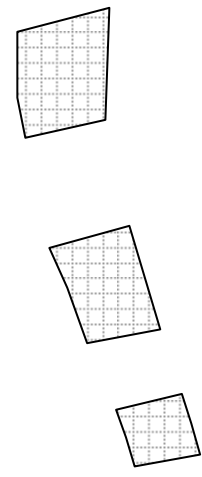
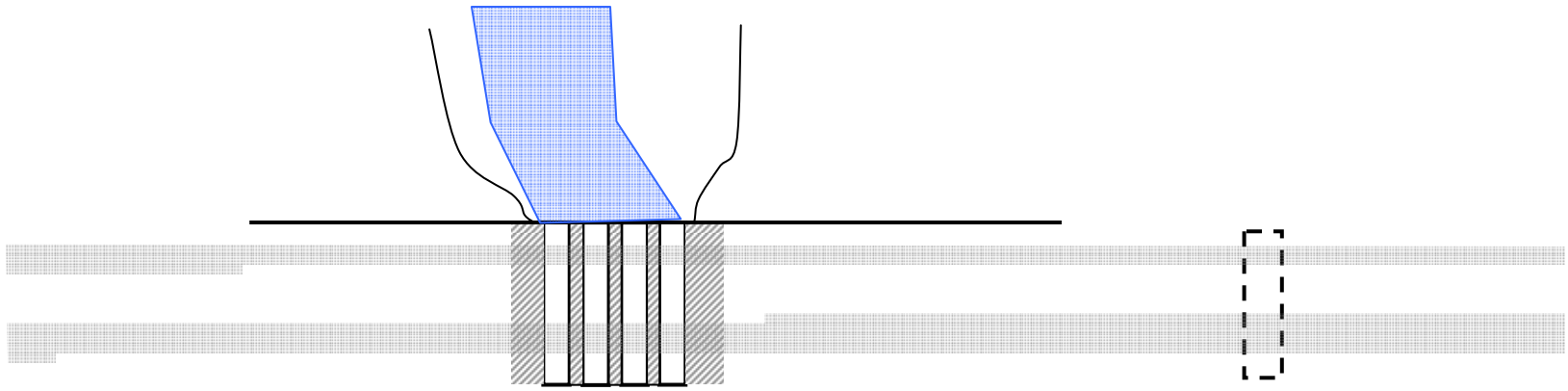


Detail – Ridge Rock

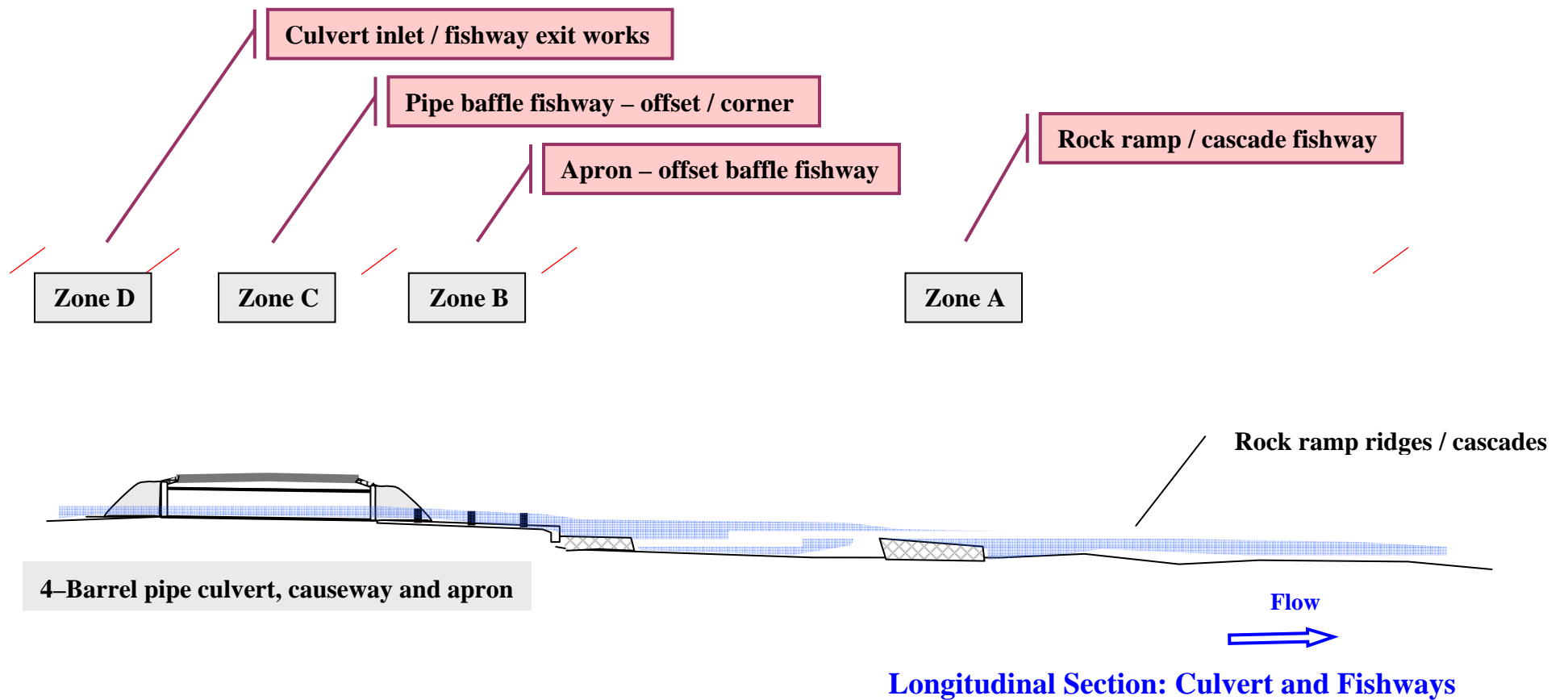


Section D-D – Drain bank protection

University Creek Douglas Arterial Project Rock Ramp Details



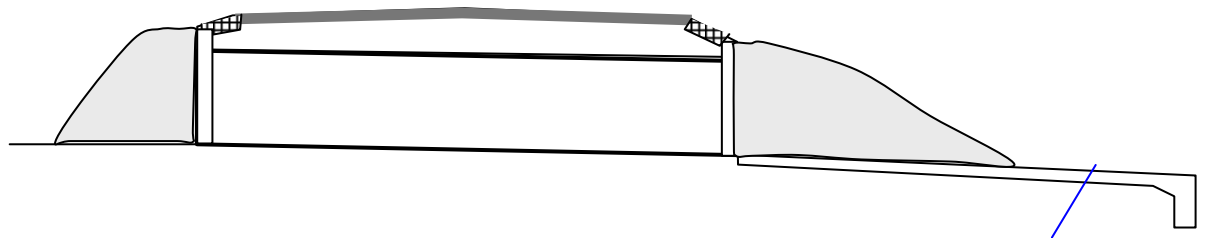
University Creek Solander Road pipe culvert – Prototype Fishway # 3 - Plan



University Creek Solander Road pipe culvert – Prototype Fishway # 3 – Long section

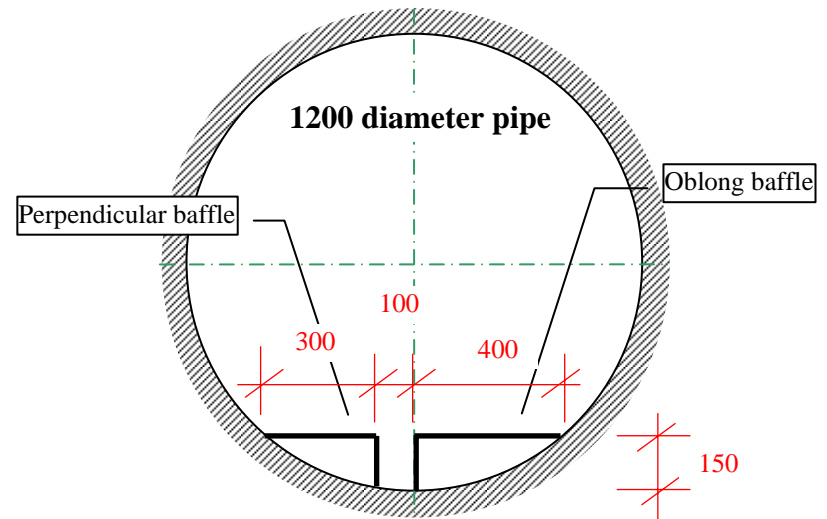
Section B-B: Culvert – Looking upstream

Culvert Plan View



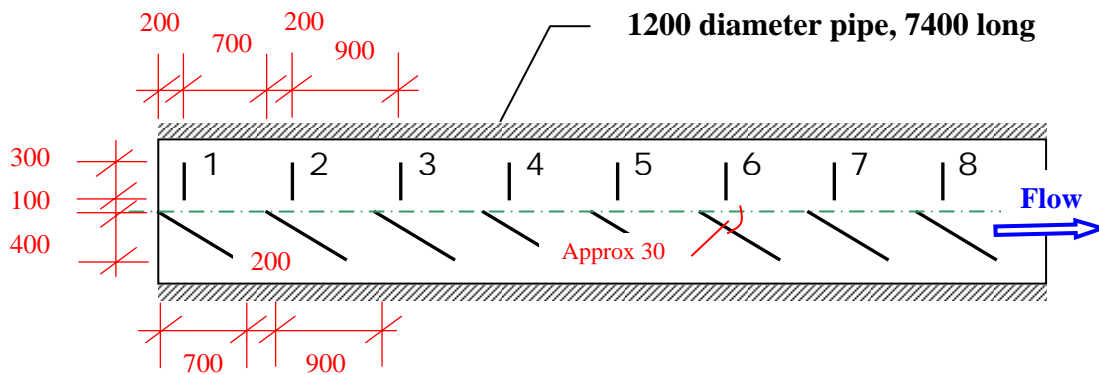
Section A-A: Culvert and apron

Solander Road pipe culvert – Prototype Fishway # 3 – Pipe and apron fishways

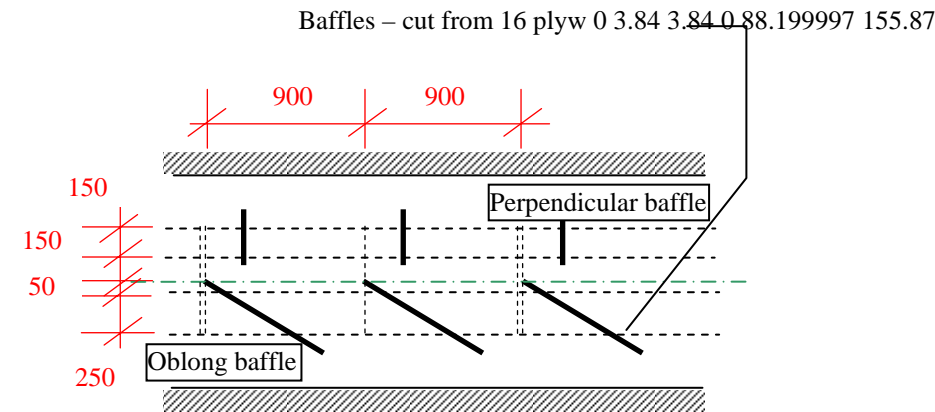


Offset Baffle Fishway – Barrel 1 looking downstream

Culvert Plan showing Fishways in Barrels and Apron

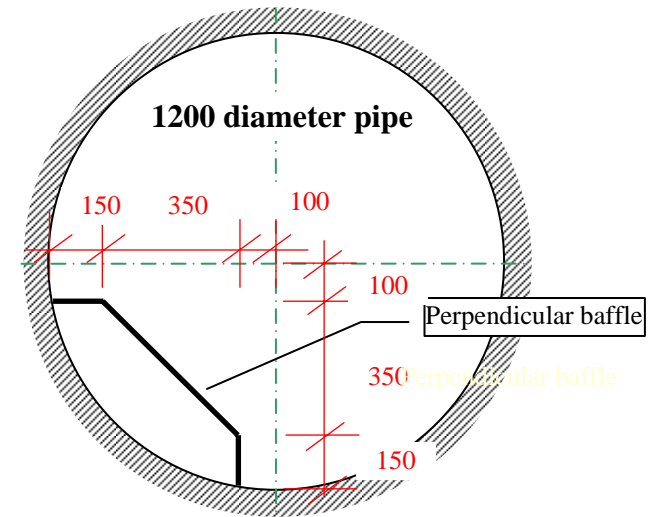


Offset Baffle Fishway in Barrel 1 – Plan View



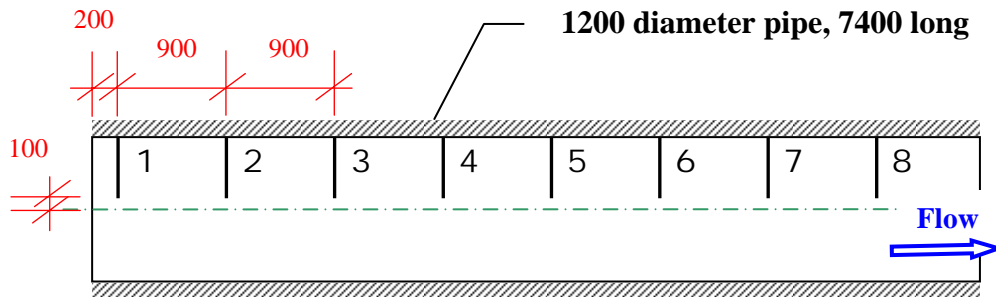
Offset Baffle – Fixing Detail

Solander Road pipe culvert – Prototype Fishway # 3 – Offset baffle fishway



Corner "Quad" Baffle Fishway – Barrel 2 looking downstream

Culvert Plan showing Fishways in Barrels and on Apron



Corner "Quad" Baffle Fishway in Barrel 2 – Plan View



Corner "Quad" Baffle – Fixing Detail

APPENDIX 12 – BRUCE HIGHWAY CORDUROY CREEK TO TULLY BOX CULVERT AND PIPE CULVERT BAFFLE FISHWAYS: MAUNSELL DRAWINGS

Drawing	Title
Drainage and fish passage configuration at culvert crossings	
Dwg No 401610C	Fish passage plans Culverts 399714D and 399716A
Dwg No 401611B	Fish passage plans Culverts 399716C and 399717D
Dwg No 399596E	Drainage cross sections Chge 80 010 – 94 376
Dwg No 399597E	Drainage cross sections Chge 80 010 – 94 376
Dwg No 399598E	Drainage cross sections Chge 80 010 – 94 376
Dwg No 399599D	Drainage cross sections Chge 80 010 – 94 376
Culvert fishway details	
Dwg No 401615C	Fish passage details (Control line MC000 and Existing Bruce Highway)
Dwg No 401612C	Fish passage Baffle locations
Dwg No 401613B	Fish passage works Baffle plate details Sheet 1 of 2
Dwg No 401614C	Fish passage works Baffle plate details Sheet 2 of 2
Notes	<p>These design drawings, prepared by Maunsell, incorporate culvert fishway designs developed by James Cook University School of Engineering on the basis of fish passage planning and design studies <i>Bruce Highway Corduroy Creek to Tully High School Provisions for fish passage – Preliminary Design Assessment Tasks 1B and 2</i> (Kapitzke 2007) and <i>Bruce Highway Corduroy Creek to Tully High School Provisions for fish passage Landholder access crossing at 82 920</i> (Kapitzke 2008)</p> <p>These drawings have been prepared for the Tully Alliance specifically for use on the Bruce Highway Corduroy Creek to Tully High School project. They are not standard drawings and the designs are not necessarily applicable to other locations. Users should make their own site-specific evaluation and design arrangements and should seek specialist input on fish passage design as required.</p>

Revisions

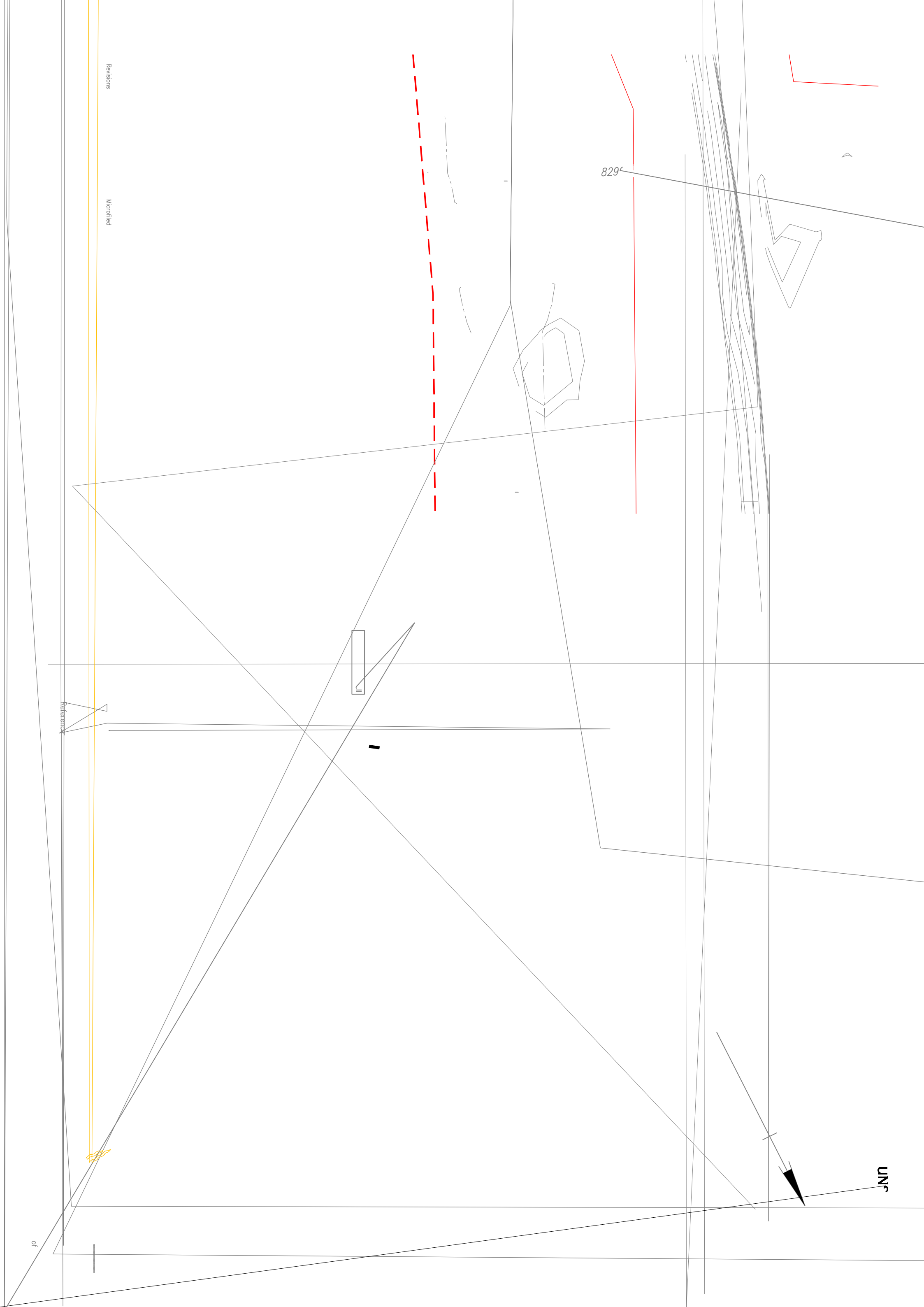
Microfiche

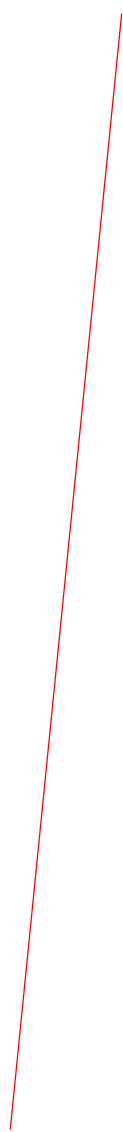
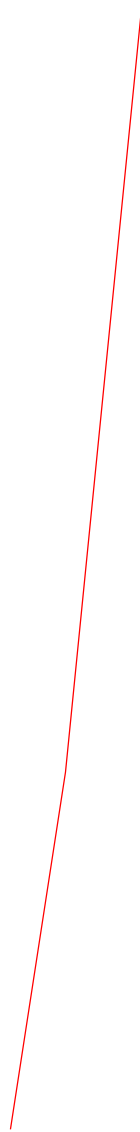
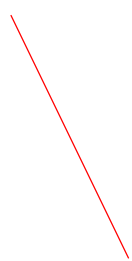
829

Reference

of

UNF





DATUM RL 5



