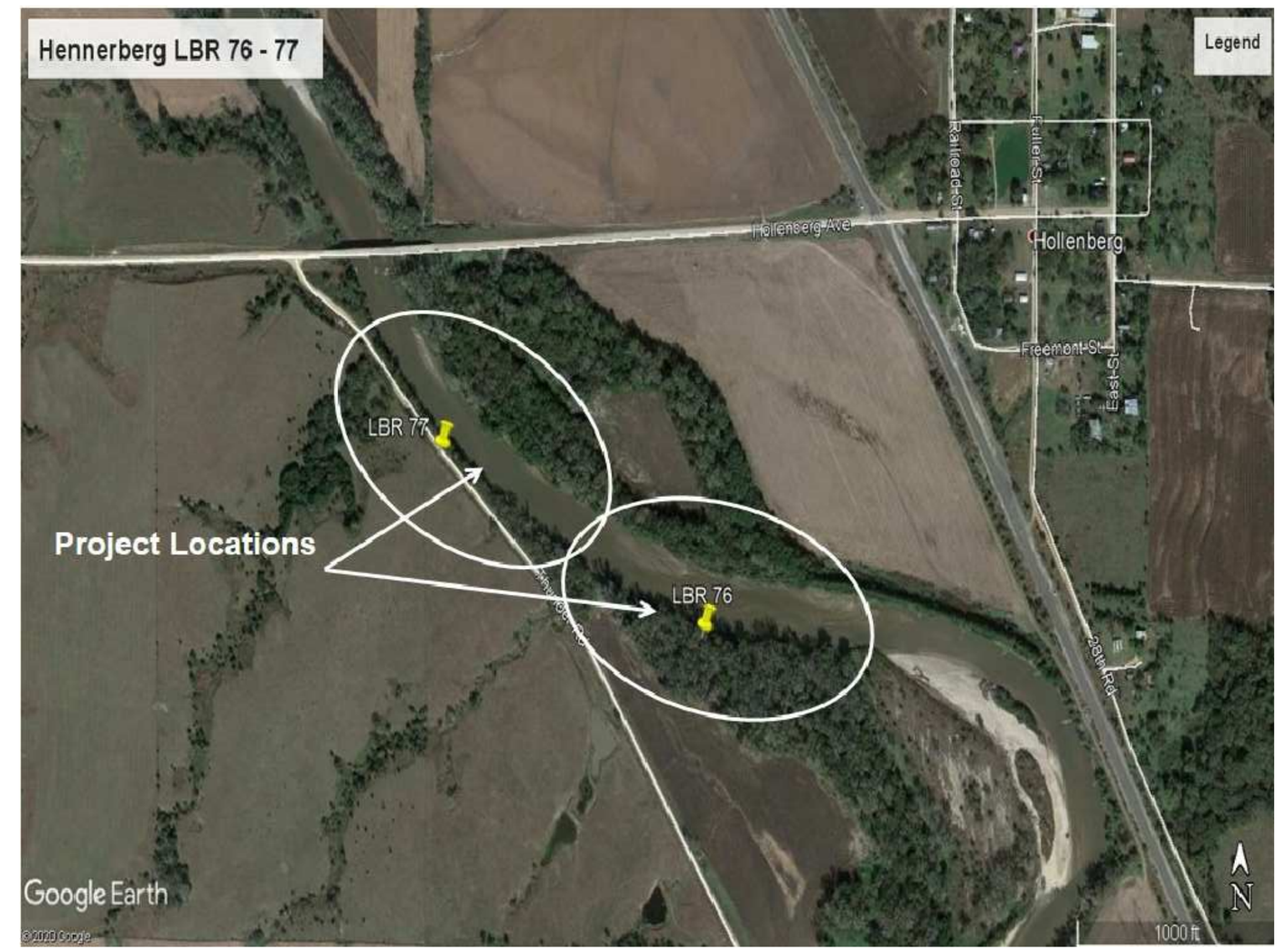
Little Blue River

LBR 76 and LBR 77 Sites
Washington County, Kansas
S 1/2, Sec. 8, T1S, R4E

Washington County Map
NTS

Sheet Index

Sheet No.	Sheet Title
1	Cover Sheet
2	Overall Plan View
3	Enlarged Plan View – LBR 77
4	Enlarged Plan View – LBR 76
5	Section Views – LBR 77
6	Section Views – LBR 76
7	Details Sheet



Site Location Map
NTS

Quantities

Item	Unit	Total
Rootwad Logs	Each	207
Footer Logs	Each	93
Cover Logs	Each	185
Rock 24" D50	Tons	938
Live Stakes	Each	11,100
Native Grass Seeding	Acres	3.67
Mulching	Acres	3.67
Tree Clearing	Acres	2.70

Wildhorse Riverworks Inc.
11821 NW 13th Street – Topeka, Kansas 66615
785-213-3778

WRS WATER RESOURCES SOLUTIONS
3515 W. 75th St, Suite 208
Prairie Village, Kansas 66208
913-302-1030

DONALD W. BAKER LICENSED 14258 KANSAS PROFESSIONAL ENGINEER
9-25-2020

Not For Construction Without a Professional Engineer Seal.

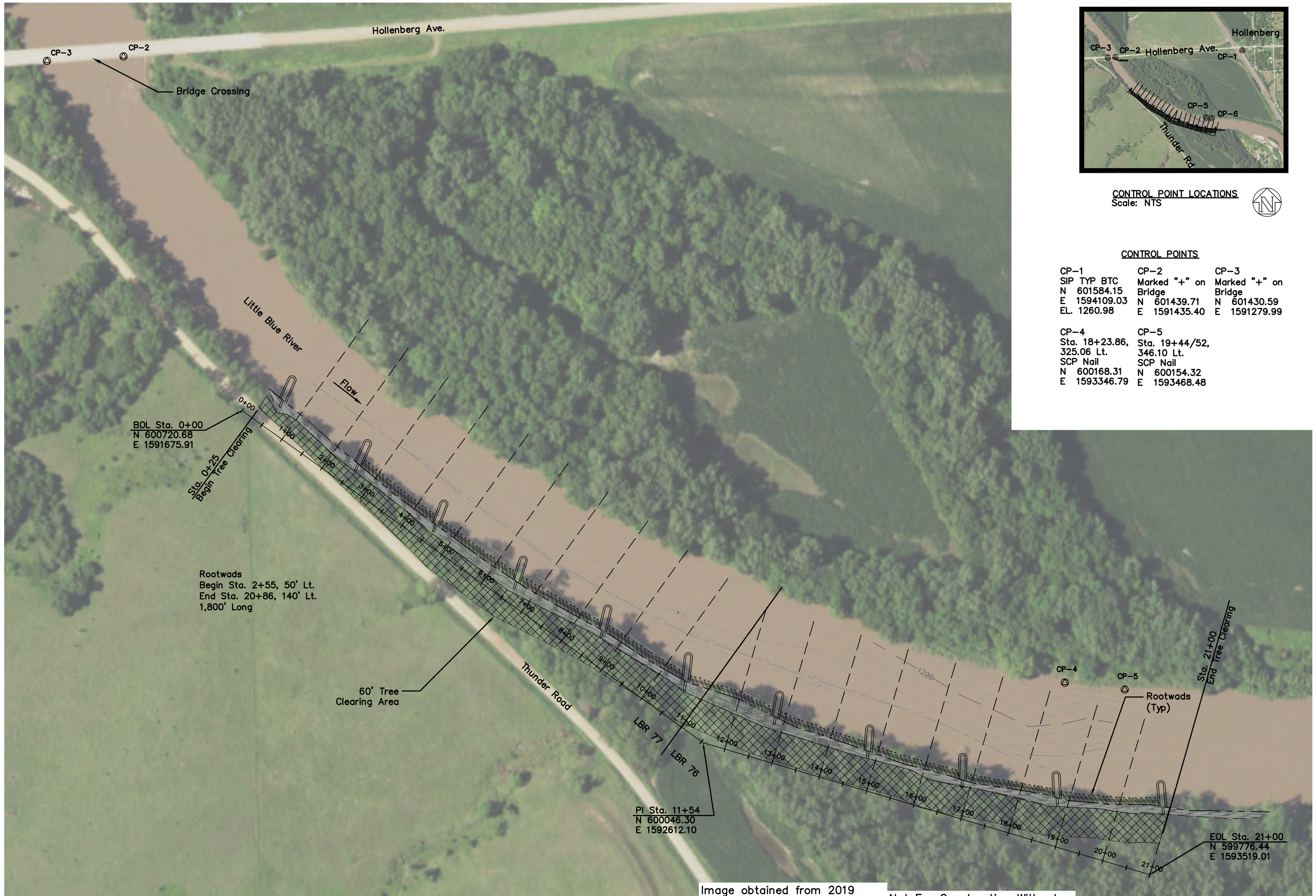


Image obtained from 2019 Farm Service Agency National Agriculture Imagery Program.

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CONTROL POINT LOCATIONS
Scale: NTS

CONTROL POINTS

CP-1 SIP TYP BTC N 601584.15 E 1594109.03 EL. 1260.98	CP-2 Marked "+" on Bridge N 601439.71 E 1591435.40	CP-3 Marked "+" on Bridge N 601430.59 E 1591279.99
CP-4 Sta. 18+23.86, 325.06 Lt. SCP Nail N 600168.31 E 1593346.79	CP-5 Sta. 19+44/52, 346.10 Lt. SCP Nail N 600154.32 E 1593468.48	

GENERAL NOTES

1. Structure locations to be field located and staked by the Wildhorse Riverworks designate.
2. Before any construction activity, the contractor is responsible for calling Kansas One Call at 800–344–7233 (800–DIG–SAFE) or 811.
3. Accepted Erosion Control practices will be applied to all disturbed areas.
4. All applicable permits will be obtained by others prior to project construction.
5. The information shown in these plans concerning type and location of underground utilities is not guaranteed to be accurate or all inclusive. Existing utilities and their locations, as shown on the plans, represent the best information obtained for the design. Location information has been obtained from the various utility companies and is either from company record drawings or company provided field locations. The utility locations shown are not guaranteed. Additional existing utilities may also be encountered. The contractor is responsible for making the determinations as to the type and location of underground utilities as may be necessary to avoid damage thereto.
6. Contractor shall maintain construction limits within the existing and/or proposed rights–of–way and easements.
7. The engineer has not performed property or right–of–way surveys for any of the locations shown on this project. Right–of–way or property lines shown on the plans are approximate and are shown for general orientation only. Property corners or other survey markers have not been located, unless specifically called out on the plans.
8. Coordinates for this project are on Kansas North State Plane (1501).
9. Do not remove any trees larger than 12" DBH or over 50' in height without permission of the Engineer.
10. Soil moving calculations are based on available information. Contractor shall inspect the site and make an evaluation of existing conditions.
11. Contractor shall shape top of bank such that the gradient slopes away from the graded river bank.
12. Contractor is responsible for planting from top of LPSTP or water level to top of bank.
13. If construction is completed between July 1 and Feb. 1: Before leaving the site, contractor shall rip the entire 66' buffer area to a 20–inch depth.

LEGEND

- Benchmark
- Existing Edge of Water
- Existing 1' Contour
- Existing 5' Contour
- Existing Thalweg
- Proposed 5' Contour
- Proposed 1' Contour
- New Improvements

0 50 100 200
SCALE: 1" = 100'–0"

Date	Comment	No.	BY	CK	APP
		4			
		3			
		2			
		1			

Designed By: PGB
Drawn By: MEM
Checked By: DWB
Date: 9/20/20
Scale: 1"=100'

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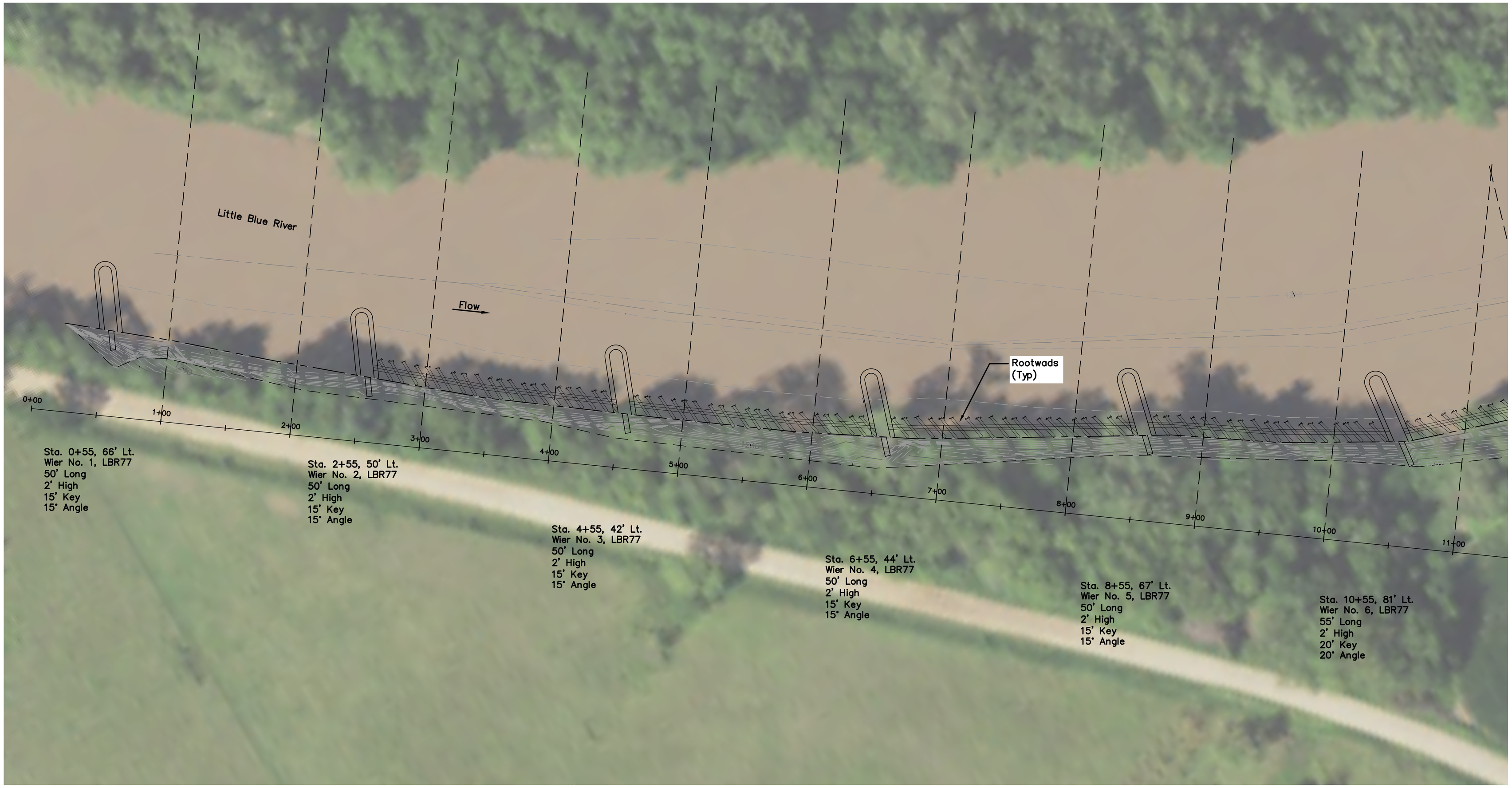
913–302–1030

Little Blue River
Washington County, Kansas

LBR 76 and LBR 77
Overall Plan View

SHEET 2 OF 7



LEGEND

- Benchmark
- Existing Edge of Water
- Existing 1' Contour
- Existing 5' Contour
- Existing Thalweg
- Proposed 5' Contour
- Proposed 1' Contour
- New Improvements

0 20 40 80
SCALE: 1" =40'-0"

Image obtained from 2019 Farm Service Agency National Agriculture Imagery Program.

Not For Construction Without a Professional Engineer Seal.

Date	Comment	No.	BY	CK	APP
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		3			
		2			
		1			

Designed By: PGB
Drawn By: MEM
Checked By: DWB
Date: 9/20/20
Scale: 1"=40'

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Little Blue River
Washington County, Kansas

LBR 77
Overall Plan View

3 SHEET OF 7

Image obtained from 2019 Farm Service Agency National Agriculture Imagery Program.

LEGEND

- Benchmark
- Existing Edge of Water
- Existing 1' Contour
- Existing 5' Contour
- Existing Thalweg
- Proposed 5' Contour
- Proposed 1' Contour
- New Improvements

Not For Construction Without a Professional Engineer Seal.

0 20 40 80
SCALE: 1" = 40'-0"

Date	Comment	No.	BY	CK	APP
		4			
		3			
		2			
		1			

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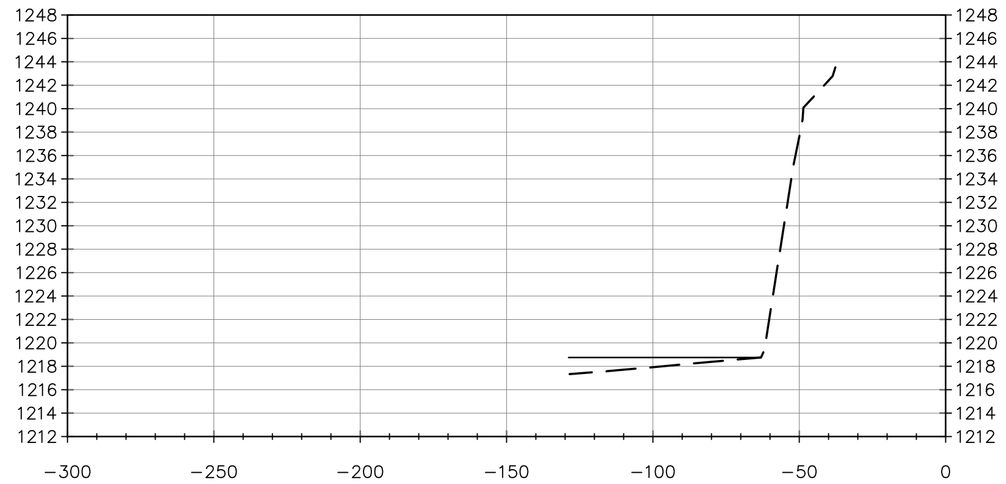
Little Blue River
Washington County, Kansas

LBR 76
Overall Plan View

4 SHEET OF 7



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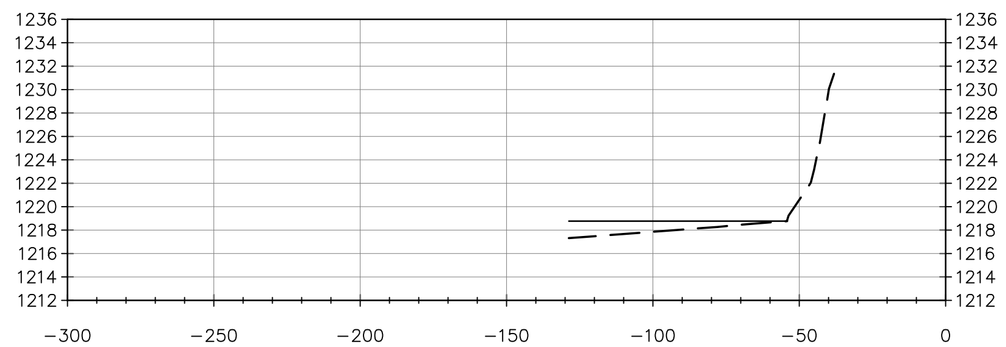

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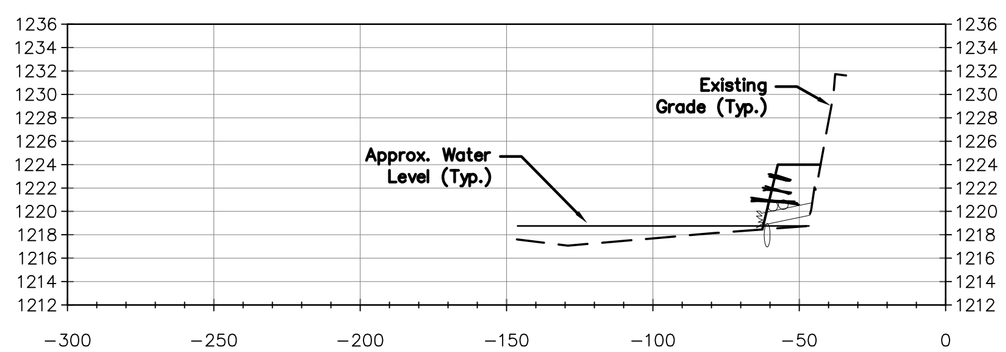

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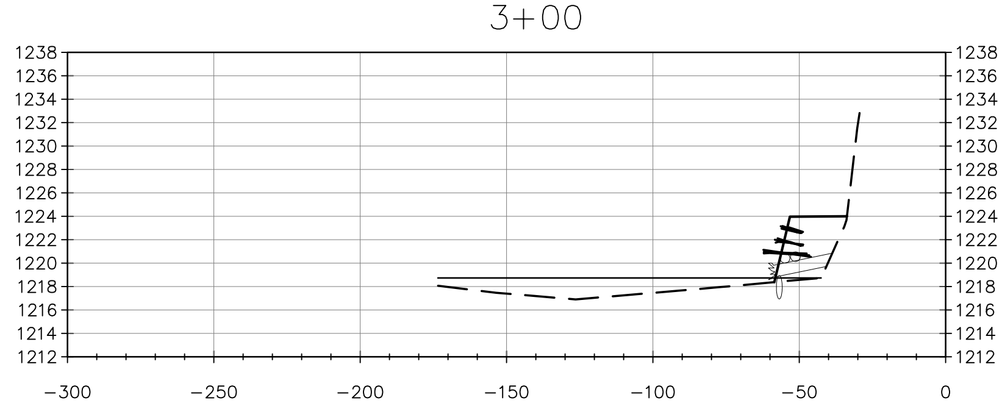

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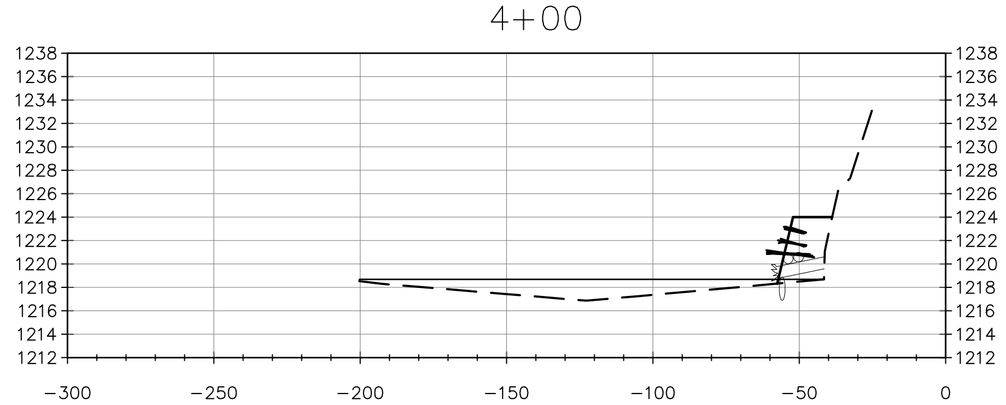

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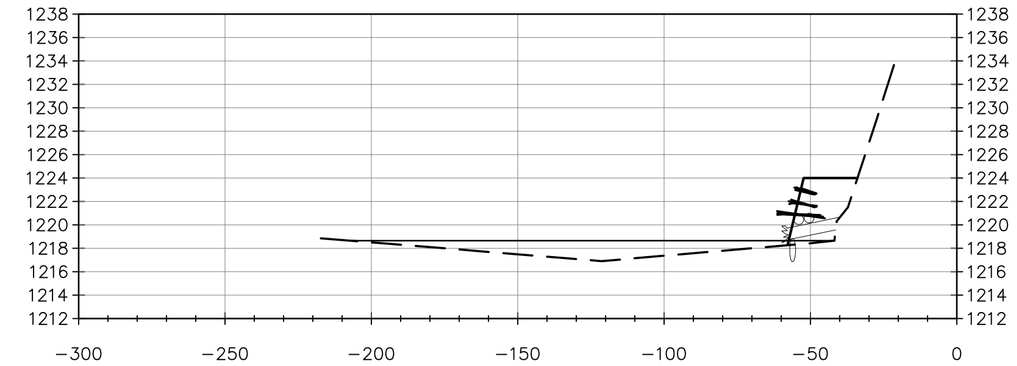

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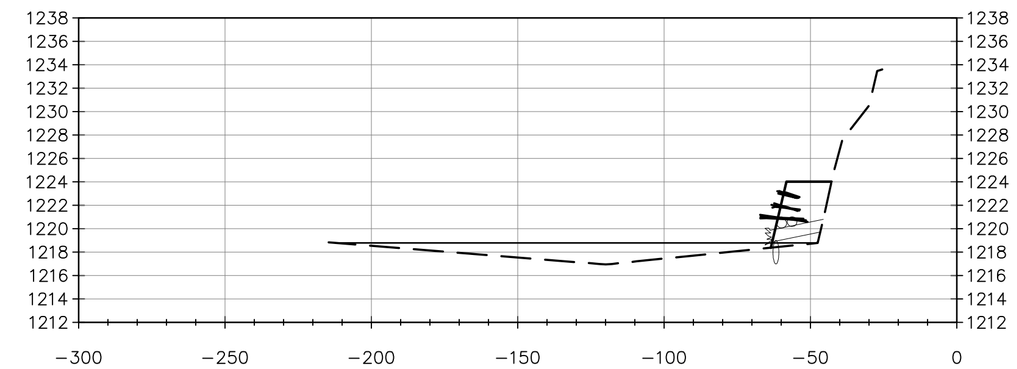

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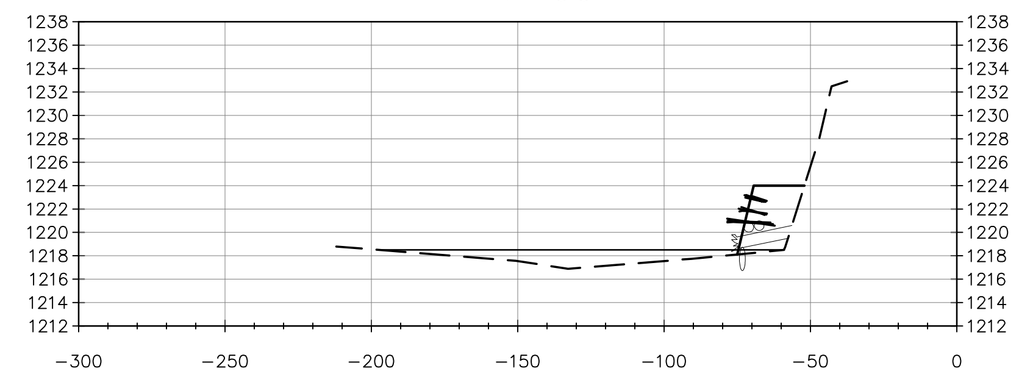

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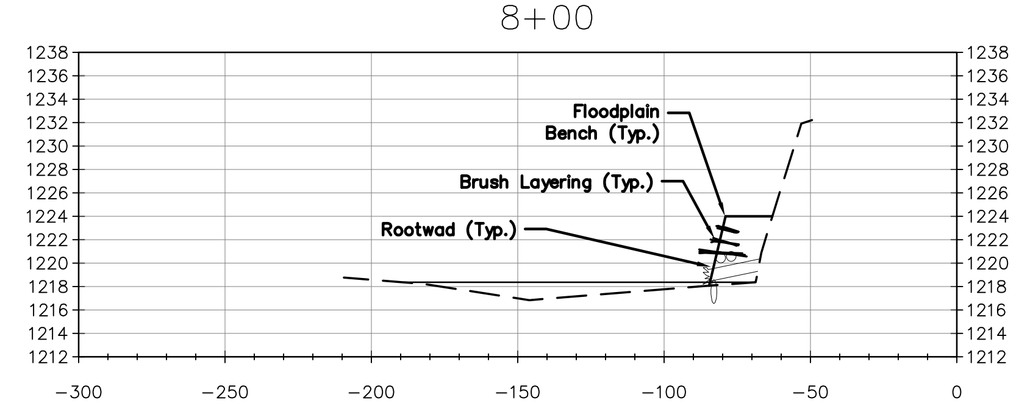

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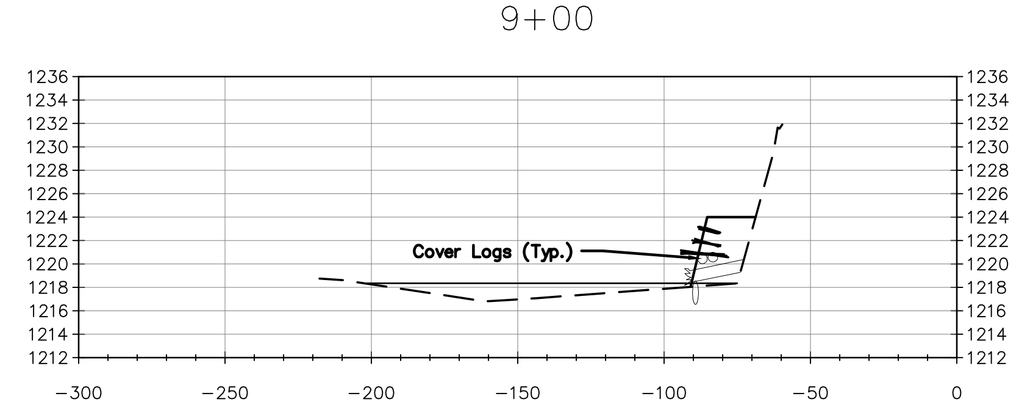

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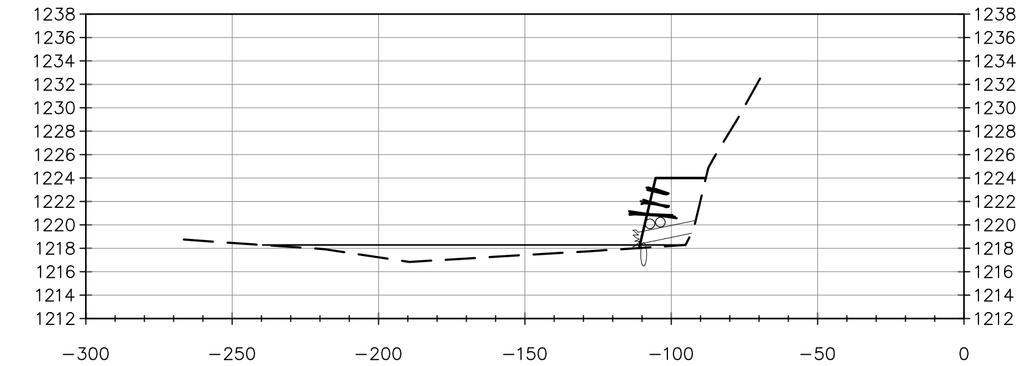

11+00

Not For Construction Without a Professional Engineer Seal.

Scale:
Horiz.: 1"=40'
Vert.: 1"=10'

Date	Comment	No.	BY	CK	APP
		4			
		3			
		2			
		1			

Designed By: PGB
Drawn By: MEM
Checked By: DWB
Date: 9/20/20
Scale: 1"=40'

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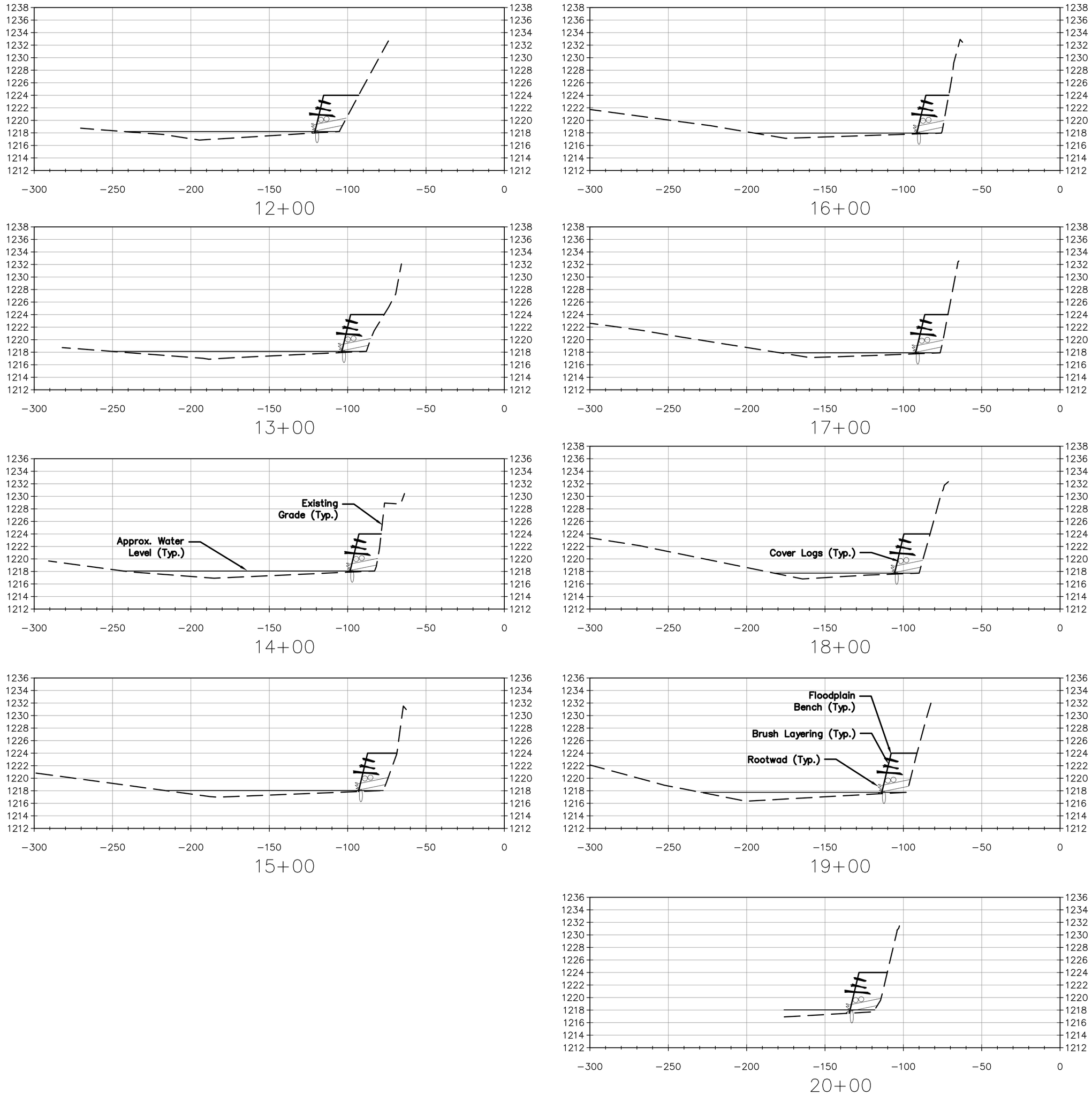
Little Blue River
Washington County, Kansas

LBR 77
Section View

5 SHEET OF 7



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Scale:
Horiz.: 1"=40'
Vert.: 1"=10'

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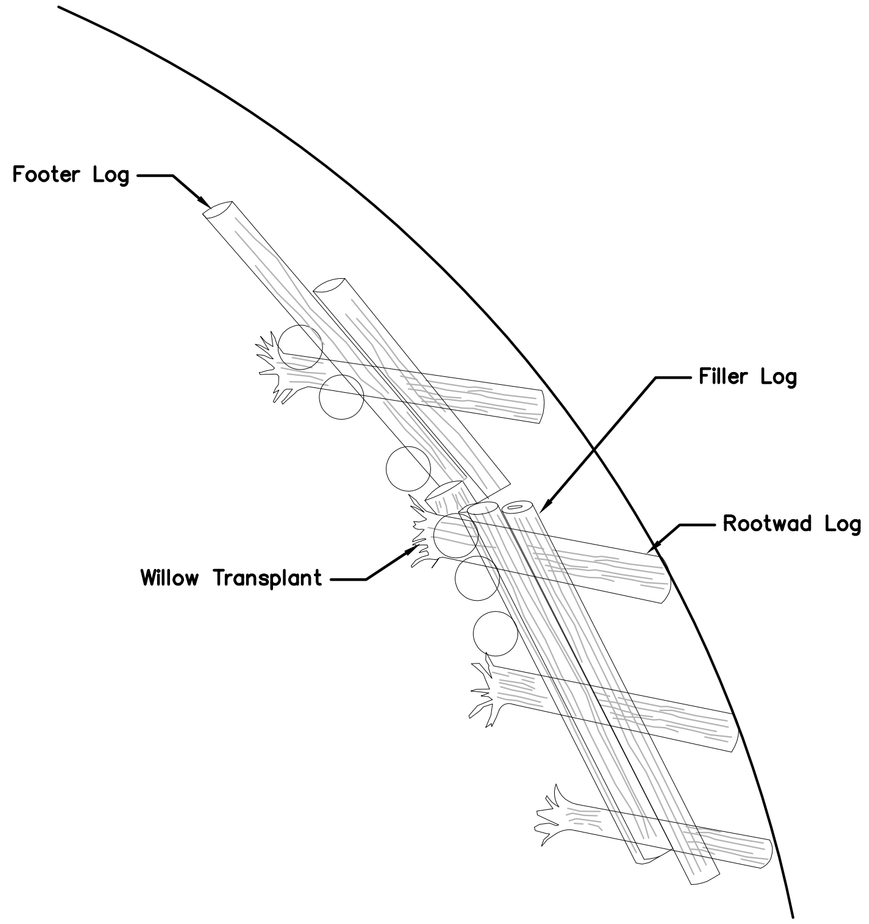
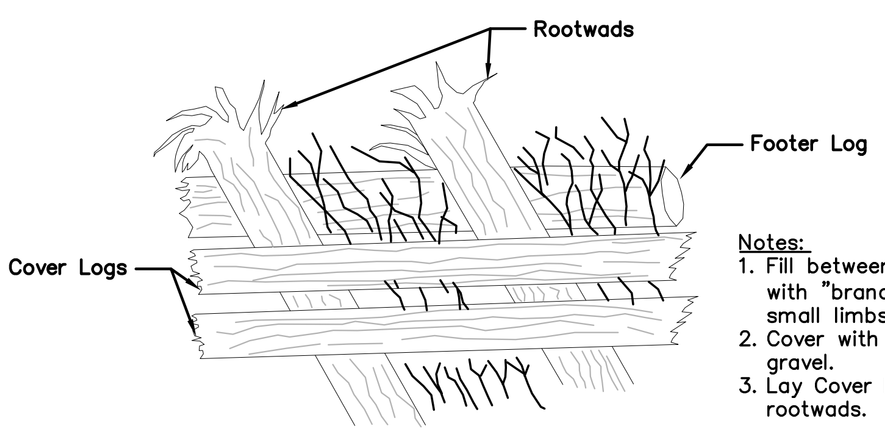
Little Blue River
Washington County, Kansas

LBR 76
Section View

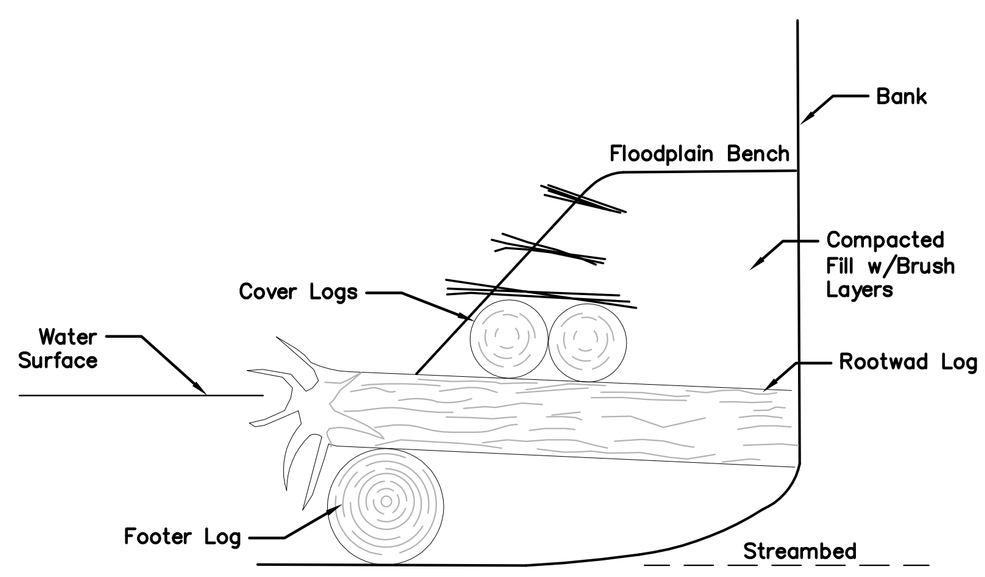
6 SHEET OF 7



Plan View



Notes:
1. Fill between rootwads with "branches" and small limbs.
2. Cover with sand and gravel.
3. Lay Cover Logs over rootwads.



ROOT WAD DETAILS

Structure Specification Sheet — Phil Balch, 2017

Project Name	Stream	County	State	Bank Length	Bank Height
LBR 76	Little Blue River	Washington	Kansas		
Rootwads / Weirs				Shaped / Total	
				1,000 / 1,000	14

#	Type	Spacing ft.	Angle (Degrees)	Area sq. ft.	Number ft.	Length ft.	Key Length ft.	Yards3	Key yds3	Tons	Material Specifications
	Structures										
1	Rootwads	9	40	20,160.0	112	20	N/A	N/A	N/A	N/A	Logs w rootwad (4 ft. min. dia. roots)
1	Footer Log	20	N/A	0.0	50	20	N/A	N/A	N/A	N/A	Logs w/ no rootwad
1	Cover Log	20	N/A	0.0	100	20	N/A	N/A	N/A	N/A	Logs w/ no rootwad
				Area	Height	Length	Key Length	Yards3	yds3	Tons	Material Specifications
1	Weir	200	15	800.0	2	50	15	48	15	94.5	Poorly Sorted Limestone Rock D50 24"
2	Weir	200	15	800.0	2	50	15	48	15	94.5	Poorly Sorted Limestone Rock D50 24"
3	Weir	200	15	800.0	2	50	15	48	15	94.5	Poorly Sorted Limestone Rock D50 24"
4	Weir	200	15	800.0	2	50	15	48	15	94.5	Poorly Sorted Limestone Rock D50 24"
5	Weir	N/A	10	800.0	2	50	15	48	10	87.0	Poorly Sorted Limestone Rock D50 24"
				24,160				240	70	465	
							Total yds3	310			

Site Information

Structure Height / ft.		Cord Length / ft.	1314.52		
Crest Width / ft.	10	Mid Ord / ft.	327		
Finished Slope Grade/H:V	N/A	BkF Elev	1224	Station	18+00
Schumm Channel Stage	5	Rosgen Classification	C5c-		
Radius of Curvature / ft.	824.04	Channel Width / ft.	230.00		
Max. Structure Spacing/ ft.	282.672	Tortuousity	3.6		
Reg. Structure Spacing / ft.	131.707	Critical Shear Stress	0.331	lbs./sq.ft.	
Hydraulic Radius / ft.	4.606	Slope = ft./ ft.	0	5.24	ft./mile
Cross Sectional Area / sq. ft.	1,030.90	Wetted Perimeter / ft.	223.8		
Bank Full Discharge / cfs	7,467	Manning's n	0.011		
		Mean Velocity / fps.	7.24		

Quantities List

Rootwad Logs	112
Footer Logs	50
Cover Logs	100
Rock / Tons 24 in. D50	465
Soil moving/ Cubic Yds. *	0
Bare Root Trees	0
Live Stakes	6,000
Native Grass Seeding / acres	1.86
Mulching / acres	1.86
Tree Clearing	1.4

Channel Bank Vegetation - Practice Code 322

Vegetation Type	Quantity
Bare Root Seedlings / ea.	0.00
Live Stakes / ea.	6,000.00
Seeding/ acres	1.86
Mulching - Practice Code 484	
Mulching / acres	1.86

Five Year Flood Frequency -
Discharge / cfs: 21,000
2,576.60 Sq. Mi.

Landowner	Norma Hennerberg
C/O	
Address	
City, State Zip	
Phone	
Legal	S 1/2, Section 8, T1S, R4E
Date	9/20/2020

Structure Specification Sheet — Phil Balch, 2017

Project Name	Stream	County	State	Bank Length	Bank Height
LBR 77	Little Blue River	Washington	Kansas		
Rootwads / Weirs				Shaped / Total	
				850 / 1,100	14

#	Type	Spacing ft.	Angle (Degrees)	Area sq. ft.	Number ft.	Length ft.	Key Length ft.	Yards3	Key yds3	Tons	Material Specifications
	Structures										
1	Rootwads	9	40	17,100.0	95	20	N/A	N/A	N/A	N/A	Logs w rootwad (4 ft. min. dia. roots)
1	Footer Log	20	N/A	0.0	43	20	N/A	N/A	N/A	N/A	Logs w/ no rootwad
1	Cover Log	20	N/A	0.0	85	20	N/A	N/A	N	N	Logs w/ no rootwad
				Area	Height	Length	Key Length	Yards3	yds3	Tons	Material Specifications
1	Weir	200	15	800.0	2	50	15	48	15	94.5	Poorly Sorted Limestone Rock D50 24"
2	Weir	200	15	800.0	2	50	15	48	15	94.5	Poorly Sorted Limestone Rock D50 24"
3	Weir	200	15	800.0	2	50	15	48	15	94.5	Poorly Sorted Limestone Rock D50 24"
4	Weir	200	15	800.0	2	50	15	48	15	94.5	Poorly Sorted Limestone Rock D50 24"
5	Weir	200	15	800.0	2	50	15	48	15	94.5	Poorly Sorted Limestone Rock D50 24"
6	Weir	N/A	20	880.0	2	55	20	53	20	109.5	Poorly Sorted Limestone Rock D50 24"
				21,100				293	75	473	
							Total yds3	368			

Site Information

Structure Height / ft.		Cord Length / ft.	1314.52		
Crest Width / ft.	10	Mid Ord / ft.	327		
Finished Slope Grade/H:V	N/A	BkF Elev	1224	Station	18+00
Schumm Channel Stage	5	Rosgen Classification	C5c-		
Radius of Curvature / ft.	824.04	Channel Width / ft.	230.00		
Max. Structure Spacing/ ft.	282.672	Tortuousity	3.6		
Reg. Structure Spacing / ft.	131.707	Critical Shear Stress	0.331	lbs./sq.ft.	
Hydraulic Radius / ft.	4.606	Slope = ft./ ft.	0	5.24	ft./mile
Cross Sectional Area / sq. ft.	1,030.90	Wetted Perimeter / ft.	223.8		
Bank Full Discharge / cfs	7,467	Manning's n	0.011		
		Mean Velocity / fps.	7.24		

Quantities List

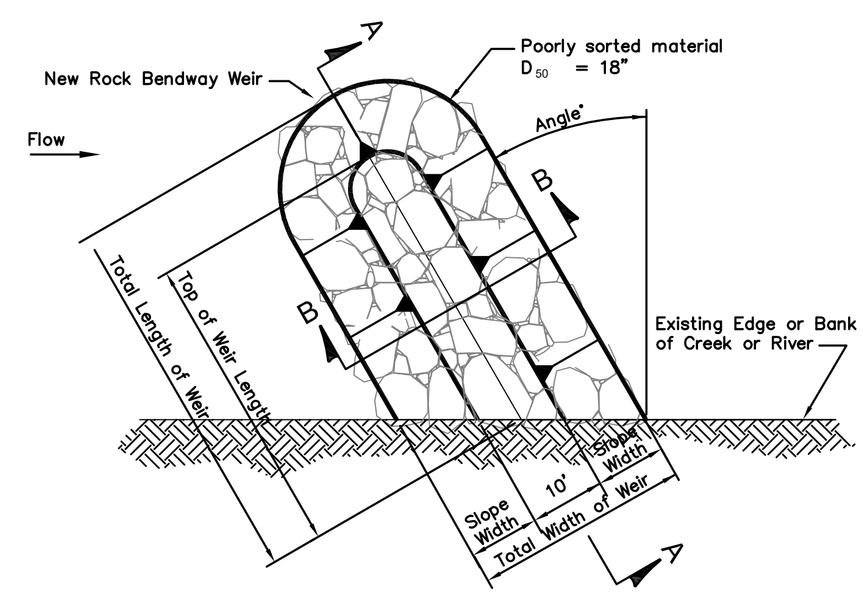
Rootwad Logs	95
Footer Logs	43
Cover Logs	85
Rock / Tons 24 in. D50	473
Soil moving/ Cubic Yds. *	0
Bare Root Trees	0
Live Stakes	5,100
Native Grass Seeding / acres	1.81
Mulching / acres	1.81
Tree Clearing	1.30

Channel Bank Vegetation - Practice Code 322

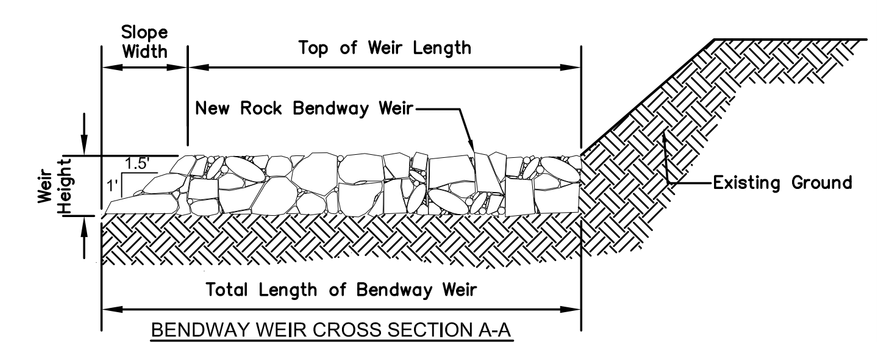
Vegetation Type	Quantity
Bare Root Seedlings / ea.	0.00
Live Stakes / ea.	5,100.00
Seeding/ acres	1.81
Mulching - Practice Code 484	
Mulching / acres	1.81

Five Year Flood Frequency -
Discharge / cfs: 21,000
2576.6 Sq. Mi.

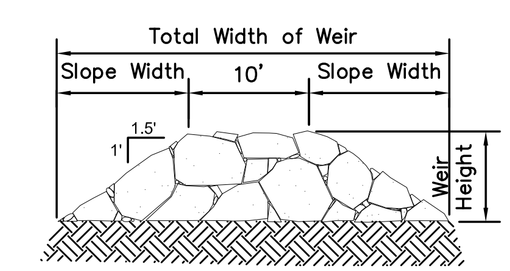
Landowner	Norma Hennerberg
C/O	
Address	
City, State Zip	
Phone	
Legal	S 1/2, Section 8, T1S, R4E
Date	9/20/2020



BENDWAY WEIR PLAN VIEW



BENDWAY WEIR CROSS SECTION A-A



BENDWAY WEIR CROSS SECTION B-B

Not For Construction Without a Professional Engineer Seal.

Date	Comment	No.	BY	CK	APP
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		3			
		2			
		1			

Designed By: PGB
Drawn By: MEM
Checked By: DWB
Date: 9/20/20
Scale: None

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Details

7 SHEET OF 7