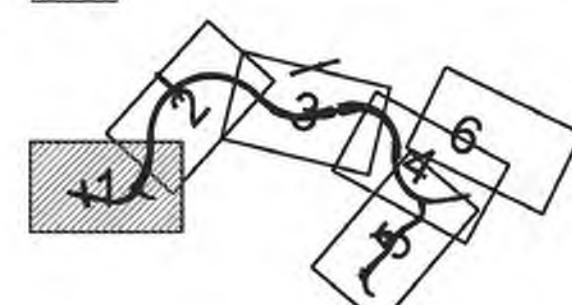


NOTES

1. ALL DIMENSIONS ARE IN METRES UNLESS NOTED OTHERWISE.
 2. ONLY WRITTEN DIMENSIONS SHALL BE USED, DO NOT SCALE.
 3. EARTHWORKS FOR CUT-OFF DITCHES NOT SHOWN.
 4. ALLOW FOR 15M REGRAVING OF WATERCOURSES AT CULVERTS.
 5. ALLOW FOR HEADWALLS AT UPSTREAM AND DOWNSTREAM OF CULVERTS. HEADWALLS TO BE REQUIRED AT POND INLETS AND OUTLETS.
 6. ORDINARY WATERCOURSE CONSENTS MAY BE REQUIRED FOR OUTFALLS TO WATERCOURSES AND ANY PROPOSED CULVERTS.
 7. ALLOW FOR ALL CULVERTS TO BE OBTAINED WITHIN THE HIGHWAY EASEMENT AT THE TOE OF THE EMBANKMENT.
 8. ATTENUATION BASINS TO BE UNLINED, UNLESS IN HIGH GROUND/WATER AREAS. GROUND INVESTIGATION RESULTS PERTAINING TO ATTENUATION BASINS TO BE PROVIDED.
 9. EXISTING RHYNE MAINTENANCE ROUTES TO BE RETAINED WHERE POSSIBLE, SEE NSLIDB 1ST PRIORITY ACCESS ROUTE PLANS RECEIVED FROM NSLIDB ON 05/11/2021.
 10. THE ATTENUATION BASIN AND POND SURVEY OF EXISTING DRAINAGE AT ROAD TIE-IN STRATEGY IS SUBJECT TO CHANGE FOLLOWING THIS INFORMATION. REFER TO DRAINAGE SURVEY SPECIFICATION BNWLBP-ARP-HDG-XXXX-SP-CD-000001 FOR FURTHER DETAILS.

KEYPLAN



SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION

IN ADDITION TO THE HAZARD/RISKS NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING, NOTE THE FOLLOWING SIGNIFICANT RESIDUAL RISKS (REFERENCE SHALL ALSO BE MADE TO THE DESIGN HAZARD LOG).

CONSTRUCTION
HDG_3 FLOWS OF EXISTING WATERCOURSES TO BE MAINTAINED DURING CONSTRUCTION OF CULVERTS BEHIND HIGHWAY.

Maintenance / Cleaning
HDG_1 ATTENUATION BASINS TO BE DESIGNED WITH SHALLOW SIDE SLOPES AND FENCING AS REQUIRED IN ACCORDANCE WITH ROSPA GUIDELINES.

USE
HDG_1 ATTENUATION BASINS TO BE DESIGNED WITH SHALLOW SIDE SLOPES AND FENCING AS REQUIRED IN ACCORDANCE WITH ROSPA GUIDELINES.

DECOMMISSIONING / DEMOLITION
HDG_3 FLOWS OF EXISTING WATERCOURSES TO BE MAINTAINED DURING CONSTRUCTION OF CULVERTS BEHIND HIGHWAY.

Suitability Drawing Status
S4 FOR PLANNING APPLICATION

GRIFFITHS
engineering and construction

ARUP **TACP**

Project Title BANWELL BYPASS AND HIGHWAY IMPROVEMENTS

Drawing Title HIGHWAY DRAINAGE SHEET 1 OF 7

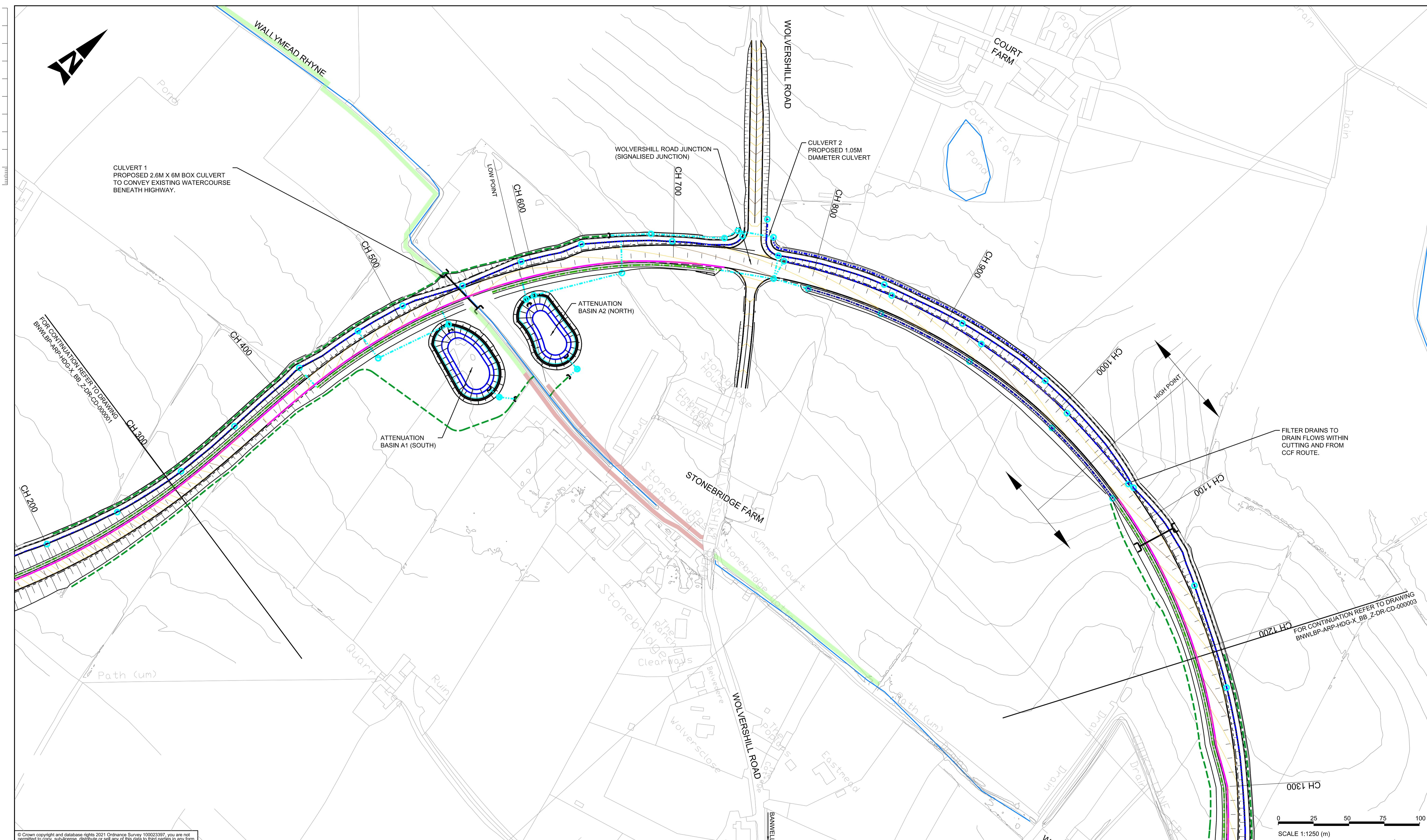
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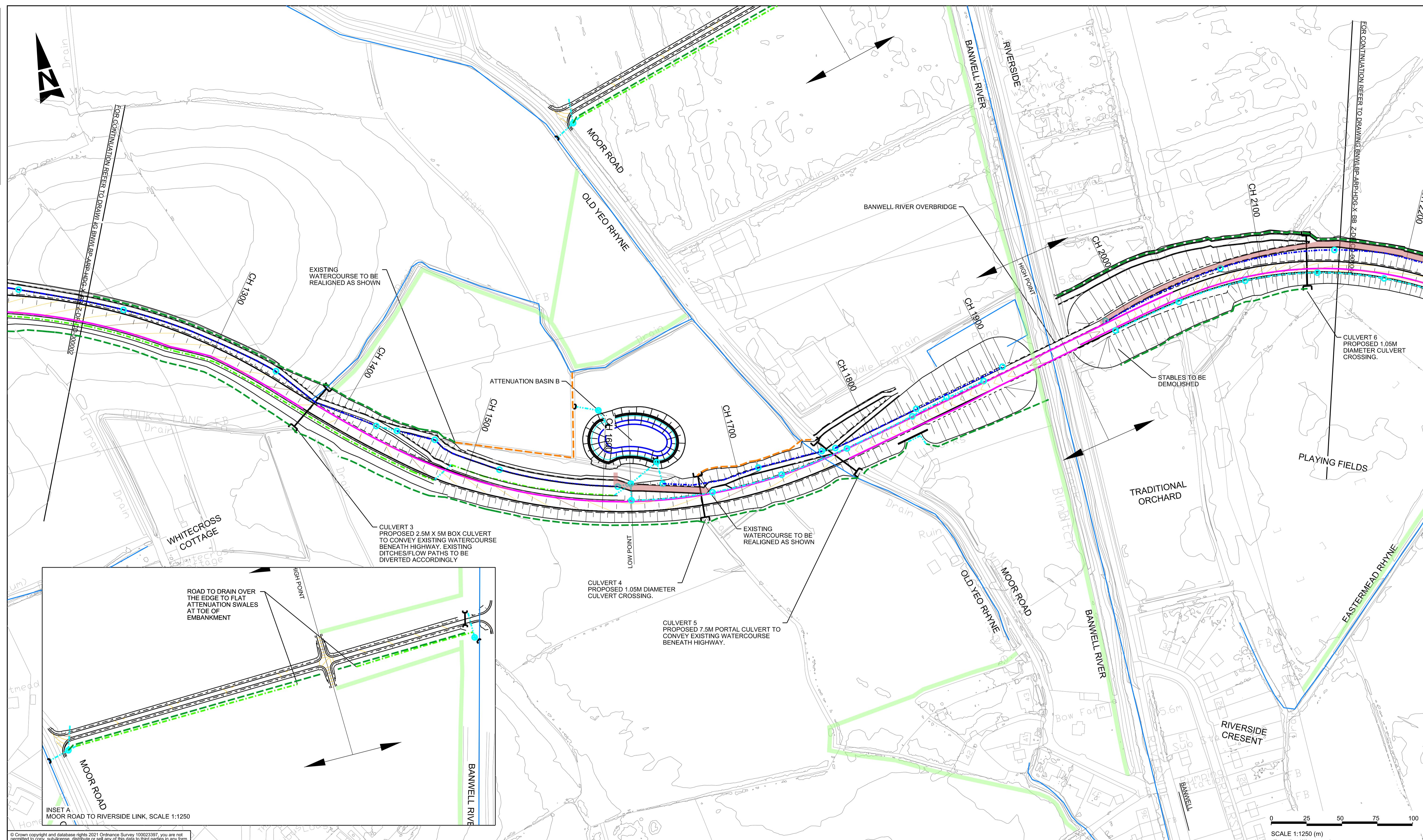
Original Size A1 Date 28/06/22 Date 28/06/22 Date 28/06/22 Date 28/06/22

Drawing Number Project BNWLBP - Originator ARP - Volume HDG Revision P04

X_BB_Z - DR - CD - 000001

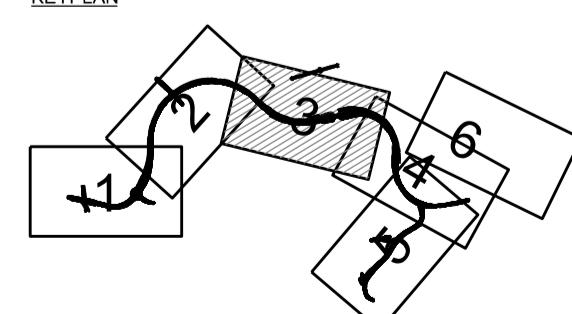
North Somerset COUNCIL





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<u>LEGEND</u>	<u>NOTES</u>
 CARRIER PIPE TYPE 21A, HCD B9	1. ALL DIMENSIONS ARE IN METRES UNLESS NOTED OTHERWISE.
 FILTER DRAIN TYPE 1A, HCD B1	2. ONLY WRITTEN DIMENSIONS SHALL BE USED, DO NOT SC
 KERB DRAINAGE	3. EARTHWORKS FOR CUT-OFF DITCHES NOT SHOWN.
 FLAT ATTENUATION SWALE	4. ALLOW FOR 15M REGRADING OF WATERCOURSES AT CULVERTS.
 CONVEYANCE SWALE	5. ALLOW FOR HEADWALLS AT UPSTREAM AND DOWNSTREAM OF CULVERTS. HEADWALLS TO BE REQUIRED AT POND INLE AND OUTLETS.
 CUT-OFF DITCH	6. ORDINARY WATERCOURSE CONSENTS MAY BE REQUIRED FOR OUTFALLS TO WATERCOURSES AND ANY PROPOSED CULVERTS.
 DIVERTED WATERCOURSE	7. ACCESS TO ALL CULVERTS TO BE OBTAINED WITHIN THE HIGHWAY EASEMENT AT THE TOE OF THE EMBANKMENT.
 MANHOLE	8. ATTENUATION BASINS TO BE UNLINED, UNLESS IN HIGH GROUNDWATER AREAS. GROUND INVESTIGATION RESULTS PENDING. FLOW CONTROL DEVICE ON OUTLET.
 FLOW CONTROL DEVICE	9. EXISTING RHYNE MAINTENANCE ROUTES TO BE RETAINED WHERE POSSIBLE, SEE NSLIDB 1ST PRIORITY ACCESS ROUTE PLANS RECEIVED FROM NSLIDB ON 05/11/2021.
 PROPOSED CULVERT AND HEADWALL	10. CURRENT DRAINAGE DESIGN IS PENDING SURVEY OF EXISTING DRAINAGE AT ROAD TIE-INS, STRATEGY IS SUBJECT TO CHANGE FOLLOWING THIS INFORMATION. REFER TO DRAINAGE SURVEY SPECIFICATION BNWLBP-ARP-HDG-XXX CD-000001 FOR FURTHER DETAILS.
 WATERCOURSE	
 PROPOSED HEADWALL	
 BASIN MAINTENANCE ROUTE	
 RHYNE MAINTENANCE ROUTE	



SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION

IN ADDITION TO THE HAZARDS/RISKS NORMALLY ASSOCIATED WITH THE TYPES OF
DETAILED ON THIS DRAWING, NOTE THE FOLLOWING SIGNIFICANT RESIDUAL RISKS
(REFERENCE SHALL ALSO BE MADE TO THE DESIGN HAZARD LOG).

CONSTRUCTION	
HDG_3	FLOWS OF EXISTING WATERCOURSES TO BE MAINTAINED DURING CONSTRUCTION OF CULVERTS BENEATH HIGHWAY.
MAINTENANCE / CLEANING	
HDG_1	ATTENUATION BASINS TO BE DESIGNED WITH SHALLOW SIDE SLOPES FENCING AS REQUIRED IN ACCORDANCE WITH ROSPA GUIDELINES.
USE	
HDG_1	ATTENUATION BASINS TO BE DESIGNED WITH SHALLOW SIDE SLOPES FENCING AS REQUIRED IN ACCORDANCE WITH ROSPA GUIDELINES.
DECOMMISSIONING / DEMOLITION	
HDG_3	FLOWS OF EXISTING WATERCOURSES TO BE MAINTAINED DURING DEMOLITION OF CULVERTS BENEATH HIGHWAY.

P01	18/11/21	FIRST DRAFT ISSUE	JN	DL	TE
P02	04/02/22	UPDATED FOLLOWING COMMENT	JN	DL	TE
P03	24/05/22	UPDATED FOLLOWING NSC COMMENTS	JN	DL	GJ
P04	28/06/22	ISSUE FOR PLANNING SUBMISSION	DS	GJ	TE
Rev.	Date	Description	By	Chk'd	App'd

GRIFFITHS
civil engineering and construction

ARUP TACP

AKOI

North

North
Somerset
Council

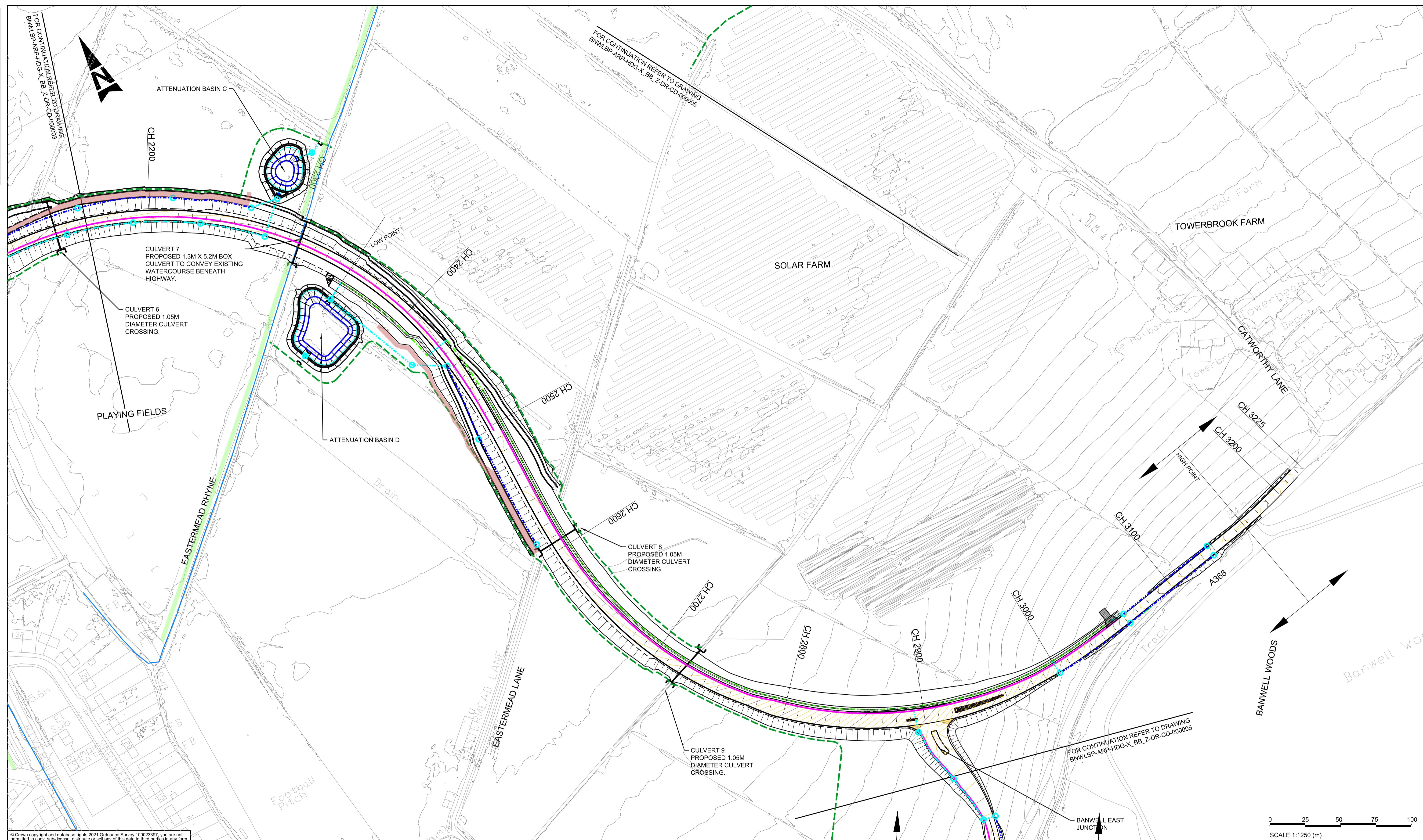
Project Title **BANWELL BYPASS
AND HIGHWAY IMPROVEMENTS**

Drawing Title

HIGHWAY DRAINAGE

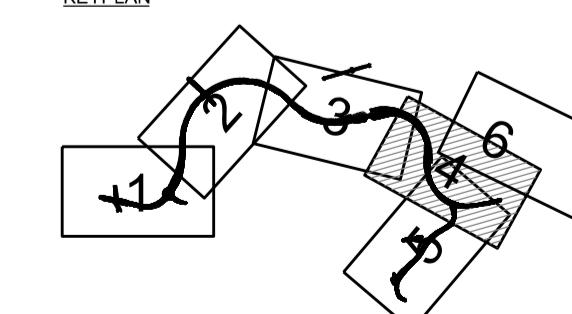
SHEET 3 OF 7

Scale	By	Checked	Approved	Authorised
1:1250	DS	GJ	TE	RW
Original Size A1	Date 28/06/22	Date 28/06/22	Date 28/06/22	Date 28/06/22
Drawing Number				Revision
Project BNWLBP	Originator - ARP		Volume - HDG	P0
X_BB_Z		- DR - CD - 000003		



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<u>LEGEND</u>	<u>NOTES</u>
 CARRIER PIPE TYPE 21A, HCD B9	1. ALL DIMENSIONS ARE IN METRES UNLESS NOTED OTHERWISE.
 FILTER DRAIN TYPE 1A, HCD B1	2. ONLY WRITTEN DIMENSIONS SHALL BE USED, DO NOT MEASURE.
 KERB DRAINAGE	3. EARTHWORKS FOR CUT-OFF DITCHES NOT SHOWN.
 FLAT ATTENUATION SWALE	4. ALLOW FOR 15M REGRADING OF WATERCOURSES CULVERTS.
 CONVEYANCE SWALE	5. ALLOW FOR HEADWALLS AT UPSTREAM AND DOWNSTREAM OF CULVERTS. HEADWALLS TO BE REQUIRED AT POINTS OF INLET AND OUTLETS.
 CUT-OFF DITCH	6. ORDINARY WATERCOURSE CONSENTS MAY BE REQUIRED FOR OUTFALLS TO WATERCOURSES AND ANY PROPOSED CULVERTS.
 DIVERTED WATERCOURSE	7. ACCESS TO ALL CULVERTS TO BE OBTAINED WITHIN HIGHWAY EASEMENT AT THE TOE OF THE EMBANKMENT.
 MANHOLE	8. ATTENUATION BASINS TO BE UNLINED, UNLESS IN GROUNDWATER AREAS. GROUND INVESTIGATION REPORT PENDING. FLOW CONTROL DEVICE ON OUTLET.
 FLOW CONTROL DEVICE	9. EXISTING RHYNE MAINTENANCE ROUTES TO BE RETAINED WHERE POSSIBLE, SEE NSLIDB 1ST PRIORITY ACCESS PLANS RECEIVED FROM NSLIDB ON 05/11/2021.
 PROPOSED CULVERT AND HEADWALL	10. CURRENT DRAINAGE DESIGN IS PENDING SURVEY OF EXISTING DRAINAGE AT ROAD TIE-INS, STRATEGY IS TO CHANGE FOLLOWING THIS INFORMATION. REFER DRAINAGE SURVEY SPECIFICATION BNWLBP-ARP-HD-CD-000001 FOR FURTHER DETAILS.
 WATERCOURSE	
 PROPOSED HEADWALL	
 BASIN MAINTENANCE ROUTE	
 RHYNE MAINTENANCE ROUTE	

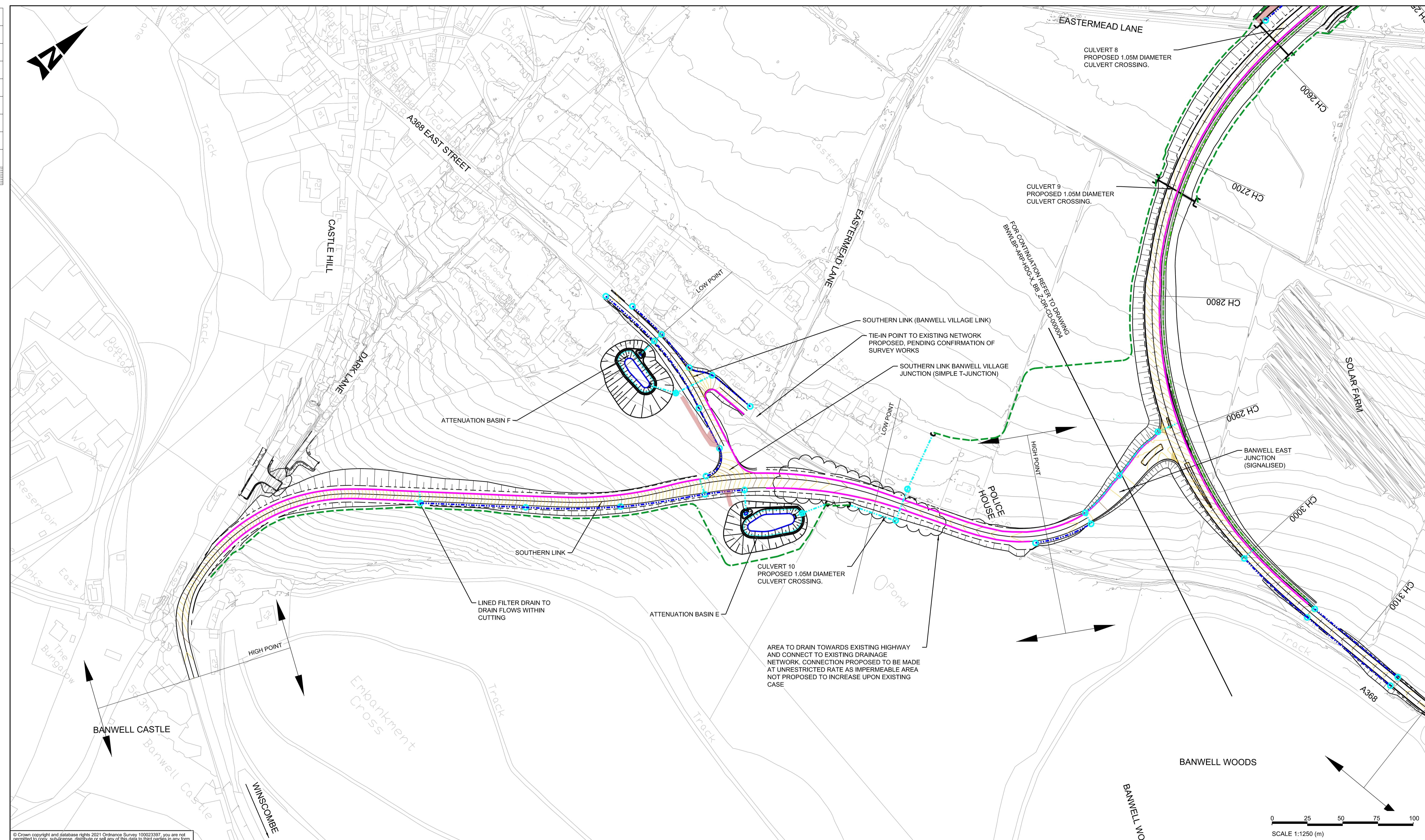


SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION

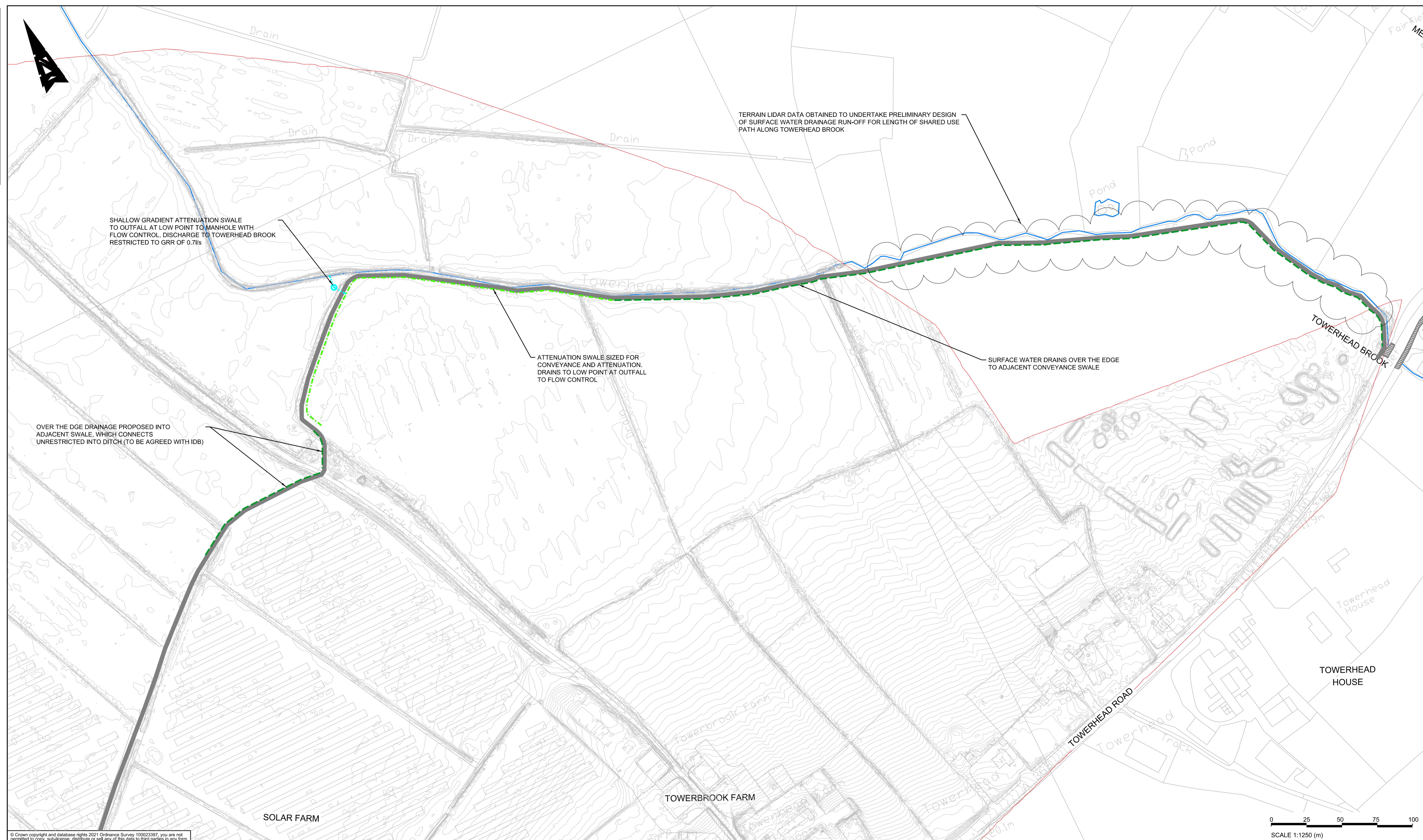
IN ADDITION TO THE HAZARDS/RISKS NORMALLY ASSOCIATED WITH THE TYPES
DETAILED ON THIS DRAWING, NOTE THE FOLLOWING SIGNIFICANT RESIDUAL RISKS
(REFERENCE SHALL ALSO BE MADE TO THE DESIGN HAZARD LOG).

CONSTRUCTION	
HDG_3	FLOWS OF EXISTING WATERCOURSES TO BE MAINTAINED DURING CONSTRUCTION OF CULVERTS BENEATH HIGHWAY.
MAINTENANCE / CLEANING	
HDG_1	ATTENUATION BASINS TO BE DESIGNED WITH SHALLOW SIDE SLOPES AND FENCING AS REQUIRED IN ACCORDANCE WITH ROSPA GUIDELINE
USE	
HDG_1	ATTENUATION BASINS TO BE DESIGNED WITH SHALLOW SIDE SLOPES AND FENCING AS REQUIRED IN ACCORDANCE WITH ROSPA GUIDELINE
DECOMMISSIONING / DEMOLITION	
HDG_3	FLOWS OF EXISTING WATERCOURSES TO BE MAINTAINED DURING DEMOLITION OF CULVERTS BENEATH HIGHWAY.

Suitability	Drawing Status			Project Title				
S4	FOR PLANNING APPLICATION			BANWELL BYPASS AND HIGHWAY IMPROVEMENTS				
  				Drawing Title				
				HIGHWAY DRAINAGE SHEET 4 OF 7				
JN	DL	TE	RW	Scale	By	Checked	Approved	Authorised
JN	DL	TE	RW	1:1250	DS	GJ	TE	RW
JN	DL	GJ	MJ	Original Size	Date	Date	Date	Date
DS	GJ	TE	RW	A1	28/06/22	28/06/22	28/06/22	28/06/22
By	Chk'd	App'd	Auth'd	Drawing Number Project Originator Volume BNWLBP - ARP - HDG X_BB_Z - DR - CD - 000004 Location Type Role Number				Revision
								P04
				Client				

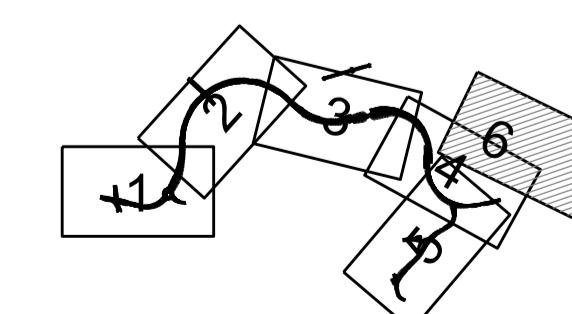


SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION						Project Title				
S4 FOR PLANNING APPLICATION		BNWLBY BYPASS AND HIGHWAY IMPROVEMENTS				Drawing Status				
IN ADDITION TO THE HAZARDS/RISKS NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING, NOTE THE FOLLOWING SIGNIFICANT RESIDUAL RISKS (REFERENCE SHALL ALSO BE MADE TO THE DESIGN HAZARD LOG).						Drawing Title				
CONSTRUCTION						GRIFFITHS				
HDG_3		FLOWS OF EXISTING WATERCOURSES TO BE MAINTAINED DURING CONSTRUCTION OF CULVERTS BENEATH HIGHWAY.				HIGHWAY DRAINAGE SHEET 5 OF 7				
MAINTENANCE / CLEANING						ARUP				
HDG_1		ATTENUATION BASINS TO BE DESIGNED WITH SHALLOW SIDE SLOPE AND FENCING AS REQUIRED IN ACCORDANCE WITH ROSPA GUIDELINES.				TACP				
P01		FIRST DRAFT ISSUE				Scale 1:1250	By DS	Checked GJ	Approved TE	Authorised RW
USE						Original Size A1	Date 28/06/22	Date 28/06/22	Date 28/06/22	Date 28/06/22
HDG_1		ATTENUATION BASINS TO BE DESIGNED WITH SHALLOW SIDE SLOPE AND FENCING AS REQUIRED IN ACCORDANCE WITH ROSPA GUIDELINES.				Drawing Number				
P02		UPDATED FOLLOWING COMMENT				Project No.	Original DR	Volume HDG	Revision No.	
DECOMMISSIONING / DEMOLITION						BNWLBY - ARUP - HDG	X_BB_Z - DR - CD - 00005	P04		
HDG_3		FLOWS OF EXISTING WATERCOURSES TO BE MAINTAINED DURING DEMOLITION OF CULVERTS BENEATH HIGHWAY.				Rev. DR	Date DD	Description	By CHD App'd Auth'd	
North Somerset COUNCIL						Location	Type	Role	Number	
LEGEND						NOTES	KEYPLAN			
CARRIER PIPE TYPE 21A, HCD B9		1. ALL DIMENSIONS ARE IN METRES UNLESS NOTED OTHERWISE.				Diagram showing a cross-section of a culvert system with numbered points 1 through 6 indicating specific locations.				
FILTER DRAIN TYPE 1A, HCD B1		2. ONLY WRITTEN DIMENSIONS SHALL BE USED, DO NOT SCALE.								
KERB DRAINAGE		3. EARTHWORKS FOR CUT-OFF DITCHES NOT SHOWN.								
FLAT ATTENUATION SWALE		4. ALLOW FOR 15M REGRADING OF WATERCOURSES AT CULVERTS.								
CONVEYANCE SWALE		5. ALLOW FOR HEADWALLS AT UPSTREAM AND DOWNSTREAM OF CULVERTS. HEADWALLS TO BE REQUIRED AT POND INLETS AND OUTLETS.								
CUT-OFF DITCH		6. ORDINARY WATERCOURSE CONSENTS MAY BE REQUIRED FOR OUTFALLS TO WATERCOURSES AND ANY PROPOSED CULVERTS.								
DIVERTED WATERCOURSE		7. ACCESS TO ALL CULVERTS TO BE OBTAINED WITHIN THE HIGHWAY EASEMENT AT THE TOE OF THE EMBANKMENT.								
MANHOLE		8. ATTENUATION BASINS TO BE UNLINED, UNLESS IN HIGH GROUNDWATER AREAS. GROUND INVESTIGATION RESULTS PENDING. FLOW CONTROL DEVICE ON OUTLET.								
FLOW CONTROL DEVICE		9. EXISTING RHYNE MAINTENANCE ROUTES TO BE RETAINED WHERE POSSIBLE, SEE NSLIBD 1ST PRIORITY ACCESS ROUTE PLANS RECEIVED FROM NSLIBD ON 05/11/2021.								
PROPOSED CULVERT AND HEADWALL		10. CURRENT DRAINAGE DESIGN IS PENDING SURVEY OF EXISTING DRAINAGE AT ROAD TIE-INS, STRATEGY IS SUBJECT TO CHANGE FOLLOWING THIS INFORMATION. REFER TO DRAINAGE SURVEY SPECIFICATION BNWLBY-ARP-HDG-XXXX-SP-CD-000001 FOR FURTHER DETAILS.								
WATERCOURSE										
PROPOSED HEADWALL										
BASIN MAINTENANCE ROUTE										
RHYNE MAINTENANCE ROUTE										



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LEGEND	NOTES
Carrier pipe type 21A, HCD B9	1. ALL DIMENSIONS ARE IN METRES UNLESS NOTED OTHERWISE.
Filter drain type 1A, HCD B1	2. ONLY WRITTEN DIMENSIONS SHALL BE USED, DO NOT SCALE.
Kerb drainage	3. ELEVATIONS FOR CUT-OFF DITCHES NOT SHOWN.
Flat attenuation swale	4. ALLOW FOR 15M REGRADING OF WATERCOURSES AT CULVERTS.
Conveyance swale	5. ALLOW FOR HEADWALLS AT UPSTREAM AND DOWNSTREAM OF CULVERTS. HEADWALLS TO BE REQUIRED AT POND INLETS AND OUTLETS.
Cut-off ditch	6. ORDINARY WATERCOURSE CONSENTS MAY BE REQUIRED FOR OUTFALLS TO WATERCOURSES AND ANY PROPOSED CULVERTS.
Diverted watercourse	7. ACCESS TO ALL CULVERTS TO BE OBTAINED WITHIN THE HIGHWAY EASEMENT AT THE TOE OF THE EMBANKMENT.
Manhole	8. ATTENUATION BASINS TO BE UNLINED, UNLESS IN HIGH GROUNDS. FILTER ARMS AND INLET/OUTLET RESULTS PENDING. FLOW CONTROL DEVICE ON OUTLET.
Flow control device	9. EXISTING RHYNE MAINTENANCE ROUTES TO BE RETAINED WHERE POSSIBLE. SEE NSLID 1ST PRIORITY ACCESS ROUTE PLANS RELEASED FROM NSLID ON 05/06/2022.
Proposed culvert and headwall	10. OUTFALL DRAINS TO BE DESIGN AND SURVEY OF EXISTING DRAINAGE AT ROAD TIE-INS. STRATEGY IS SUBJECT TO CHANGE FOLLOWING THIS INFORMATION. REFER TO DRAINAGE SURVEY SPECIFICATION BNWLBP-ARP-HDG-XXXX-SP-CD-000001 FOR FURTHER DETAILS.
Watercourse	
Proposed headwall	
Basin maintenance route	
Rhyne maintenance route	



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 SIGNIFICANT RESIDUAL RISKS (REFERENCE SHALL ALSO BE MADE TO THE DESIGN HAZARD LOG).

CONSTRUCTION

REF NO. []

Maintenance / Cleaning

REF NO. []

Use

REF NO. []

Decommissioning / Demolition

REF NO. []

P01	28/06/22	ISSUE FOR PLANNING SUBMISSION	DS	GJ	TE	RW
Rev.	Date	Description	By	Chkd	App'd	Auth'd

Suitability

S4

Drawing Status

FOR PLANNING APPLICATION

GRIFFITHS
civil engineering and construction

ARUP **TACP**

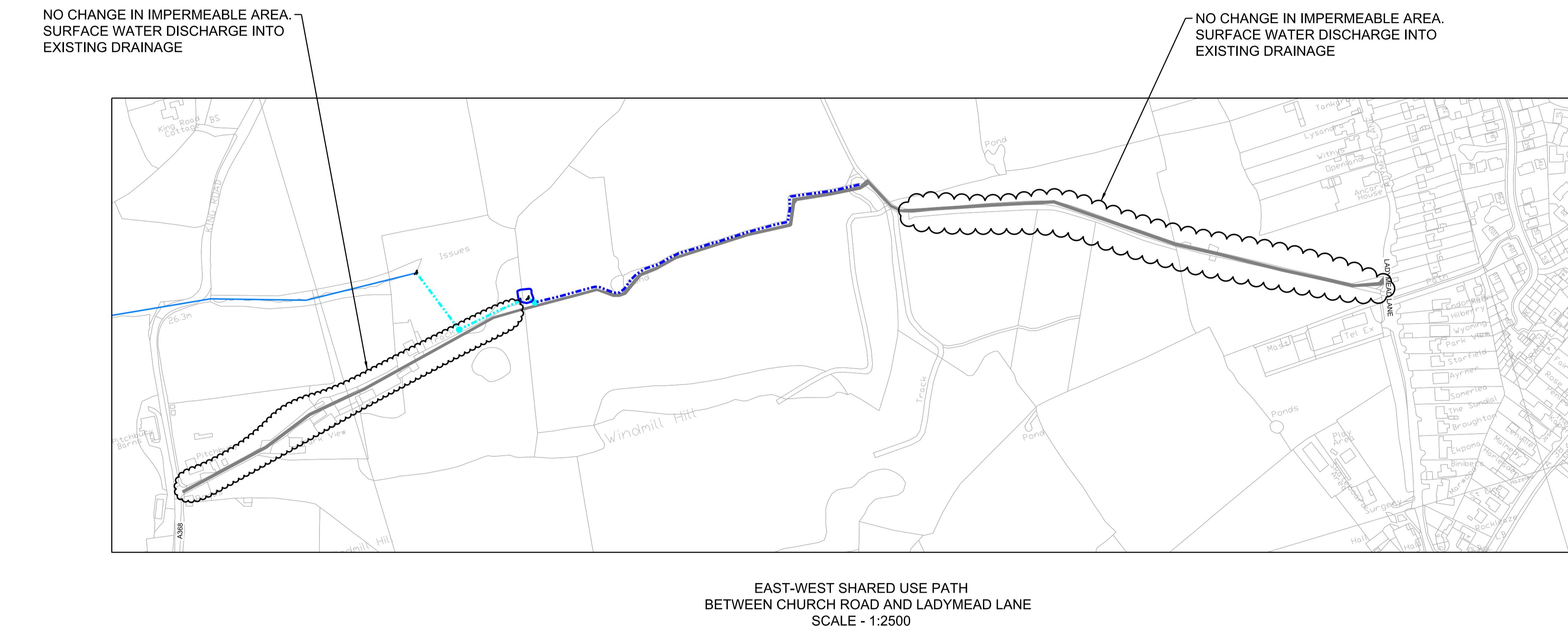
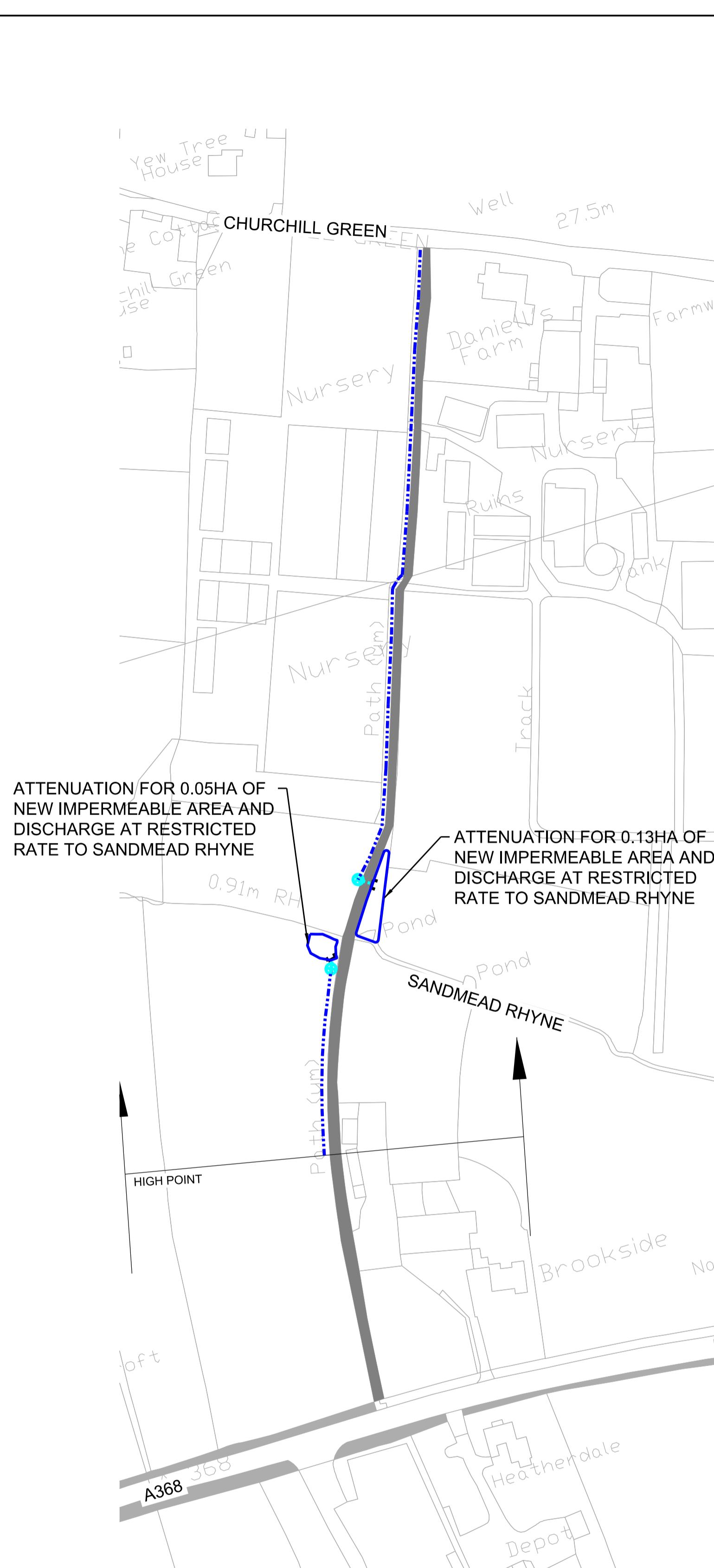
Client

A1

Original Size

Date

28/06/22



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LEGEND	NOTES
 CARRIER PIPE TYPE 21A, HCD B9	1. ALL DIMENSIONS ARE IN METRES UNLESS NOTED OTHERWISE.
 FILTER DRAIN TYPE 1A, HCD B1	2. ONLY WRITTEN DIMENSIONS SHALL BE USED, DO NOT SCALE.
 KERB DRAINAGE	3. EARTHWORKS FOR CUT-OFF DITCHES NOT SHOWN.
 FLAT ATTENUATION SWALE	4. ALLOW FOR 15M REGRADING OF WATERCOURSES AT CULVERTS.
 CONVEYANCE SWALE	5. ALLOW FOR HEADWALLS AT UPSTREAM AND DOWNSTREAM OF CULVERTS. HEADWALLS TO BE REQUIRED AT POND INLETS AND OUTLETS.
 CUT-OFF DITCH	6. ORDINARY WATERCOURSE CONSENTS MAY BE REQUIRED FOR OUTFALLS TO WATERCOURSES AND ANY PROPOSED CULVERTS.
 DIVERTED WATERCOURSE	7. ACCESS TO ALL CULVERTS TO BE OBTAINED WITHIN THE HIGHWAY EASEMENT AT THE TOE OF THE EMBANKMENT.
 MANHOLE	8. ATTENUATION BASINS TO BE UNLINED, UNLESS IN HIGH GROUNDWATER AREAS. GROUND INVESTIGATION RESULTS PENDING. FLOW CONTROL DEVICE ON OUTLET.
 FLOW CONTROL DEVICE	9. EXISTING RHYNE MAINTENANCE ROUTES TO BE RETAINED WHERE POSSIBLE, SEE NSLIBD 1ST PRIORITY ACCESS ROUTE PLANS RECEIVED FROM NSLIBD ON 05/11/2021.
 PROPOSED CULVERT AND HEADWALL	10. CURRENT DRAINAGE DESIGN IS PENDING SURVEY OF EXISTING DRAINAGE AT ROAD TIE-INS, STRATEGY IS SUBJECT TO CHANGE FOLLOWING THIS INFORMATION. REFER TO DRAINAGE SURVEY SPECIFICATION BNWLBP-ARP-HDG-XXXX-SP-CD-000001 FOR FURTHER DETAILS.
 WATERCOURSE	
 PROPOSED HEADWALL	
 BASIN MAINTENANCE ROUTE	
 RHYNE MAINTENANCE ROUTE	