Soil Report for Installation of Saturated Buffer System

Lannon Property, north of Longview, IL

This report details findings of a soil investigation conducted February 27, 2019 along the northeast side of East Branch Embarras River, located on the Lannon property north of Longview, IL, principally in the NE/4, NE/4, sec. 21, T. 17 N., R. 10 E.

The site for the proposed saturated buffer is on the floodplain of East Branch Embarras River. The site investigated is currently maintained as a vegetated buffer to the stream; surrounding areas support row crop agriculture. There is visible evidence of land contouring within the vegetated buffer; it is likely that material previously dredged from the stream was spread out across the surface.

Three soil borings were placed across this vegetated buffer, labeled Lannon 1-3 from west to east. There is a tile entering the stream from the property to the northeast. As this is the likely placement area for the control structure for this saturated buffer, one boring (Lannon 1) was conducted approximately 20 feet north of the stream from the tile outlet. Additional borings were conducted approximately 600 feet southeast (downstream – Lannon 2) and approximately 1250 feet southeast (downstream – Lannon 3) from Lannon 1; both these borings were located approximately 30 feet north of the stream (see attached map). Due to the similarity of materials observed in each boring, no further borings were attempted. It is likely the soils in between are very similar to those described in this report.

All three borings were conducted to a depth of at least 96 inches (8 feet), with slightly deeper samples collected when practical.

Lannon 1

Profile consisted of dark, high organic matter dredge spoil and loess-derived silty sediments to a depth of 48 inches. Texture was loam in the dredge spoil (upper 16 inches), silty clay loam from 16-32 inches, and clay loam from 32-48 inches. From 48 to 65 inches the soil is gray with common redox concentrations, indicating presence of seasonal water table. The layer from 65 to 100 inches was gray colored till which will slow infiltration from 65 inches downward. Saturated soil was noted at a depth of 88 inches, while free water was noted at a depth of 90 inches. There was no material present in any layer which would be expected to drain the buffer and prevent saturation.

Lannon 2

Similarly to Lannon 1, this profile consisted of dark, high organic matter dredge spoil and loess-derived silty sediments to a depth of 56 inches. Texture was loam in the dredge spoil (upper 32 inches), silty clay loam from 32-48 inches, and clay loam from 48-56 inches. From 56 to 63 inches the soil is gray with common redox concentrations, indicating presence of seasonal water table. The layer from 63 to 89 inches was gray colored till which will slow infiltration from 63 inches downward. From 89 to 96 inches was gray colored dense basal till which will greatly slow infiltration. Neither saturated soil nor free water were noted within 96 inches. There was no material present in any layer which would be expected to drain the buffer and prevent saturation.

Lannon 3

Similarly to Lannons 1 and 2, this profile consisted of dark, high organic matter dredge spoil and loess-derived silty sediments to a depth of 49 inches. Texture was loam in the dredge spoil (upper 32 inches), silty clay loam from 32-39 inches, and clay loam from 39-49 inches. Redoximorphic features began at the surface, indicating presence of seasonal high water table. From 49 to 96 inches the soil is gray with common redox concentrations, further confirming presence of seasonal water table. From 96 to 102 inches was gray colored coarse sandy loam outwash. Neither saturated soil nor free water were noted within 102 inches. There was no material present in any layer which would be expected to drain the buffer and prevent saturation.

Summary

The soil within the area sampled was found to be relatively uniform, as expected. Movement of system components within this existing buffer should not affect the system function due to the uniformity of materials present. Thicknesses of horizons and presence/absence of individual layers will be altered with movement away from sampling locations, but probably not to a great degree. The surface material in all three borings appears to be material dredged from the creek and spread at the surface, while the underlying materials contain slightly more sand than typical for the area. There is definitive evidence in all borings of the presence of a seasonal high water table ranging from the surface (Lannon 3) to 56 inches (Lannon 2) in depth, but due to the potential masking of redoximorphic features by organic matter, it could be significantly closer to the surface. Absence of a water table at depth in two of the three borings in March may reflect significant duration of a hard frost layer near the surface which has not allowed water infiltration through the profile. No boring indicated material which would be expected to drain the buffer.

Submitted March 7, 2019

Scott M. Wiesbrook, CPSC

swiesbro@gmail.com


Soil Boring Locations at Lannon Farm
Legend
Sampling locations
Tile Outlet
County Rd 2100 E
12
Lannon 1
Tile Outlet
Lannon 2
Lannon 3
N
800 ft
Google Earth
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Soil Profile Description

http://www.illinoissoils.org/

Soil Profile #: Lannon 1 **Date Described:** 2/27/19 **County:** Champaign

Marker is in the third horizon at _____ **inches.** **Twp.:** 17N **Range:** 10E **Sec.:** 21

Property Location: 72' due east of western property boundary; 20' north of creek bank

Described By: Scott Wiesbrook

Horizon	Depth (in.)	Matrix Color (moist) (up to 2 colors if mixed or stratified)	Redoximorphic Features (up to 2)		Coatings			USDA Texture	Structure (Primary and Secondary) (Grade/Size/Type)	Consistence	Boundary	Reaction (10%HCL)	Loading Rate (1)
			Color	Abundance/Size/ Contrast	Type	Color	Location						
^Ap	0-14	10YR 2/2	-	-	-	-	-	L	1 GR	FR			
^A	14-16	2.5Y 3/2	-	-	-	-	-	L	1 GR	FR			
Ab1	16-32	10YR 2/1	-	-	-	-	-	SICL	2 GR	FR			
Ab2	32-48	10YR 3/1	-	-	-	-	-	CL	2 SBK	FR			
Btb1	48-62	10YR 4/1	7.5YR 4/4 10YR 4/4	2% 4%	-	-	-	CL	2 SBK	FR			
Btb2	62-65	5Y 5/1	7.5YR 4/6 7.5YR 5/6	4% 7%	-	-	-	CL/L	2 SBK	FR/FI			
2BC	65-85.5	2.5Y 5/1	7.5YR 4/6 7.5YR 5/6	10% 10%	-	-	-	L	1 SBK	FI			
2C1	85.5-95	5Y 5/1	7.5YR 5/8	25%	-	-	-	L	0 MA	FI			
2C2	95-100	5Y 6/1	2.5Y 4/4	15%	-	-	-	CL	0 MA	FI			

(1) If applicable, value from appropriate state or local code.

Current Hydrology: Free Water @ 90 ± Upper Boundary of Capillary Finge @ 88 ±

Notes: Overcast, 33 degrees. A thin layer of frost was present between 3-4 inches depth.

0-16" dredge spoil, 16"-65" loess-derived/silty sediments, 65"-100" till

Signature: _____

Printed Name: Scott Wiesbrook

Soil Profile Description

http://www.illinoissoils.org/

Soil Profile #: Lannon 2 **Date Described:** 2/27/19 **County:** Champaign

Marker is in the third horizon at _____ **inches.** **Twp.:** 17N **Range:** 10E **Sec.:** 21

Property Location: 1/2 east-west distance of buffer; 30' north of creek bank

Described By: Scott Wiesbrook

Horizon	Depth (in.)	Matrix Color (moist) (up to 2 colors if mixed or stratified)	Redoximorphic Features (up to 2)		Coatings			USDA Texture	Structure (Primary and Secondary) (Grade/Size/Type)	Consistence	Boundary	Reaction (10%HCL)	Loading Rate (1)
			Color	Abundance/Size/ Contrast	Type	Color	Location						
^Ap ^A1	0-7 7-24	10YR 2/2	-	-	-	-	-	L	1 GR	FR			
^A2	24-32	10YR 3/1	7.5YR 4/4	2%	-	-	-	L	0 MA	FI			
Ab1	32-48	10YR 3/1	7.5YR 4/4	1%	-	-	-	SICL	2 GR	FR			
Ab2	48-56	10YR 3/1	-	-	-	-	-	CL	2 SBK	FI			
Btb	56-63	10YR 4/1	10YR 5/1 7.5YR 4/4	3% 2%	-	-	-	SICL	1 SBK	FI			
2C1	63-89	2.5Y 5/1	10YR 4/4	10%	-	-	-	SICL	0 MA	FI			
2C2	89-96	10Y 5/1	10YR 4/4 10YR 5/6	10% 10%	-	-	-	L	0 MA	FI			

(1) If applicable, value from appropriate state or local code.

Current Hydrology: Free Water @ ____± Upper Boundary of Capillary Finge @ ____±

Notes: Overcast, 36 degrees. A thin layer of frost was present between 1-4 inches depth. No free water found to 96 inches.

0-32" dredge spoil, 32"-63" loess-derived/silty sediments, 63"-89" ablation till, 89"+ basal till

Signature: _____

Printed Name: Scott Wiesbrook

Soil Profile Description

http://www.illinoissoils.org/

Soil Profile #: Lannon 3 **Date Described:** 2/27/19 **County:** Champaign

Marker is in the third horizon at _____ **inches.** **Twp.:** 17N **Range:** 10E **Sec.:** 21

Property Location: 120' due west of ditch at eastern property boundary; 30' north of creek bank

Described By: Scott Wiesbrook

Horizon	Depth (in.)	Matrix Color (moist) (up to 2 colors if mixed or stratified)	Redoximorphic Features (up to 2)		Coatings			USDA Texture	Structure (Primary and Secondary) (Grade/Size/Type)	Consistence	Boundary	Reaction (10%HCL)	Loading Rate (1)
			Color	Abundance/Size/ Contrast	Type	Color	Location						
^Ap ^A	0-9 9-32	10YR 2/2	7.5YR 4/4	2%	-	-	-	L	1 GR	FR			
Apb	32-39	10YR 3/1	7.5YR 4/4	4%	-	-	-	SICL	2 GR	FR			
Ab	39-49	10YR 3/1	7.5YR 4/4	4%	-	-	-	CL	2 SBK	FR			
Btb1	49-64	10YR 4/1	10YR 4/4	7%	-	-	-	CL	1 SBK	FI			
Btb2	64-77	2.5Y 5/1	10YR 5/8	20%	-	-	-	CL	1 SBK	FI			
C1	77-96	2.5Y 5/1	10YR 5/8 10YR 4/6	20% 5%	-	-	-	CL	0 MA	FI			
2C2	96-102	5Y 5/1	-	-	-	-	-	CoSL	0 SGR	L			

(1) If applicable, value from appropriate state or local code.

Current Hydrology: Free Water @ ____-____± Upper Boundary of Capillary Finge @ ____-____±

Notes: Overcast, 36 degrees. frost was present between 0-7 inches depth. No free water found to 102 inches.

32" of dredge spoil, 32"-96" loess-derived/silty sediments, 96"+ sandy outwash

Signature: _____

Printed Name: Scott Wiesbrook