PROPOSED STREAM AND WETLAND IMPACT DOCUMENTS

FOR

FOR
JOHN T. & LUCY H. BODE

LOCATION OF SITE
HORNER SIDING RD (SR 1515)
OXFORD, NC 27565
GRANVILLE COUNTY

LOCATION MAP
SCALE: N.T.S.
PLAN REFERENCE
MICROSOFT 2022 / TOMTOM 2022

OWNER & DEVELOPER
JOHN T. & LUCY H. BODE
2016 WHITE OAK RD
RALEIGH, NC 27608

PREPARED BY

BOHLER
BOHLER ENGINEERING NC, PLLC
NCBELS P-1132

CONTACT:
GARY ZURAWSKI, PE
GZURAWSKI@BOHLERENG.COM

REFERENCES AND CONTACTS

REFERENCES
- TOPOGRAPHIC DATA: NGS 1M CONTOURS
- USACE JURISDICTIONAL DETERMINATION: LETTER DATED 1/3/2021
- WETLAND SKETCH MAP: POST USACE: SCALE ENVIRONMENTAL CONSULTANT, PA 5616 FALLS OF NEUSE ROAD, SUITE 104 RALEIGH, NC 27615 TEL: 919-848-8005 DATED 6/2/2021

* THE ABOVE REFERENCED DOCUMENTS ARE INCORPORATED BY REFERENCE AS PART OF THESE PLANS. HOWEVER, BOHLER ENGINEERING DOES NOT CERTIFY THE ACCURACY OF THE WORK REFERENCED OR DERIVED FROM THOSE DOCUMENTS, BY OTHERS.

GENERAL NOTE:
THE TRUE & CORRECT CONDITIONS OF THE SITE CAN ONLY BE DETERMINED BY THE CONTRACTOR TO PERFORM ALL OF THE SITE WORK & NO REPRESENTATION IS MADE HEREIN THAT THE PROJECT CAN BE CONSTRUCTED AS SHOWN ON THE PLANS WITHOUT EXTENSIVE REMEDIAL WORK & EXPENSE. THE CONTRACTOR MUST ASSUME THE ABOVE CONDITIONS UNLESS OTHERWISE INFORMED BY A PRE-BID SITE VISIT OR A SITE FEASIBILITY STUDY PRIOR TO BID. THE PROJECT OWNER OR ENGINEER WILL NOT BE RESPONSIBLE FOR ANY ADDITIONAL COSTS OR DELAYS RESULTING FROM THE CONDITIONS OF THE SITE. THE CONTRACTOR IS TO BE RESPONSIBLE FOR THE COMPLETION OF THE PROJECT UNDER THE SCHEDULE SPECIFIED IN THE CONTRACT DOCUMENTS. THE CONTRACTOR IS TO BE RESPONSIBLE FOR THE SCOPE OF THE WORK AS DEFINED BY THE DRAWINGS AND IN CASE OF DISCREPANCY WITH THE DRAWINGS, THE CONTRACTOR MUST CONTACT THE ENGINEER IMMEDIATELY.

Sheet Number	Sheet Title
C-101	COVER SHEET
-	EXISTING CONDITIONS
-	PROPOSED CONDITIONS
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-	CROSSING 2
-	CROSSING 3
-	CROSSING 4
-	CROSSING 5
-	CROSSING 6
-	CROSSING 7
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-	CROSSING 9
-	CROSSINGS 10 & 11
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-	CROSSINGS 15 & 16
-	CROSSINGS 17 & 18
-	CROSSING 19
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-	CROSSING 21
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C-611	STREAM CROSSING #13 & #14 PLAN & PROFILE
C-612	STREAM CROSSING #15 & #16 PLAN & PROFILE
C-613	STREAM CROSSING #17 & #18 PLAN & PROFILE
C-614	STREAM CROSSING #19 & #20 PLAN & PROFILE
C-615	STREAM CROSSING #21 PLAN & PROFILE
-	POND DRAINAGE AREA MAPS

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SITE CIVIL AND CONSULTING ENGINEERING
LAND DEVELOPMENT
PROGRAM MANAGEMENT
LANDSCAPE ARCHITECTURE
SUSTAINABLE DESIGN
RESIDENTIAL DESIGN
TRANSPORTATION SERVICES

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REVISIONS

REV	DATE	COMMENT	DRAWN BY / REVIEWED BY
1	05/20/22	REV PER SEC COMMENTS	OGT / GJZ
2	06/24/22	INITIAL SUBMISSION	GJZ / GJZ

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PERMIT SET

THE DRAWINGS ENTITLED PROPOSED STREAM AND WETLAND IMPACT DOCUMENTS HAVE BEEN REVIEWED AND APPROVED. ALL WORK MUST BE DONE IN ACCORDANCE WITH THE DRAWINGS AND SPECIFICATIONS. DO NOT BEGIN WORK UNTIL YOU HAVE THE NECESSARY PERMITS.

PROJECT No.:	NCR211083
DRAWN BY:	OBJ/JW
CHECKED BY:	GZ
DATE:	6/6/2022
CAD FILE:	CKDS - 0

PROJECT:
PROPOSED STREAM AND WETLAND IMPACT DOCUMENTS
FOR
OXFORD PARK OF NORTH CAROLINA

PROPOSED DEVELOPMENT
HORNER SIDING RD (SR 1515)
OXFORD, NC 27565

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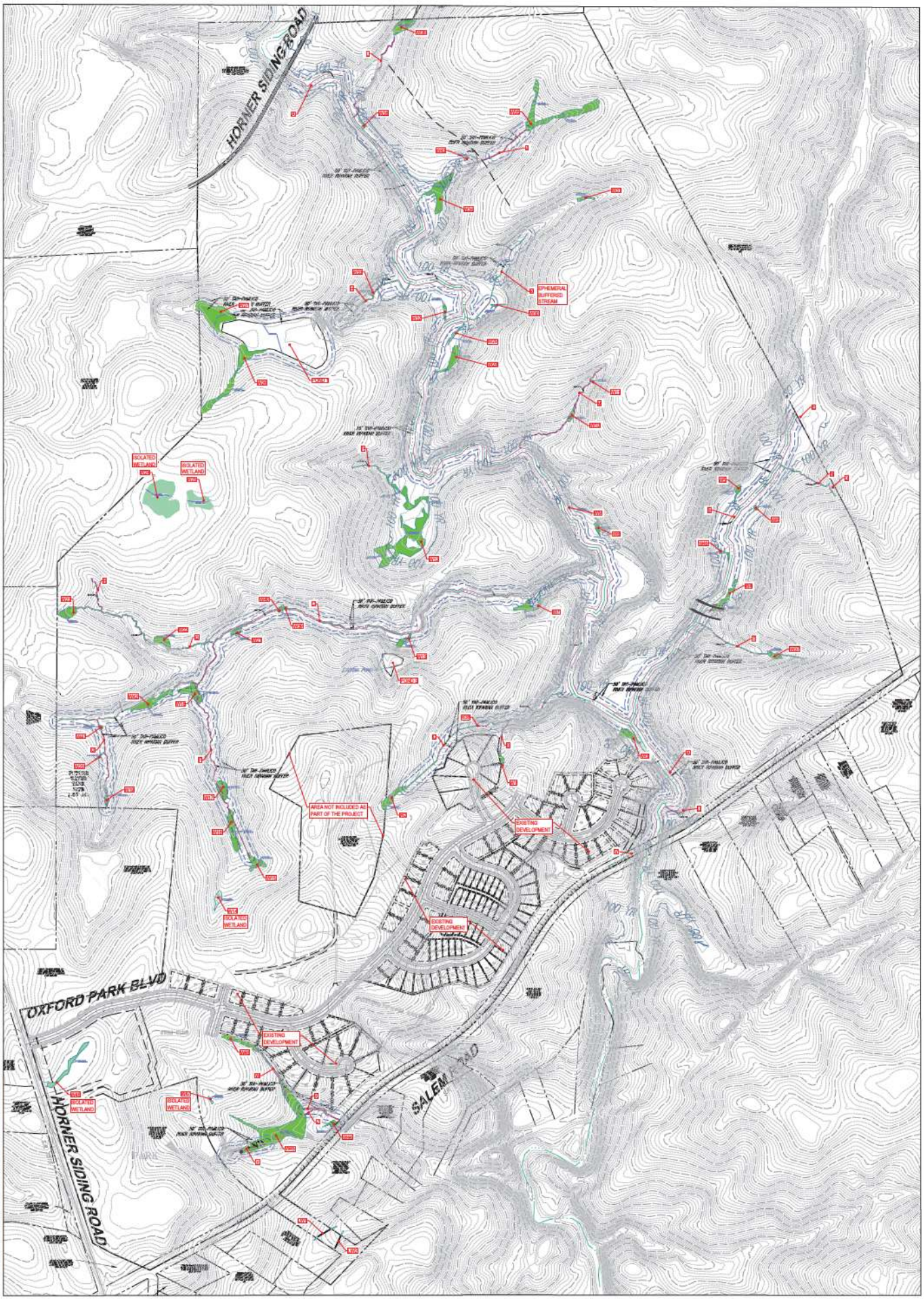
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 036764 GARY J. ZURAWSKI

SHEET TITLE:
COVER SHEET

SHEET NUMBER:
C-101

REVISION 2 - 06/24/22



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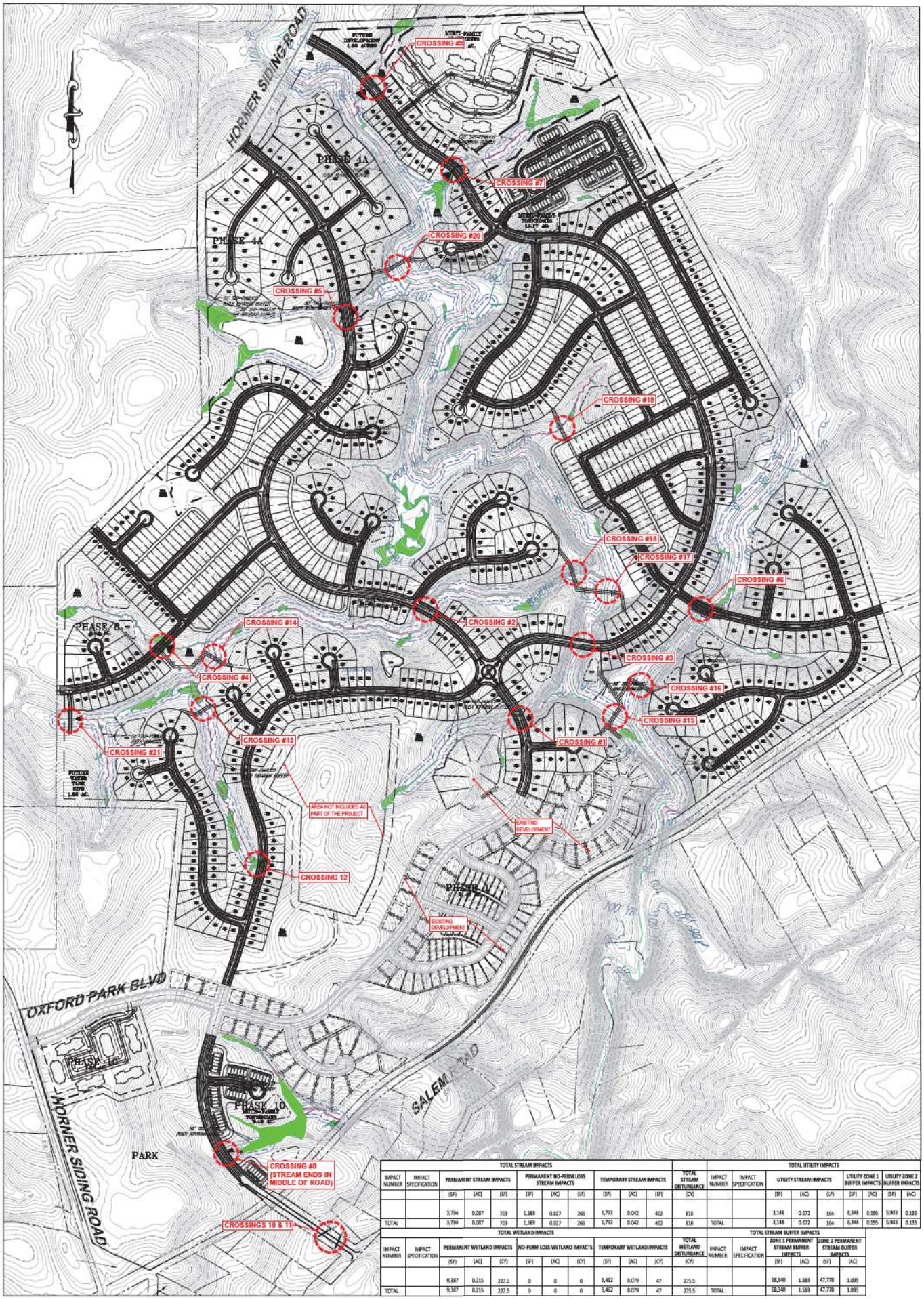
EXISTING CONDITIONS EXHIBIT
OXFORD PARK

OXFORD, NC 27565 | EXHA - 0

7/18/2022 | GJZ | Project#NCR211093 | Rev0



TOTAL STREAM IMPACTS											
IMPACT NUMBER	IMPACT SPECIFICATION	PERMANENT STREAM IMPACTS			PERMANENT NO-PERM LOSS STREAM IMPACTS			TEMPORARY STREAM IMPACTS			TOTAL STREAM DISTURBANCE
		(SF)	(AC)	(LF)	(SF)	(AC)	(LF)	(SF)	(AC)	(LF)	(CY)
		3,794	0.087	703	1,169	0.027	266	1,792	0.042	402	818
TOTAL		3,794	0.087	703	1,169	0.027	266	1,792	0.042	402	818

TOTAL UTILITY IMPACTS								
IMPACT NUMBER	IMPACT SPECIFICATION	UTILITY STREAM IMPACTS			UTILITY ZONE 1 BUFFER IMPACTS		UTILITY ZONE 2 BUFFER IMPACTS	
		(SF)	(AC)	(LF)	(SF)	(AC)	(SF)	(AC)
		3,148	0.072	164	8,348	0.195	5,903	0.135
TOTAL		3,148	0.072	164	8,348	0.195	5,903	0.135

TOTAL WETLAND IMPACTS											
IMPACT NUMBER	IMPACT SPECIFICATION	PERMANENT WETLAND IMPACTS			NO-PERM LOSS WETLAND IMPACTS			TEMPORARY WETLAND IMPACTS			TOTAL WETLAND DISTURBANCE
		(SF)	(AC)	(CY)	(SF)	(AC)	(CY)	(SF)	(AC)	(CY)	(CY)
		9,387	0.215	227.5	0	0	0	3,462	0.079	47	275.5
TOTAL		9,387	0.215	227.5	0	0	0	3,462	0.079	47	275.5

TOTAL STREAM BUFFER IMPACTS					
IMPACT NUMBER	IMPACT SPECIFICATION	ZONE 1 PERMANENT STREAM BUFFER IMPACTS		ZONE 2 PERMANENT STREAM BUFFER IMPACTS	
		(SF)	(AC)	(SF)	(AC)
		68,340	1.569	47,778	1.095
TOTAL		68,340	1.569	47,778	1.095

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PROPOSED SITE PLAN EXHIBIT
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200 125 62.5 0 250
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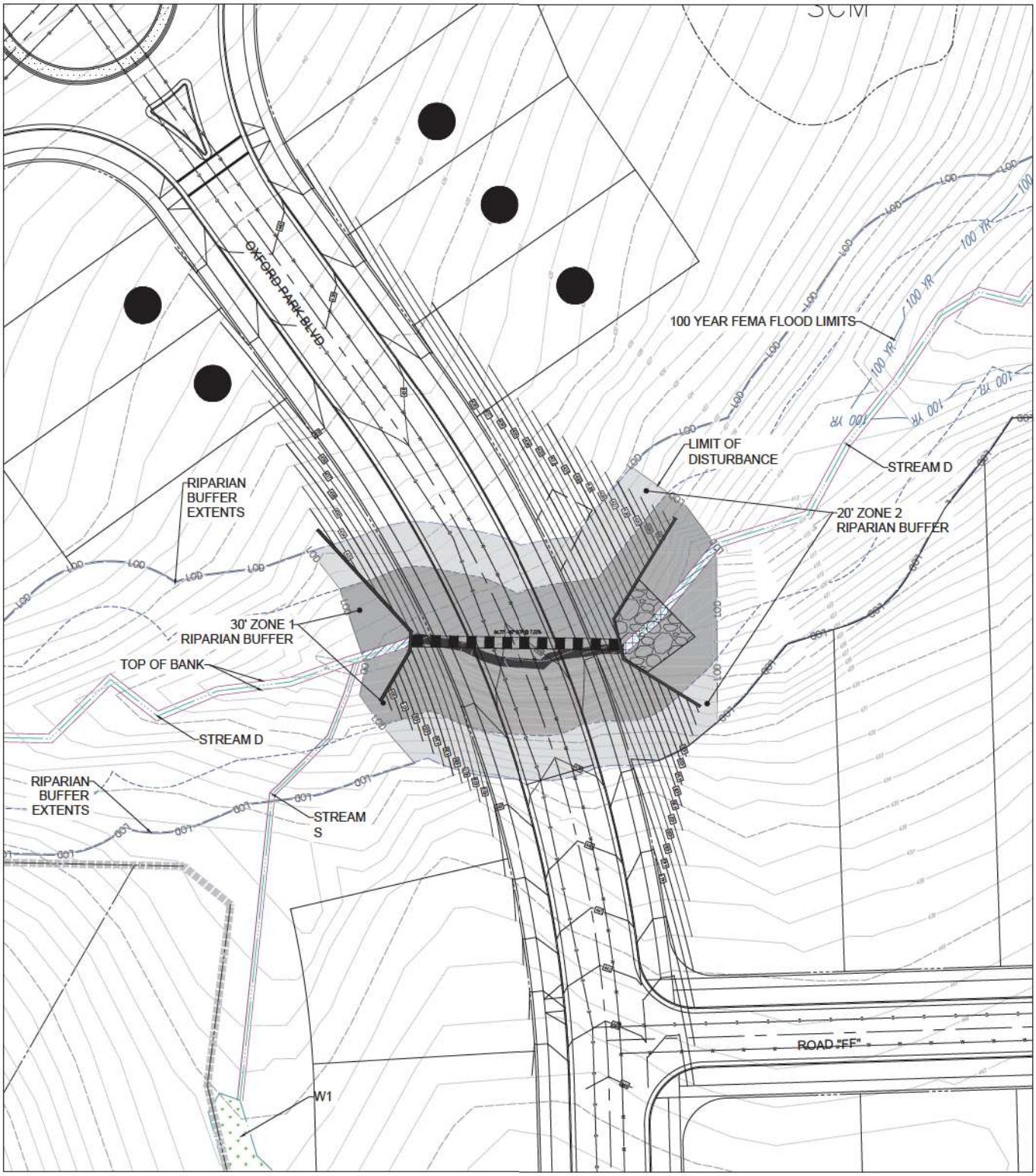

NOTE: PARCELS SHOWN EXCLUDE ROW OF ROADS AND RAILROAD AS SHOWN IN GRANVILLE COUNTY GIS

LEGEND	
EX. WETLAND	ZONE 1 (30') PERMANENT STREAM BUFFER IMPACTS
PERMANENT STREAM IMPACTS	ZONE 2 (20') PERMANENT STREAM BUFFER IMPACTS
PERMANENT NO-PERM LOSS STREAM IMPACTS	PERMANENT WETLAND IMPACTS
TEMPORARY STREAM IMPACTS	TEMPORARY WETLAND IMPACTS

STREAM IMPACTS

IMPACT NUMBER	IMPACT SPECIFICATION	PERMANENT STREAM IMPACTS				PERMANENT NO-PERM LOSS STREAM IMPACTS				TEMPORARY STREAM IMPACTS			
		(SF)	(AC)	(LF)	(CY)	(SF)	(AC)	(LF)	(CY)	(SF)	(AC)	(LF)	(CY)
1	CROSSING #1	386	0.009	100	58	105	0.003	25	16	259	0.006	65	39
TOTAL		386	0.009	100	58	105	0.003	25	16	259	0.006	65	39

WETLAND IMPACTS

IMPACT NUMBER	IMPACT SPECIFICATION	PERMANENT WETLAND IMPACTS			NO-PERM LOSS WETLAND IMPACTS			TEMPORARY WETLAND IMPACTS			TOTAL WETLAND DISTURBANCE
		(SF)	(AC)	(CY)	(SF)	(AC)	(CY)	(SF)	(AC)	(CY)	(CY)
1	CROSSING #1	0	0	0	0	0	0	0	0	0	0
TOTAL		0	0	0	0	0	0	0	0	0	0

STREAM BUFFER IMPACTS

IMPACT NUMBER	IMPACT SPECIFICATION	ZONE 1 PERMANENT STREAM BUFFER IMPACTS		ZONE 2 PERMANENT STREAM BUFFER IMPACTS	
		(SF)	(AC)	(SF)	(AC)
1	CROSSING #1	10,622	0.244	6,417	0.147
TOTAL		10,622	0.244	6,417	0.147

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CROSSING #1
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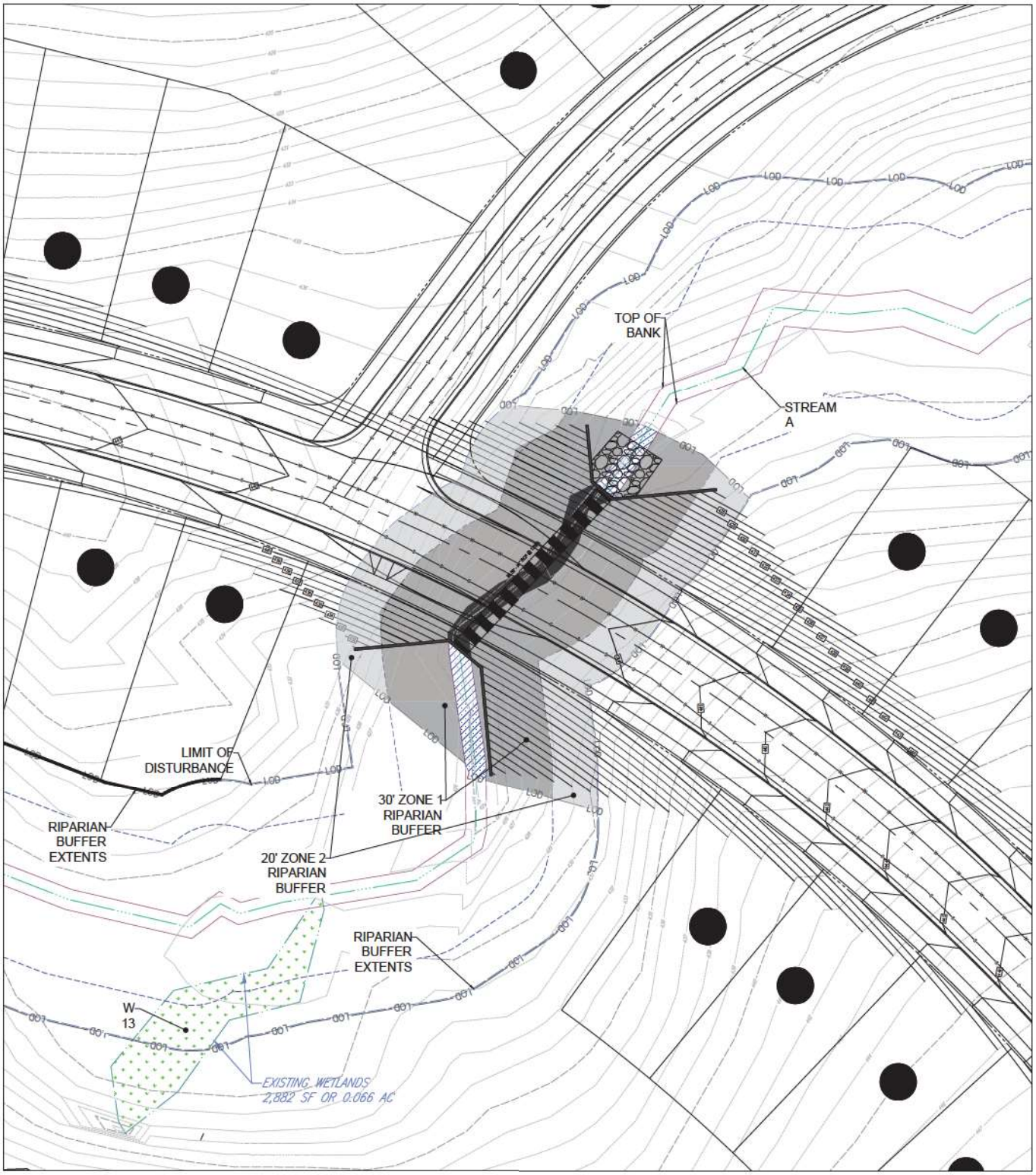
1"= 20'



NOTE: PARCELS SHOWN EXCLUDE ROW OF ROADS AND RAILROAD AS SHOWN IN GRANVILLE COUNTY GIS

LEGEND	
EX. WETLAND	ZONE 1 (30') PERMANENT STREAM BUFFER IMPACTS
PERMANENT STREAM IMPACTS	ZONE 2 (20') PERMANENT STREAM BUFFER IMPACTS
PERMANENT NO-PERM LOSS STREAM IMPACTS	PERMANENT WETLAND IMPACTS
TEMPORARY STREAM IMPACTS	TEMPORARY WETLAND IMPACTS

STREAM IMPACTS

IMPACT NUMBER	IMPACT SPECIFICATION	PERMANENT STREAM IMPACTS				PERMANENT NO-PERM LOSS STREAM IMPACTS				TEMPORARY STREAM IMPACTS			
		(SF)	(AC)	(LF)	(CY)	(SF)	(AC)	(LF)	(CY)	(SF)	(AC)	(LF)	(CY)
2	CROSSING #2	946	0.022	102	122	252	0.006	26	43	622	0.014	65	83
TOTAL		946	0.022	102	122	252	0.006	26	43	622	0.014	65	83

WETLAND IMPACTS

IMPACT NUMBER	IMPACT SPECIFICATION	PERMANENT WETLAND IMPACTS			NO-PERM LOSS WETLAND IMPACTS			TEMPORARY WETLAND IMPACTS			TOTAL WETLAND DISTURBANCE
		(SF)	(AC)	(CY)	(SF)	(AC)	(CY)	(SF)	(AC)	(CY)	(CY)
2	CROSSING #2	0	0	0	0	0	0	0	0	0	0
TOTAL		0	0	0	0	0	0	0	0	0	0

STREAM BUFFER IMPACTS

IMPACT NUMBER	IMPACT SPECIFICATION	ZONE 1 PERMANENT STREAM BUFFER IMPACTS		ZONE 2 PERMANENT STREAM BUFFER IMPACTS	
		(SF)	(AC)	(SF)	(AC)
2	CROSSING #2	10,998	0.252	6,575	0.151
TOTAL		10,998	0.252	6,575	0.151

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CROSSING #2
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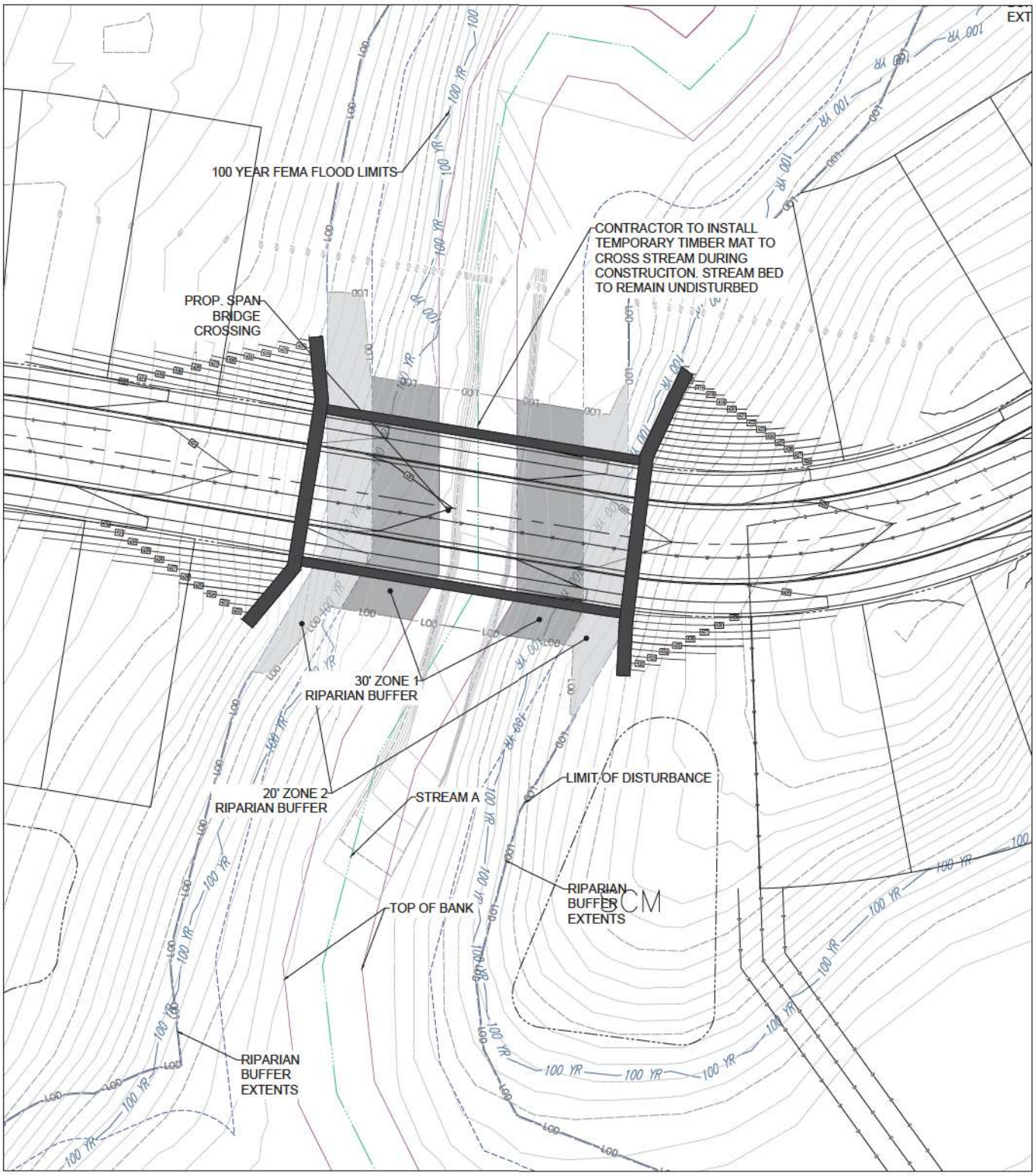

NOTE: PARCELS SHOWN EXCLUDE ROW OF ROADS AND RAILROAD AS SHOWN IN GRANVILLE COUNTY GIS

LEGEND	
EX. WETLAND	ZONE 1 (30') PERMANENT STREAM BUFFER IMPACTS
PERMANENT STREAM IMPACTS	ZONE 2 (20') PERMANENT STREAM BUFFER IMPACTS
PERMANENT NO-PERM LOSS STREAM IMPACTS	PERMANENT WETLAND IMPACTS
TEMPORARY STREAM IMPACTS	TEMPORARY WETLAND IMPACTS

STREAM IMPACTS													
IMPACT NUMBER	IMPACT SPECIFICATION	PERMANENT STREAM IMPACTS				PERMANENT NO-PERM LOSS STREAM IMPACTS				TEMPORARY STREAM IMPACTS			
		(SF)	(AC)	(LF)	(CY)	(SF)	(AC)	(LF)	(CY)	(SF)	(AC)	(LF)	(CY)
3	CROSSING #3	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL		0	0	0	0	0	0	0	0	0	0	0	0

WETLAND IMPACTS											
IMPACT NUMBER	IMPACT SPECIFICATION	PERMANENT WETLAND IMPACTS			NO-PERM LOSS WETLAND IMPACTS			TEMPORARY WETLAND IMPACTS			TOTAL WETLAND DISTURBANCE
		(SF)	(AC)	(CY)	(SF)	(AC)	(CY)	(SF)	(AC)	(CY)	(CY)
3	CROSSING #3	0	0	0	0	0	0	0	0	0	0
TOTAL		0	0	0	0	0	0	0	0	0	0

STREAM BUFFER IMPACTS					
IMPACT NUMBER	IMPACT SPECIFICATION	ZONE 1 PERMANENT STREAM BUFFER IMPACTS		ZONE 2 PERMANENT STREAM BUFFER IMPACTS	
		(SF)	(AC)	(SF)	(AC)
3	CROSSING #3	6,459	0.148	6,575	0.151
TOTAL		6,459	0.148	6,575	0.151

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CROSSING #3
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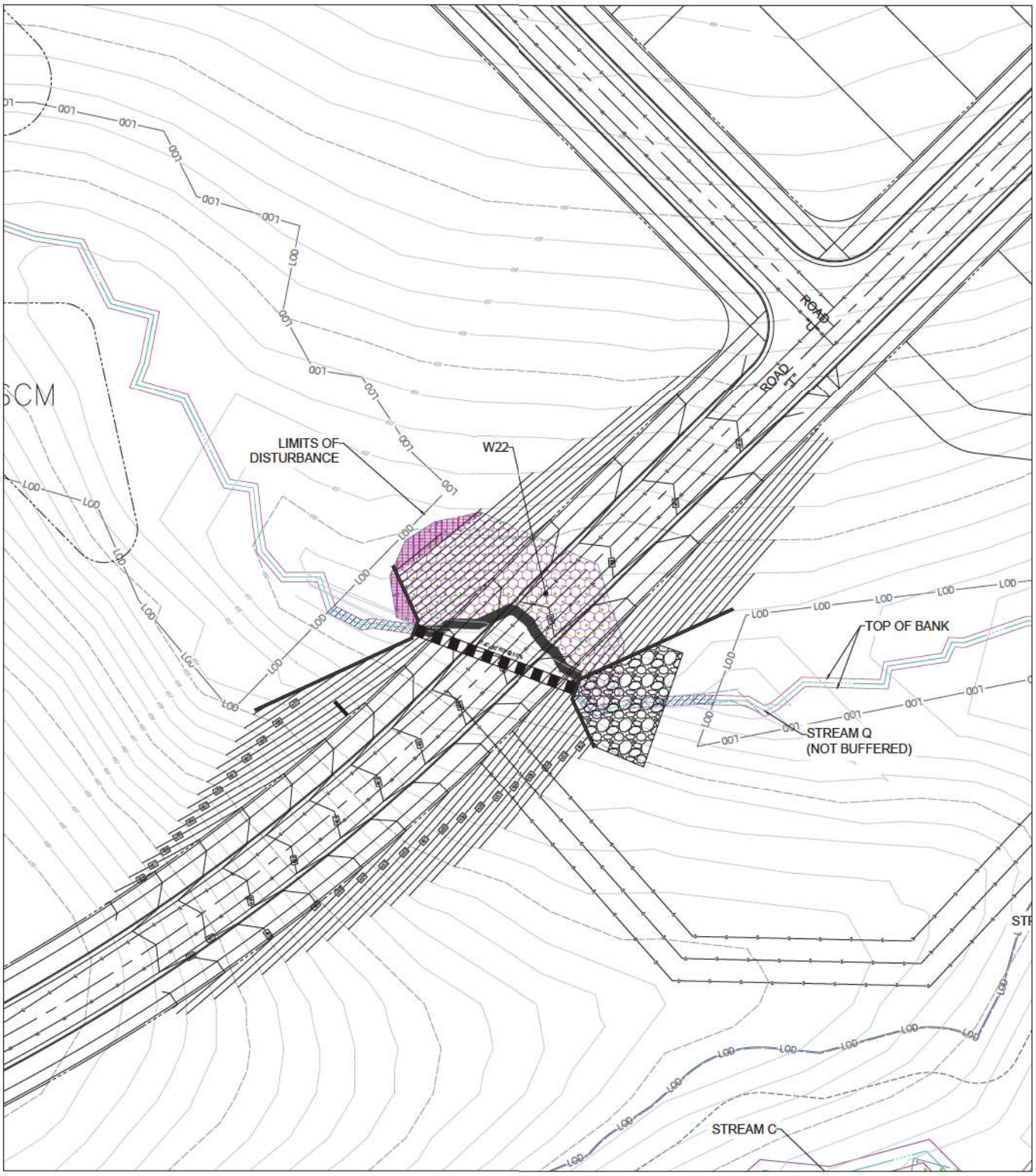

NOTE: PARCELS SHOWN EXCLUDE ROW OF ROADS AND RAILROAD AS SHOWN IN GRANVILLE COUNTY GIS

LEGEND	
EX. WETLAND	ZONE 1 (30') PERMANENT STREAM BUFFER IMPACTS
PERMANENT STREAM IMPACTS	ZONE 2 (20') PERMANENT STREAM BUFFER IMPACTS
PERMANENT NO-PERM LOSS STREAM IMPACTS	PERMANENT WETLAND IMPACTS
TEMPORARY STREAM IMPACTS	TEMPORARY WETLAND IMPACTS

STREAM IMPACTS

IMPACT NUMBER	IMPACT SPECIFICATION	PERMANENT STREAM IMPACTS				PERMANENT NO-PERM LOSS STREAM IMPACTS				TEMPORARY STREAM IMPACTS			
		(SF)	(AC)	(LF)	(CY)	(SF)	(AC)	(LF)	(CY)	(SF)	(AC)	(LF)	(CY)
4	CROSSING #4	389	0.009	100	64	200	0.005	47	31	235	0.005	61	40
TOTAL		389	0.009	100	64	200	0.005	47	31	235	0.005	61	40

WETLAND IMPACTS

IMPACT NUMBER	IMPACT SPECIFICATION	PERMANENT WETLAND IMPACTS			NO-PERM LOSS WETLAND IMPACTS			TEMPORARY WETLAND IMPACTS			TOTAL WETLAND DISTURBANCE
		(SF)	(AC)	(CY)	(SF)	(AC)	(CY)	(SF)	(AC)	(CY)	(CY)
4	CROSSING #4	4,085	0.094	51	0	0	0	463	0.011	6	57
TOTAL		4,085	0.094	51	0	0	0	463	0.011	6	57

STREAM BUFFER IMPACTS

IMPACT NUMBER	IMPACT SPECIFICATION	ZONE 1 PERMANENT STREAM BUFFER IMPACTS		ZONE 2 PERMANENT STREAM BUFFER IMPACTS	
		(SF)	(AC)	(SF)	(AC)
4	CROSSING #4	0	0	0	0
TOTAL		0	0	0	0

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CROSSING #4
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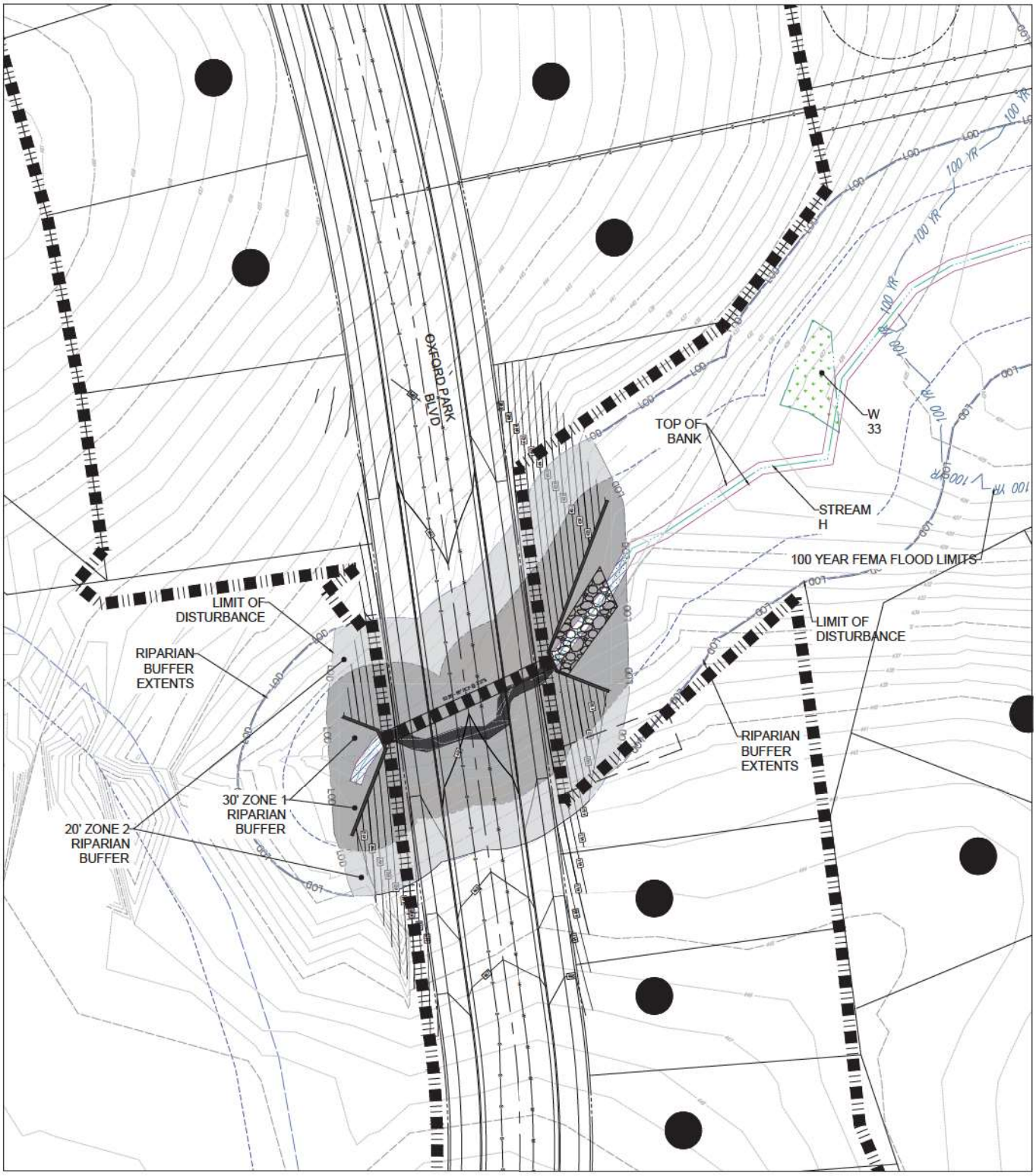

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LEGEND	
EX. WETLAND	ZONE 1 (30') PERMANENT STREAM BUFFER IMPACTS
PERMANENT STREAM IMPACTS	ZONE 2 (20') PERMANENT STREAM BUFFER IMPACTS
PERMANENT NO-PERM LOSS STREAM IMPACTS	PERMANENT WETLAND IMPACTS
TEMPORARY STREAM IMPACTS	TEMPORARY WETLAND IMPACTS

STREAM IMPACTS

IMPACT NUMBER	IMPACT SPECIFICATION	PERMANENT STREAM IMPACTS				PERMANENT NO-PERM LOSS STREAM IMPACTS				TEMPORARY STREAM IMPACTS			
		(SF)	(AC)	(LF)	(CY)	(SF)	(AC)	(LF)	(CY)	(SF)	(AC)	(LF)	(CY)
5	CROSSING #5	1,029	0.024	94	100	227	0.005	42	22	219	0.005	39	21
TOTAL		1,029	0.024	94	100	227	0.005	42	22	219	0.005	39	21

WETLAND IMPACTS

IMPACT NUMBER	IMPACT SPECIFICATION	PERMANENT WETLAND IMPACTS			NO-PERM LOSS WETLAND IMPACTS			TEMPORARY WETLAND IMPACTS			TOTAL WETLAND DISTURBANCE
		(SF)	(AC)	(CY)	(SF)	(AC)	(CY)	(SF)	(AC)	(CY)	(CY)
5	CROSSING #5	0	0	0	0	0	0	0	0	0	0
TOTAL		0	0	0	0	0	0	0	0	0	0

STREAM BUFFER IMPACTS

IMPACT NUMBER	IMPACT SPECIFICATION	ZONE 1 PERMANENT STREAM BUFFER IMPACTS		ZONE 2 PERMANENT STREAM BUFFER IMPACTS	
		(SF)	(AC)	(SF)	(AC)
5	CROSSING #5	10,884	0.250	6,004	0.138
TOTAL		10,884	0.250	6,004	0.138

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CROSSING #5
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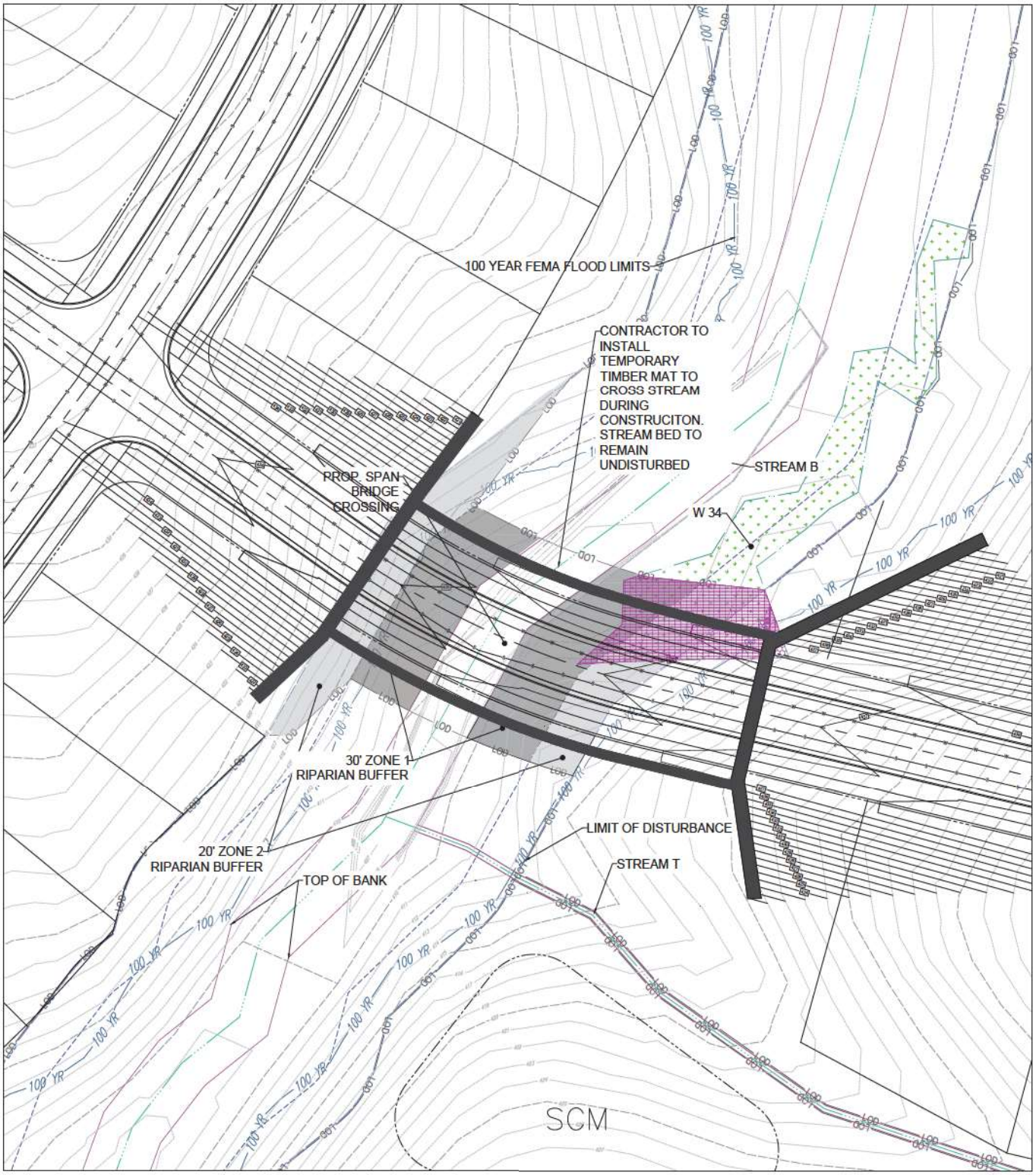

NOTE: PARCELS SHOWN EXCLUDE ROW OF ROADS AND RAILROAD AS SHOWN IN GRANVILLE COUNTY GIS

LEGEND	
EX. WETLAND	ZONE 1 (30') PERMANENT STREAM BUFFER IMPACTS
PERMANENT STREAM IMPACTS	ZONE 2 (20') PERMANENT STREAM BUFFER IMPACTS
PERMANENT NO-PERM LOSS STREAM IMPACTS	PERMANENT WETLAND IMPACTS
TEMPORARY STREAM IMPACTS	TEMPORARY WETLAND IMPACTS

STREAM IMPACTS

IMPACT NUMBER	IMPACT SPECIFICATION	PERMANENT STREAM IMPACTS				PERMANENT NO-PERM LOSS STREAM IMPACTS				TEMPORARY STREAM IMPACTS			
		(SF)	(AC)	(LF)	(CY)	(SF)	(AC)	(LF)	(CY)	(SF)	(AC)	(LF)	(CY)
6	CROSSING #6	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL		0	0	0	0	0	0	0	0	0	0	0	0

WETLAND IMPACTS

IMPACT NUMBER	IMPACT SPECIFICATION	PERMANENT WETLAND IMPACTS			NO-PERM LOSS WETLAND IMPACTS			TEMPORARY WETLAND IMPACTS			TOTAL WETLAND DISTURBANCE
		(SF)	(AC)	(CY)	(SF)	(AC)	(CY)	(SF)	(AC)	(CY)	(CY)
6	CROSSING #6	104	0.002	1.5	0	0	0	2,440	0.056	30	31.5
TOTAL		104	0.002	1.5	0	0	0	2,440	0.056	30	31.5

STREAM BUFFER IMPACTS

IMPACT NUMBER	IMPACT SPECIFICATION	ZONE 1 PERMANENT STREAM BUFFER IMPACTS		ZONE 2 PERMANENT STREAM BUFFER IMPACTS	
		(SF)	(AC)	(SF)	(AC)
6	CROSSING #6	5,513	0.127	4,070	0.093
TOTAL		5,513	0.127	4,070	0.093

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CROSSING #6
OXFORD PARK

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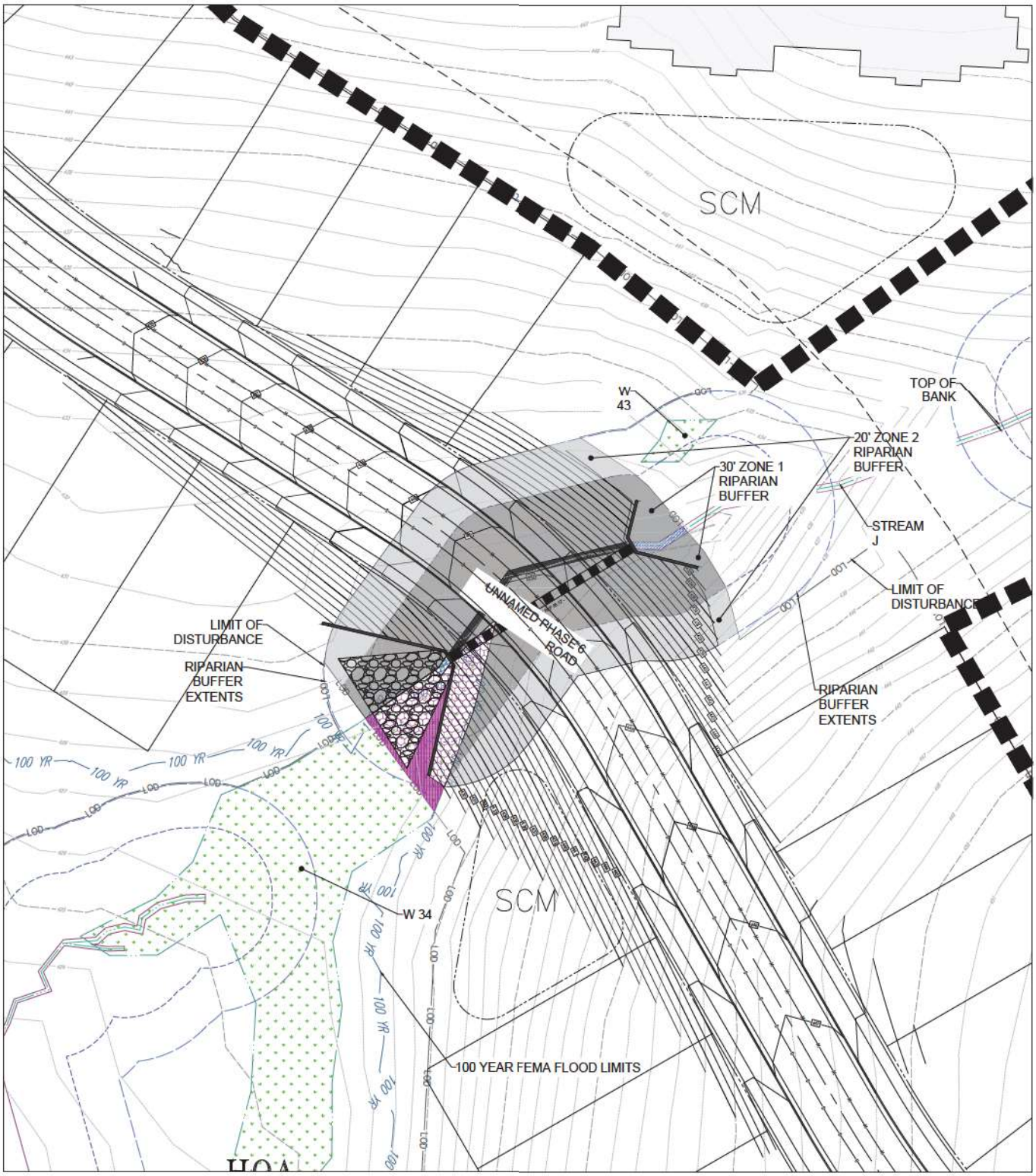
1"= 20'



NOTE: PARCELS SHOWN EXCLUDE ROW OF ROADS AND RAILROAD AS SHOWN IN GRANVILLE COUNTY GIS

LEGEND	
EX. WETLAND	ZONE 1 (30') PERMANENT STREAM BUFFER IMPACTS
PERMANENT STREAM IMPACTS	ZONE 2 (20') PERMANENT STREAM BUFFER IMPACTS
PERMANENT NO-PERM LOSS STREAM IMPACTS	PERMANENT WETLAND IMPACTS
TEMPORARY STREAM IMPACTS	TEMPORARY WETLAND IMPACTS

STREAM IMPACTS

IMPACT NUMBER	IMPACT SPECIFICATION	PERMANENT STREAM IMPACTS				PERMANENT NO-PERM LOSS STREAM IMPACTS				TEMPORARY STREAM IMPACTS			
		(SF)	(AC)	(LF)	(CY)	(SF)	(AC)	(LF)	(CY)	(SF)	(AC)	(LF)	(CY)
7	CROSSING #7	328	0.007	101	37	26	0.0006	8	3	90	0.002	28	10
TOTAL		328	0.007	101	37	26	0.0006	8	3	90	0.002	28	10

WETLAND IMPACTS

IMPACT NUMBER	IMPACT SPECIFICATION	PERMANENT WETLAND IMPACTS			NO-PERM LOSS WETLAND IMPACTS			TEMPORARY WETLAND IMPACTS			TOTAL WETLAND DISTURBANCE
		(SF)	(AC)	(CY)	(SF)	(AC)	(CY)	(SF)	(AC)	(CY)	(CY)
7	CROSSING #7	1,472	0.034	18	0	0	0	478	0.011	6	24
TOTAL		1,472	0.034	18	0	0	0	478	0.011	6	24

STREAM BUFFER IMPACTS

IMPACT NUMBER	IMPACT SPECIFICATION	ZONE 1 PERMANENT STREAM BUFFER IMPACTS		ZONE 2 PERMANENT STREAM BUFFER IMPACTS	
		(SF)	(AC)	(SF)	(AC)
7	CROSSING #7	8,798	0.202	6,202	0.142
TOTAL		8,798	0.202	6,202	0.142

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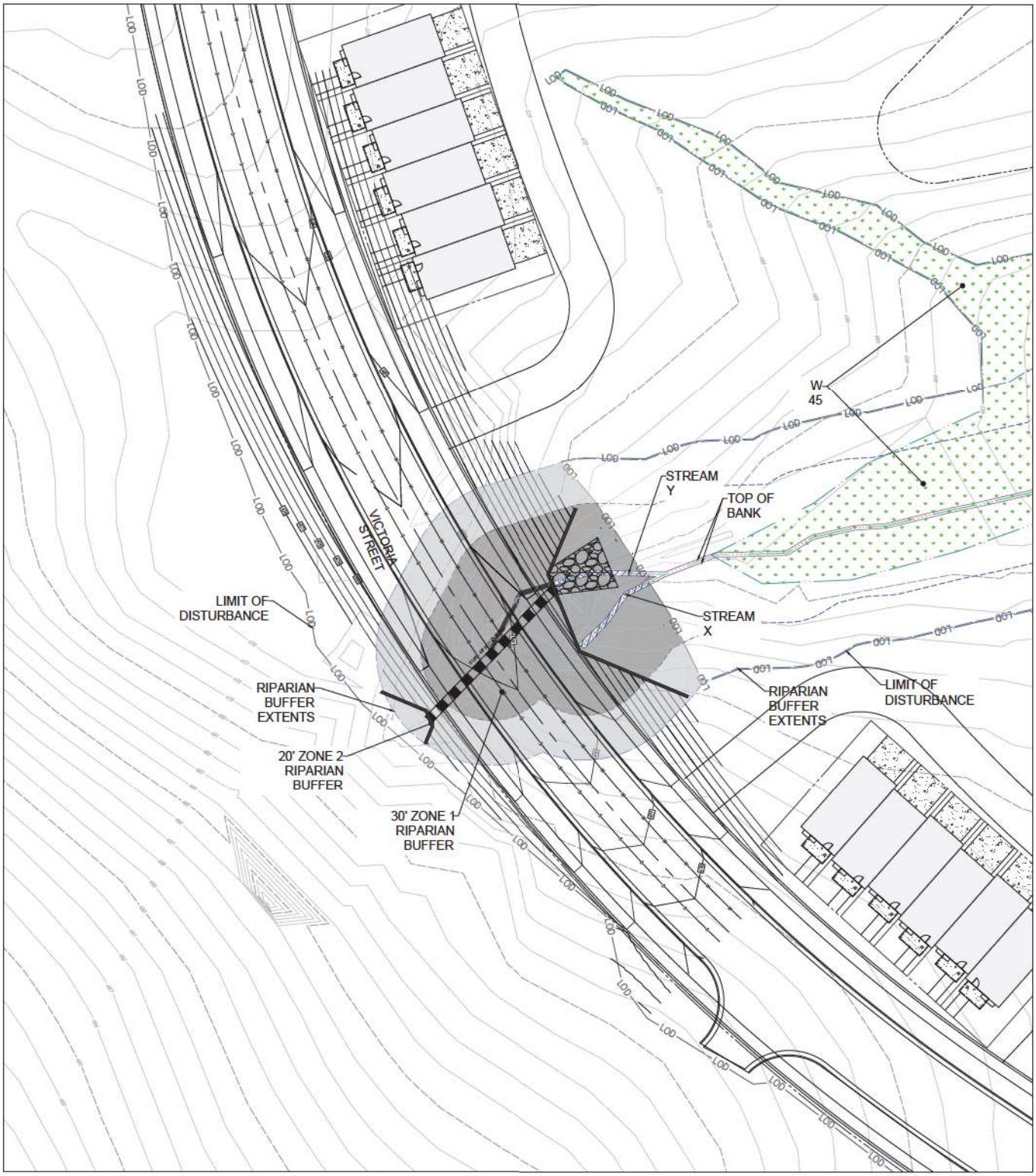

NOTE: PARCELS SHOWN EXCLUDE ROW OF ROADS AND RAILROAD AS SHOWN IN GRANVILLE COUNTY GIS

LEGEND	
EX. WETLAND	ZONE 1 (30') PERMANENT STREAM BUFFER IMPACTS
PERMANENT STREAM IMPACTS	ZONE 2 (20') PERMANENT STREAM BUFFER IMPACTS
PERMANENT NO-PERM LOSS STREAM IMPACTS	PERMANENT WETLAND IMPACTS
TEMPORARY STREAM IMPACTS	TEMPORARY WETLAND IMPACTS

STREAM IMPACTS

IMPACT NUMBER	IMPACT SPECIFICATION	PERMANENT STREAM IMPACTS				PERMANENT NO-PERM LOSS STREAM IMPACTS				TEMPORARY STREAM IMPACTS			
		(SF)	(AC)	(LF)	(CY)	(SF)	(AC)	(LF)	(CY)	(SF)	(AC)	(LF)	(CY)
8	CROSSING #8	90	0.002	54	7	54	0.001	27	2	122	0.003	56	6
TOTAL		90	0.002	54	7	54	0.001	27	2	122	0.003	56	6

WETLAND IMPACTS

IMPACT NUMBER	IMPACT SPECIFICATION	PERMANENT WETLAND IMPACTS			NO-PERM LOSS WETLAND IMPACTS			TEMPORARY WETLAND IMPACTS			TOTAL WETLAND DISTURBANCE
		(SF)	(AC)	(CY)	(SF)	(AC)	(CY)	(SF)	(AC)	(CY)	(CY)
8	CROSSING #8	0	0	0	0	0	0	0	0	0	0
TOTAL		0	0	0	0	0	0	0	0	0	0

STREAM BUFFER IMPACTS

IMPACT NUMBER	IMPACT SPECIFICATION	ZONE 1 PERMANENT STREAM BUFFER IMPACTS		ZONE 2 PERMANENT STREAM BUFFER IMPACTS	
		(SF)	(AC)	(SF)	(AC)
8	CROSSING #8	7,786	0.179	5,844	0.134
TOTAL		7,786	0.179	5,844	0.134

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CROSSING #8
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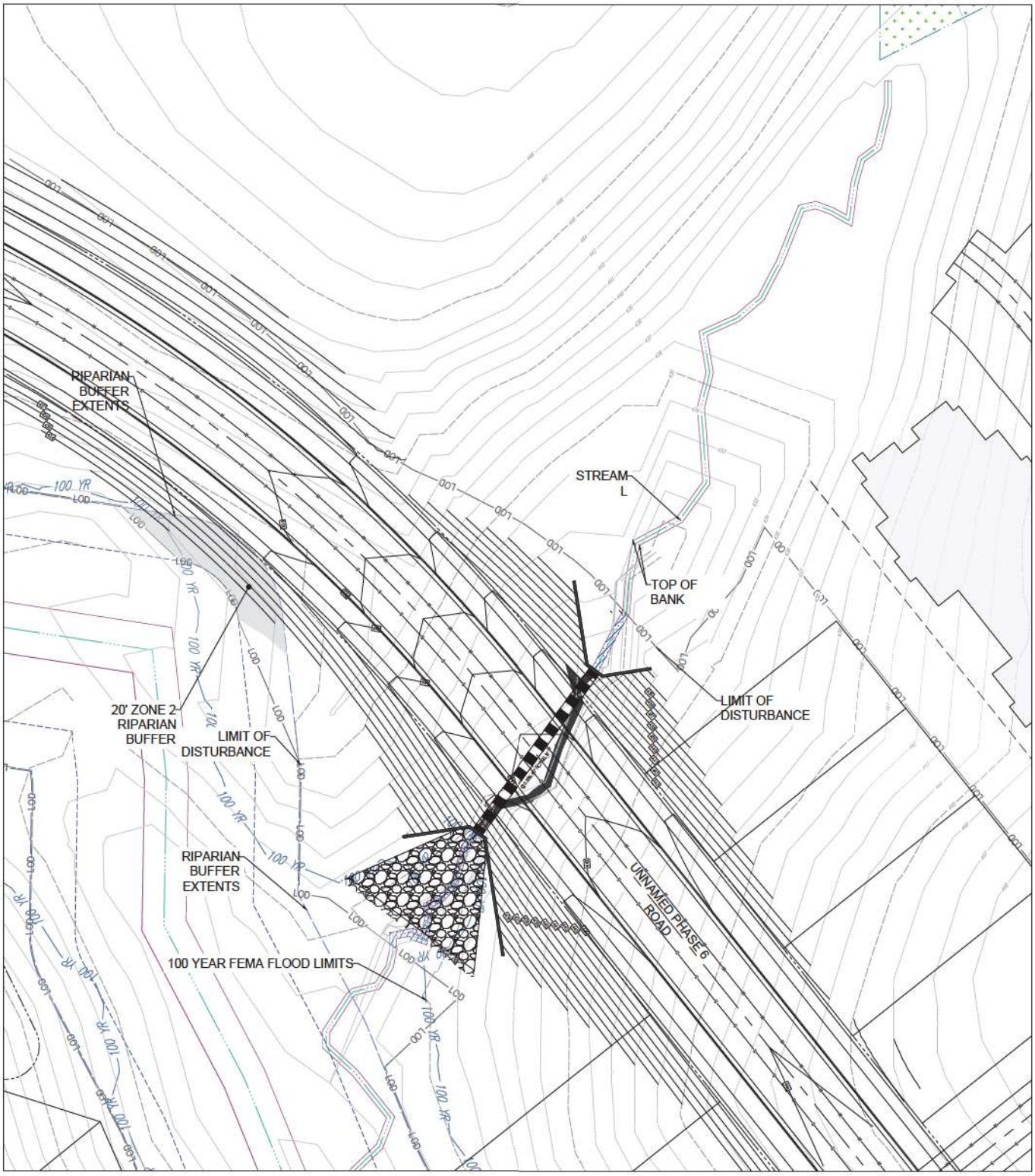

NOTE: PARCELS SHOWN EXCLUDE ROW OF ROADS AND RAILROAD AS SHOWN IN GRANVILLE COUNTY GIS

LEGEND	
EX. WETLAND	ZONE 1 (30') PERMANENT STREAM BUFFER IMPACTS
PERMANENT STREAM IMPACTS	ZONE 2 (20') PERMANENT STREAM BUFFER IMPACTS
PERMANENT NO-PERM LOSS STREAM IMPACTS	PERMANENT WETLAND IMPACTS
TEMPORARY STREAM IMPACTS	TEMPORARY WETLAND IMPACTS

STREAM IMPACTS

IMPACT NUMBER	IMPACT SPECIFICATION	PERMANENT STREAM IMPACTS				PERMANENT NO-PERM LOSS STREAM IMPACTS				TEMPORARY STREAM IMPACTS			
		(SF)	(AC)	(LF)	(CY)	(SF)	(AC)	(LF)	(CY)	(SF)	(AC)	(LF)	(CY)
9	CROSSING #9	340	0.008	104	39	197	0.005	65	22	150	0.005	65	17
TOTAL		340	0.008	104	39	197	0.005	65	22	150	0.005	65	17

WETLAND IMPACTS

IMPACT NUMBER	IMPACT SPECIFICATION	PERMANENT WETLAND IMPACTS			NO-PERM LOSS WETLAND IMPACTS			TEMPORARY WETLAND IMPACTS			TOTAL WETLAND DISTURBANCE
		(SF)	(AC)	(CY)	(SF)	(AC)	(CY)	(SF)	(AC)	(CY)	(CY)
9	CROSSING #9	0	0	0	0	0	0	0	0	0	0
TOTAL		0	0	0	0	0	0	0	0	0	0

STREAM BUFFER IMPACTS

IMPACT NUMBER	IMPACT SPECIFICATION	ZONE 1 PERMANENT STREAM BUFFER IMPACTS		ZONE 2 PERMANENT STREAM BUFFER IMPACTS	
		(SF)	(AC)	(SF)	(AC)
10	CROSSING #10	0	0.000	1,884	0.043
TOTAL		0	0.000	1,884	0.043

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CROSSING #9
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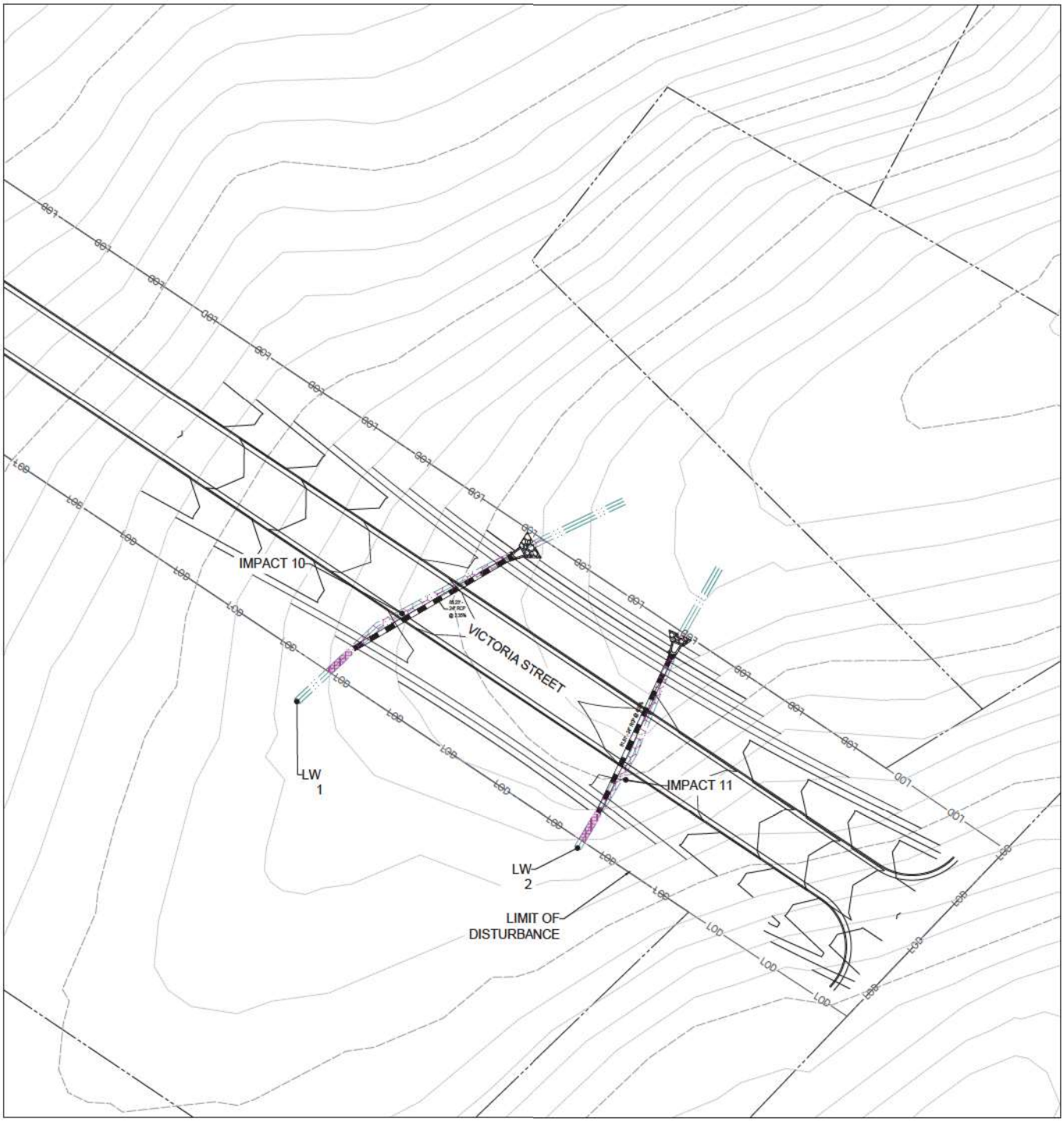

STREAM IMPACTS													
IMPACT NUMBER	IMPACT SPECIFICATION	PERMANENT STREAM IMPACTS				PERMANENT NO-PERM LOSS STREAM IMPACTS				TEMPORARY STREAM IMPACTS			
		(SF)	(AC)	(LF)	(CY)	(SF)	(AC)	(LF)	(CY)	(SF)	(AC)	(LF)	(CY)
10	LINEAR WETLAND	0	0	0	0	0	0	0	0	0	0	0	0
11	LINEAR WETLAND	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL		0	0	0	0	0	0	0	0	0	0	0	0

LEGEND	
EX. WETLAND	ZONE 1 (30') PERMANENT STREAM BUFFER IMPACTS
PERMANENT STREAM IMPACTS	ZONE 2 (20') PERMANENT STREAM BUFFER IMPACTS
PERMANENT NO-PERM LOSS STREAM IMPACTS	PERMANENT WETLAND IMPACTS
TEMPORARY STREAM IMPACTS	TEMPORARY WETLAND IMPACTS

WETLAND IMPACTS											STREAM BUFFER IMPACTS				
IMPACT NUMBER	IMPACT SPECIFICATION	PERMANENT WETLAND IMPACTS			NO-PERM LOSS WETLAND IMPACTS			TEMPORARY WETLAND IMPACTS			IMPACT NUMBER	IMPACT SPECIFICATION	PERMANENT STREAM BUFFER IMPACTS		TEMPORARY STREAM BUFFER IMPACTS	
		(SF)	(AC)	(CY)	(SF)	(AC)	(CY)	(SF)	(AC)	(CY)			(SF)	(AC)	(SF)	(AC)
10	LINEAR WETLAND	293	0.007	21	0	0	0	41	0.0009	3	10	LINEAR WETLAND	0	0	0	0
11	LINEAR WETLAND	263	0.005	19	0	0	0	40	0.0009	3	11	LINEAR WETLAND	0	0	0	0
TOTAL		556	0.012	40	0	0	0	81	0.002	6	TOTAL		0	0	0	0

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CROSSINGS 10 & 11
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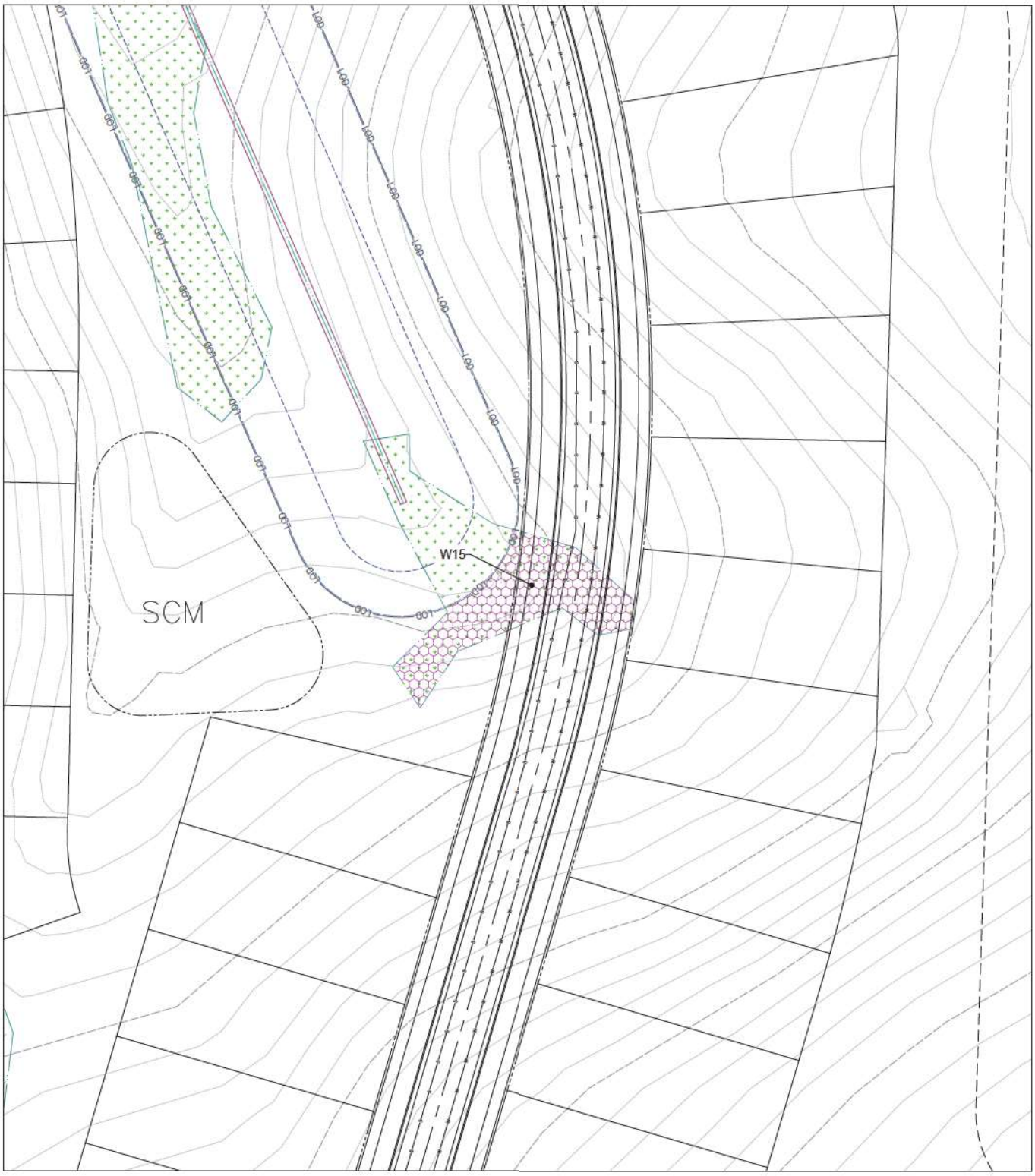

STREAM IMPACTS											
IMPACT NUMBER	IMPACT SPECIFICATION	PERMANENT STREAM IMPACTS			PERMANENT NO-PERM LOSS STREAM IMPACTS			TEMPORARY STREAM IMPACTS			STREAM DISTURBANCE
		(SF)	(AC)	(LF)	(SF)	(AC)	(LF)	(SF)	(AC)	(LF)	(CY)
12	WETLAND IMPACT	0	0	0	0	0	0	0	0	0	0
TOTAL		0	0	0	0	0	0	0	0	0	0

WETLAND IMPACTS										
IMPACT NUMBER	IMPACT SPECIFICATION	PERMANENT WETLAND IMPACTS			NO-PERM LOSS WETLAND IMPACTS			TEMPORARY WETLAND IMPACTS		
		(SF)	(AC)	(CY)	(SF)	(AC)	(LF)	(SF)	(AC)	(LF)
12	WETLAND IMPACT	2,973	0.068	110	0	0	0	0	0	0
TOTAL		2,973	0.068	110	0	0	0	0	0	0

STREAM BUFFER IMPACTS					
IMPACT NUMBER	IMPACT SPECIFICATION	PERMANENT STREAM BUFFER IMPACTS		TEMPORARY STREAM BUFFER IMPACTS	
		(SF)	(AC)	(SF)	(AC)
12	WETLAND IMPACT	0	0	0	0
TOTAL		0	0	0	0

LEGEND

EX. WETLAND	ZONE 1 (30') PERMANENT STREAM BUFFER IMPACTS
PERMANENT STREAM IMPACTS	ZONE 2 (20') PERMANENT STREAM BUFFER IMPACTS
PERMANENT NO-PERM LOSS STREAM IMPACTS	PERMANENT WETLAND IMPACTS
TEMPORARY STREAM IMPACTS	TEMPORARY WETLAND IMPACTS

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CROSSING 12
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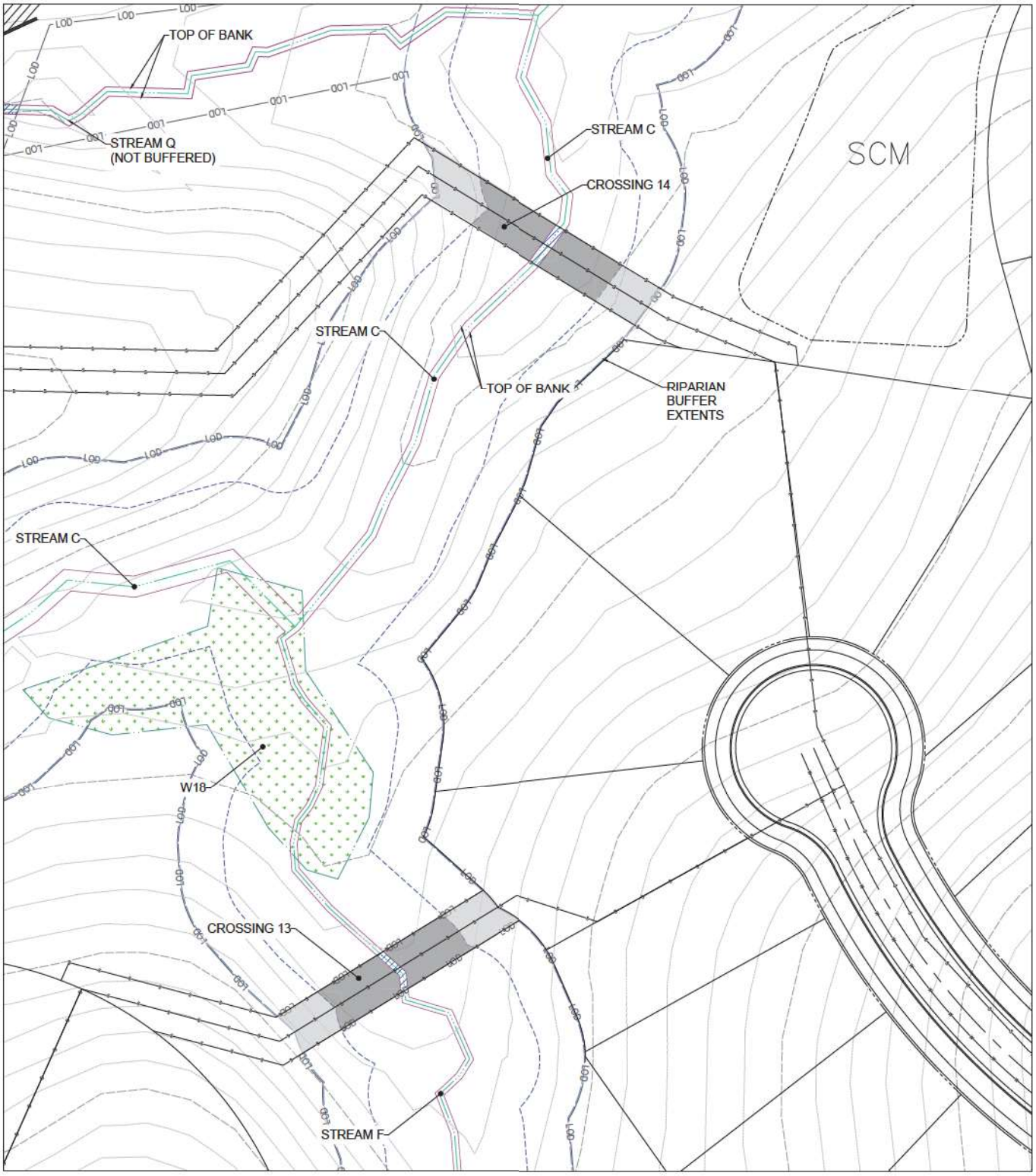
1"= 20'



LEGEND			
	EX. WETLAND		ZONE 1 (30') PERMANENT STREAM BUFFER IMPACTS
	PERMANENT STREAM IMPACTS		ZONE 2 (20') PERMANENT STREAM BUFFER IMPACTS
	PERMANENT NO-PERM LOSS STREAM IMPACTS		PERMANENT WETLAND IMPACTS
	TEMPORARY STREAM IMPACTS		TEMPORARY WETLAND IMPACTS

UTILITY CROSSING 13 & 14									
IMPACT NUMBER	IMPACT SPECIFICATION	UTILITY STREAM IMPACTS				UTILITY ZONE 1 BUFFER IMPACTS		UTILITY ZONE 2 BUFFER IMPACTS	
		(SF)	(AC)	(LF)	(CY)	(SF)	(AC)	(SF)	(AC)
13	UTILITY CROSSING	68	0.002	21	15	1,263	0.030	866	0.020
14	UTILITY CROSSING	52	0.002	20	23	1,262	0.030	934	0.021

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CROSSING 13 & 14
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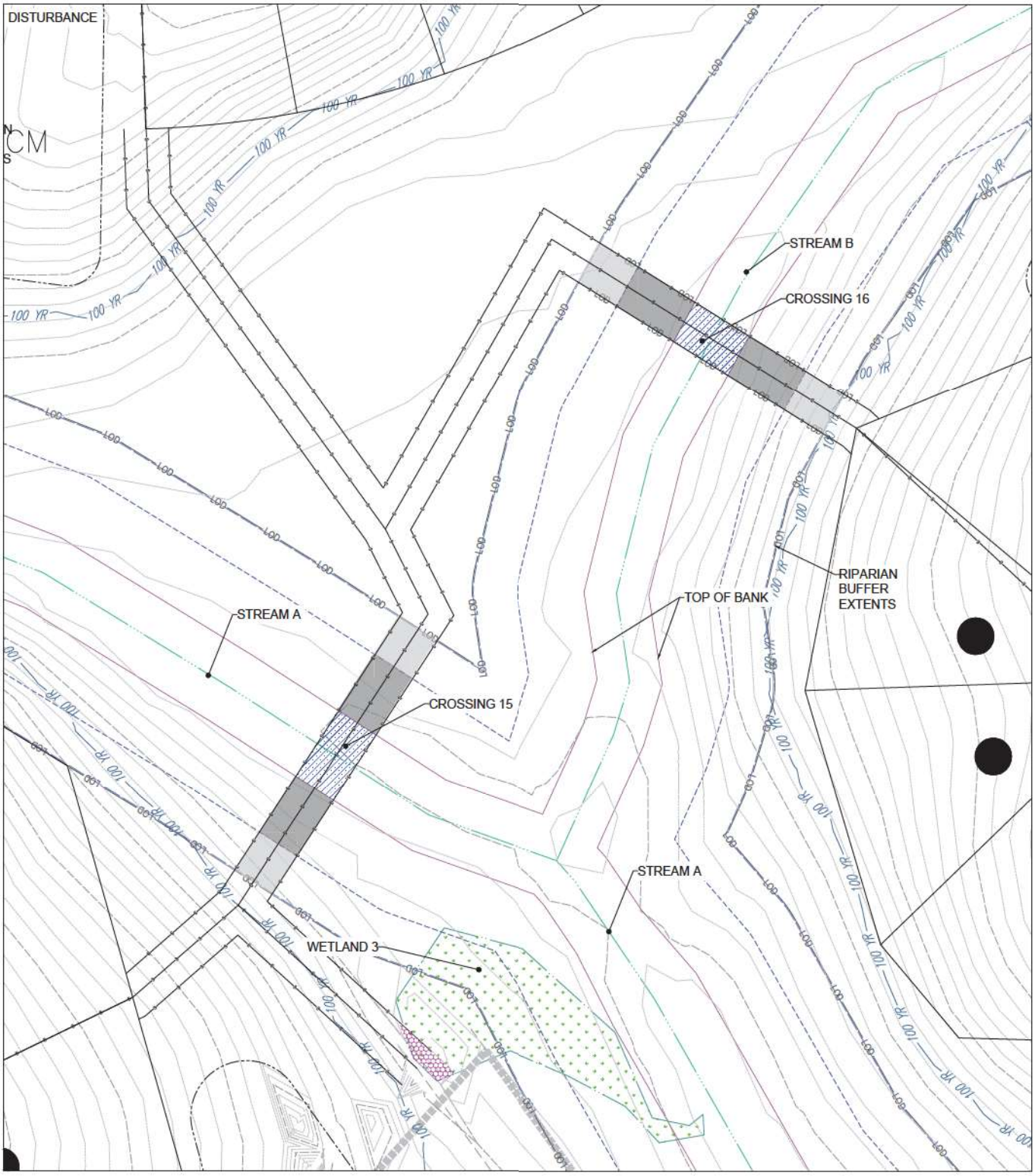
1"=20'



LEGEND			
	EX. WETLAND		ZONE 1 (30') PERMANENT STREAM BUFFER IMPACTS
	PERMANENT STREAM IMPACTS		ZONE 2 (20') PERMANENT STREAM BUFFER IMPACTS
	PERMANENT NO-PERM LOSS STREAM IMPACTS		PERMANENT WETLAND IMPACTS
	TEMPORARY STREAM IMPACTS		TEMPORARY WETLAND IMPACTS

UTILITY CROSSING 3 & 8									
IMPACT NUMBER	IMPACT SPECIFICATION	UTILITY STREAM IMPACTS				UTILITY ZONE 1 BUFFER IMPACTS		UTILITY ZONE 2 BUFFER IMPACTS	
		(SF)	(AC)	(LF)	(CY)	(SF)	(AC)	(SF)	(AC)
15	UTILITY CROSSING	700	0.016	20	380	1,200	0.027	820	0.018
16	UTILITY CROSSING	572	0.013	20	317	1,200	0.027	820	0.018

WETLAND IMPACTS										
IMPACT NUMBER	IMPACT SPECIFICATION	PERMANENT WETLAND IMPACTS			NO-PERM LOSS WETLAND IMPACTS			TEMPORARY WETLAND IMPACTS		
		(SF)	(AC)	(CY)	(SF)	(AC)	(LF)	(SF)	(AC)	(LF)
15	WETLAND IMPACT	197	0.005	110	0	0	0	0	0	0
TOTAL		197	0.005	110	0	0	0	0	0	0

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CROSSING 15 & 16
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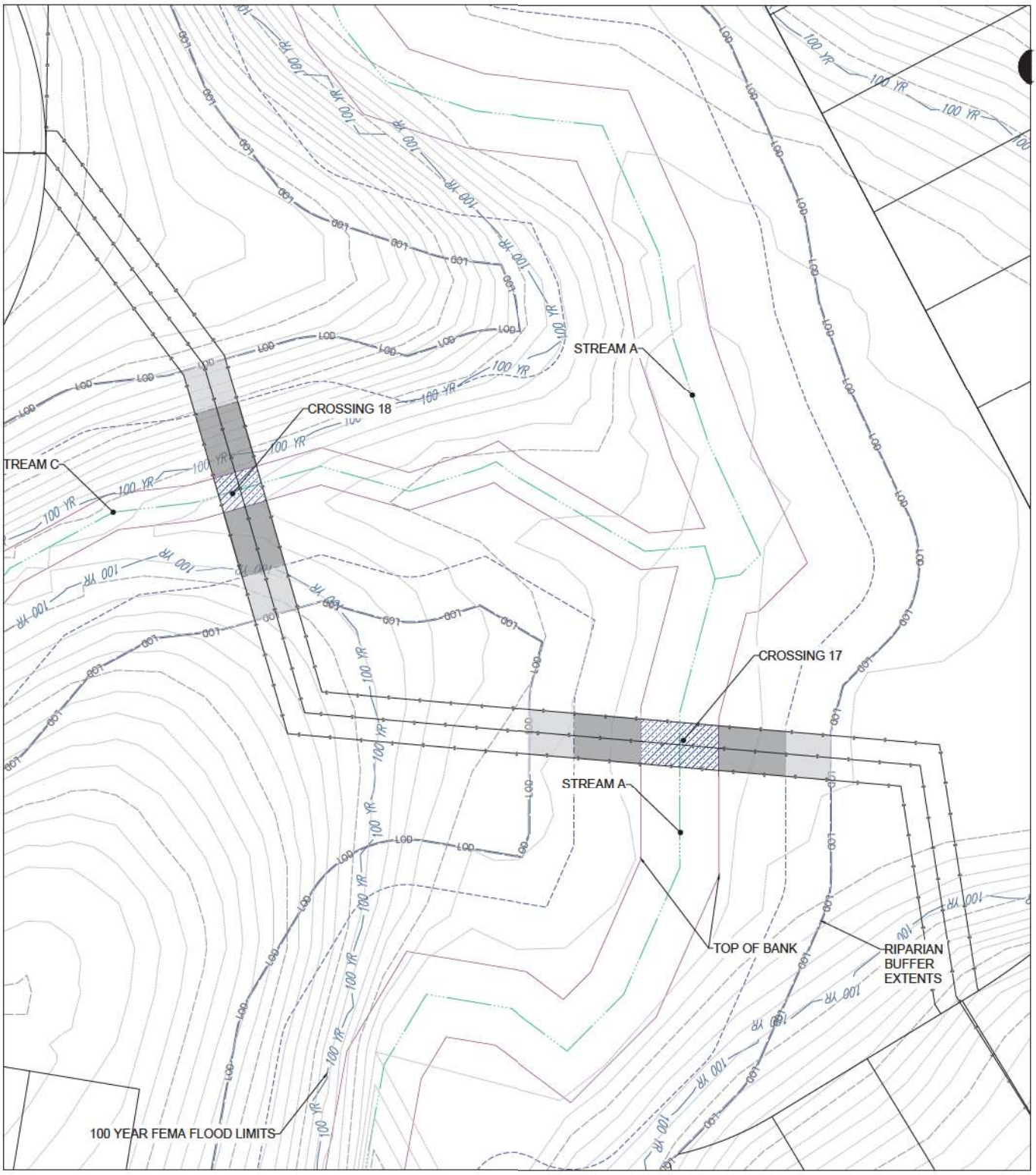
1"= 20'



LEGEND	
EX. WETLAND	ZONE 1 (30') PERMANENT STREAM BUFFER IMPACTS
PERMANENT STREAM IMPACTS	ZONE 2 (20') PERMANENT STREAM BUFFER IMPACTS
PERMANENT NO-PERM LOSS STREAM IMPACTS	PERMANENT WETLAND IMPACTS
TEMPORARY STREAM IMPACTS	TEMPORARY WETLAND IMPACTS

UTILITY CROSSING 17 & 18									
IMPACT NUMBER	IMPACT SPECIFICATION	UTILITY STREAM IMPACTS				UTILITY ZONE 1 BUFFER IMPACTS		UTILITY ZONE 2 BUFFER IMPACTS	
		(SF)	(AC)	(LF)	(CY)	(SF)	(AC)	(SF)	(AC)
17	UTILITY CROSSING	723	0.016	20	400	1,203	0.027	823	0.019
18	UTILITY CROSSING	322	0.007	20	95	1,200	0.027	820	0.019

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CROSSING 17 & 18
OXFORD PARK

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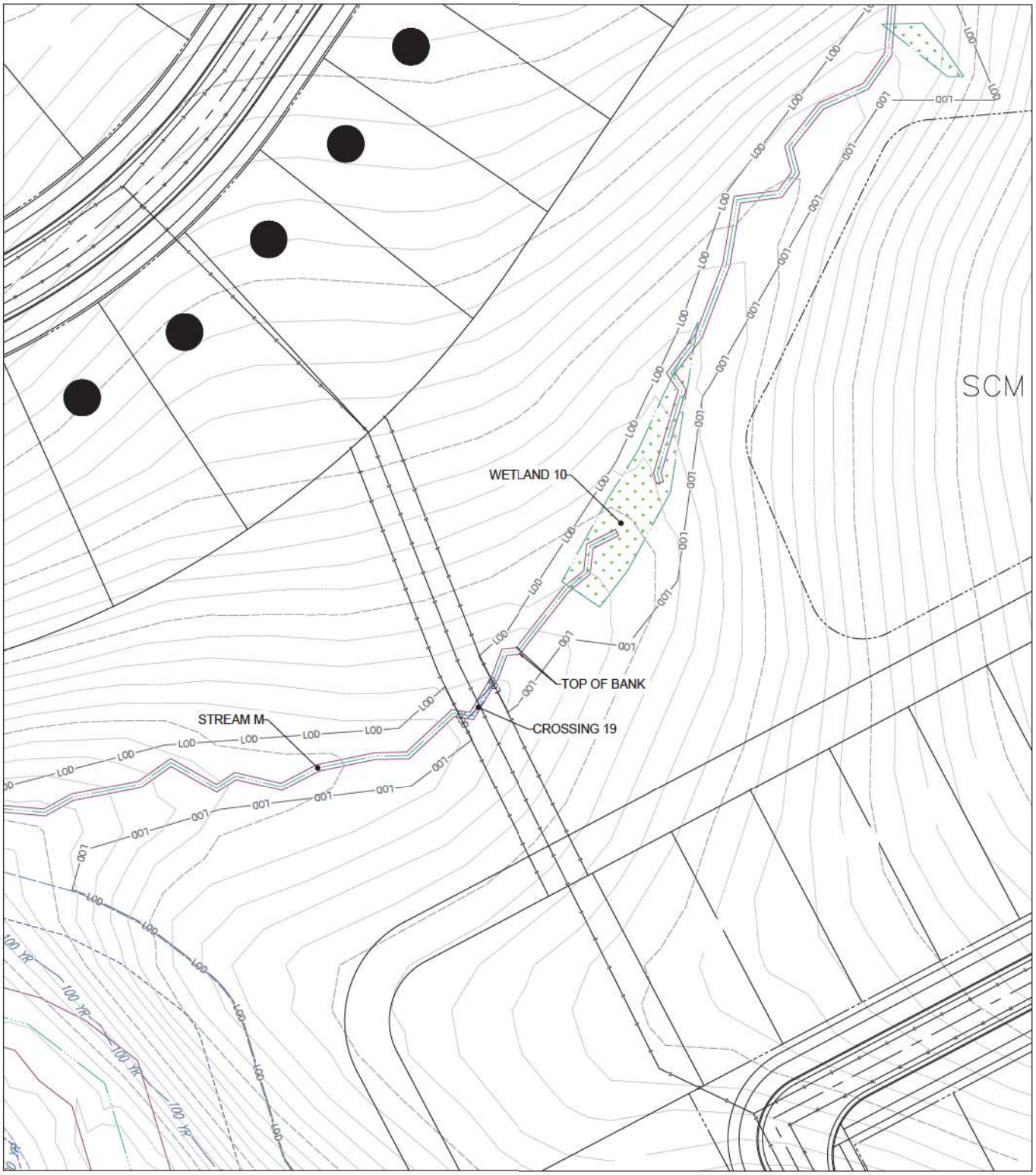

LEGEND	
EX. WETLAND	ZONE 1 (30') PERMANENT STREAM BUFFER IMPACTS
PERMANENT STREAM IMPACTS	ZONE 2 (20') PERMANENT STREAM BUFFER IMPACTS
PERMANENT NO-PERM LOSS STREAM IMPACTS	PERMANENT WETLAND IMPACTS
TEMPORARY STREAM IMPACTS	TEMPORARY WETLAND IMPACTS

UTILITY CROSSING 19										
IMPACT NUMBER	IMPACT SPECIFICATION	UTILITY STREAM IMPACTS				UTILITY ZONE 1 BUFFER IMPACTS		UTILITY ZONE 2 BUFFER IMPACTS	
		(SF)	(AC)	(LF)	(CY)	(SF)	(AC)	(SF)	(AC)
19	UTILITY CROSSING	71	0.002	23	5	0	0	0	0

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CROSSING 19
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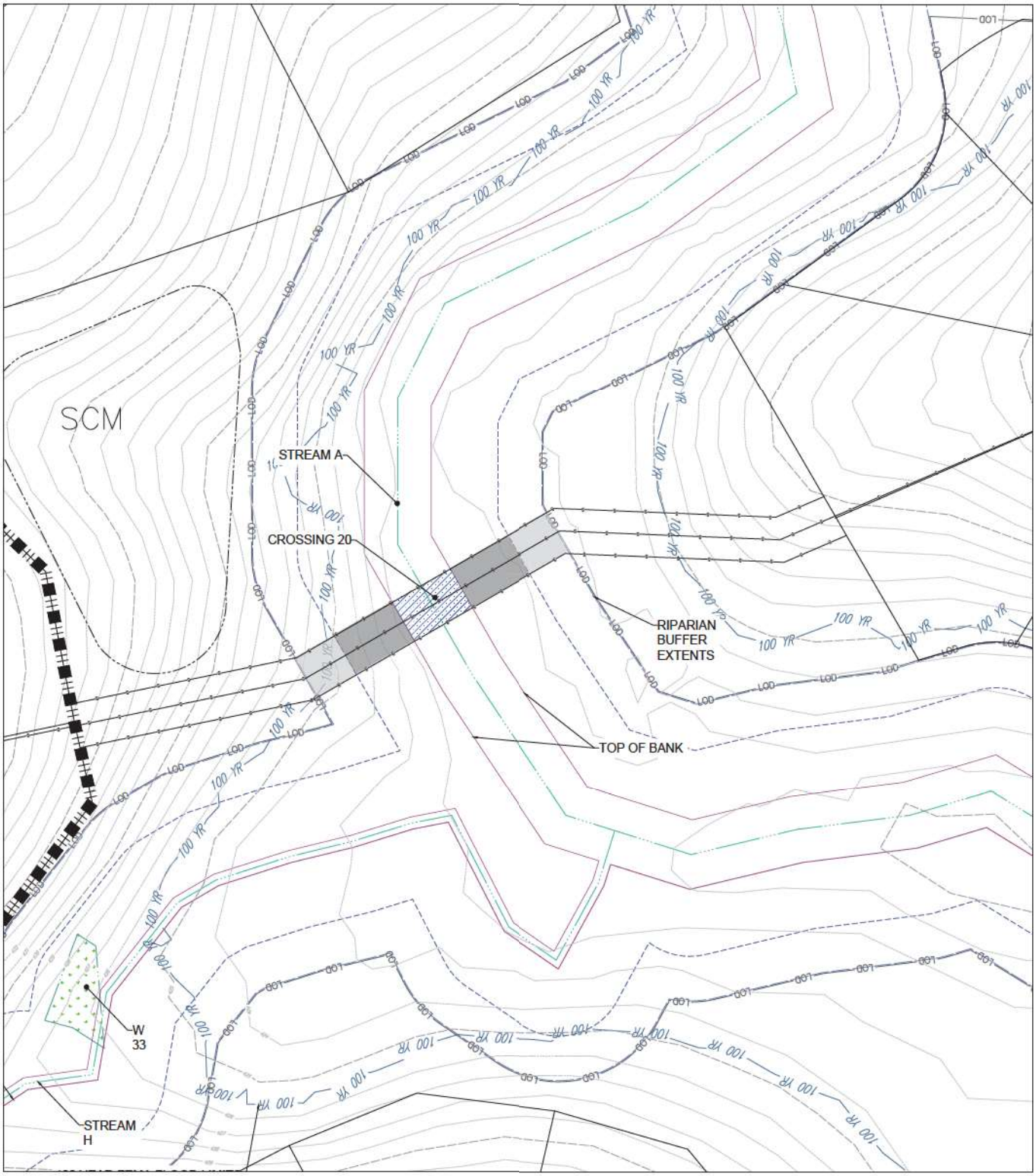

LEGEND	
EX. WETLAND	ZONE 1 (30') PERMANENT STREAM BUFFER IMPACTS
PERMANENT STREAM IMPACTS	ZONE 2 (20') PERMANENT STREAM BUFFER IMPACTS
PERMANENT NO-PERM LOSS STREAM IMPACTS	PERMANENT WETLAND IMPACTS
TEMPORARY STREAM IMPACTS	TEMPORARY WETLAND IMPACTS

UTILITY CROSSING 20									
IMPACT NUMBER	IMPACT SPECIFICATION	UTILITY STREAM IMPACTS				UTILITY ZONE 1 BUFFER IMPACTS		UTILITY ZONE 2 BUFFER IMPACTS	
		(SF)	(AC)	(LF)	(CY)	(SF)	(AC)	(SF)	(AC)
20	UTILITY CROSSING	600	0.014	20	290	1,200	0.027	820	0.019

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CROSSING 20
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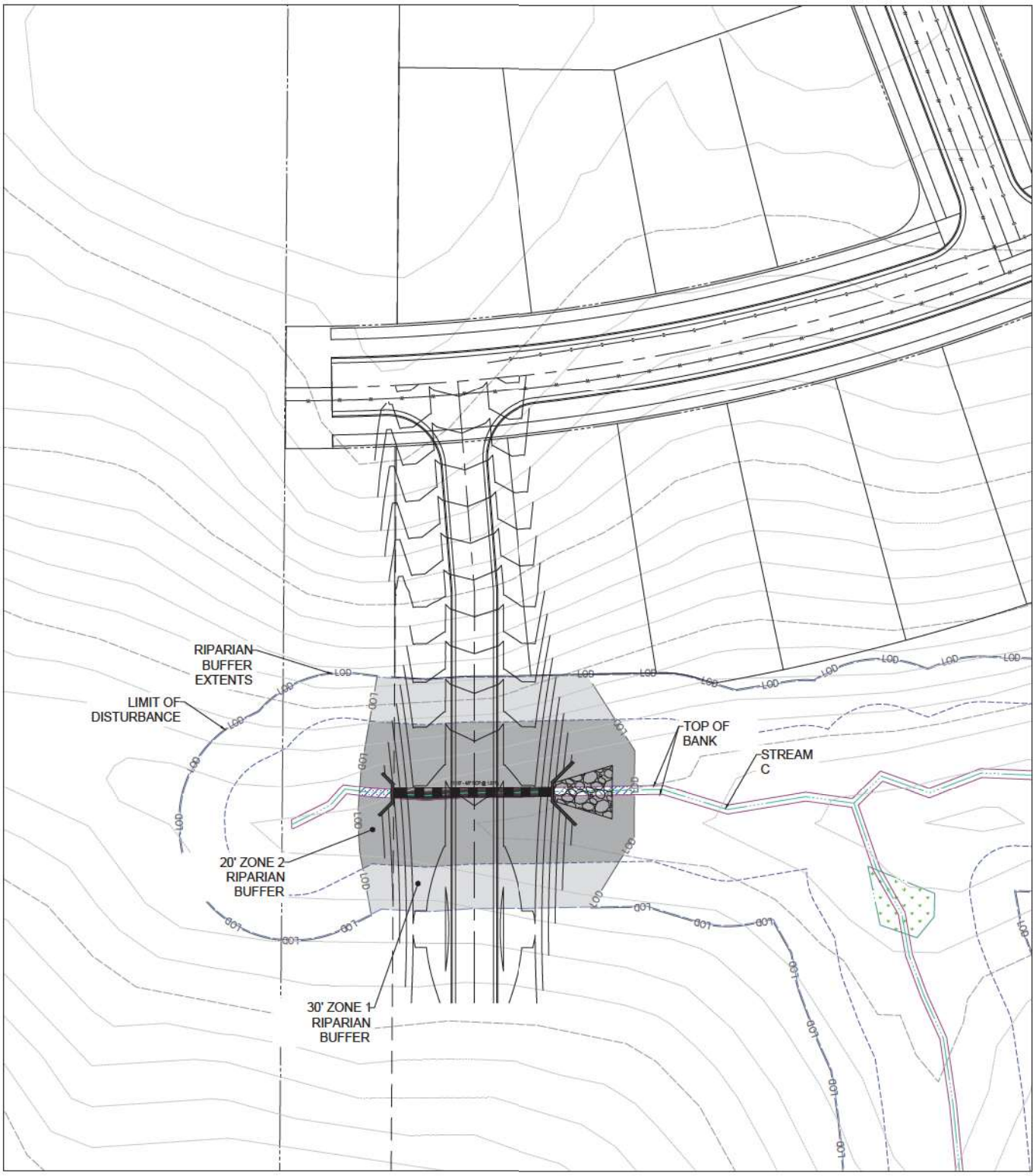

NOTE: PARCELS SHOWN EXCLUDE ROW OF ROADS AND RAILROAD AS SHOWN IN GRANVILLE COUNTY GIS

LEGEND	
EX. WETLAND	ZONE 1 (30') PERMANENT STREAM BUFFER IMPACTS
PERMANENT STREAM IMPACTS	ZONE 2 (20') PERMANENT STREAM BUFFER IMPACTS
PERMANENT NO-PERM LOSS STREAM IMPACTS	PERMANENT WETLAND IMPACTS
TEMPORARY STREAM IMPACTS	TEMPORARY WETLAND IMPACTS

STREAM IMPACTS

IMPACT NUMBER	IMPACT SPECIFICATION	PERMANENT STREAM IMPACTS				PERMANENT NO-PERM LOSS STREAM IMPACTS				TEMPORARY STREAM IMPACTS			
		(SF)	(AC)	(LF)	(CY)	(SF)	(AC)	(LF)	(CY)	(SF)	(AC)	(LF)	(CY)
21	CROSSING #21	286	0.006	48	21	108	0.002	26	8	95	0.002	23	7
TOTAL		286	0.006	48	21	108	0.002	26	8	95	0.002	23	7

WETLAND IMPACTS

IMPACT NUMBER	IMPACT SPECIFICATION	PERMANENT WETLAND IMPACTS			NO-PERM LOSS WETLAND IMPACTS			TEMPORARY WETLAND IMPACTS			TOTAL WETLAND DISTURBANCE
		(SF)	(AC)	(CY)	(SF)	(AC)	(CY)	(SF)	(AC)	(CY)	(CY)
21	CROSSING #21	0	0	0	0	0	0	0	0	0	0
TOTAL		0	0	0	0	0	0	0	0	0	0

STREAM BUFFER IMPACTS

IMPACT NUMBER	IMPACT SPECIFICATION	ZONE 1 PERMANENT STREAM BUFFER IMPACTS		ZONE 2 PERMANENT STREAM BUFFER IMPACTS	
		(SF)	(AC)	(SF)	(AC)
21	CROSSING #21	7,280	0.167	4,207	0.096
TOTAL		7,280	0.167	4,207	0.096

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CROSSING 21
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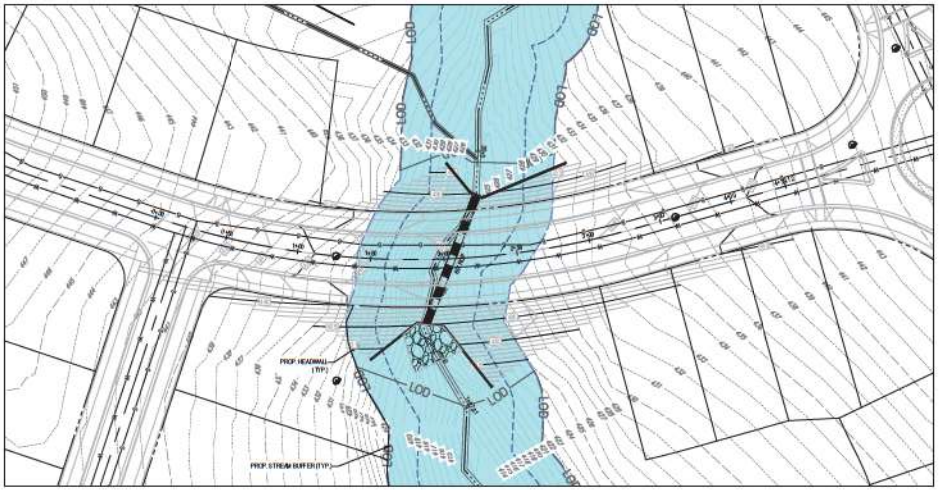
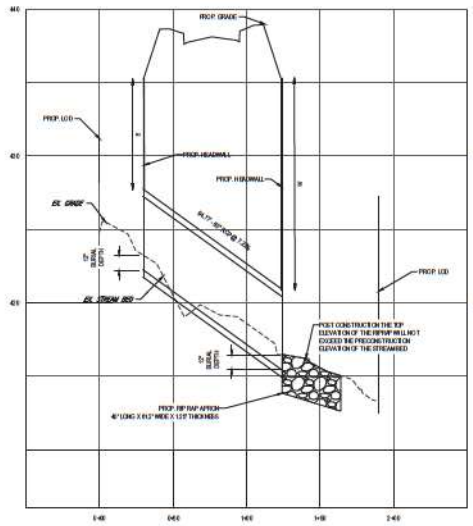
OXFORD, NC 27565 | EXHA - 0

1"= 20'



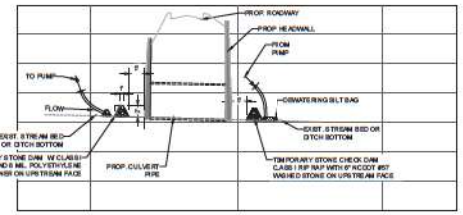
PLAN VIEW - STREAM CROSSING 1

SCALE: 1" = 40'



PIPE CROSSING 1

SCALE: 1" = 40' HORIZONTAL
1" = 4' VERTICAL



DEWATERING CONSTRUCTION SEQUENCE:

- INSTALL PUMP AND LINE TO PUMP. REDIRECT FLOW FROM UPSTREAM OF TEMPORARY DAM TO AREA DOWNSTREAM OF WORK AREA. BEGIN PUMPING. PUMPING TO BE CONTINUOUS WHILE WORK WITHIN THE STREAM IS ONGOING.
- PUMP TO DISCHARGE INTO A DEWATERING SILT BAG INSTALLED ON THE STREAM BANK DOWNSTREAM OF THE DOWNSTREAM TEMPORARY CHECK DAM.
- INSTALL THE UPSTREAM TEMPORARY DAM USING CLASS I RIP RAP, WITH 8 MIL. POLYETHYLENE FABRIC LINING THE UPSTREAM FACE TO CAPTURE THE STREAM FLOW.
- INSTALL THE DOWNSTREAM TEMPORARY CHECK DAM USING CLASS I RIP RAP AND A 6" THICK LAYER OF NCDOT #57 WASHED STONE ON THE UPSTREAM FACE OF THE DAM.
- UPON COMPLETION OF THE CULVERT INSTALLATION AND STABILIZATION OF THE DISTURBED AREAS, REMOVE TEMPORARY DAMS AND ASSOCIATED APPURTENANCES AND RESTORE THE STREAM BANKS AND BOTTOMS.
- REMOVE PUMP, PIPES AND DEWATERING SILT BAG.

CULVERT DEWATERING DETAIL

NOT TO SCALE

NEEDING MAINTENANCE NOTE:
PERMANENT STREAM FOR ARMS, CROSSING - INSPECT PERMANENT STREAM CHANNEL CROSSINGS PERIODICALLY AND AFTER MAJOR STORMS TO CHECK FOR CHANNEL BLOCKAGE, EROSION OF ABUTMENTS, CHANNEL DEGRADATION, RIP RAP DISPLACEMENT, SLOPE FAILURES AND PIPING. MAKE ALL NEEDED REPAIRS IMMEDIATELY TO PREVENT FURTHER DAMAGE TO THE INSTALLATION.

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PROJECT:

PROPOSED STREAM AND WETLAND IMPACT DOCUMENTS

FOR

OXFORD PARK OF NORTH CAROLINA

PROPOSED DEVELOPMENT

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OXFORD, NC 27565

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RALEIGH, NC 27612
Phone: (919) 578-6000
NC@BohlerEng.com

NORTH CAROLINA PROFESSIONAL SEAL ENGINEER GARY J. ZUBRICKI

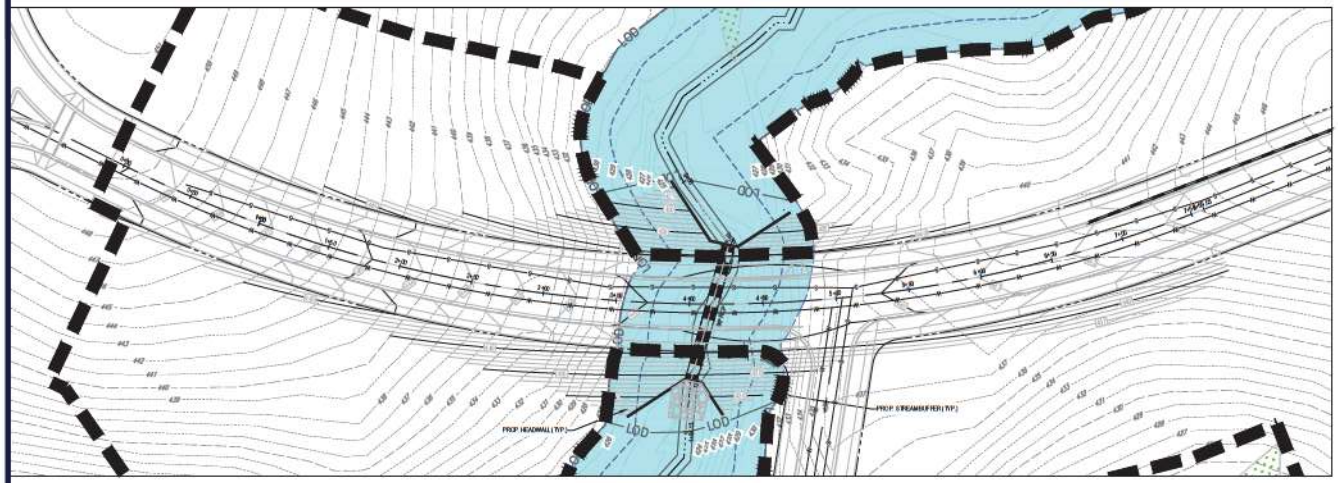
SHEET TITLE:

STREAM CROSSING 1 PLAN & PROFILES

SHEET NUMBER:

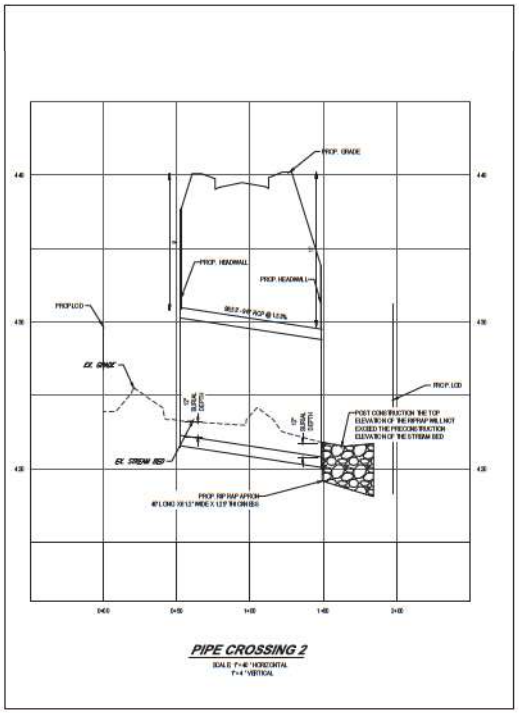
C-801

REVISION 2 - 06/24/22



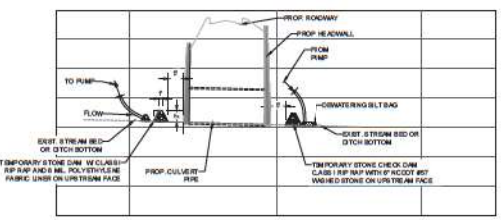
PLAN VIEW - STREAM CROSSING 2

SCALE: 1" = 40'



PIPE CROSSING 2

SCALE: 1" = 40' HORIZONTAL
1" = 4' VERTICAL



DEWATERING CONSTRUCTION SEQUENCE:

- INSTALL PUMP AND LINE TO PUMP. REDIRECT FLOW FROM UPSTREAM OF TEMPORARY DAM TO AREA DOWNSTREAM OF WORK AREA. BEGIN PUMPING. PUMPING TO BE CONTINUOUS WHILE WORK WITHIN THE STREAM IS ONGOING.
- PUMP TO DISCHARGE INTO A DEWATERING SILT BAG INSTALLED ON THE STREAM BANK DOWNSTREAM OF THE DOWNSTREAM TEMPORARY CHECK DAM.
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- REMOVE PUMP, PIPES AND DEWATERING SILT BAG.

CULVERT DEWATERING DETAIL

NOT TO SCALE

NOTES: MAINTENANCE NOTE:
PERMANENT STREAM CHANNEL CROSSING - INSPECT PERMANENT STREAM CHANNEL CROSSINGS PERIODICALLY AND AFTER MAJOR STORMS TO CHECK FOR CHANNEL BLOCKAGE, EROSION OF ABUTMENTS, CHANNEL DEGRADATION, RIP RAP DISPLACEMENT, SLOPE FAILURES AND PIPING. MAKE ALL NEEDED REPAIRS IMMEDIATELY TO PREVENT FURTHER DAMAGE TO THE INSTALLATION.

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PROPOSED STREAM AND WETLAND IMPACT DOCUMENTS

FOR

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PROPOSED DEVELOPMENT

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OXFORD, NC 27565

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RALEIGH, NC 27612
Phone: (919) 578-6000
NC@BohlerEng.com

NORTH CAROLINA PROFESSIONAL SEAL ENGINEER GARY J. ZUBINSKI

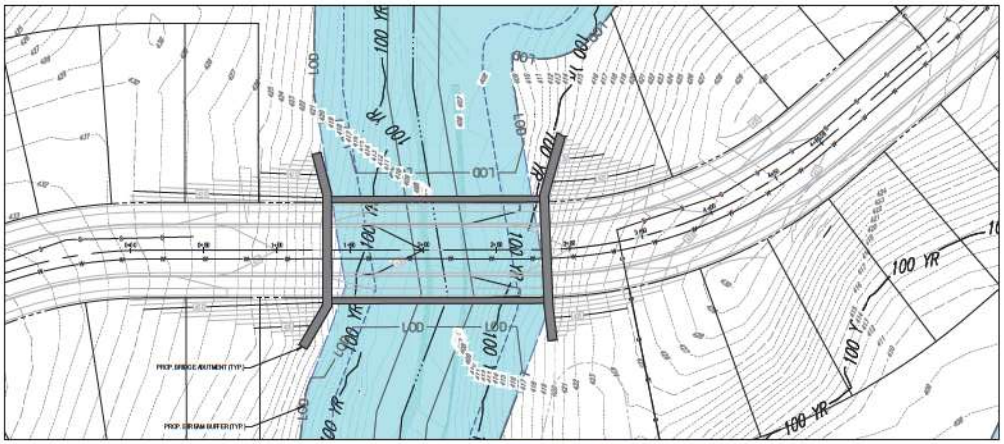
SHEET TITLE:

STREAM CROSSING 2 PLAN & PROFILES

SHEET NUMBER:

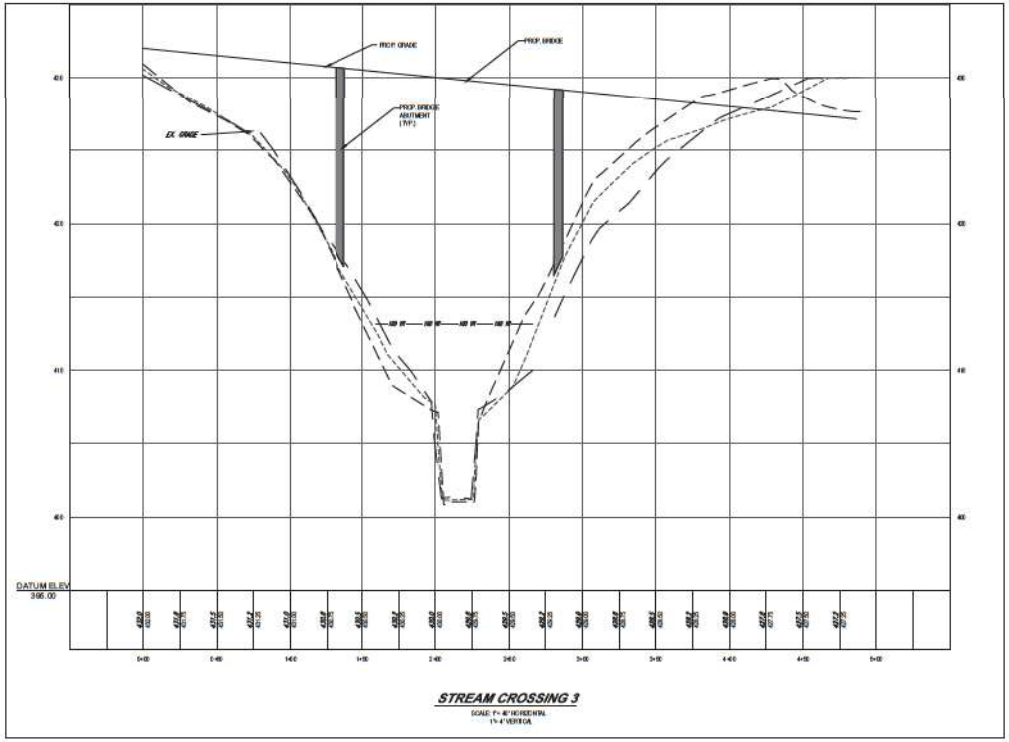
C-802

REVISION 2 - 06/24/22



PLAN VIEW - STREAM CROSSING 3

SCALE: 1" = 40'



STREAM CROSSING 3

SCALE: 1"= 40' HORIZONTAL
1"= 4' VERTICAL

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PROPOSED STREAM AND WETLAND IMPACT DOCUMENTS

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NORTH CAROLINA PROFESSIONAL SEAL ENGINEER GARY J. ZUBRICKI

SHEET TITLE:

STREAM CROSSING 3 PLAN & PROFILES

SHEET NUMBER:

C-803

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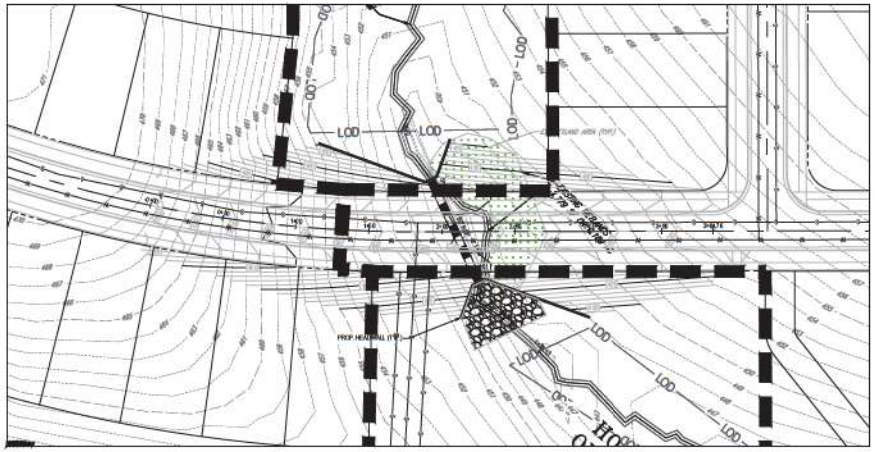
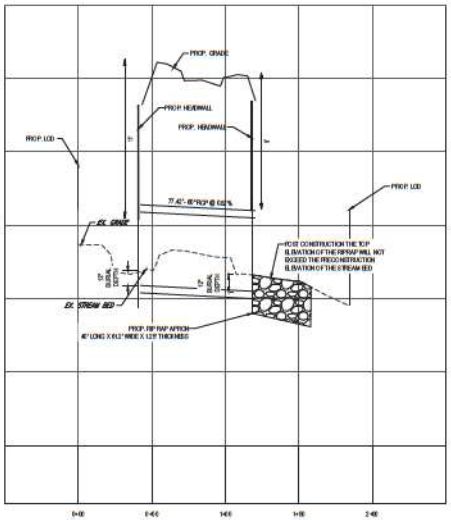


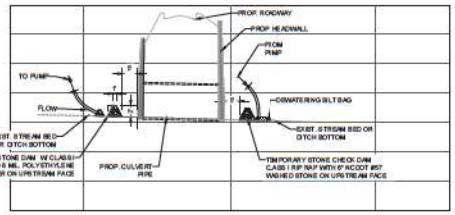
PLAN VIEW - STREAM CROSSING 4

SCALE: 1" = 40'



PIPE CROSSING 4

SCALE: 1" = 40' HORIZONTAL
1" = 4' VERTICAL



DEWATERING CONSTRUCTION SEQUENCE:

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CULVERT DEWATERING DETAIL

NOT TO SCALE

NOTES: MAINTENANCE NOTE:
PERMANENT STREAM FOR ARMS, CROSSING - INSPECT PERMANENT STREAM CHANNEL CROSSINGS PERIODICALLY AND AFTER MAJOR STORMS TO CHECK FOR CHANNEL BLOCKAGE, EROSION OF ABUTMENTS, CHANNEL DEGRADATION, RIP RAP DISPLACEMENT, SLOPE FAILURES AND PIPING. MAKE ALL NEEDED REPAIRS IMMEDIATELY TO PREVENT FURTHER DAMAGE TO THE INSTALLATION.

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FOR

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PROPOSED DEVELOPMENT

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NC@BohlerEng.com

NORTH CAROLINA PROFESSIONAL SEAL ENGINEER GARY J. ZUBINSKY

SHEET TITLE:

STREAM CROSSING 4 PLAN & PROFILES

SHEET NUMBER:

C-804

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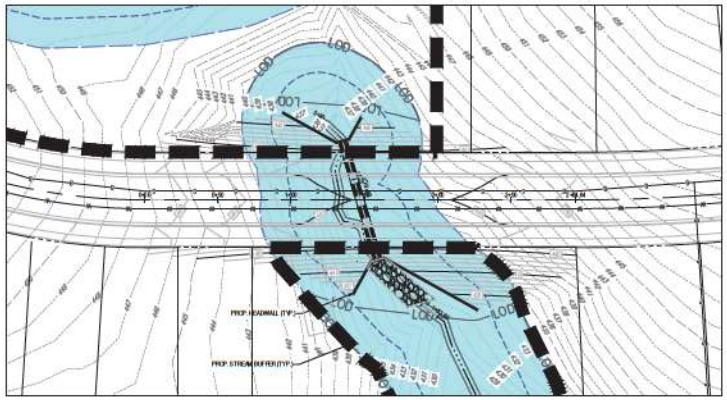
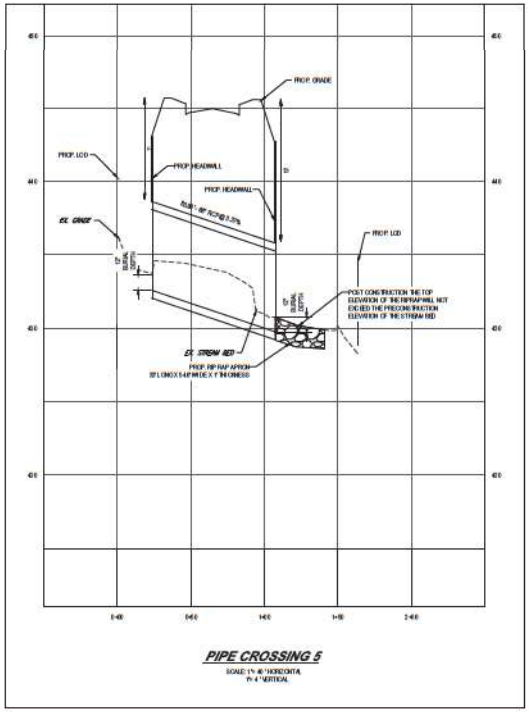


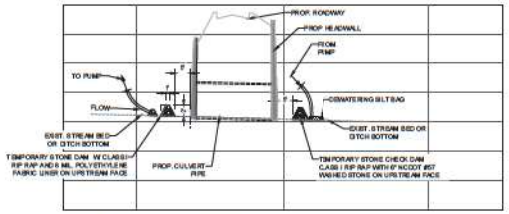
PLAN VIEW - STREAM CROSSING 5

SCALE: 1" = 40'



PIPE CROSSING 5

SCALE: 1" = 40' HORIZONTAL
1" = 4' VERTICAL



DEWATERING CONSTRUCTION SEQUENCE:

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CULVERT DEWATERING DETAIL

NOT TO SCALE

NCEEM MAINTENANCE NOTE:
PERMANENT STREAM TO TERRES. CROSSING - INSPECT PERMANENT STREAM / CHANNEL CROSSING S PERIODICALLY AND AFTER MAJOR STORMS TO CHECK FOR CHANNEL BLOCKAGE, EROSION OF ABUTMENTS, CHANNEL EROSION, RIP RAP DISPLACEMENT, SLOPE FAILURES AND PIPING. MAKE ALL NEEDED REPAIRS IMMEDIATELY TO PREVENT FURTHER DAMAGE TO THE INSTALLATION.

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FOR

OXFORD PARK OF NORTH CAROLINA

PROPOSED DEVELOPMENT

HORNER SIDING RD (SR 1515)
OXFORD, NC 27565

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NC@BohlerEng.com

NORTH CAROLINA PROFESSIONAL SEAL ENGINEER GARY J. ZURBRIGGEN

SHEET TITLE:

STREAM CROSSING 5 PLAN & PROFILES

SHEET NUMBER:

C-805

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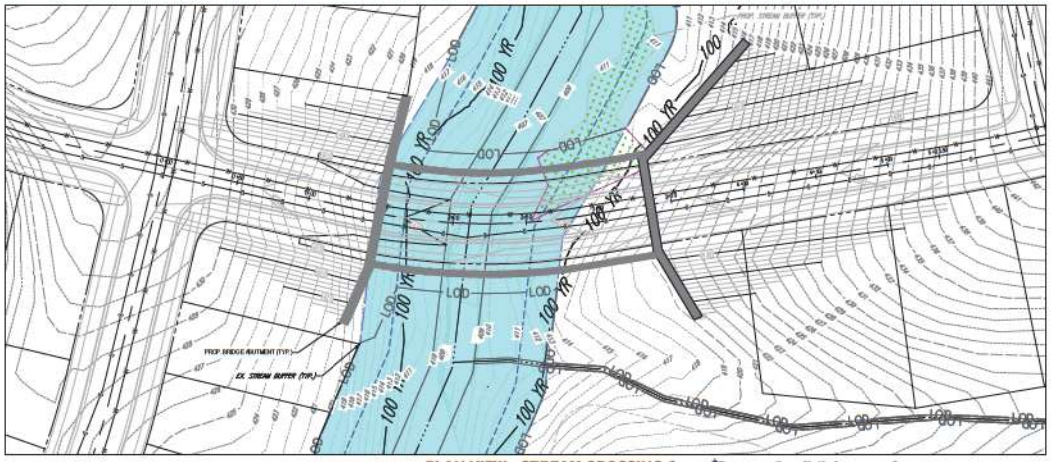
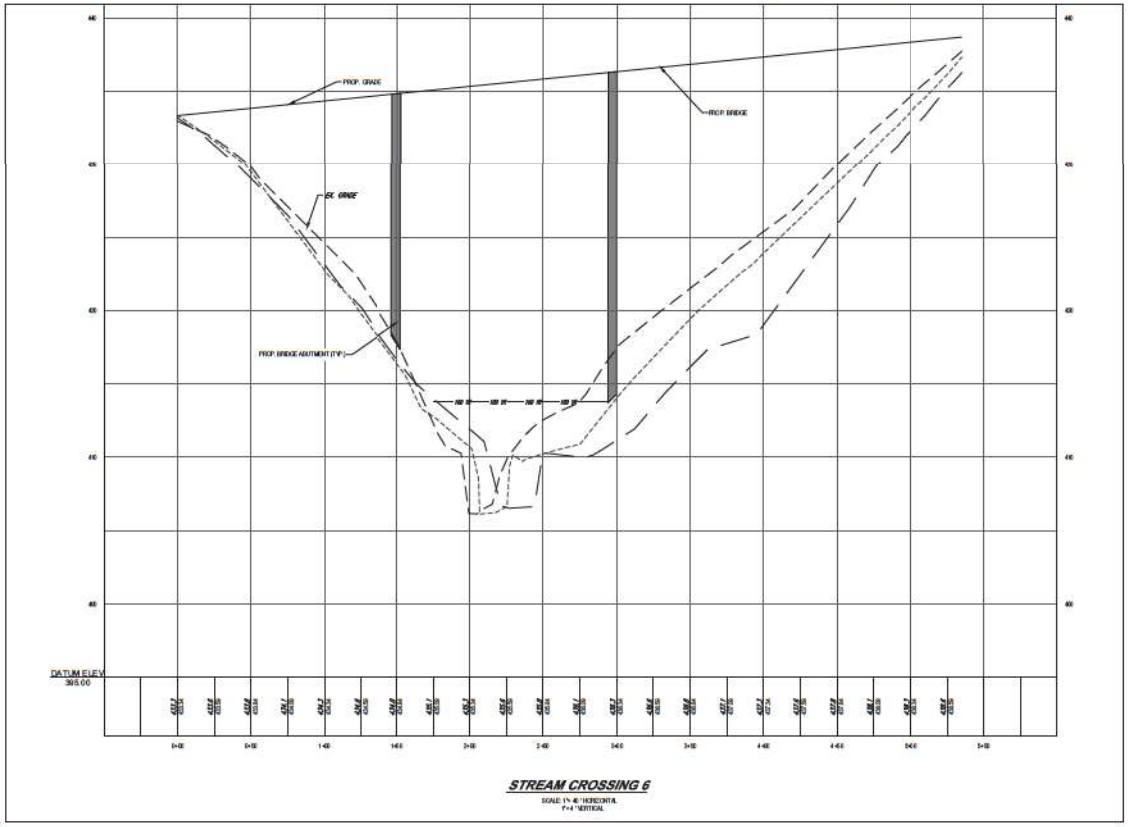


PLAN VIEW - STREAM CROSSING 6

SCALE: 1" = 40'



STREAM CROSSING 6

SCALE: 1"= 40' HORIZONTAL
1"=4' VERTICAL

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FOR

OXFORD PARK OF NORTH CAROLINA

PROPOSED DEVELOPMENT

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OXFORD, NC 27565

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RALEIGH, NC 27612
Phone: (919) 578-6000
NC@BohlerEng.com

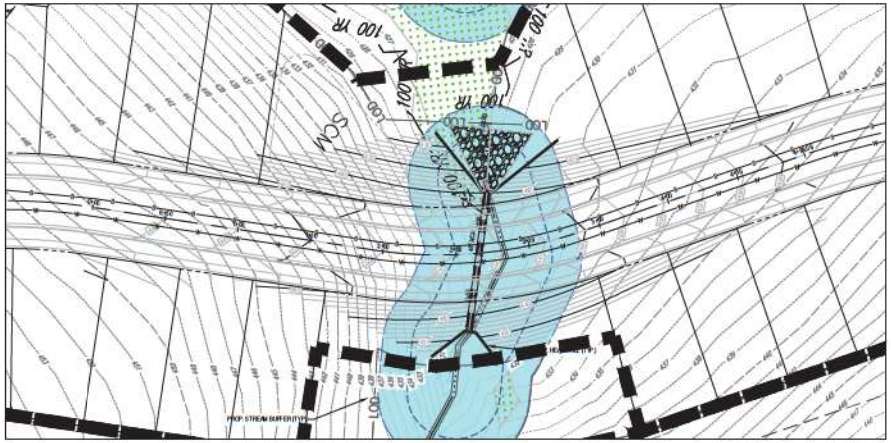
SHEET TITLE:

STREAM CROSSING 6 PLAN & PROFILES

SHEET NUMBER:

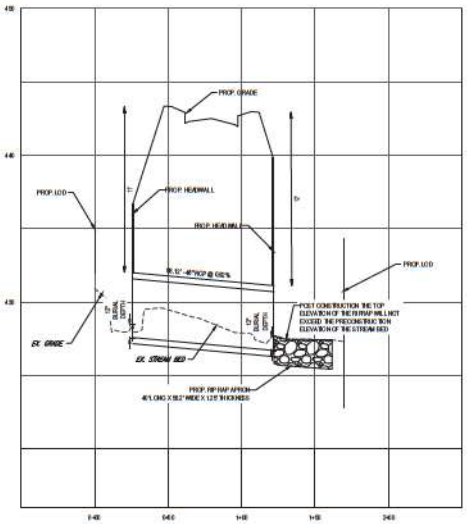
C-806

REVISION 2 - 06/24/22



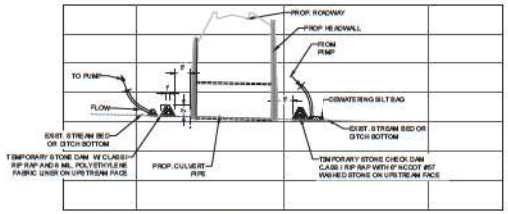
PLAN VIEW - STREAM CROSSING 7

SCALE: 1" = 40'



PIPE CROSSING 7

SCALE: 1"= 40' HORIZONTAL
1"=4' VERTICAL



DEWATERING CONSTRUCTION SEQUENCE:

- INSTALL PUMP AND LINE TO PUMP. REDIRECT FLOW FROM UPSTREAM OF TEMPORARY DAM TO AREA DOWNSTREAM OF WORK AREA. BEGIN PUMPING. PUMPING TO BE CONTINUOUS WHILE WORK WITHIN THE STREAM IS ONGOING.
- PUMP TO DISCHARGE INTO A DEWATERING SILT BAG INSTALLED ON THE STREAM BANK DOWNSTREAM OF THE DOWNSTREAM TEMPORARY CHECK DAM.
- INSTALL THE UPSTREAM TEMPORARY DAM USING CLASS I RIP RAP, WITH 6 MIL. POLYETHYLENE FABRIC LINING THE UPSTREAM FACE TO CAPTURE THE STREAM FLOW.
- INSTALL THE DOWNSTREAM TEMPORARY CHECK DAM USING CLASS I RIP RAP AND A 6" THICK LAYER OF NCDOT #57 WASHED STONE ON THE UPSTREAM FACE OF THE DAM.
- UPON COMPLETION OF THE CULVERT INSTALLATION AND STABILIZATION OF THE DISTURBED AREAS, REMOVE TEMPORARY DAMS AND ASSOCIATED APPURTENANCES AND RESTORE THE STREAM BANKS AND BOTTOMS.
- REMOVE PUMP, PIPES AND DEWATERING SILT BAG.

CULVERT DEWATERING DETAIL

NOT TO SCALE

NCDENR MAINTENANCE NOTE:
PERMANENT STREAM CROSSINGS: CROSSING - INSPECT PERMANENT STREAM / CHANNEL CROSSINGS PERIODICALLY AND AFTER MAJOR STORMS TO CHECK FOR CHANNEL BLOCKAGE, EROSION OF ABUTMENTS, CHANNEL EROSION, RIP RAP DISPLACEMENT, SLOPE FAILURES AND PIPING. MAKE ALL NEEDED REPAIRS IMMEDIATELY TO PREVENT FURTHER DAMAGE TO THE INSTALLATION.

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PROJECT No.:	NC/211093
DRAWN BY:	OB/JW
CHECKED BY:	GZ
DATE:	5/20/22
CAD FILE:	PROD - 0

PROJECT:

PROPOSED STREAM AND WETLAND IMPACT DOCUMENTS

FOR

OXFORD PARK OF NORTH CAROLINA

PROPOSED DEVELOPMENT

HORNER SIDING RD (SR 1515)
OXFORD, NC 27565

BOHLER
BOHLER ENGINEERING NC, PLLC
SUITE 5-100
4130 PARKLAKE AVENUE, SUITE 130
RALEIGH, NC 27612
Phone: (919) 578-6000
NC@BohlerEng.com

NORTH CAROLINA PROFESSIONAL SEAL ENGINEER GARY J. ZUBINSKI

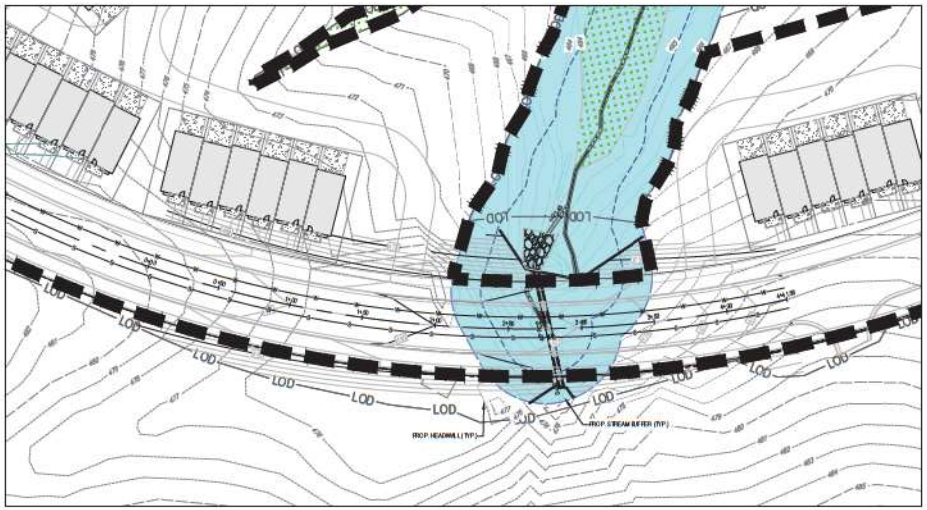
SHEET TITLE:

STREAM CROSSING 7 PLAN & PROFILES

SHEET NUMBER:

C-807

REVISION 2 - 06/24/22

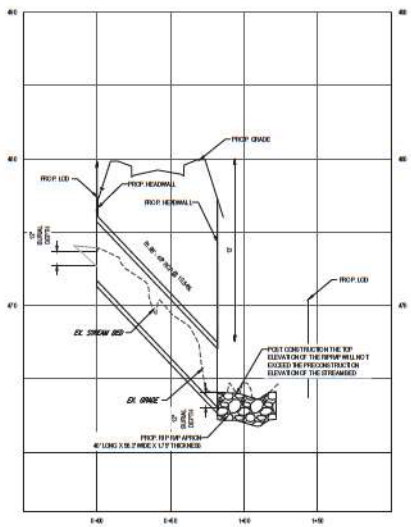


PLAN VIEW - STREAM CROSSING 8

SCALE: 1" = 40'

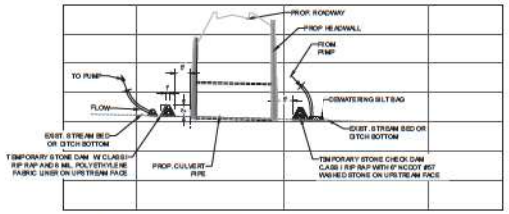
40 20 10 0 40

1"=40'



PIPE CROSSING 8

SCALE 1"=40' HORIZONTAL
1"=4' VERTICAL



DEWATERING CONSTRUCTION SEQUENCE:

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- REMOVE PUMP, PIPES AND DEWATERING SILT BAG.

CULVERT DEWATERING DETAIL

NOT TO SCALE

NCEEM MAINTENANCE NOTE:
PERMANENT STREAM CROSSINGS, CROSSING - INSPECT PERMANENT STREAM / CHANNEL CROSSINGS PERIODICALLY AND AFTER MAJOR STORMS TO CHECK FOR CHANNEL BLOCKAGE, EROSION OF ABUTMENTS, CHANNEL DEGRADATION, RIP RAP DISPLACEMENT, SLOPE FAILURES AND PIPING. MAKE ALL NEEDED REPAIRS IMMEDIATELY TO PREVENT FURTHER DAMAGE TO THE INSTALLATION.

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2	06/24/22	INITIAL SUBMISSION	GJZ / GJZ

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PROJECT No.:	NC/211093
DRAWN BY:	OB/JW
CHECKED BY:	GZ
DATE:	5/20/22
CAD FILE:	PROD - 0

PROJECT:

PROPOSED STREAM AND WETLAND IMPACT DOCUMENTS

FOR

OXFORD PARK OF NORTH CAROLINA

PROPOSED DEVELOPMENT

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RALEIGH, NC 27612
Phone: (919) 578-6000
NC@BohlerEng.com

NORTH CAROLINA PROFESSIONAL SEAL ENGINEER GARY J. ZUBINSKI

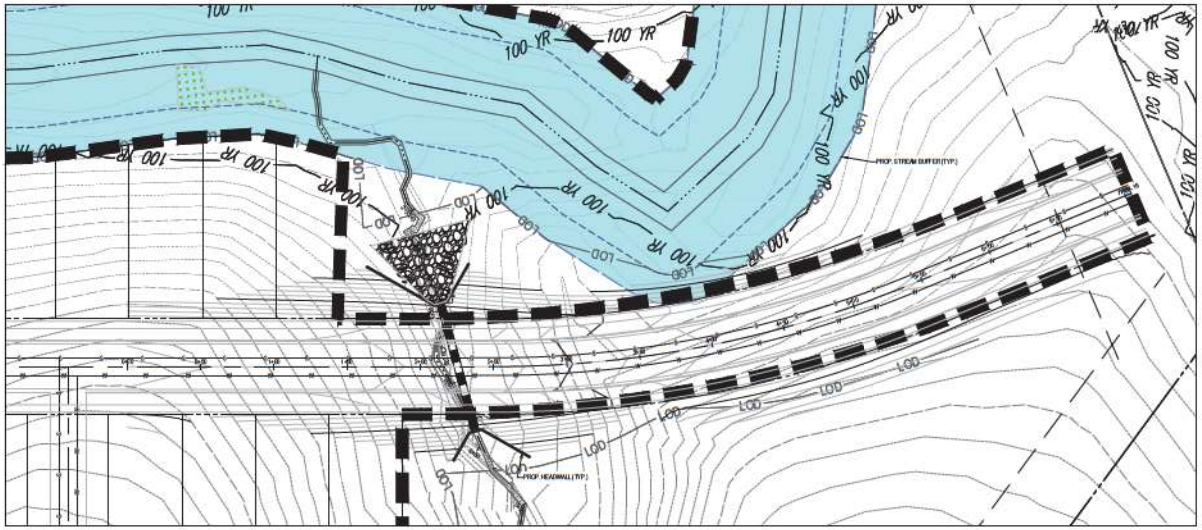
SHEET TITLE:

STREAM CROSSING 8 PLAN & PROFILES

SHEET NUMBER:

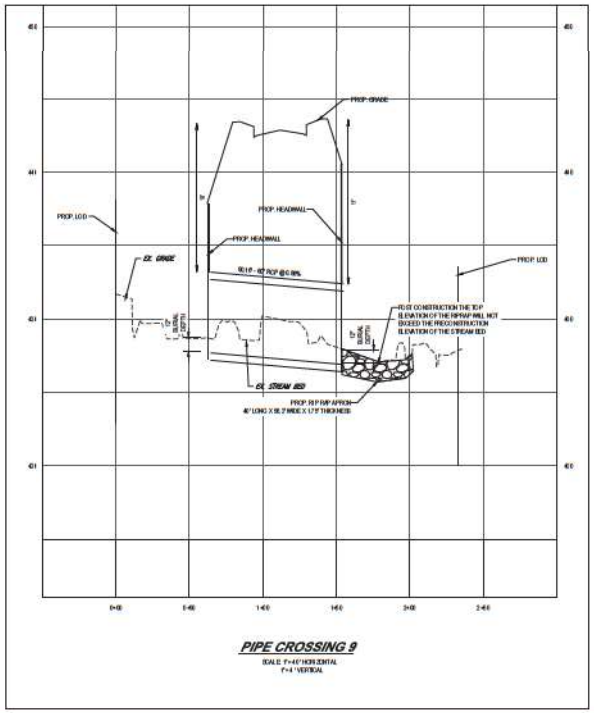
C-808

REVISION 2 - 06/24/22



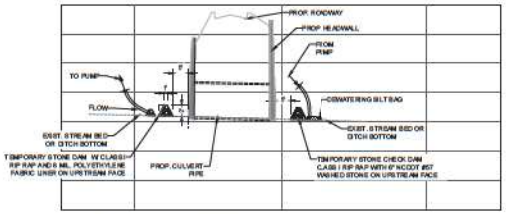
PLAN VIEW - STREAM CROSSING 9

SCALE: 1" = 40'



PIPE CROSSING 9

SCALE: 1"=40' HORIZONTAL
1"=4' VERTICAL



DEWATERING CONSTRUCTION SEQUENCE:

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CULVERT DEWATERING DETAIL

NOT TO SCALE

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CAD FILE:	PROD - 0

PROJECT:

PROPOSED STREAM AND WETLAND IMPACT DOCUMENTS

FOR

OXFORD PARK OF NORTH CAROLINA

PROPOSED DEVELOPMENT

HORNER SIDING RD (SR 1515)
OXFORD, NC 27565

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RALEIGH OFFICE
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RALEIGH, NC 27612
Phone: (919) 578-6000
NC@BohlerEng.com

NORTH CAROLINA PROFESSIONAL SEAL ENGINEER GARY J. ZURBRIGH

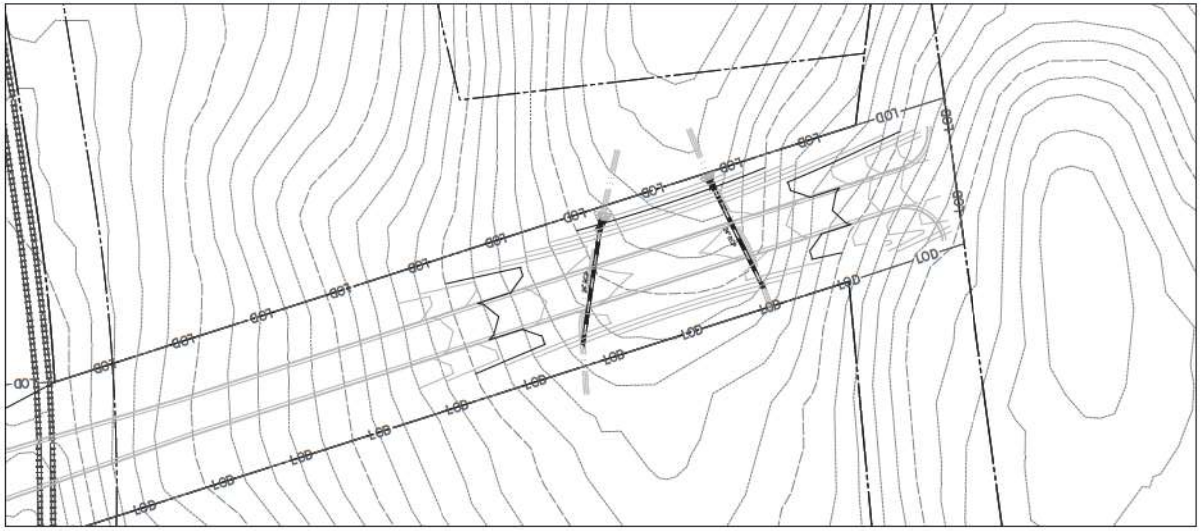
SHEET TITLE:

STREAM CROSSING 9 PLAN & PROFILES

SHEET NUMBER:

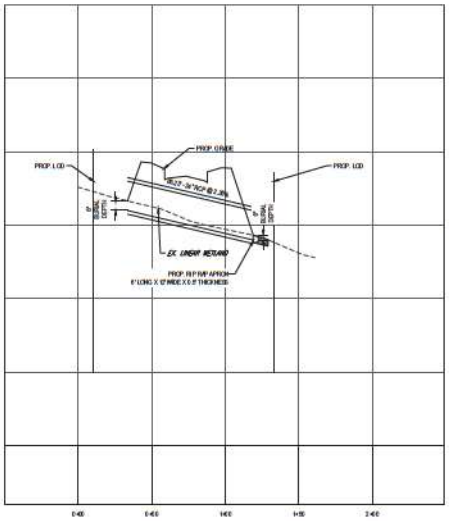
C-809

REVISION 2 - 06/24/22



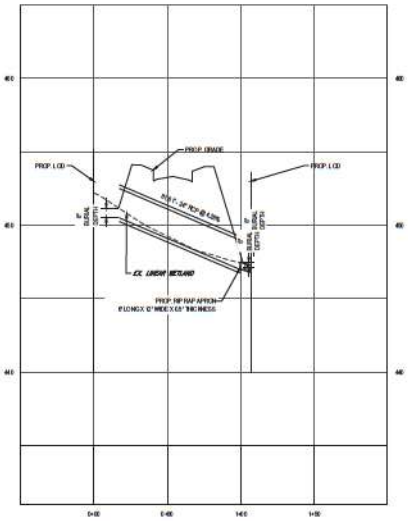
PLAN VIEW - STREAM CROSSING 10 & 11

SCALE: 1" = 40'



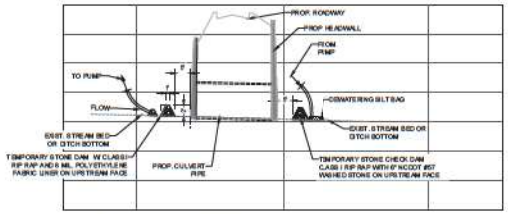
PIPE CROSSING 10

SCALE: 1"= 40' HORIZONTAL
1"= 4' VERTICAL



PIPE CROSSING 11

SCALE: 1"= 40' HORIZONTAL
1"= 4' VERTICAL



DEWATERING CONSTRUCTION SEQUENCE:

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- REMOVE PUMP, PIPES AND DEWATERING SILT BAG.

CULVERT DEWATERING DETAIL

NOT TO SCALE

NCDENR MAINTENANCE NOTE:
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DATE:	5/6/2022
CAD FILE:	PROD - 0

PROJECT:

PROPOSED STREAM AND WETLAND IMPACT DOCUMENTS

FOR

OXFORD PARK OF NORTH CAROLINA

PROPOSED DEVELOPMENT

HORNER SIDING RD (SR 1515)
OXFORD, NC 27565

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SUITE B-100
4130 PARKLAKE AVENUE, SUITE 130
RALEIGH, NC 27612
Phone: (919) 578-6000
NC@BohlerEng.com

NORTH CAROLINA PROFESSIONAL SEAL ENGINEER GARY J. ZUBINSKY

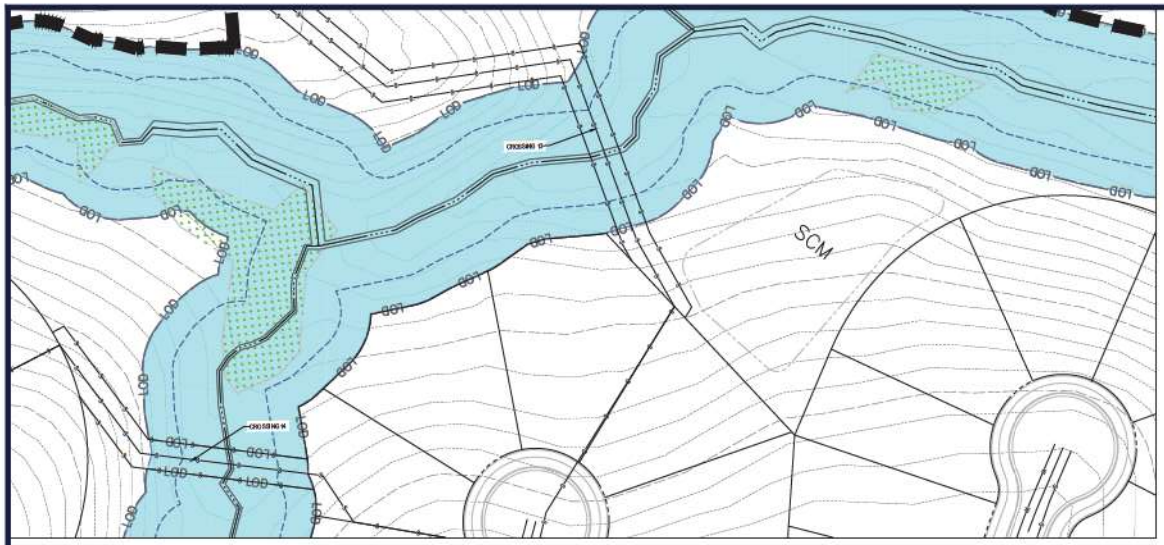
SHEET TITLE:

CROSSING 10 & 11 PLAN & PROFILES

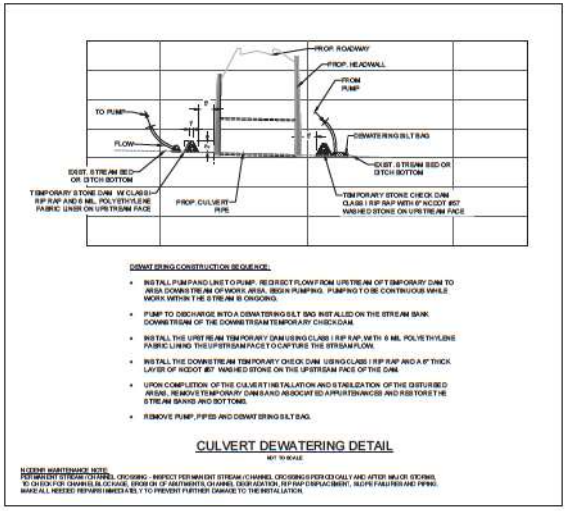
SHEET NUMBER:

C-810

REVISION 2 - 06/24/22



PLAN VIEW - STREAM CROSSING 13 & 14
SCALE: 1" = 40'



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CULVERT DEWATERING DETAIL

NOT TO SCALE

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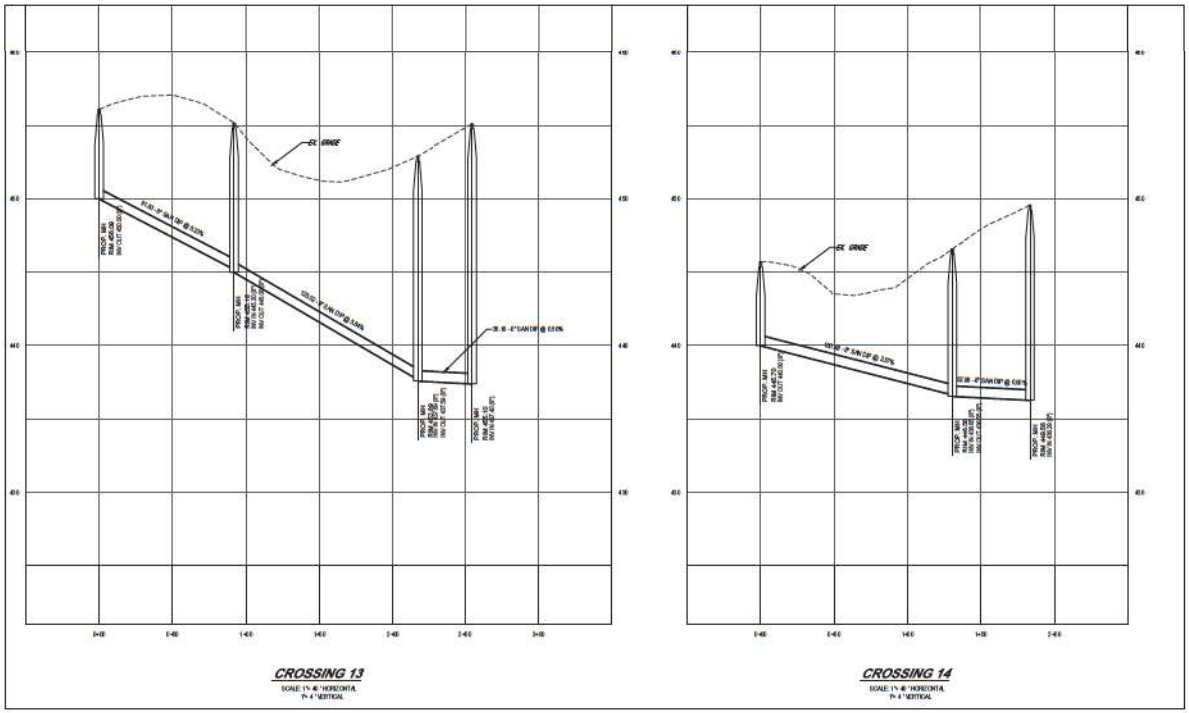

CROSSING 13
SCALE: 1"= 40' HORIZONTAL
1"= 4' VERTICAL

CROSSING 14
SCALE: 1"= 40' HORIZONTAL
1"= 4' VERTICAL

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CHECKED BY:	GZ
DATE:	5/20/22
CAD FILE:	PROD - 0

PROJECT:
PROPOSED STREAM AND WETLAND IMPACT DOCUMENTS
FOR
OXFORD PARK OF NORTH CAROLINA

PROPOSED DEVELOPMENT
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OXFORD, NC 27565

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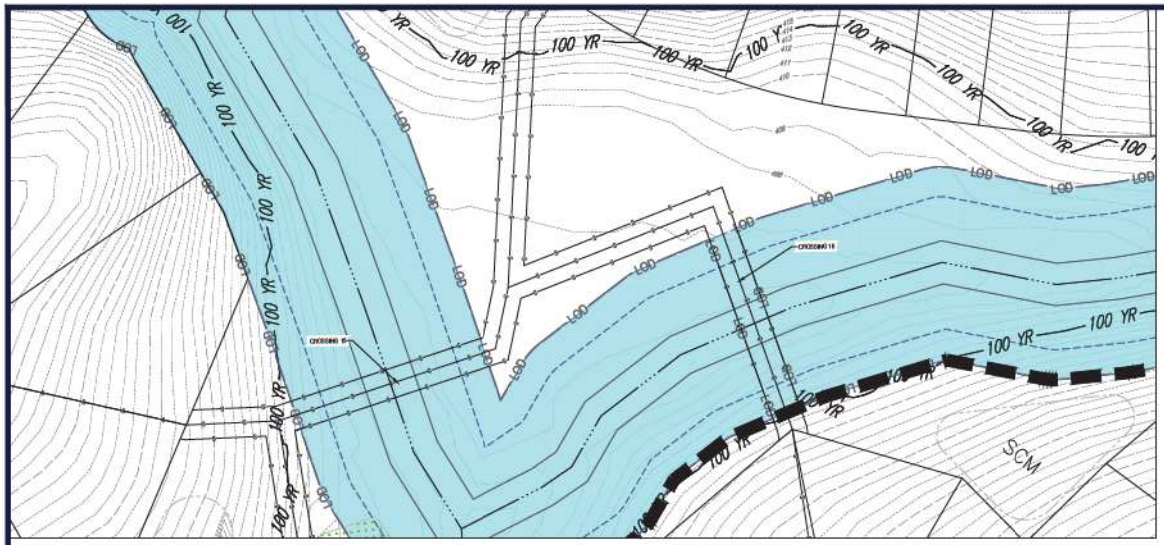
SCALE B-1183
4130 PARKLAKE AVENUE, SUITE 130
RALEIGH, NC 27612
Phone: (919) 578-6000
NC@BohlerEng.com

NORTH CAROLINA PROFESSIONAL SEAL ENGINEER GARY J. ZURBRIGH

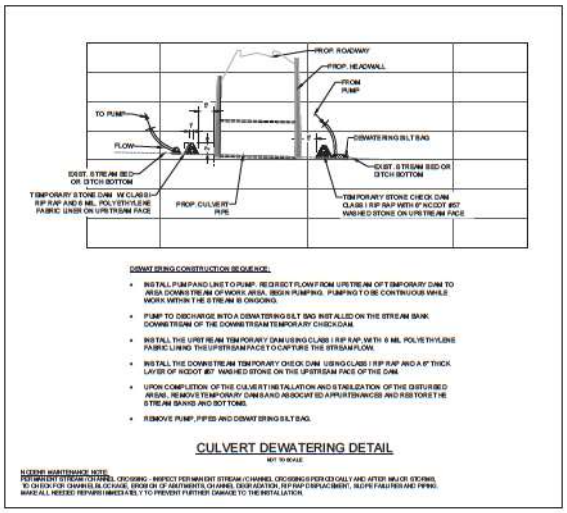
SHEET TITLE:
CROSSING 13 & 14 PLAN & PROFILES

SHEET NUMBER:
C-811

REVISION 2 - 06/24/22



PLAN VIEW - STREAM CROSSING 15 & 16
SCALE: 1" = 40'



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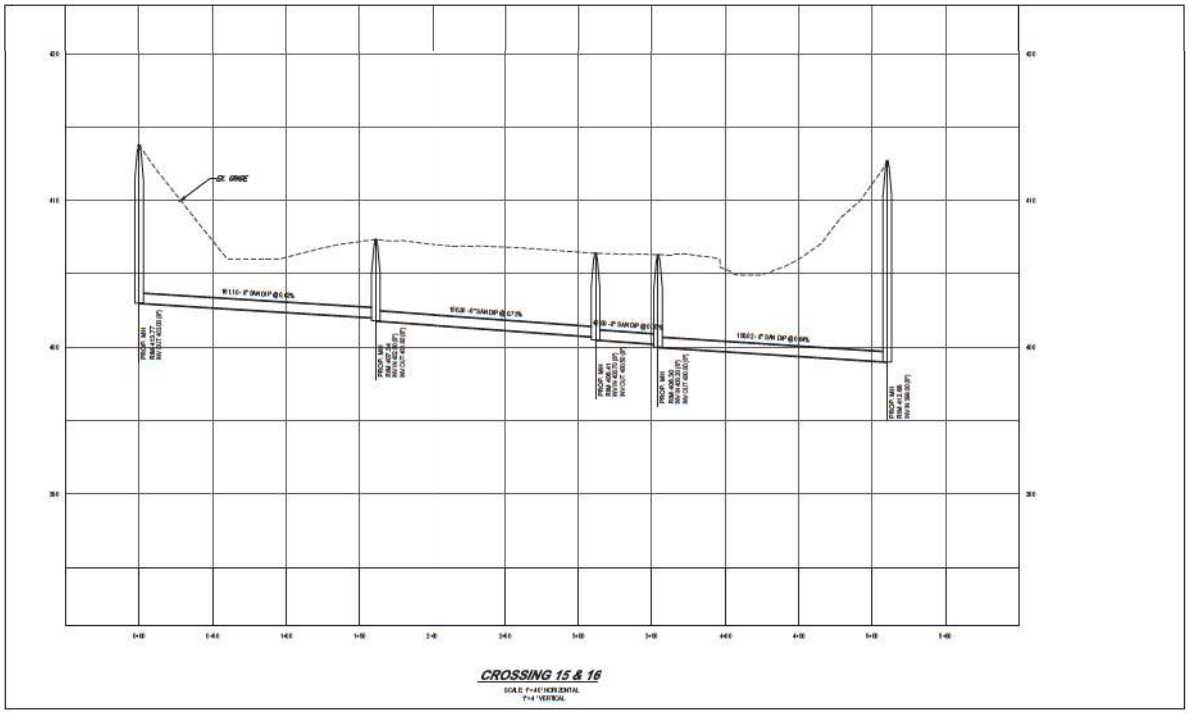
NOT TO SCALE

NCDENR MAINTENANCE NOTE:
PERMANENT STREAM/CHANNEL CROSSING - INSPECT PERMANENT STREAM/CHANNEL CROSSING PERIODICALLY AND AFTER MAJOR STORMS TO CHECK FOR CHANNEL BLOCKAGE, EROSION OF ABUTMENTS, CHANNEL DEGRADATION, RIP RAP DISPLACEMENT, RUPE FAILURES AND PIPING. MAKE ALL NEEDED REPAIRS IMMEDIATELY TO PREVENT FURTHER DAMAGE TO THE INSTALLATION.



CROSSING 15 & 16
SCALE: 1"=40' HORIZONTAL
1"=4' VERTICAL

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PROJECT MANAGEMENT
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PROJECT No.:	NCR211093
DRAWN BY:	OB/JW
CHECKED BY:	GZ
DATE:	5/6/2022
CAD FILE:	PROD - 0

PROJECT:
PROPOSED STREAM AND WETLAND IMPACT DOCUMENTS
FOR
OXFORD PARK OF NORTH CAROLINA

PROPOSED DEVELOPMENT
HORNNER SIDING RD (SR 1515)
OXFORD, NC 27565

BOHLER
BOHLER ENGINEERING NC, PLLC
SUITE B-100
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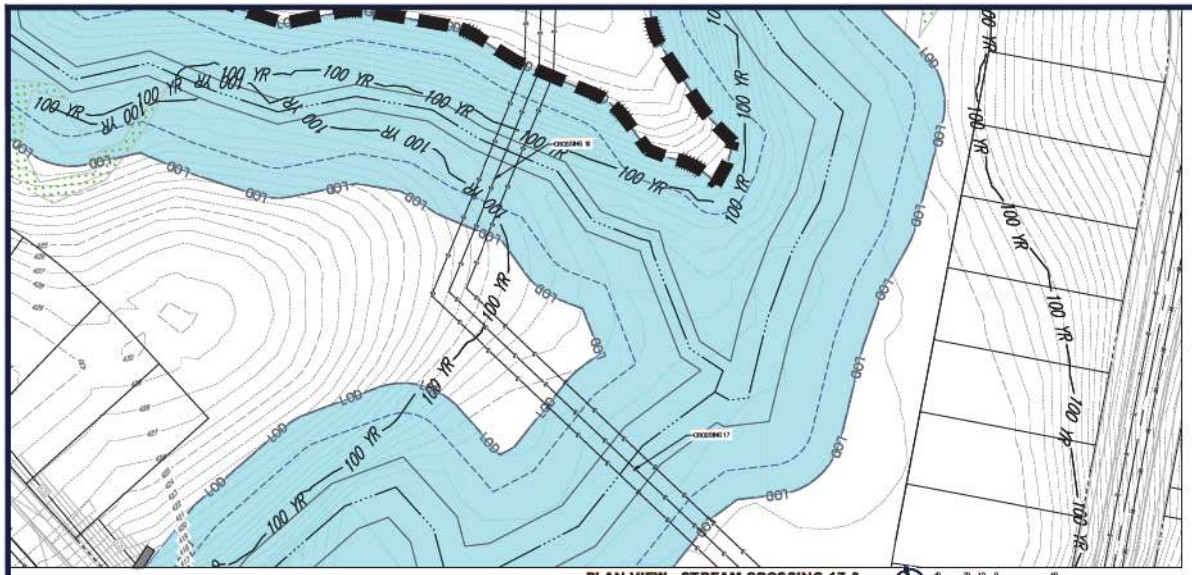
RALEIGH, NC 27612
Phone: (919) 578-6000
NC@BohlerEng.com

NORTH CAROLINA PROFESSIONAL SEAL ENGINEER GARY J. ZUBINSKI

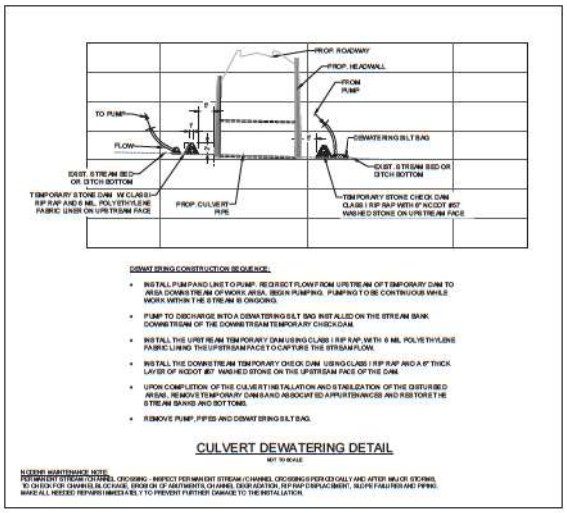
SHEET TITLE:
CROSSING 15 & 16 PLAN & PROFILES

SHEET NUMBER:
C-812

REVISION 2 - 06/24/22



PLAN VIEW - STREAM CROSSING 17 & 18
SCALE: 1" = 40'



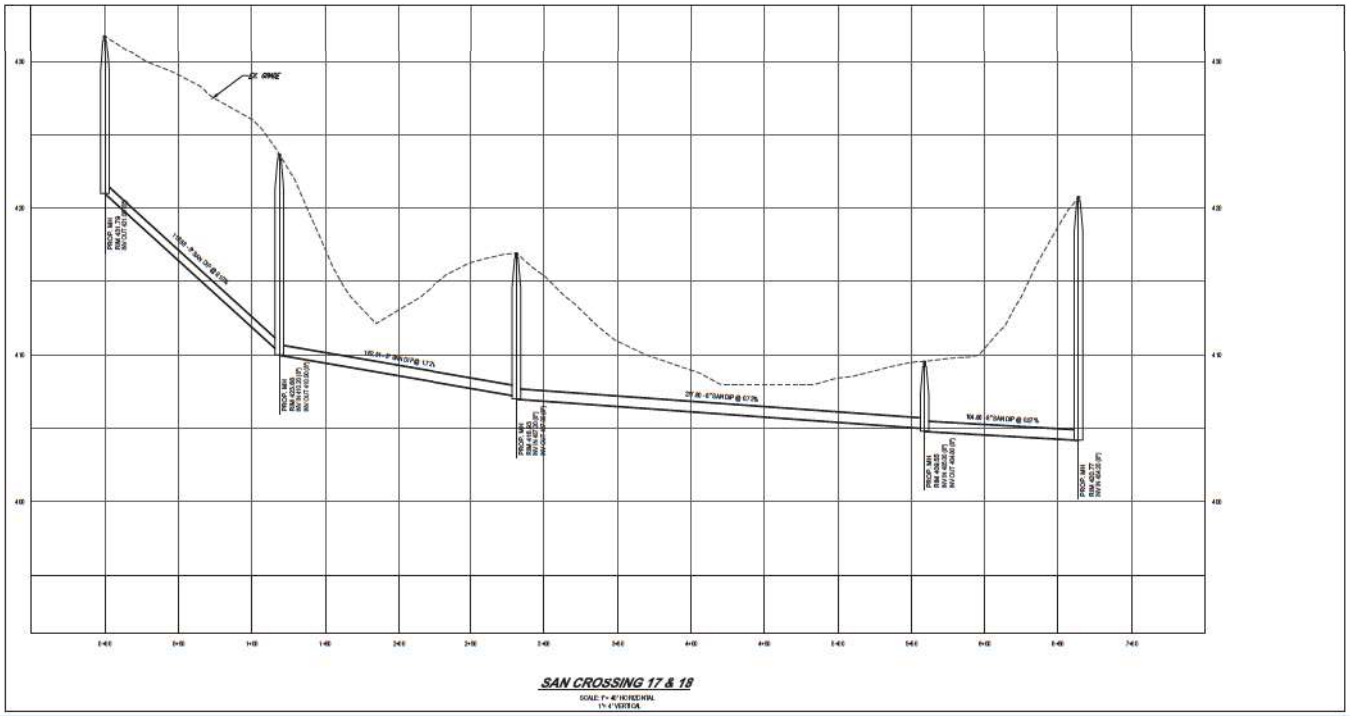
DEWATERING CONSTRUCTION SEQUENCE:

- INSTALL PUMP AND LINE TO PUMP. REDIRECT FLOW FROM UPSTREAM OF TEMPORARY DAM TO AREA DOWNSTREAM OF WORK AREA. BEGIN PUMPING. PUMPING TO BE CONTINUOUS WHILE WORK WITHIN THE STREAM IS ONGOING.
- PUMP TO DISCHARGE INTO A DEWATERING SILT BAG INSTALLED ON THE STREAM BANK DOWNSTREAM OF THE DOWNSTREAM TEMPORARY CHECK DAM.
- INSTALL THE UPSTREAM TEMPORARY DAM USING CLASS I RIP RAP, WITH 6 MIL POLYETHYLENE FABRIC LINING THE UPSTREAM FACE TO CAPTURE THE STREAM FLOW.
- INSTALL THE DOWNSTREAM TEMPORARY CHECK DAM USING CLASS I RIP RAP AND A 6" THICK LAYER OF NCDOT #57 WASHED STONE ON THE UPSTREAM FACE OF THE DAM.
- UPON COMPLETION OF THE CULVERT INSTALLATION AND STABILIZATION OF THE DISTURBED AREAS, REMOVE TEMPORARY DAMS AND ASSOCIATED APPURTENANCES AND RESTORE THE STREAM BANKS AND BOTTOMS.
- REMOVE PUMP, PIPES AND DEWATERING SILT BAG.

CULVERT DEWATERING DETAIL

NOT TO SCALE

NEEDED MAINTENANCE NOTE:
PERMANENT STREAM CHANNEL CROSSING - INSPECT PERMANENT STREAM/CHANNEL CROSSING PERIODICALLY AND AFTER MAJOR STORMS TO CHECK FOR CHANNEL BLOCKAGE, EROSION OF ABUTMENTS, CHANNEL DEGRADATION, RIP RAP DISPLACEMENT, SLIPS, FAILURES AND PIPING. MAKE ALL NEEDED REPAIRS IMMEDIATELY TO PREVENT FURTHER DAMAGE TO THE INSTALLATION.



SAN CROSSING 17 & 18
SCALE: 1"= 40' HORIZONTAL
1"= 4' VERTICAL

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CHECKED BY:	GZ
DATE:	5/20/22
CAD FILE:	PROD - 0

PROJECT:
PROPOSED STREAM AND WETLAND IMPACT DOCUMENTS
FOR
OXFORD PARK OF NORTH CAROLINA

PROPOSED DEVELOPMENT
HORNER SIDING RD (SR 1515)
OXFORD, NC 27565

BOHLER ENGINEERING NC, PLLC
SCALES HOUSE
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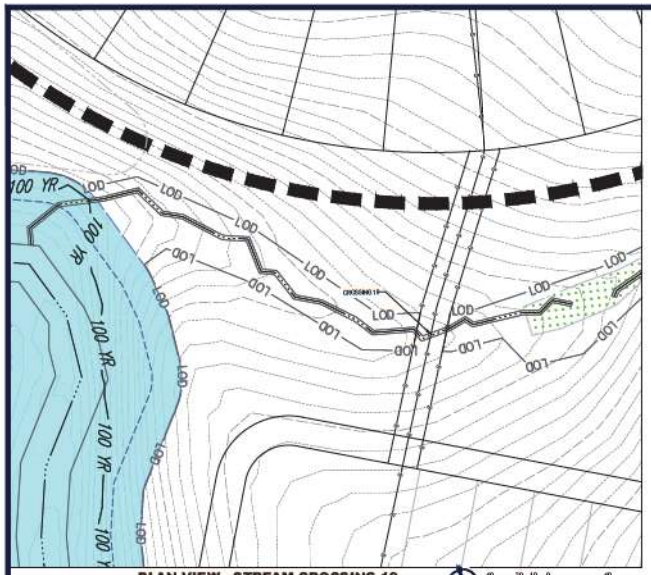
Phone: (919) 578-6000
NC@BohlerEng.com

NORTH CAROLINA PROFESSIONAL SEAL ENGINEER GARY J. ZUBRICKI

SHEET TITLE:
CROSSING 17 & 18 PLAN & PROFILES

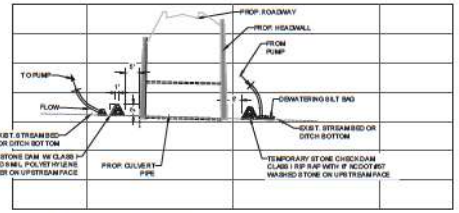
SHEET NUMBER:
C-813

REVISION 2 - 06/24/22



PLAN VIEW - STREAM CROSSING 19

SCALE: 1" = 40'



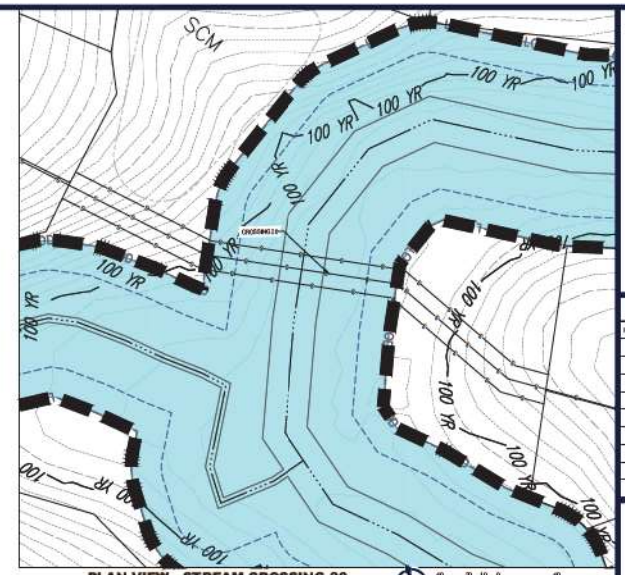
DEWATERING CONSTRUCTION SEQUENCE:

- INSTALL PUMP AND LINE TO PUMP REDIRECT FLOW FROM UPSTREAM OF TEMPORARY DAM TO AREA DOWNSTREAM OF WORK AREA. BEGIN PUMPING. PUMPING TO BE CONTINUOUS WHILE WORK WITHIN THE STREAM IS ONGOING.
- PUMP TO DISCHARGE INTO A DEWATERING SILT BAG INSTALLED ON THE STREAM BANK DOWNSTREAM OF THE DOWNSTREAM TEMPORARY CHECK DAM.
- INSTALL THE UPSTREAM TEMPORARY DAM USING CLASS I RIPRAP, WITH 8 MIL POLYETHYLENE FABRIC LINING THE UPSTREAM FACE TO CAPTURE THE STREAM FLOW.
- INSTALL THE DOWNSTREAM TEMPORARY CHECKDAM USING CLASS I RIP RAP AND A 6" THICK LAYER OF NCDOT #57 WASHED STONE ON THE UPSTREAM FACE OF THE DAM.
- UPON COMPLETION OF THE CULVERT INSTALLATION AND STABILIZATION OF THE DISTURBED AREAS, REMOVE TEMPORARY DAMS AND ASSOCIATED APPURTENANCES AND RESTORE THE STREAM BANKS AND BOTTOMS.
- REMOVE PUMP, PIPES AND DEWATERING SILT BAG.

CULVERT DEWATERING DETAIL

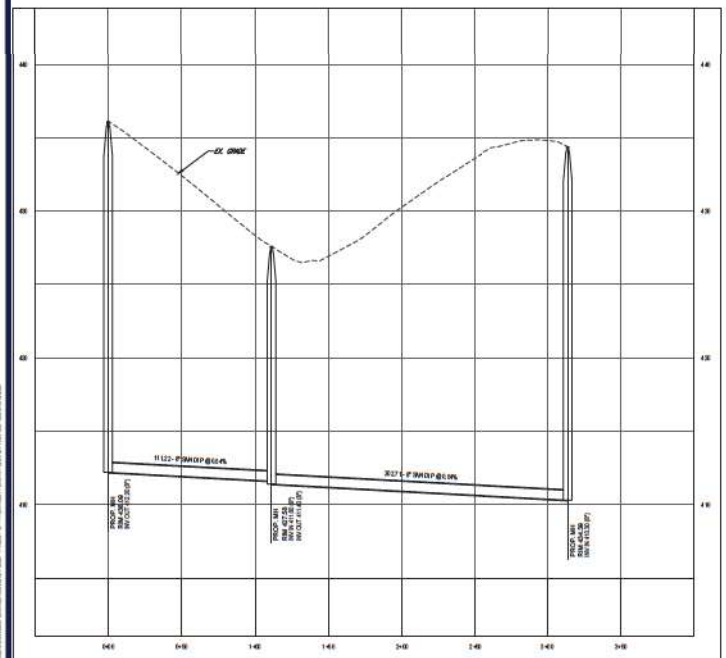
NOT TO SCALE

NOTES FOR MAINTENANCE OF WORK:
PERMANENT STREAM / CHANNEL CROSSING - INSPECT PERMANENT STREAM / CHANNEL CROSSING OF PERIODICALLY AND AFTER MAJOR STORMS TO CHECK FOR CHANNEL BLOCKAGE, EROSION OF ABUTMENTS, CHANNEL DEGRADATION, RIP RAP DISPLACEMENT, SLOPE FAILURES AND PIPING. MAKE ALL NEEDED REPAIRS IMMEDIATELY TO PREVENT FURTHER DAMAGE TO THE INSTALLATION.



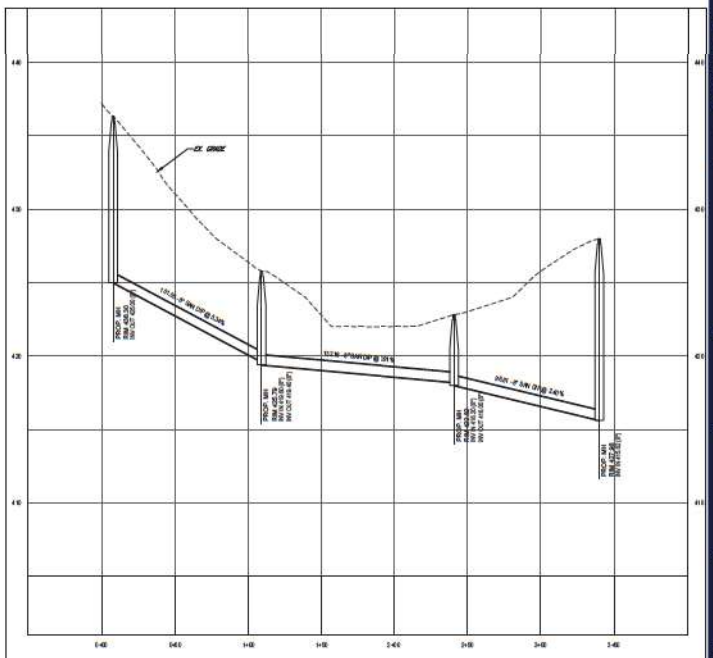
PLAN VIEW - STREAM CROSSING 20

SCALE: 1" = 40'



CROSSING 19

SCALE: 1"=40' HORIZONTAL
1"= 4' VERTICAL



CROSSING 20

SCALE: 1"=40' HORIZONTAL
1"= 4' VERTICAL

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DATE:	5/20/22
CAD FILE:	PROD - 0

PROJECT:

PROPOSED STREAM AND WETLAND IMPACT DOCUMENTS

FOR

OXFORD PARK OF NORTH CAROLINA

PROPOSED DEVELOPMENT

HORNER SIDING RD (SR 1515)
OXFORD, NC 27565

BOHLER
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SCALE & VISE
4130 PARKLAKE AVENUE, SUITE 130
RALEIGH, NC 27612
Phone: (919) 578-6000
NC@BohlerEng.com

NORTH CAROLINA PROFESSIONAL SEAL ENGINEER GARY J. ZUBRICKI

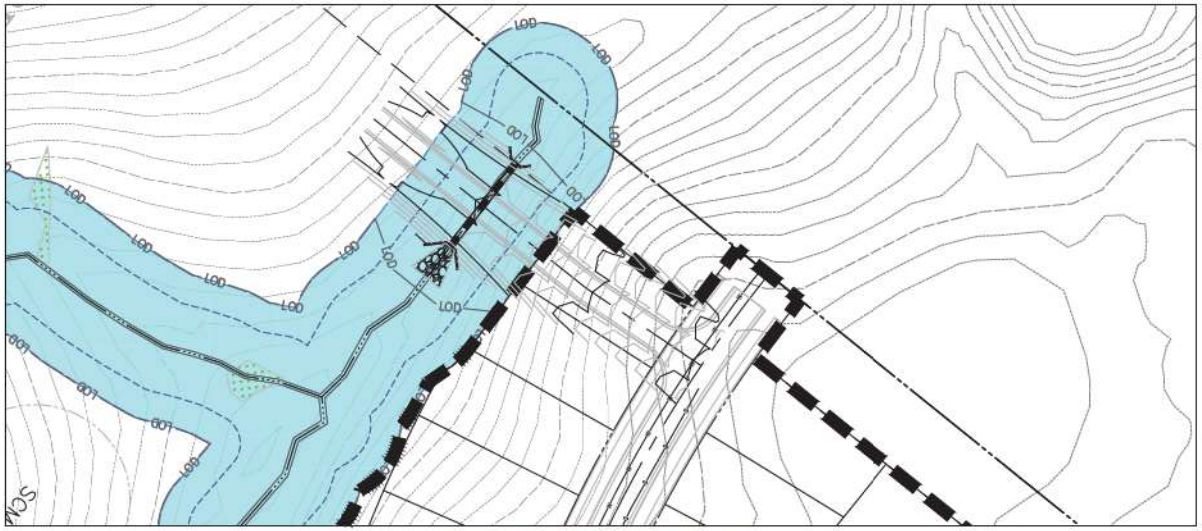
SHEET TITLE:

CROSSING 19 & 20 PLAN & PROFILES

SHEET NUMBER:

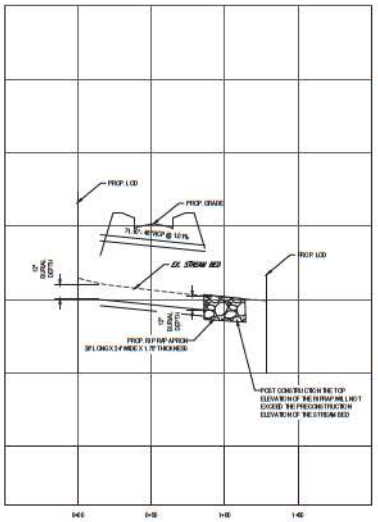
C-814

REVISION 2 - 06/24/22



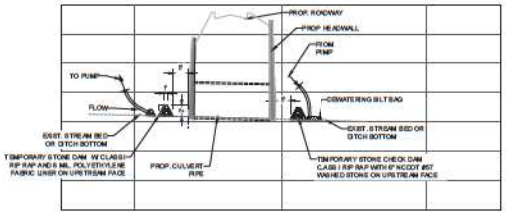
PLAN VIEW - STREAM CROSSING 21

SCALE: 1" = 40'



CROSSING 21

SCALE: 1"= 40' HORIZONTAL
1"= 4' VERTICAL



DEWATERING CONSTRUCTION SEQUENCE:

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CULVERT DEWATERING DETAIL

NOT TO SCALE

NCDENR MAINTENANCE NOTE:
PERMANENT STREAM CROSSINGS, CROSSING - INSPECT PERMANENT STREAM / CHANNEL CROSSINGS PERIODICALLY AND AFTER MAJOR STORMS TO CHECK FOR CHANNEL BLOCKAGE, EROSION OF ABUTMENTS, CHANNEL EROSION, RIP RAP DISPLACEMENT, SLOPE FAILURES AND PIPING. MAKE ALL NEEDED REPAIRS NEEDED ASSLY TO PREVENT FURTHER DAMAGE TO THE INSTALLATION.

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CAD FILE:	PROD - 0

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OXFORD PARK OF NORTH CAROLINA

PROPOSED DEVELOPMENT

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NC@BohlerEng.com

NORTH CAROLINA PROFESSIONAL SEAL ENGINEER GARY J. ZUBRICKI

SHEET TITLE:

STREAM CROSSING 21 PLAN & PROFILES

SHEET NUMBER:

C-821

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