

Core/Profile: BR-1  
 Location: Schultz fan, area 1  
 Legal description: SE NE NW 4 T110N R31W  
 County: Brown  
 Parent material: Alluvial fan  
 Vegetation: Plowed field  
 Slope: 5-9%  
 Elevation: 818 feet  
 Topo. Map: Essig  
 Remarks:

Depth cm(ft)	Horizon or Zone	Description
0-25 (0-.82)	A(p)	black (10YR2/1) light loam, with few fine pebbles; weak fine to medium granular; friable; noneffervescent; one very fine possible hematite clast; abrupt lower boundary.
25-36 (.82-1.18)	A	black to very dark brown (10YR2/1.5) light loam, with few granules; weak fine subangular blocky; friable; noneffervescent; abrupt lower boundary.
36-66 (1.18-2.16)	Bw	very dark grayish brown (10YR3/2) loam, with few to common fine pebbles less than 1 cm; very weak coarse prismatic breaking to weak fine subangular blocky; few thin nearly continuous black to very dark brown (10YR 2/1.5) clay coats lining pores; friable; noneffervescent; abrupt lower boundary.
66-79 (2.16-2.59)	2Ab <sub>1</sub>	very dark brown (10YR2/2) loam, with very few fine pebbles less than 1 cm; weak medium breaking to fine subangular blocky breaking to weak granular; friable; noneffervescent; very few fine charcoal fragments; clear lower boundary.
79-88 (2.59-2.89)	2Bwb <sub>1</sub>	very dark grayish brown (10YR3/2) loam; very weak subangular blocky; friable; noneffervescent; abrupt lower boundary.
88-97 (2.89-3.18)	3C	dark yellowish brown (10YR3/4) loamy medium sand, poorly sorted, with some clay and few fine pebbles <1 cm; single grain; loose; noneffervescent; abrupt lower boundary.
97-135 (3.18-4.43)	4BCb <sub>2</sub>	dark olive brown to dark brown (2.5Y-10YR3.5/3) loam, with few granules, and dark olive brown to olive brown (2.5Y3.5/4) loamy medium sand, moderately to poorly sorted; fines are weak subangular blocky, friable; coarse material is single grain, loose; noneffervescent down to moderately effervescent in lower loamy sands; few pores in fine material; very abrupt lower boundary.
135-161 (4.43-5.28)	5Ab <sub>3</sub>	very dark grayish brown (10YR3/2) down to very dark brown (10YR2/2) loam, with very few fine pebbles in lower half, with few pore fillings of black (10YR2/1) loam; weak subangular blocky; friable; slightly effervescent; abrupt to clear lower boundary.
161-194 (5.28-6.36)	5Bwb <sub>3</sub>	olive brown to dark brown to brown (2.5Y-10YR4/3) silt loam, with very few granules; very weak coarse subangular blocky; friable; violently effervescent, with common soft to hard medium secondary carbonate masses, most horizontal; gradual lower boundary.
194-307 (6.36-10.07)	5C1	olive brown to dark yellowish brown (2.5Y-10YR4/4) silt loam; stratified, possibly laminated, weakly expressed; friable; violently effervescent, with many soft fine secondary carbonate masses, mostly horizontal; gradual lower boundary.
307-348 (10.07-11.41)	5C2	olive brown to dark yellowish brown (2.5Y-10YR4/4) silt loam, with one thin bed of fine sand; stratified, possibly laminated, weakly expressed; friable; violently effervescent; abrupt lower boundary.
348-500+ (11.41-16.4+)	6C3	fine sand; violently effervescent.

Core/Profile: BR-2  
 Location: Schultz fan, area 1  
 Legal description: SE NE NW 4 T110N R31W  
 County: Brown  
 Parent material: Alluvial fan  
 Vegetation: Plowed field  
 Slope: 5-9%  
 Elevation: 842 feet  
 Topo. Map: Essig  
 Remarks:

Depth cm(ft)	Horizon or Zone	Description
0-20 (0-.66)	A(p)	black (10YR2/1) loam diamicton, with much fine sand and clay, few fine pebbles; weak fine subangular blocky breaking to granular; friable; noneffervescent; very abrupt lower boundary.
20-56 (.66-1.84)	Bw	very dark grayish brown (10YR3/2) loam, with few granules; weak medium breaking to fine subangular blocky; friable; noneffervescent; clear lower boundary.
56-108 (1.84-3.54)	2Ab <sub>1</sub>	very dark brown (10YR2/2) silt loam, with less sand than above and very few granules and fine pebbles; weak medium breaking to fine subangular and granular; friable; noneffervescent; gradual lower boundary.
108-120 (3.54-3.94)	2Bwb <sub>1</sub>	very dark grayish brown (10YR3/2) silt loam down to sandy loam, with basal pebbly loamy sand, poorly sorted; weak medium breaking to fine subangular blocky; friable to very friable; moderately effervescent, with very few fine secondary carbonate masses; abrupt lower boundary.
120-135 (3.94-4.43)	3Ab <sub>2</sub>	very dark grayish brown (10YR3/2) silt loam; weak medium breaking to fine subangular blocky; friable; strongly effervescent; very few snail shells, whole; one natal bivalve shell, whole; gradual lower boundary.
135-146 (4.43-4.79)	3Bwb <sub>2</sub>	dark to dark yellowish brown (10YR3.5/3) loamy fine sand, with basal fine sand and few fine pebbles; weak medium breaking to fine subangular blocky; very friable; strongly effervescent; very few snail shells, whole; very abrupt lower boundary.
146-154 (4.79-5.05)	4Ab <sub>3</sub>	very dark brown (10YR2/2) down to black (10YR2/1) silt loam; moderate fine subangular blocky; friable violently effervescent, with very few very fine secondary carbonate masses; abrupt lower boundary.
154-158 (5.05-5.18)	4C	dark brown (10YR3/3) loam; very weak subangular blocky; very friable; violently effervescent; abrupt lower boundary.
158-175 (5.18-5.74)	5ABb <sub>14</sub>	very dark grayish brown (10YR3/2) silt loam down to loam, with few pebbles; weak medium breaking to fine subangular blocky and, in upper half, granular; friable down to very friable; violently effervescent, with very few very fine secondary carbonate masses; abrupt lower boundary.
175-185 (5.74-6.07)	5ABb <sub>24</sub>	very dark grayish brown (10YR3/2) loam, with many fine pebbles, and more sand and granules than above; weak fine subangular blocky breaking to crumb; very friable; violently effervescent; clear boundary.
185-230 (6.07-7.54)	5Ak <sub>b5</sub>	very dark brown (10YR2/2) silt loam down to loam; moderate medium breaking to fine subangular and angular blocky in upper half; weak medium breaking to fine subangular blocky in lower half; friable; violently effervescent, with common fin and medium secondary carbonate masses and filaments; clear lower boundary.
230-262 (7.54-8.59)	5Bwb <sub>5</sub>	dark brown to dark olive brown (10YR-2.5Y3/3) silt loam down to loam, with pebbly loamy fine sand bed at base; weak medium breaking to fine subangular blocky; friable; violently effervescent; common fine secondary carbonate masses and filaments; abrupt lower boundary.
262-286 (8.59-9.38)	6Ab <sub>6</sub>	black to very dark brown (10YR2/1.5) silt loam, with very few fine pebbles; weak medium breaking to fine subangular blocky and granular; friable; violently effervescent, with few zones with fine secondary carbonate masses; abrupt lower boundary.
286-321+ (9.38-10.53+)	6Bwb <sub>6</sub>	dark olive brown to olive brown to dark yellowish brown (2.5Y-10YR3.5/4) silt loam, with more clay than above; moderate medium subangular blocky; friable; violently effervescent, with common very fine secondary carbonate masses; base of core.

Core/Profile: BR-3  
 Location: Schultz fan, area 1  
 Legal description: SE NE NW 4 T110N R31W  
 County: Brown  
 Parent material: Alluvial fan  
 Vegetation: Plowed field  
 Slope: 5-9%  
 Elevation: 852 feet  
 Topo. Map: Essig  
 Remarks:

Depth cm(ft)	Horizon or Zone	Description
0-22 (0-.72)	Ap	black (10YR2/1) silt loam, with very few granules; weak to moderate medium breaking to fine subangular blocky; friable; noneffervescent; abrupt lower boundary.
22-42 (.72-1.38)	A	black to very dark brown (10YR2/1.5) loam, with very few granules; weak fine subangular blocky breaking to granular; friable; noneffervescent; abrupt lower boundary.
42-53 (1.38-1.74)	BC	very dark grayish brown (10YR3/2) heavy silt loam and loam, with common granules; very weak subangular blocky over thin beds; friable; noneffervescent; abrupt lower boundary.
53-74 (1.74-2.43)	2Ab <sub>1</sub>	black to very dark brown (10YR2/1.5) loam, with very few granules; weak medium breaking to fine subangular blocky; friable; noneffervescent; gradual lower boundary.
74-91 (2.43-2.98)	2ABb <sub>1</sub>	very dark brown (10YR2/2) loam, with loamy gravel lamina at base; weak medium breaking to fine subangular blocky; friable; noneffervescent; abrupt lower boundary.
91-149 (2.98-4.89)	2Bwb <sub>1</sub>	very dark grayish brown to dark brown (10YR3/2.5) loam, with several strata enriched in fine gravel; weak coarse breaking to medium subangular blocky; friable; noneffervescent; one very fine bone fragment; abrupt lower boundary.
149-159 (4.89-5.22)	3Ab <sub>2</sub>	black (10YR2/1) loam, with very few granules; weak medium subangular blocky; friable; noneffervescent; clear lower boundary.
159-174 (5.22-5.71)	3Bwb <sub>2</sub>	very dark grayish brown to dark brown (10YR3/2.5) loam, with few granules; moderate medium subangular blocky; friable; noneffervescent down to moderately effervescent, with few very fine secondary carbonate masses; abrupt lower boundary.
174-191 (5.71-6.26)	4C1	very dark grayish brown to dark brown (10YR3/2.5) gravel with sandy loam matrix, with one loam bed; single grain to subangular blocky; loose to friable; violently lower boundary.
191-218 (6.26-7.15)	5CBk <sub>3</sub>	dark olive brown to olive brown (2.5Y3.5/3) loam down to silt loam; very weak subangular blocky; very friable; violently effervescent, with many fine soft secondary carbonate masses and filaments; abrupt lower boundary.
218-223 (7.15-7.31)	6Akb <sub>4</sub>	very dark gray to very dark grayish brown (2.5Y 3/1.5) silt loam, with much sand; weak fine subangular blocky; friable to very friable; violently effervescent, with common fine soft secondary carbonate masses and filaments; abrupt lower boundary.
223-252 (7.31-8.27)	6Bwkb <sub>4</sub>	dark olive brown to olive brown (2.5Y3.5/3) light silt loam or heavy fine sandy loam; weak coarse breaking to medium subangular blocky; friable to very friable; violently effervescent, with many fine soft secondary carbonate masses and filaments; abrupt lower boundary.
252-258 (8.27-8.46)	6Ck	very dark grayish brown (2.5Y3/2) and very dark gray (2.5Y3/1) silt loam, with much silt, and clay, with very few granules; thin to thick laminae; friable; violently effervescent, with many fine soft secondary carbonate masses and filaments.

Core/Profile: BR-4  
 Location: Harlan Vogel's farm  
 Legal description: NW ¼ Section 31 T111N R31W  
 County: Brown  
 Parent material: Alluvial fan sediments  
 Vegetation: Plowed field  
 Slope: 2-5%  
 Elevation: 804 feet  
 Topo. Map: St. George  
 Remarks: on alluvial fan in the Minnesota River valley; distal edge of fan; close to Minnesota River

Depth cm(ft)	Horizon or Zone	Description
0-6 (0-.2)	Ap1	black (10YR2/1) silty clay; weak to moderate, thin, platy; firm; noneffervescent; abrupt lower boundary.
6-19 (.2-.6)	Ap2	black (10YR2/1) silty clay; weak, very fine, subangular blocky; firm; noneffervescent; abrupt lower boundary.
19-45 (.6-1.5)	A	black (10YR2/1) silty clay; weak, very fine, subangular blocky; friable; noneffervescent; gradual lower boundary.
45-85 (1.5-2.8)	AC	black (10YR2/1) silty clay; massive; friable; noneffervescent; abrupt lower boundary.
85-130 (2.8-4.3)	2CAb	very dark brown to very dark grayish brown (10YR2.5/2) silty clay loam to clay loam; massive; friable; violently effervescent, with secondary carbonate concretions; shell fragments; abrupt lower boundary.
130-156 (4.3-5.1)	2C1	very dark grayish brown to dark grayish brown (10YR3.5/2) sandy loam; massive; friable; violently effervescent; shell fragments and shale.
156-200 (5.1-6.6)	2C2	grayish brown to brown (2.5Y5/2-10YR5/3) sandy loam and loam; common, coarse, distinct, dark reddish brown (5YR3/3) manganese oxide and iron oxide mottles; thin beds, internally massive; friable; clear lower boundary.
200-230 (6.6-7.5)	2C3	brown (10YR5/3) pebbly sandy loam; massive; friable; violently effervescent; clear lower boundary.
230-244 (7.5-8.0)	3C4	grayish brown (2.5Y5/2) alternating very fine sand and silt; many, fine to medium, prominent, dark reddish brown (5YR3/3) manganese oxide mottles; laminae, internally massive; friable; violently effervescent; clear lower boundary; laminar bedding.
244-276 (8.0-9.1)	3C5	grayish brown (2.5Y5/2) to brown (10YR5/3) clay loam; many, fine, distinct, black (5YR2.5/1) manganese oxide mottles; massive; friable; violently effervescent; very few snail shells.

Core/Profile: BR-5  
 Location: Harlan Vogel's farm  
 Legal description: NW ¼ Section 31 T111N R31W  
 County: Brown  
 Parent material: Alluvial fan sediment  
 Vegetation: Plowed field  
 Slope: 5-9%  
 Elevation: 810 feet  
 Topo. Map: St. George  
 Remarks: on an alluvial fan in the Minnesota River valley; near distal edge of fan

Depth cm(ft)	Horizon or Zone	Description
0-6 (0-.2)	Ap1	black (10YR2/1) sandy loam, with many pebbles 0.5-2 cm in diameter; massive to weak, fine, subangular blocky; very firm; strongly effervescent; abrupt lower boundary.
6-36 (.2-1.2)	Ap2	black (10YR2/1) loam, with few pebbles <1 cm in diameter; massive to weak, fine, subangular blocky; very firm; strongly effervescent, with few secondary carbonate masses; fine roots; shell fragments; clear lower boundary.
36-55 (1.2-1.8)	A	black (10YR2/1) and very dark brown (10YR2/2) loam; massive to weak, fine, subangular blocky; firm; violently effervescent, with common secondary carbonate masses; few shell fragments; gradual lower boundary.
55-108 (1.8-3.5)	Bw	very dark grayish brown (10YR3/2) to dark grayish brown (10YR4/2) loam; weak, fine to medium, subangular blocky; firm; violently effervescent; clear lower boundary.
108-115 (3.5-3.8)	2ABb <sub>1</sub>	very dark grayish brown (10YR3/2) loam, with one 3 cm in diameter limestone pebble; massive; friable; violently effervescent; clear lower boundary.
115-121 (3.8-4.0)	2Bwb <sub>1</sub>	dark grayish brown (10YR4/2) to brown (10YR4/3) loam; massive; friable; violently effervescent; abrupt lower boundary.
121-128 (4.0-4.2)	3Ab <sub>2</sub>	black (10YR2/1) sandy loam, with coarse sand and fine pebbles; weak, medium, granular; friable; violently effervescent; abrupt lower boundary.
128-149 (4.2-4.9)	3ACb <sub>2</sub>	very dark grayish brown (10YR3/2) to dark grayish brown (10YR4/2) sandy loam; massive to weak, medium, granular; very friable; violently effervescent; very few snail shells <1 cm; abrupt lower boundary.
149-163 (4.9-5.3)	4Ab <sub>3</sub>	black (10YR2/1) to very dark gray (10YR3/1) loam, with slightly more clay than above; massive; friable; strongly effervescent; few snail shells <1 mm in diameter; clear lower boundary.
163-182 (5.3-6.0)	4Bwb <sub>3</sub>	very dark grayish brown (10YR3/2) to dark grayish brown (10YR4/2) loam and fine sandy loam; massive to weak, very fine subangular blocky; friable; strongly effervescent; gradual lower boundary.
182-209 (6.0-6.9)	4C	dark grayish brown (10YR4/2) to grayish brown (10YR5/2) loam and fine sandy loam; thin beds, massive internally; friable; violently effervescent; clear lower boundary.
209-225 (6.9-7.4)	5CAb <sub>4</sub>	dark grayish brown (10YR4/2) to very dark grayish brown (10YR3/2) loam and fine sandy loam; massive; friable; strongly effervescent; few possible wood fragments at 221-225 cm; abrupt lower boundary;.
225-256 (7.4-8.4)	5C1	dark grayish brown (10YR4/2) to brown (10YR4/3) loam and fine sandy loam; common, coarse, faint yellowish brown (10YR5/4) mottles; thin beds, internally massive, very weakly expressed; friable; strongly effervescent; gradual lower boundary.
256-301 (8.4-9.9)	5C2	dark grayish brown (2.5Y4/2) silty loam and sandy loam; many, coarse, faint, light olive brown (2.5Y4/4) mottles, mostly horizontal; very few manganese oxide concretions, hard, 1.5 cm in diameter; thin beds, internally massive, weakly expressed; friable; strongly effervescent; clear lower boundary; .
301-315 (9.9-10.3)	6C3	dark brown (10YR4/3) to dark yellowish brown (10YR4/4) coarse sandy loam; few, coarse, faint, yellowish brown (10YR5/6) mottles; massive; very friable; strongly effervescent; clear to abrupt lower boundary.
315-346 (10.3-11.4)	7C4	dark gray (10YR4/1) coarse silt loam, with sand lenses at 322 cm and 328 cm; many, coarse, distinct, yellowish brown (10YR5/6) mottles; massive; friable; strongly effervescent; few snail shells <2 mm in diameter; abrupt lower boundary.
346-350 (11.4-11.5)	8C5	dark yellowish brown to light brown (10YR3/4-7.5YR6/4) medium sandy loam; massive; very friable; strongly effervescent; abrupt lower boundary.
350-357 (11.5-11.7)	9C6	brown (7.5YR5/4) loam; many multicolored mottles; massive over laminated; friable; strongly effervescent; abrupt lower boundary.

Depth cm(ft)	Horizon or Zone	Description
<b>BR-5 (continued)</b>		
357-360 (11.7-11.8)	10C7	brown (7.5YR5/4) very coarse sand, with pebbles; massive; very friable; strongly effervescent; abrupt lower boundary.
360-371 (11.8-12.2)	11C8	greenish gray to gray (5GY5/1-5/0) fine sandy loam; few, coarse, prominent, black (N2/0) and common, coarse, distinct, grayish-brown (2.5Y5/2) mottles; massive; friable; strongly effervescent; clear lower boundary.
371-380 (12.2-12.5)	11C9	yellowish brown (10YR5/4) medium sandy loam; massive; very friable; strongly effervescent; gradual lower boundary.
380-454 (12.5-14.9)	11C10	yellowish brown (10YR5/4) coarse sandy loam; massive; very friable; strongly effervescent; abrupt lower boundary.
454-488 (14.9-16.0)	12AC <sub>3</sub>	very dark gray (2.5Y3/0) to black (2.5Y2/0) loam; many, medium, faint, gray to grayish brown (2.5Y5/0-5/2) mottles; massive; friable; strongly effervescent; clear lower boundary; rootlet sampled for C-14 at 460-473 cm - dated to 7,360±50 BP.
488-509 (16.0-16.7)	12C	grayish brown (2.5Y5/2) sandy loam; massive; very friable; strongly effervescent; abrupt lower boundary with coarse sand and pebble lag.
509-518 (16.7-17.0)	13AC <sub>6</sub>	dark gray (10YR4/1) pebbly sandy loam; massive; friable; strongly effervescent; abrupt lower boundary.
518-526 (17.0-17.3)	13C1	gray (10YR5/1) fine sandy loam; massive; friable; strongly effervescent; clear lower boundary.
526-534 (17.3-17.5)	14C2	light brownish gray (10YR6/2) pebbly loamy sand; massive; very friable; strongly effervescent.

Core/Profile: BR-6  
 Location: Harlan Vogel's farm  
 Legal description: NW ¼ Section 31 T111N R31W  
 County: Brown  
 Parent material: Alluvial fan sediment  
 Vegetation: Dirt farm road  
 Slope: 5-9%  
 Elevation: 821 feet  
 Topo. Map: St. George  
 Remarks: on an alluvial fan in the Minnesota River valley; on apex of fan

Depth cm(ft)	Horizon or Zone	Description
0-8 (0-.3)	Ap1	dark brown (7.5YR3/2) sandy loam; weak, fine, subangular blocky; friable; strongly effervescent; abrupt lower boundary.
8-32 (.3-1.0)	Ap2	black (10YR2/1) loam; weak, fine, subangular blocky, with weak, medium, platy structure in the lower part; friable; strongly effervescent; fine roots; abrupt lower boundary.
32-41 (1.0-1.3)	Ap3	very dark gray (10YR3/1) to dark grayish brown (10YR4/2) loam; common, fine, distinct dark yellowish brown (10YR4/6) mottles; weak, fine, subangular blocky; friable; strongly to violently effervescent; clear lower boundary.
41-68 (1.3-2.2)	Ap4	very dark gray (10YR3/1) to dark grayish brown (10YR4/2) loam; common fine distinct dark yellowish brown (10YR4/6) mottles; massive to weak, very fine subangular blocky; friable; strongly to violently effervescent; with crop residue; abrupt lower boundary.
68-87 (2.2-2.9)	Ab1	black (10YR2/1) to dark brown (7.5YR3/2) loam; weak, very fine, granular; friable; strongly effervescent; gradual lower boundary.
87-135 (2.9-4.4)	Bwb1	dark brown to brown (10YR4/3) down to dark yellowish brown to strong brown (10YR4/6-7.5YR4/6) loam; massive to weak, very fine, subangular blocky; friable; strongly effervescent, with many, fine, secondary carbonate filaments; abrupt lower boundary.
135-151 (4.4-5.0)	2ACb2	very dark grayish brown (10YR3/2) loam; few, fine, distinct red (2.5YR4/8) mottles; massive to weak, fine granular; friable; strongly effervescent, with few fine distinct secondary carbonate filaments; clear lower boundary; POSSIBLE ARCHAEOLOGICAL FEATURE - charred bone found and sampled for possible C-14 dating; shells, plant matter, and carbonate filaments.
151-197 (5.0-6.5)	2C	dark brown to brown (10YR4/3-7.5YR4/3) loam to sandy loam; few, fine, brownish yellow (10YR6/8) and yellowish red (5YR5/8) mottles; massive; friable; strongly effervescent; small piece of charcoal at 161 cm; abrupt lower boundary.
197-236 (6.5-7.7)	3CAb3	very dark gray to very dark grayish brown (10YR3/1-3/2) loam; common, fine, strong brown (7.5YR4/6) and light gray (10YR7/2) mottles; massive; friable; strongly effervescent; shell and bone fragments; gradual lower boundary.
236-405 (7.7-13.3)	3C1	dark grayish brown to brown (10YR4/2-4/3), yellowish brown (10YR5/4) and light olive brown (2.5Y5/4) very coarse sandy loam to fine sandy loam; massive; strongly effervescent, with few, medium, secondary carbonate concretions at 240-250 cm; clear lower boundary; stone line of coarse pebbles (<4 cm) at the bottom.
405->409 (13.3->13.4)]	4C2	gravel; single bed; strongly effervescent; indeterminate boundary.
<466-503 (15.3-16.5)	5C3	dark grayish brown to brown (10YR4/2-4/3) fine sandy loam; common, coarse, strong brown (7.5YR5/6) mottles; massive; friable; strongly effervescent; pebbles are <5 cm in diameter; abrupt lower boundary.
503-537 (16.5-17.6)	6ACb4	black (10YR2/1) down to very dark gray (10Y3/1) clay loam; common, fine, very dark gray (10YR3/1), very dark grayish brown (10YR3/2), and very pale brown (10YR7/3), and few, coarse, yellowish brown (10YR5/6) mottles; massive; friable; strongly effervescent; gradual lower boundary.
537-561 (17.6-18.4)	6Cg	dark gray (10YR4/1) sandy clay loam, with dark brown to brown (10YR4/3) sand lense; common, fine, light gray (10YR7/2) mottles; massive; friable; strongly effervescent; in situ root fragment at 549-551 cm and wood sample at 551 cm; <i>Quercus sp.</i> (oak) from 551 cm C-14 dated as Modern; clear lower boundary.
561-570 (18.4-18.7)	7CAb5	very dark gray (10YR3/1) silty clay loam; massive; very plastic; strongly effervescent; abrupt lower boundary.

Depth cm(ft)	Horizon or Zone	Description
<b>BR-6 (continued)</b>		
570-599 (18.7-19.7)	8C1	grayish brown (10YR5/2) fine sandy loam, with granite cobble (6 cm) at top; common, coarse, yellowish brown (10YR5/6), few, medium, dark reddish brown (2.5YR2.5/4), and few, medium, very dark to dark grayish brown (10YR3/2-4/2) mottles; massive; friable; strongly effervescent, with concretions; abrupt lower boundary.
599-623 (19.7-20.4)	8C2	grayish brown (10YR5/2) coarse loam; common, coarse, yellowish brown (10YR5/6), few, medium, dark reddish brown (2.5YR2.5/4), and few, medium, very dark to dark grayish brown (10YR3/2-4/2) mottles; massive; strongly effervescent; abrupt lower boundary.
623-636 (20.4-20.9)	8Ck	grayish brown (10YR5/2); many, fine, faint, very pale brown (10YR7/3) mottles; violently effervescent, with abundant secondary carbonate cement; unknown lower boundary.
636-646 (20.9-21.2)		no recovery.
646-687 (21.2-22.5)	9C1	dark brown to brown (10YR4/3) medium sand; single grain; loose; strongly effervescent.
Auger Sample:		
687-1047 (22.5-34.4)	9C2	dark grayish brown to brown (10YR4/2-4/3) medium to coarse loamy sand to sandy loam, with gray to weak red (2.5YR5/2-5/1) silt-rich strata; yellowish red (5YR5/8) to dark reddish brown (2.5YR2.5/4) mottles; massive; very friable; strongly effervescent; 927-1047 cm recovered wood fragments; sample of <i>Coniferophyta</i> taken from 927-1047 cm C-14 dated at 10,410±60 BP.

Core/Profile: BR-7

Location: Harlan Vogel's farm

Legal description: NW ¼ Section 31 T111N R31W

County: Brown

Parent material: Alluvial fan sediment

Vegetation: Field road

Slope: 5-9%

Elevation: 816 feet

Topo. Map: St. George

Remarks: on an alluvial fan in the Minnesota River valley; proximal to medial part of fan; midway between BR-5 and BR-6

Depth cm(ft)	Horizon or Zone	Description
0-8 (0-.3)	Ap1	very dark grayish brown (10YR3/2) to brown (10YR5/3) pebbly sandy loam; friable; violently effervescent; abrupt lower boundary; road till.
8-41 (.3-1.3)	Ap2	black (10YR2/1) loam; massive to weak, fine, subangular blocky; friable; strongly effervescent, with few secondary carbonate concretions; and few snail shells; clear lower boundary.
41-71 (1.3-2.3)	A	very dark gray (10YR3/1) loam; weak, fine, subangular blocky to massive; friable; violently effervescent, with common secondary carbonate concretions; common snail shells; gradual lower boundary.
71-91 (2.3-3.0)	Bw	dark brown (7.5YR3/2) loam; massive to weak, fine, subangular blocky; friable; violently effervescent, with common secondary carbonate concretions; clear lower boundary.
91-106 (3.0-3.5)	2ABkb <sub>1</sub>	very dark gray to black (7.5YR3/2-2.0) loam, with more clay than above or below; weak, fine, subangular blocky; friable; violently effervescent, with many secondary carbonate concretions; clear lower boundary.
106-209 (3.5-6.9)	2Bwb <sub>1</sub>	dark brown to brown (10YR4/3-3/3) fine sandy loam to loam; few, medium, yellowish red (5YR4/6) mottles; massive; friable; violently effervescent; common roots; burrow fillings very dark grayish brown; large snail shell (1 cm) at lower boundary; clear lower boundary.
209-253 (6.9-8.3)	3ACb <sub>2</sub>	very dark grayish brown (10YR3/2) to black (10YR2/1) silt loam; few, coarse, faint, yellowish brown (10YR5/4-5/6) mottles; massive; friable; violently effervescent, with very few secondary carbonated root pipes; gradual lower boundary.
253-274 (8.3-9.0)	3C	dark grayish brown (10YR4/2) to brown (10YR4/3) coarse silty loam; few, medium, faint, brown (10YR5/3) mottles; massive; friable; violently effervescent; abrupt lower boundary.
274-280 (9.0-9.2)	4ACb <sub>3</sub>	very dark gray (10YR3/1) to very dark grayish brown (10YR3/2) silt loam; few, fine, faint, dark grayish brown (10YR4/2) and brown (10YR4/3); massive; friable; strongly effervescent; very few snail shells; clear lower boundary.
280-293 (9.2-9.6)	4C	dark brown to brown (10YR4/3) coarse silt loam; few fine, distinct, yellowish brown (10YR5/6) mottles; massive; friable; violently effervescent; clear lower boundary.
293-297 (9.6-9.7)	5ACb <sub>4</sub>	very dark gray (10YR3/1) to very dark grayish brown (10YR3/2) silt loam; few, fine, faint, dark grayish brown (10YR4/2) to dark brown to brown (10YR4/3) mottles; massive; friable; violently effervescent; clear lower boundary.
297-330 (9.7-10.8)	5C1	dark brown to brown (10YR4/3) silt loam; few, fine, distinct, yellowish brown (10YR5/6) and few, medium, distinct, very pale brown (10YR7/3) mottles; massive; friable; strongly effervescent; gradual lower boundary.
330-385 (10.8-12.6)	6C2	dark grayish brown (10YR4/2) fine sandy loam; common, medium, distinct, very pale brown (10YR7/3) and common, medium, faint, yellowish brown (10YR5/6) mottles; massive; friable; strongly effervescent; abrupt lower boundary.
385-389 (12.6-12.8)	6C3	very dark brown (10YR2/2) to very dark grayish brown (10YR3/2) medium sandy loam; many, coarse, distinct, dark grayish brown (10YR4/2) mottles; massive; very friable; strongly effervescent; clear lower boundary.
389-495 (12.8-16.2)	6C4	grayish brown (2.5Y5/2) medium sandy loam; common, coarse, distinct, light olive brown to yellowish brown (2.5Y-10YR5/6) and few, coarse, prominent, dark brown (7.5YR3/4) mottles; massive to bedded, with sandier strata, graded, weakly expressed; friable; strongly effervescent; possible root/burrow fillings; clear lower boundary.
495-538 (16.2-17.7)	7ACb <sub>5</sub>	black to very dark gray (N2/0-3/0) loam, with few limestone pebbles; massive; friable; strongly effervescent; black roots in bottom 5 cm; abrupt lower boundary.
538-574 (17.7-18.8)	7C	dark greenish gray (5GY4/1) and dark gray (5Y4/1) sandy loam, with gravel lens at 471-473 cm- subrounded-subangular chert pebbles < 1 cm in diameter; massive; friable; few, fibrous, black roots; strongly effervescent; abrupt lower boundary.

Depth cm(ft)	Horizon or Zone	Description
<b>BR-7 (continued)</b>		
574-585 (18.8-19.2)	8CAb <sub>6</sub>	very dark gray (2.5Y3/0) to very dark grayish brown (2.5Y3/2) sandy loam; few, fine to medium, dark gray (2.5Y5Y4/1) mottles, possibly reworked sediment from below; massive; friable; strongly effervescent; abrupt lower boundary.
585-617 (19.2-20.2)	8C1	dark gray (2.5Y-5Y4/1) very fine sandy loam, with very coarse sand laminae; common, fine, gray (5Y6/1) mottles, increasing with depth; massive; friable; strongly effervescent; clear lower boundary.
617-642 (20.2-21.1)	8C2	grayish brown (2.5Y5/2) fine loamy sand, with few, fine, gray (2.5Y-5Y6/1) reworked clasts which are violently effervescent; massive; friable; strongly effervescent; gradual (texture) lower boundary.
642-654+ (21.1-21.5+)	8C3	grayish brown (2.5Y5/2) medium to coarse sandy loam, with some coarse pebbles; many, coarse, reddish brown (5YR4/4,4/6) to yellowish red to very dusky red (2.5YR2.5/2) mottles; massive; friable; strongly effervescent; indeterminate lower boundary.
Auger Sample:		
819-864 (26.9-28.3)		grayish brown (2.5Y5/2 and 10YR5/2) loam with yellowish brown (10YR5/4) loamy sand strata; few, coarse, distinct, reddish brown (5YR4/4) to strong brown (7.5YR5/6); massive; friable; strongly effervescent.

Core/Profile: BR-8  
 Location: Harlan Vogel's farm  
 Legal description: NW ¼ Section 31 T111N R31W  
 County: Brown  
 Parent material: Alluvial fan sediments  
 Vegetation: Grass  
 Slope: 2-5%  
 Elevation: 826 feet  
 Topo. Map: St. George  
 Remarks: on an alluvial fan in the Minnesota River valley; on fan apex, extreme proximal; high surface

Depth cm(ft)	Horizon or Zone	Description
0-26 (0-.9)	A	black (10YR2/1) loam to silt loam; weak, medium, subangular blocky; friable; slightly to strongly effervescent, with few secondary carbonate concretions <1 cm in diameter; clear lower boundary.
26-43 (.9-1.4)	AB	black (10YR2/1) loam, with many, fine, dark yellowish brown (10YR4/6) pedes; massive to weak, medium to fine, subangular blocky; friable; strongly effervescent; gradual lower boundary.
43-144 (1.4-4.7)	Bw	dark reddish brown (5YR3/3) down to (2.5YR2.5/4); massive, stratified in the lower 20 cm; friable; strongly effervescent, with common fine secondary carbonate concretions; clear lower boundary.
144-184 (4.7-6.0)	2Bw	dark reddish brown (5YR3/3-3/2) medium to coarse sand; single grain; loose; strongly effervescent; abrupt lower boundary.
184-254 (6.0-8.3)	3CAb <sub>1</sub>	dark grayish brown (2.5Y4/2) silt clay loam; common, medium, distinct dark brown (7.5YR3/2) mottles; massive; friable; strongly effervescent, with common, fine, very pale brown secondary carbonate linings in pores; one black (10YR2/1) crudely laminated strata, with microscopic charcoal fleck from 194-197 cm; abrupt lower boundary, with thin sand bed at base.
254-259 (8.3-8.5)	4Ab <sub>2</sub>	dark reddish brown (5YR2.5/2) loam to silt loam; weak, fine, subangular blocky; friable; slightly to strongly effervescent; wood sample taken from the lower boundary - C-14 dated as Modern; abrupt lower boundary.
259-270 (8.5-8.9)	4C1	dark gray (10YR4/1) to dark grayish brpwm (10YR4/2) loam to silt loam; common medium dark brown (7.5YR3/4) mottles; massive; friable; strongly effervescent; clear lower boundary.
270-298 (8.9-9.8)	4C2	dark brown to brown (10YR4/3) loam; common, fine, dark reddish brown (5YR3/2) mottles; massive; very friable; strongly effervescent; abrupt lower boundary.
298-304 (9.8-10.0)	5CAb <sub>3</sub>	very dark grayish brown (10YR3/2) to dark grayish brown (10YR4/2) silt loam to loam; few, fine, yellowish red (5YR4/6) mottles; massive; very friable; strongly effervescent; abrupt lower boundary.
304-308 (10.0-10.1)	5C	very dark grayish brown (10YR3/2) loam; few, fine, red (2.5YR4/6-4/8) mottles; massive; friable; strongly effervescent, with with common fine pinkish gray (7.5YR7/2) secondary carbonate concretions; abrupt lower boundary.
308-311 (10.1-10.2)	6CAb <sub>4</sub>	dark brown (7.5YR3/2) sandy clay loam, with basal sand bed; massive; friable; strongly effervescent; abrupt lower boundary.
311-318 (10.2-10.4)	6C1	dark gray (10YR4/1) to grayish brown (10YR5/2) loam; massive; friable; strongly effervescent, with very few secondary carbonate filaments; abrupt lower boundary.
318-359 (10.4-11.8)	6C2	dark brown ((10YR4/3) to olive brown (2.5Y4/4) fine sandy loam to loam; common, fine, strong brown (7.5YR4/6) mottles; massive; friable; strongly effervescent; charcoal sample taken at 343 cm; abrupt lower boundary.
359-362 (11.8-11.9)	7CAb <sub>5</sub>	black (N2/0) sandy loam and loamy sand; massive to laminated; friable; strongly effervescent; abrupt lower boundary.
362-402 (11.9-13.2)	7C	grayish brown (10YR5/2) to olive brown (2.5Y4/4) sandy loam; common, medium, dark red to yellowish red (2.5YR3/6-5YR5/8) mottles; crude beds, internally massive; friable; strongly effervescent; very few snail shells; very few charcoal fragments; abrupt lower boundary.
402-412 (13.2-13.5)	8Ab <sub>6</sub>	dark reddish brown (5YR2.5/2) loam; massive to weak, fine, subangular blocky; friable; strongly effervescent; wood fragment sample taken at 405 cm; abrupt lower boundary.
412-501 (13.5-16.4)	8Cg	dark gray (2.5Y4/1) and gray (2.5Y5/1) sandy loam; common, coarse, dark olive gray (5Y3/2) mottles; massive; friable; strongly effervescent; few snail shells; thin organic band with wood fragments at 470 cm; abrupt lower boundary.

Depth cm(ft)	Horizon or Zone	Description
<b>BR-8</b> (continued)		
501-505 (16.4-16.6)	9C	dark reddish brown (5YR3/3) pebble gravel, with coarse sand; single bed, single grain; loose; strongly effervescent; indeterminate lower boundary.
505-537 (16.6-17.6)	10Cg	dark gray (2.5Y4/1) to grayish brown (2.5Y5/2) sandy loam, with few carbon-enriched strata; common, coarse, dark red (2.5YR3/6) mottles; thin beds, internally massive to single grained; loose to very friable; strongly effervescent; charcoal fragment sampled at 508 cm; abrupt lower boundary.
537-540 (17.6-17.7)	11CAgb <sub>7</sub>	black (N2/0) sandy loam; massive; very friable; strongly effervescent; abrupt lower boundary.
540-555 (17.7-18.2)	11C1	dark brown (7.5YR3/2) to very dark gray (2.5Y-N3/0) sandy loam, loam and pebble gravel; thin beds, internally massive; friable; strongly effervescent; indeterminate lower boundary.
555-598 (18.2-19.6)	11C2	dark brown (7.5YR3/2) medium to coarse sand, with fine pebbles; single grain; loose; strongly effervescent; abrupt lower boundary.
598-632 (19.6-20.7)	12Cg	dark gray to gray (N4/0-5/0) silt loam; massive; plastic; strongly effervescent; wood fragment at 626 cm; abrupt lower boundary.
632-641 (20.7-21.0)	13C1	dark brown (7.5YR3/2) coarse sand and pebbly sand; single grain; very friable to loose; strongly effervescent; abrupt lower boundary.
641-664 (21.0-21.8)	14C2	very dark gray to gray (N3/0-5/0) fine loam; massive to single grain; very friable to loose; strongly effervescent; roots and wood fragments at 641- 641 cm sampled; wood fragment remaining in place at 659 cm; abrupt lower boundary.
664-714 (21.8-23.4)	15C3	dark brown to brown (7.5YR4/2) coarse sand and pebbly sand; single grain; loose; strongly effervescent; abrupt lower boundary.
714-719 (23.4-23.6)	16C4	dark gray to gray (N4/0-5/0) loam; massive to single grain; very friable to loose; strongly effervescent; rootlet at 716 cm - C-14 dated as Modern; abrupt lower boundary.
719-748 (23.6-24.5)	17C5	dark brown to brown (7.5YR4/2) pebble gravel; single grain; loose; strongly effervescent; base of core.

Core/Profile: BR-9  
 Location: Minnesota River Valley  
 Legal description: SW NE NW 4 T110N R31W  
 County: Brown  
 Parent material: Alluvial fan  
 Vegetation: Grass  
 Slope: 5-9%  
 Elevation: 828 feet  
 Topo. Map: Essig  
 Remarks: Medial alluvial fan; on field road

Depth cm(ft)	Horizon or Zone	Description
0-22 (0-.72)	A	black (10YR2/1) silt loam; moderate medium platy; friable; violently effervescent; very abrupt lower boundary.
22-26 (.72-.85)	2C1	very dark brown (10YR2/2) granular medium sand and olive brown (2.5Y4/3) loamy very fine sand; stratified, single grain; loose; violently effervescent; very abrupt lower boundary.
26-37 (.85-1.21)	3C2	very dark gray (10YR3/1) heavy silt loam, with few loamy fine sand laminae; stratified, moderately expressed; friable; violently effervescent; very abrupt lower boundary.
37-68 (1.21-2.23)	4C3	dark brown to dark olive brown to olive brown (10YR-2.5Y3.5/3) very fine sand, with some fines; single grain; loose; violently effervescent; abrupt lower boundary.
68-88 (2.23-2.89)	4C4	very dark grayish brown (2.5Y3/2) granular fine and medium sand, with little fines; single grain; loose; violently effervescent; abrupt lower boundary.
88-100 (2.89-3.28)	5C5	very dark gray (2.5Y3/1) very fine sandy loam, with few fine sand strata; few strong brown (7.5YR3/6) horizontal mottles; stratified, moderately expressed; friable; violently effervescent; abrupt lower boundary.
100-143 (3.28-4.69)	6C6	pebbly fine and medium sand, with many fines; single grain; loose; violently effervescent; indeterminate boundary.
<175-143 (<5.74-4.69)	6C7	very dark gray (2.5Y3/2) fine gravel, less than 1.5cm diameter, with much medium and coarse sand and little fines; single grain; loose; violently effervescent; very abrupt lower boundary.
153-149 (5.02-4.89)	7C8	dark grayish brown (2.5Y4/2) and dark gray (2.5Y4/1) loamy very fine sand; thin stratified, moderately expressed, single grain; very friable to loose; violently effervescent; abrupt lower boundary.
149-262 (4.89-8.59)	8C9	dark grayish brown to grayish brown (2.5Y4.5/2) fine sand, with few fine pebbles, down to pebbly medium sand, pebbles up to 4 cm; single grain; loose; violently effervescent; very abrupt lower boundary.
262-281 (8.59-9.22)	8C10	very dark grayish brown (10YR-2.5Y3/2) pebbly loamy sand; thin beds; friable; violently effervescent; very abrupt boundary.
281-310 (9.22-10.17)	8C11	very dark grayish brown (2.5Y3/2) fine sand and loamy very fine sand, with a basal bed of very dark gray to very dark grayish brown (2.5Y3/1.5) light silt clay loam; thin beds, single grain; loose; violently effervescent; very abrupt lower boundary.
310-320 (10.17-10.50)	9Ab	black (2.5Y 2.5/1) down to very dark to dark grayish brown (2.5Y3.5/2) silt clay loam; weak subangular blocky; plastic; slightly effervescent; clear boundary.
320-342 (10.50-11.22)	9Bgb	black to very dark brown (2.5Y-10YR2.5/1.5) silt clay loam; common fine faint black (2.5Y2.5/1) mottles; very weak subangular blocky; plastic; slightly effervescent; clear boundary.
342-360 (11.22-11.81)	9BCg	dark grayish brown to grayish brown (2.5Y4.5/2) loam down to heavy loam; common medium and coarse dark yellowish brown (10YR3/6) mottles with olive brown (2.5Y4/4) halos; very weak subangular blocky; plastic; moderately effervescent; abrupt boundary.
360-430 (11.81-14.10)	10C	dark olive brown (2.5Y3/4) granular coarse sand; single grain; loose; violently effervescent; very abrupt boundary.
430->445 (14.10->14.60)	11Cg1	greenish gray (5GY5/1) light silt loam, with much very fine sand; massive; plastic; violently effervescent; indeterminate boundary.
<545-577 (<17.88-18.93)	11Cg2	gray to olive gray (5Y5/1.5) silt clay loam, with few granules, over black (5Y2.5/1) heavy silt clay loam, with few fine secondary carbonate masses and concretions, over dark gray (5Y4/1) heavy silt loam with few fine secondary carbonate concretions, over black (5Y2.5/1) granular silt clay loam, with few fine uncarbonized organic matter pieces, over dark greenish gray (5G4/1) loam, with few medium dark olive (5Y3/3) mottles and few secondary carbonate masses; thin beds, strongly expressed; plastic; violently effervescent; abrupt lower boundary.

Depth cm(ft)	Horizon or Zone	Description
<b>BR-9</b> (Continued)		
577-638 (18.93-20.93)	12Cg3	dark greenish gray (5G4/1), dark yellowish brown (10YR4/6), dark brown (7.5YR3/4), and pink (7.5YR7/3) sandy loam and loamy sand, poorly sorted; thin beds; violently effervescent; abrupt lower boundary.
638->680 (20.93->22.30)	13C	pebbly loamy sand; single grain; loose; violently effervescent; base of core.

Core/Profile: BR-10  
 Location: Minnesota River Valley - medial alluvial fan  
 Legal description: SW NE NW 4 T110N R31W  
 County: Brown  
 Parent material: Alluvial fan sediments  
 Vegetation: Grass  
 Slope: 5-9%  
 Elevation: 815 feet  
 Topo. Map: Essig  
 Remarks: Medial alluvial fan; on field road

Depth cm(ft)	Horizon or Zone	Description
0-18 (0-.6)	C1	very dark brown (10YR2/2) and very dark grayish brown (10YR3/2) silt loam, with very fine sandy loam at base; weak, medium, platy; friable; violently effervescent; very abrupt lower boundary.
18-33 (.6-1.1)	C2	very dark brown (10YR2/2) and very dark grayish brown (10YR3/2), very fine sandy loam to silt loam, with grayish brown to light olive brown (2.5Y5/3) in lower part; weak, medium, platy over laminated; friable; violently effervescent; very abrupt lower boundary.
33-41 (1.1-1.3)	2Ab1	black (10YR2/1) light silt loam; weak granular over weak, medium, platy; friable; strongly effervescent; clear lower boundary.
41-53 (1.3-1.7)	2Ab2	very dark brown (10YR2/2) light silt loam; weak, fine, subangular blocky breaking to weak granular over stratified at base; friable; violently effervescent; very abrupt lower boundary.
53-66 (1.7-2.2)	2ACb2	very dark brown to very dark grayish brown (10YR2.5/2) silt loam, more clay than above; weak, fine, subangular blocky breaking to weak granular; friable; violently effervescent; abrupt lower boundary.
66-89 (2.2-2.9)	3C	olive brown (2.5Y4/4) down to very dark grayish brown (2.5Y3/2) loamy, very fine sand, and very fine sandy loam; single grain; loose; violently effervescent; abrupt lower boundary.
89-94 (2.9-3.1)	4ACb3	very dark grayish brown to black (2.5Y2.5/2) silt loam; weak, fine, granular; friable; violently effervescent; clear lower boundary.
94-109 (3.1-3.6)	4C	very dark grayish brown (2.5Y3/2) silt loam to sandy loam; many medium distinct, grayish brown to light olive brown (2.5Y5/3) and fine, faint, dark yellowish brown (10YR3/4) mottles; weak, medium, subangular blocky over stratified; friable; violently effervescent; abrupt lower boundary.
109-119 (3.6-3.9)	5Bwb4	very dark grayish brown (2.5Y3/2) silt loam; many, fine, faint, dark yellowish brown (10YR3/4) and few fine, faint, dark gray (10YR4/1) mottles; weak, medium, subangular blocky; friable; violently effervescent; many, fine and very fine pores; very abrupt lower boundary.
119->130 (3.9->4.3)	6C1	olive brown (2.5Y4/3) fine sand down to pebbly fine and medium sand; single grain; loose; violently effervescent; indeterminate lower boundary.
<173-207 (<5.7-6.8)	7C2	stratified very dark brown (10YR2/2), very dark gray (2.5Y3/1) and black (2.5Y2.5/1) silt loam down to loam, with pebbles < 1 cm and a gravel lens; few, medium, dark brown (10YR3/3) mottles; thin beds, massive interiors; friable; violently effervescent; abrupt lower boundary.
207->288 (6.8->9.4)	8C3	very dark grayish brown (2.5Y3/2) and very dark gray (2.5Y3/1) very fine to fine sandy loam; few, vertical and horizontal; medium, dark yellowish brown (10YR3/3,3/4) mottles; massive down to thin beds; friable; violently effervescent; indeterminate lower boundary..
Auger Sample:		
<318-443 (<10.4-14.5)		gravel and sand, poorly sorted; moderate recovery; oxidized gravel and sandy gravel.

Core/Profile: BR-11  
 Location: Minnesota River Valley - distal alluvial fan  
 Legal description: SW NE NW 4 T110N R31W  
 County: Brown  
 Parent material: Alluvial fan sediments  
 Vegetation: Grass  
 Slope: 2-5%  
 Elevation: 807 feet  
 Topo. Map: Essig  
 Remarks:

Depth cm(ft)	Horizon or Zone	Description
0-28 (0-.9)	AC1	black (10YR2/1) heavy sandy loam, few fine pebbles <1 cm; weak, medium platy to cloddy; firm to friable; violently effervescent; very abrupt lower boundary.
28-41 (.9-1.3)	AC2	black (10YR2/1) heavy sandy loam, few fine pebbles <5 cm; very weak, medium and fine platy breaking to weak, fine subangular blocky; few thin, distinct (7G3/2) oxide coatings; friable; violently effervescent; abrupt lower boundary.
41-56 (1.3-1.8)	2Ab	very dark brown (10YR2/2) silt loam; weak, fine subangular blocky breaking to weak, medium granular; friable; violently effervescent; abrupt lower boundary.
56-61 (1.8-2.0)	3C	very dark to very dark grayish brown (10YR2.5/2) gravelly sandy loam; common, fine, faint dark yellowish brown (10YR3/4) and common, fine to medium distinct grayish brown (10YR5/2) mottles; weak, fine subangular blocky breaking to weak, medium granular; few discontinuous, thin, distinct dark brown (7.5Y3/2) oxide coats in some pores; friable; violently effervescent; very abrupt lower boundary.
61-71 (2.0-2.3)	4Bwb <sub>1</sub>	very dark to very dark grayish brown (10YR2.5/2) sandy loam; common, fine, faint dark yellowish brown (10YR3/4) and common, fine to medium, distinct, dark brown (10YR5/2) mottles; weak, fine subangular blocky breaking to weak, medium granular; few discontinuous, thin, distinct, dark brown (7.5Y3/2) oxide coats in some pores; friable; strongly effervescent; clear lower boundary.
71-84 (2.3-2.8)	4Bw <sub>2</sub>	very dark brown (10YR2/2) and black (10YR2/1) silt loam, common, fine, faint, very dark grayish brown (10YR3/2) and dark yellowish brown (10YR3/4) mottles; weak, fine subangular blocky breaking to weak fine to medium granular; friable; strongly effervescent; clear lower boundary.
84-104 (2.8-3.4)	4Bwb <sub>3</sub>	very dark gray (10YR3/1), dark brown (10YR3/3), brown (10YR5/3), dark olive brown (2.5Y3/3) silt loam; with few light fine sand laminae; stratified, moderately expressed, under weak, medium and fine subangular blocky; friable; violently effervescent; clear lower boundary.
104-127 (3.4-4.2)	4Bwb <sub>4</sub>	very dark gray (2.5Y3/1) light silt loam, with much very fine sand; common medium and coarse, very dark grayish brown (2.5Y3/2) mottles; very weak, coarse to medium subangular blocky; friable; violently effervescent; very abrupt lower boundary.
127-147 (4.2-4.8)	5C	very dark grayish brown (10YR3/2) gravel, with 30% matrix of light sand to coarse sand, poorly sorted <2cm; very weak subangular blocky to single grain, loose; friable to single grain, loose; violently effervescent; very abrupt lower boundary.
147-182 (4.8-6.0)	6Cg	dark gray (5Y4/1) and very dark grayish brown (2.5Y3/2) very fine sandy loam and fine sandy loam, stratified down to silt loam; many fine, distinct dark brown (7.5Y3/4) mottles; stratified, poorly expressed; friable to plastic; with zones at top and bottom of violently effervescent, many very fine and fine secondary carbonate filaments and concretions, soft; clear lower boundary.
182-213 (6.0-7.0)	5C'	very dark brown (10YR2/2) 50% gravel 1-2.5 cm in silt loam to sandy loam matrix, not well sorted; massive; friable; violently effervescent; very abrupt lower boundary.
213-218 (7.0-7.2)	7Cg1	very dark gray (2.5Y3/1) silt loam and very fine sandy loam, with few pebbles; many fine and medium, dark yellowish brown (10YR3/4) and dark grayish brown (10YR3/6) mottles; few thin beds; friable; violently effervescent; few large roots; abrupt lower boundary.
218->224 (7.2->7.3)	7Cg2	black (5Y2.5/1) and very dark gray (10YR3/1) light silt loam; few fine dark yellowish brown (10YR3/4) mottles; few thin beds; friable; violently effervescent.
<236-244 (<7.7-8.0)	5C''	very dark brown (10YR2/2) 50% gravel 1-2.5 cm in silt loam to sandy loam matrix, not well sorted; massive; friable; violently effervescent; very abrupt lower boundary.

Core/Profile: BR-12

Location: Flandrau State Park; terrace point bar

Legal description: NE SW SE 30 T110N R30W

County: Brown

Parent material: Alluvium

Vegetation: Grass

Slope: 2-5%

Elevation: 833 feet

Topo. Map: New Ulm

Remarks: First step above outermost channel scar (oxbow wetland) on abandoned Cottonwood River meander; Flandrau State Park; along trail; 195 meters from trail junction

Depth cm(ft)	Horizon or Zone	Description
0-18 (0-.6)	A1	black (2.5Y2.5/1) heavy loam; weak, granular down to weak, medium, angular blocky; friable; moderately effervescent; clear lower boundary.
18-35 (.6-1.1)	A2	black (2.5Y2.5/1) loam; weak, medium, breaking to fine, subangular blocky; friable; violently effervescent; clear lower boundary.
35-56 (1.1-1.8)	AB	black (10YR2/1) fine sandy loam, with few granules; very weak, medium and coarse, subangular blocky; friable; violently effervescent; clear lower boundary.
56-162 (1.8-5.3)	2C1	very dark grayish brown (2.5Y3/2) down to very dark grayish brown (2.5Y-10YR3/2) medium sand, moderately well sorted; single grain; loose; violently effervescent; clear lower boundary.
162-393 (5.3-11.3)	2C2	black to very dark brown (2.5Y-10YR2/2) medium and coarse sand, with very few fine pebbles <0.5 cm, with fines increasing with depth; single grain; loose; violently effervescent; no recovery from 165-250 and 300-313 cm; indeterminate lower boundary.
343-413 (11.3-13.5)		same as above, then 15 cm from top is loamy medium and coarse sand down to medium and coarse sand as above; one bivalve.
Auger Sample:	3C3	
419-553 (13.5-18.1)		dark greenish gray to grayish green (5GY4/2) gravel and coarse sand with gravel, poorly sorted, with matrix of coarse sandy loam, poorly sorted; auger refused on bedrock.

Core/Profile: BR-13

Location: Flandrau State Park - core of abandoned terrace meander

Legal description: SE SW SE 30 T110N R30W

County: Brown

Parent material: Alluvium

Vegetation: Grass

Slope: <2%

Elevation: 854 feet

Topo. Map: New Ulm

Remarks: Flandrau State Park along the Cottonwood River; located on a high center point (core) of abandoned meander of river

Depth cm(ft)	Horizon or Zone	Description
0-18 (0-.6)	Ap	very dark brown (10YR2/2) very fine and fine sandy loam; weak, very fine, granular; very friable; noneffervescent; many very fine roots; abrupt lower boundary.
18-34 (.6-1.1)	A1	black (10YR2/1) very fine and fine sandy loam; weak, very fine, granular breaking to loose, single grain; very friable; noneffervescent; many very fine, fine, and medium roots; many very fine and fine pores; clear lower boundary.
34-43 (1.1-1.4)	A2	very dark brown (10YR2/2) very fine sandy loam; moderate, fine, subangular blocky breaking to weak, very fine, granular; very friable to friable; noneffervescent; many very fine and fine roots; many very fine and fine and few medium pores; clear lower boundary.
43-61 (1.4-2.0)	AB	very dark brown to very dark grayish brown (10YR2.5/2) very fine sandy loam; weak, medium, breaking to fine subangular blocky; friable; noneffervescent; many very fine and fine roots; many very fine, fine, and few medium pores; gradual lower boundary.
61-72 (2.0-2.4)	Bw	very dark to dark grayish brown (10YR3.5/2) very fine sandy loam, slightly more clay than above; weak, medium, subangular blocky breaking to fine subangular blocky; friable; noneffervescent; few very fine roots; with zones of overlying material; many very fine, fine and few medium pores; very abrupt lower boundary.
72-93 (2.4-3.1)	2Bwb <sub>1</sub>	very dark grayish brown to dark brown (10YR3/2.5) very fine sandy loam; few, coarse, faint, dark brown (10YR3/3) mottles; weak, medium, breaking to fine subangular blocky; common, nearly continuous, very dark brown (10YR2/2) clay coats lining pores; friable; noneffervescent; few very fine roots; many very fine, fine and few medium pores; clear lower boundary.
93-109 (3.1-3.6)	3Ab <sub>2</sub>	very dark grayish brown (10YR3/2) down to very dark gray (10YR3/1.5) very fine sandy loam; weak, fine, subangular blocky breaking to granular and loose, single grain; very friable; noneffervescent; few very fine roots; clear lower boundary.
109-129 (3.6-4.2)	3Bwb <sub>2</sub>	dark brown (10YR3/3) very fine sandy loam; few, medium, faint, dark yellowish brown (10YR3/4) mottles; weak, fine, subangular blocky; friable; noneffervescent; clear lower boundary.
129-149 (4.2-4.9)	3C	dark yellowish brown to olive brown (10YR-2.5Y4/4) loamy very fine sand; single grain; loose; noneffervescent; clear to abrupt lower boundary.
149-159 (4.9-5.2)	4Bwb <sub>3</sub>	dark yellowish brown to olive brown (10YR-2.5Y4/4) very fine sandy loam; few, medium, faint, brown (10YR4.5/3) mottles; weak, medium, subangular blocky; friable; noneffervescent; common fine pores; abrupt lower boundary.
159-183 (5.2-6.0)	5C1	dark yellowish brown (10YR4/5) very fine sand; single grain; loose; noneffervescent to slightly effervescent; very abrupt lower boundary.
183-192 (6.0-6.3)	5C2	dark brown (10YR3/3) very fine sandy loam; massive, stratified at bottom; friable; strongly effervescent; very abrupt lower boundary.
192-292 (6.3-9.6)	5C3	light olive brown (2.5Y5/4) fine sand, lower 8 cm grades to very fine sandy loam; single grain; loose; violently effervescent; very abrupt lower boundary; no recovery from 210-250 cm.
292-338+ (9.6-11.1+)	6C4	dark yellowish brown to yellowish brown (10YR4.5/4), with one zone dark yellowish brown (10YR3/6) granular coarse sand, with upper half of coarse sand, very fine sandy loam, and medium sandy loam, stratified; massive internally, stratified to single grain; loose; violently effervescent, with common, very fine, secondary carbonate concretions above 1st coarse laminae; no recovery from 305-320 cm, 330-338 cm.
Auger Sample:		
338-587 (11.1-19.3)	7C	dark brown (10YR3/3) pebbly very coarse to coarse sand, with approximately 10% fine sand; auger refused on very coarse cobbles at 587 cm.

Core/Profile: BR-14

Location: Flandrau State Park - meander scar

Legal description: SW SE SE 30 T110N R30W

County: Brown

Parent material: Alluvium

Vegetation: Grass

Slope: 2-5%

Elevation: 847 feet

Topo. Map: New Ulm

Remarks: Flandrau State Park along Cottonwood River; core taken in present oxbow "lake" on wetland (part of old meander scar); on outside of meander (bluff side)

Depth cm(ft)	Horizon or Zone	Description
0-3 (0-.1)	A	black (10YR2/1) pebbly loamy sand, with one large pebble at top 3.5 cm; weak granular; friable; violently effervescent; very abrupt lower boundary.
3-41 (.1-1.3)	C	olive brown (2.5Y4/4) pebbly loam with pieces of underlying 2Ab horizon in lower half; weak, coarse, breaking to medium, subangular blocky; friable to firm; violently effervescent; pods of underlying material in lower half; very abrupt lower boundary.
41-66 (1.3-2.2)	2Ab <sub>1</sub>	very dark gray to black (2.5Y2.5/1) organic silt clay loam; weak, medium, breaking to fine, angular blocky; firm; violently effervescent; many snail shell fragments; abrupt lower boundary.
66-70 (2.2-2.3)	2Cg	dark and very dark gray (2.5Y3/1 and 4/1) silt clay loam; common, medium and coarse, horizontal, dark grayish brown (2.5Y4/2) mottles; very weak subangular blocky; firm to friable; violently effervescent; common snail shell fragments; abrupt lower boundary.
70-77 (2.3-2.5)	3Ab <sub>2</sub>	very dark gray to black (2.5Y2.5/1) organic silt clay loam; very weak, coarse, angular breaking to weak, medium, subangular blocky; firm; violently effervescent; many snail shells, fragments and whole; abrupt lower boundary.
77-126 (2.5-4.1)	3BCgb <sub>12</sub>	very dark gray to black (2.5Y2.5/1) silt clay loam; many, fine and medium, faint, dark yellowish brown (10YR3/4) mottles in lower one-third and lining pores in lower one-third; very weak, coarse, angular blocky breaking to weak, medium, angular blocky; firm; violently effervescent; many snail shells, fragments and whole; clear to abrupt lower boundary.
126-160 (4.1-5.2)	4BCgb <sub>22</sub>	dark gray (2.5Y4/1) fine sandy loam, few granules; many, medium and coarse, dark yellowish brown (10YR3/4) and (10YR3/6) mottles; weak, coarse, subangular blocky; firm; violently effervescent; very few snail and bivalve shells, fragments and whole; very few lignified roots; gradual lower boundary.
160-217 (5.2-7.1)	4Cg <sub>1</sub>	very dark to dark gray (5Y3.5/1) loamy fine and very fine sand; many, medium and coarse, very dark greenish gray (5G3/1) mottles; very weak, coarse, subangular blocky; friable; violently effervescent; very few snail and bivalve shells, fragments and whole; very few lignified roots; clear lower boundary;.
217-299 (7.1-9.8)	4Cg <sub>2</sub>	dark gray (5Y4/1) very fine sandy loam; massive; friable; violently effervescent; very few snail and bivalve shells, fragments and whole; few lignitic roots; abrupt lower boundary.
299-341+(9.8-11.2+)	4Cg <sub>3</sub>	very dark greenish gray (5GY3/1) loam and dark gray (5Y4/1) loamy fine sand, with few granules; common, medium and coarse, very dark greenish gray (5G3/1) mottles; stratified, thin beds, poorly expressed; friable; violently effervescent; few lignified roots; indeterminate lower boundary.
>341-402 (>11.2-13.2)	4Cg <sub>4</sub>	dark gray (5Y4/1) loamy fine sand, stratified, and very dark and dark gray (5Y3/1,4/1) basal strata of fine gravel and fine sand with gravel and medium sand stringers; single grain, stratified, thin beds; loose; violently effervescent; extremely fine uncarbonized organic matter (roots?); abrupt lower boundary.
402->421 (13.2->13.8)	4Cg <sub>5</sub>	very dark gray (5Y3/1) and dark gray (5Y4/1), fine sand, moderately well sorted, with very few granules, with upper strata of loamy very fine sand and very fine sandy loam; single grain, stratified, thin beds; loose; violently effervescent; extremely fine uncarbubized organic matter in loamy very fine sand and very fine sandy loam strata; rejected at 436 cm.
Auger Sample:		
460-526 (15.1-17.3)	5Cg <sub>6</sub>	dark gray to dark greenish gray (5Y-5GY4/1) silt and olive brown (2.5Y4/4) loam; violently effervescent; rejected on hard rock.

Core/Profile: BR-15

Location: Flandrau State Park

Legal description: SW NW NE Section 31 T110N R30W

County: Brown

Parent material: Alluvium

Vegetation: Grass

Slope: <2%

Elevation: 831 feet

Topo. Map: New Ulm

Remarks: Flandrau State Park along Cottonwood River; closest core to river (in transect); on second lowest terrace; approximately 2 meters lower in elevation than BR-16

Depth cm(ft)	Horizon or Zone	Description
0-20 (0-.7)	C	dark yellowish brown (10YR3/4) gravel, with 25% matrix of coarse sandy loam; single grain; loose; violently effervescent; abrupt lower boundary; likely spoil.
20-32 (.7-1.0)	AC	black (10YR2/1) gravel, with 25% matrix of coarse sandy loam; single grain; loose; moderately effervescent; abrupt lower boundary; likely spoil.
32-88 (1.0-2.9)	C'	very dark grayish brown to dark brown (10YR3/2.5) gravel, with 25% matrix of coarse sandy loam; single grain; loose; violently effervescent; clear lower boundary.
88-120 (2.9-3.9)	C1	brown to dark brown to dark grayish brown to olive brown (10YR-2.5Y4/3) fine sand, moderately to well sorted down to fine sand, little medium sand, moderately sorted; single grain; loose; violently effervescent; abrupt lower boundary.
120-186 (3.9-6.1)	2C2	brown to dark brown to dark yellowish brown to olive brown (10YR-2.5Y4/3.5) loamy very fine sand over brown to dark brown to dark grayish brown to olive brown (10YR-2.5Y4/3) very fine sand, well sorted, and fine sand, with few fine pebbles, moderately sorted; loamy sand is very weak, medium, platy and very friable; fine sands are single grain and loose; violently effervescent, with very fine secondary carbonate films in loamy very fine sand; abrupt lower boundary.
186-216 (6.1-7.1)	C3	very dark grayish brown (10YR3/2) gravel, with 35% coarse loam and till balls; single grain; loose; violently effervescent; abrupt lower boundary.
216-271+ (7.1-8.9+)	C4	brown to dark brown to dark grayish brown to olive brown (10YR-2.5Y4/3) very fine sand, moderately to well sorted, over fine sand, with some medium and coarse sand, moderately sorted; single grain; loose; violently effervescent; rejected at 271 cm.
Auger Sample:		
535-542 (17.6-17.8)	2C5	very coarse gravel; sample lost.

Core/Profile: BR-16

Location: Flandrau State Park

Legal description: NW NW NE 31 T110N R30W

County: Brown

Parent material: Alluvium

Vegetation: Grass

Slope: 2-5%

Elevation: 827 feet

Topo. Map: New Ulm

Remarks: Flandrau State Park along Cottonwood River at New Ulm; core taken on third terrace up from river; approximately 2 meters higher in elevation than BR-15

Depth cm(ft)	Horizon or Zone	Description
0-24 (0-.8)	Ap	black (10YR2/1) fine sandy loam; weak, medium, breaking to crumb to loose, single grain; very friable; noneffervescent matrix, with few carbonate grains; clear lower boundary.
24-40 (.8-1.3)	A	black (10YR2/1) fine sandy loam; weak, medium, breaking to fine subangular blocky; friable; noneffervescent; clear lower boundary.
40-62 (1.3-2.0)	AB	very dark brown to black (10YR2/1.5) fine sandy loam; weak, coarse, breaking to medium subangular blocky; friable; noneffervescent; clear lower boundary.
62-134 (2.0-4.4)	Bw	dark to very dark grayish brown (10YR3/2.5) down to brown to dark brown (10YR3.5/3) loamy fine sand; very weak, coarse, breaking to medium subangular blocky; very friable; noneffervescent down to moderately effervescent; clear lower boundary.
134-197 (4.4-6.5)	C1	dark yellowish brown to olive brown (10YR-2.5Y4/4) fine sand, well sorted, with few thin beds with fines, over dark brown to very dark grayish brown to olive brown (10YR-2.5Y3/3) very fine sand; single grain; loose; violently effervescent; few natal bivalve shells; abrupt lower boundary.
197->205 (6.5->6.7)	C2	dark yellowish brown to olive brown (10YR-2.5Y4/4) fine sand, well sorted; single grain; loose; violently effervescent; abrupt lower boundary.
248-316 (<8.1-10.4)	C3	very dark grayish brown (2.5Y3/2) fine sand, with fines; moderately sorted; few, coarse, dark gray (2.5Y4/1) mottles, with dark yellowish brown (10YR3/6) halos, and common, coarse, faint, very dark grayish brown to olive brown (2.5Y3/3) horizontal mottles, and black (2.5Y2.5/1) mottles near top; single grain; loose, soft; violently effervescent; few natal bivalve shells; abrupt lower boundary.
316-395 (10.4-13.0)	Cg1	dark gray (5Y4/1) to dark to very dark gray (5Y3.5/1) loamy very fine sand down to very fine sandy loam; common, coarse, faint, dark grayish brown (2.5Y4/2) mottles; single grain; loose; violently effervescent, with zones with common soft, fine carbonate masses; one small piece uncarbonized organic matter; abrupt lower boundary.
395-403+ (13.0-13.2)	Cg2	dark gray (5Y4/1) loamy very fine and fine sand, with one 5 cm pebble; common, medium, dark yellowish brown (10YR3/4,3/6) mottles; single grain; loose; violently effervescent; core refused at 403 cm.
Auger Sample:		
<500->622 (<16.4->20.4)	2Cg3	greenish gray (5GY6/1) with some light greenish gray (5GY7/1) heavy silt loam, very fine sandy loam and light loam with very fine sand; moderately effervescent.

Core/Profile: BR-17

Location: Flandrau State Park

Legal description: NW NW NE 31 T110N R30W

County: Brown

Parent material: Alluvium

Vegetation: Grass

Slope: 2-5%

Elevation: 833 feet

Topo. Map: New Ulm

Remarks: Flandrau State Park along Cottonwood River in New Ulm; approximately 0.5 meter higher in elevation than BR 16 (may be due to park road construction - fill); on same terrace as BR-16

Depth cm(ft)	Horizon or Zone	Description
0-5 (0-.16)	A	very dark to dark brown (7.5YR-10YR2.5/3) pebbly loamy medium sand; single grain; loose; violently effervescent; abrupt lower boundary.
5-27 (.16-.89)	C1	dark yellowish brown (10YR3.5/6) pebbly loamy medium sand over very dark gray (10YR3/1) pebbly loam diamicton; common, fine and medium to strong brown (7.5YR3/4) mottles; weak medium platy; friable; violently effervescent; very abrupt lower boundary.
27-41 (.89-1.34)	2C2	black (10YR2/1) and very dark brown (10YR2/2) pebble gravel in medium sandy loam matrix; single grain to very weak medium subangular blocky; loose to very friable; violently effervescent; very abrupt lower boundary.
41-56 (1.3-1.8)	3ACb	black (10YR2/1) loam, with very fine and fine sand, and very few granules; very weak, coarse and medium, platy breaking to very weak, fine, angular blocky; friable; very slightly effervescent; clear lower boundary.
56-71 (1.8-2.3)	3Bgb	black to very dark brown (10YR2.5/1) light loam, with very fine sand; weak, fine, subangular blocky; very friable; strongly effervescent; gradual lower boundary.
71-157 (2.3-5.2)	3BCgb	dark gray (2.5Y4/1) fine sandy loam; many, fine, dark grayish brown (2.5Y4/2) and dark yellowish brown (10YR3/4) mottles; very weak, coarse, subangular blocky; very friable; violently effervescent; diffuse lower boundary; few zones with material from above.
157-194 (5.2-6.4)	3Cg1	dark gray (2.5Y4/1) fine sandy loam down to loamy fine sand; many, fine, dark grayish brown (2.5Y4/2) to dark yellowish brown (10YR3/4) mottles; very weak, coarse, subangular blocky; very friable; violently effervescent; clear lower boundary; few fine zones with dark A-horizon material.
194-283 (6.4-9.3)	3Cg2	finely mottled dark yellowish brown (10YR4/4) and olive brown (2.5Y4/3) fine sand, well sorted, with basal olive brown (2.5Y3.5/3) loamy fine sand; single grain; loose; violently effervescent; clear lower boundary.
283-330 (9.3-10.8)	3Cg3/3Bg	very dark to dark gray (5Y3.5/1) down to very dark gray (5Y3/1) very fine sandy loam, with one medium sand lamina; in lower half, many medium, horizontal, very dark to dark gray (5Y3.5/1,4/1) mottles; strata, weakly expressed, down to very weak, coarse, subangular blocky; in lower half few black (2.5Y2.5/1) clay coats lining pores; significantly plastic; violently effervescent; very abrupt lower boundary; few fine uncarbonized organic matter pieces in lower half, possibly roots.
330-344 (10.8-11.3)	4C	light olive brown (2.5Y5/3) medium and coarse sand, moderately well sorted; single grain; loose; violently effervescent; very abrupt lower boundary.
344-349+ (11.3-11.5+)	3Cg3'	dark to very dark gray (5Y3.5/1) fine sandy loam; massive; slightly plastic; violently effervescent.
Auger Sample:		
<389->530 (<12.8->17.4)	5g4	greenish gray (5GY6/1) silt clay loam; massive(?); very slightly to moderately effervescent.

Core/Profile: BR-18

Location: Nelson - alluvial fan transect

Legal description: SW ¼ SW ¼ Section 2 T109N R30W

County: Brown

Parent material: Alluvial fan sheet flood and channel deposits

Vegetation: Plowed field

Slope: 2-5%

Elevation: 831 feet

Topo. Map: New Ulm

Remarks: Nelson property - transect along an alluvial fan in Minnesota River valley; closest core (in transect) to river

Depth cm(ft)	Horizon or Zone	Description
0-29 (0-1.0)	A(p?)	black to very dark gray to very dark grayish brown (2.5Y2.5/1) organic silt clay loam; weak, coarse, prismatic breaking to weak, fine, granular; friable; violently effervescent; very abrupt lower boundary; alluvial fan.
29-39 (1.0-1.3)	BCg	very dark gray (2.5Y3/1) silt clay loam, with loamy fine sand laminae with granules at base; weak, fine, subangular blocky; black to very dark gray to very dark grayish brown (2.5Y2.5/1), nearly continuous, moderately thick clay coats in few medium pores; friable; violently effervescent; very abrupt lower boundary; alluvial fan.
39-50 (1.3-1.6)	C	stratified very dark grayish brown (2.5Y3/2), very dark gray (2.5Y3/1), and black to very dark gray to very dark grayish brown (2.5Y2.5/1) light silt clay loam; thick laminae, moderately expressed; friable; slightly effervescent; very abrupt lower boundary; alluvial fan.
50-60 (1.6-2.0)	2Ab1	black to very dark gray to very dark grayish brown (2.5Y2.5/1) silt clay loam; moderate, fine, prismatic breaking to weak, fine, granular; friable; noneffervescent; abrupt lower boundary; alluvial fan.
60-84 (2.0-2.8)	2Ab2	black to very dark gray to very dark grayish brown (2.5Y2.5/1) organic silt clay loam; weak, fine, granular over possibly thin beds; friable; noneffervescent; clear lower boundary; alluvial fan.
84-96 (2.8-3.1)	2BCgb	very dark gray (2.5Y3/1) clay loam; very weak subangular blocky; friable; noneffervescent; gradual lower boundary; alluvial fan.
96-132 (3.1-4.3)	3Cg1	dark grayish brown (2.5Y4/2) heavy loam down to pebbly loamy fine sand, mostly coarse pebbles, 2-5 cm; massive over thin beds; friable; violently effervescent, pebbles - some loamy sand; abrupt lower boundary; alluvial fan.
132-139 (4.3-4.6)	3Cg2	dark to very dark grayish brown to olive brown (2.5Y3.5/3) fine sandy loam; very weak, coarse, angular blocky; very few, thin, dark gray to dark grayish brown (2.5Y4/1) clay coats on ped faces; friable; very slightly effervescent; clear lower boundary; alluvial fan.
139-166 (4.6-5.4)	4Ab	black to very dark gray to very dark grayish brown (2.5Y2.5/1) heavy loam, with few granules; weak, medium, faint, dark yellowish brown (10YR4/4); plastic, but originally very weak granular; soft; very slightly effervescent; gradual lower boundary; alluvial fan.
166-203 (5.4-6.7)	4Bgb	very dark gray (2.5Y3/1) heavy loam, with few granules; weak, coarse, subangular blocky; plastic; violently effervescent; abrupt lower boundary; alluvial fan.
203-227+ (6.7-7.4+)	5Cg	olive brown (2.5Y4/5) coarse sand, somewhat poorly sorted, with some fines; very weak, coarse, subangular blocky to single grain; friable to loose; violently effervescent; alluvial fan.
Auger Sample: <265->472 (<8.7->15.5)		olive brown (2.5Y4/6) loam diamicton; violently effervescent; alluvial fan.

Core/Profile: BR-19

Location: Nelson - alluvial fan transect

Legal description: NW ¼ NW ¼ Section 11 T109N R30W

County: Brown

Parent material: Alluvial fan sheet flood and channel deposits

Vegetation: Plowed field

Slope: 2-5%

Elevation: 837 feet

Topo. Map: New Ulm

Remarks: Nelson property - transect along an alluvial fan in Minnesota River valley; in middle of transect; on a slightly higher ridge within the alluvial fan; surface is covered with sand and pebbles

Depth cm(ft)	Horizon or Zone	Description
0-24 (0-.8)	Ap	black to very dark gray to very dark grayish brown (2.5Y2.5/1) silt clay loam, common sand; weak, fine, subangular blocky breaking to weak, fine to medium, granular; very friable; noneffervescent; abrupt lower boundary.
24-31 (.8-1.0)	A	black to very dark gray to very dark grayish brown (2.5Y2.5/1) silt clay loam, common sand; weak, fine, subangular blocky; friable; noneffervescent; abrupt lower boundary.
31-45 (1.0-1.5)	2BCb1	black (10YR2/1) pebbly loam, pebbles up to 1.5 cm; weak, medium, subangular blocky, over possibly thin beds, poorly expressed; friable; moderately effervescent; abrupt lower boundary.
45-58 (1.5-1.9)	2BCb2	very dark gray (10YR3/1) loam; common, fine, medium, black (10YR2/1) pore fills; weak, fine, subangular blocky; friable; moderately effervescent; clear lower boundary.
58-76 (1.9-2.5)	3ABb1	black to very dark brown (10YR2.5/1) loam; weak, medium, subangular blocky; friable; noneffervescent; clear lower boundary.
76-142 (2.5-4.7)	3Bwb1	very dark gray to very dark grayish brown (10YR-2.5Y3/1) loam; very weak, coarse, breaking to medium columnar; friable; noneffervescent; abrupt lower boundary.
142-151 (4.7-5.0)	4Ab2	black (10YR2/1) loam; very weak, medium, columnar breaking to weak, fine, granular; friable; noneffervescent; abrupt lower boundary.
151-172 (5.0-5.6)	4Bgb2	very dark gray to very dark grayish brown (10YR-2.5Y3/1.5) loam, with pebbly loam seam; weak, medium, blocky to fine subangular blocky breaking to granular; friable; slightly effervescent; clear lower boundary.
172-179+ (5.6-5.9+)	4C	very dark brown (10YR2/2) silt clay loam, with much sand; massive; friable; slightly effervescent.
179-240 (5.9-7.9)		no recovery; rejected on very coarse sand and pebble gravel.

Core/Profile: BR-20  
 Location: Nelson fan  
 Legal description: NE NE NE 10 T109N R30W  
 County: Brown  
 Parent material: Alluvial fan  
 Vegetation: Plowed field  
 Slope: 5-9%  
 Elevation: 952 feet  
 Topo. Map: New Ulm  
 Remarks:

Depth cm(ft)	Horizon or Zone	Description
0-23 (0-.75)	A(p)	black (10YR2/1) silt loam, with much fine sand and granules; weak fine subangular blocky breaking to granular; friable; noneffervescent, but with few carbonate granules; abrupt boundary.
23-42 (.75-1.38)	A	black (10YR2/1) silt loam, with much fine sand; moderate crumb; very friable; noneffervescent; clear boundary.
42-74 (1.38-2.43)	AB	very dark brown (10YR2/2) loam, with few fine pebbles and common granules; weak medium subangular blocky breaking to granular and crumb; friable; noneffervescent down to slightly effervescent; clear boundary.
74-165 (2.43-5.41)	2C1	very dark grayish brown (2.5Y-10YR3/2) loam down to fine sandy loam down to fine sand, moderately sorted,, with some fines; stratified down to very weak subangular blocky down to loose, single grain; violently effervescent; abrupt lower boundary marked by a thin bed of gravely coarse sand.
165-304 (5.41-9.97)	2C2	very dark grayish brown (2.5Y3/2) loamy fine and medium sand down to medium sand, moderately sorted, with some fines and coarse sand, down to gravel with coarse sand and granules; loose; single grain; violently effervescent; very abrupt lower boundary.
304-314 (9.97-10.30)	3Cg	very dark gray (2.5Y3/1) light silt clay loam; probably very weak subangular blocky; plastic; moderately effervescent; very abrupt lower boundary.
314-322 (10.30-10.56)	4C	dark olive brown (2.5Y3/3) fine pebble gravel; single grain; loose; violently effervescent; very abrupt boundary.
322-337 (10.56-11.05)	5Ab	black (5Y2.5/0) down to black (5Y2.5/1) silt clay loam; moderate fine subangular blocky; friable; noneffervescent, with few fine carbonate concretions; abrupt boundary.
337-436 (11.05-14.30)	5Cg1	greenish gray (5GY5/1) silt clay loam, with few strata of loamy medium sand and medium sandy loam, with basal strata with few fine pebbles; few zones in lower third with few fine (10YR4/6) mottles; massive down to thin bedded, moderately expressed; plastic; violently effervescent; abrupt boundary.
436-533 (14.30-17.48)	6Cg2	dark gray to gray (5Y4.5/1) medium sand, with some fines, down to medium and coarse sand, moderately sorted; single grain; loose; violently effervescent; very abrupt boundary.
533-545+ (17.48-17.88+)	7Cg3	silt clay loam and loamy medium sand; thick laminated; violently effervescent; indeterminate boundary.
<620->733 (<20.34->24.04)	8Cg4	heavy silt clay loam.

Core/Profile: BR-21

Location: Nelson - alluvial fan transect

Legal description: NW ¼ NW ¼ Section 11 T109N R30W

County: Brown

Parent material: Alluvial fan

Vegetation: Plowed field

Slope: 5-9%

Elevation: 851 feet

Topo. Map: New Ulm

Remarks: Nelson property - transect along an alluvial fan in Minnesota River valley; closest core to bluff line

Depth cm(ft)	Horizon or Zone	Description
0-17 (0-.6)	Ap1	very dark brown to black (10YR2/1.5) light loam, with very few fine pebbles; weak, fine, subangular blocky; friable; very slightly effervescent; common very fine roots; clear lower boundary.
17-32 (.6-1.0)	Ap2	black (10YR2/1) light loam to fine sandy loam, with very few fine pebbles and granules and few, very dark brown (10YR2/2) strata in lower half; weak, fine, subangular blocky over stratified; friable; very slightly effervescent; multiple plow zones; few very fine roots; common, very fine and medium pores; abrupt lower boundary.
32-75 (1.0-2.5)	Bw	very dark grayish brown to dark brown (10YR3/2.5) to very dark grayish brown (10YR3/2) light loam; weak, coarse, breaking to medium subangular blocky; few moderately thick to thick, black (10YR2/1), clay coats and fecal pellets lining some medium pores; friable; moderately effervescent; many very fine and fine, common medium pores; clear lower boundary.
75-139 (2.5-4.6)	2ABb <sub>1</sub>	very dark grayish brown (10YR3/2) loam, with few fine pebbles and granules; weak, coarse, breaking to medium subangular blocky over very weak platy down to weak, medium, angular blocky; friable; moderately effervescent; very abrupt lower boundary; no recovery from 85-125 cm.
139-148 (4.6-4.9)	3C	dark brown (10YR3/3) loamy fine to coarse sand, poorly sorted, with common, fine pebbles at base; single bed, single grain; loose; strongly effervescent; probably abrupt lower boundary.
148-159 (4.9-5.2)	4BCb <sub>2</sub>	dark brown (10YR3/3) light loam, with very few granules; very weak, fine, subangular blocky; very friable; slightly effervescent; clear to abrupt lower boundary.
159-181 (5.2-5.9)	4Bwb <sub>3</sub>	very dark grayish brown (10YR3/2) loam, with very few granules, with more clay than above; weak, coarse, breaking to medium subangular blocky; friable; slightly effervescent; many very fine and fine pores; very abrupt lower boundary.
181-195 (5.9-6.4)	5C	very dark to dark grayish brown (10YR3.5/2) sandy loam, with few to common granules; very weak, coarse, subangular blocky over single bed; very friable; strongly effervescent; clear lower boundary.
195-216 (6.4-7.1)	6Ab <sub>4</sub>	black (10YR2/1) loam, with very few granules; weak, medium, breaking to fine subangular blocky; friable; noneffervescent; many fine pores; clear lower boundary.
216->244 (7.1->8.0)	6Bwb <sub>4</sub>	very dark grayish brown (10YR3/2) loam to heavy loam, with few granules and few pebbles; very weak, medium, subangular blocky; very friable to friable; moderately effervescent; many fine pores; clear to abrupt lower boundary.
<255-262 (<8.4-8.6)	7C	very dark to dark grayish brown (10YR3.5/2) fine sandy loam, with very few granules; very weak, coarse, subangular blocky over single bed; very friable; moderately effervescent; abrupt lower boundary.
262-309 (8.6-10.1)	8Ab <sub>5</sub>	very dark brown (10YR2/2) loam; weak, coarse, breaking to medium subangular blocky; friable; slightly effervescent; many very fine and fine pores; clear lower boundary.
309-384 (10.1-12.6)	8C	dark brown to olive brown (2.5Y3.5/3) loam, with gravely loamy bed at base; very weak, coarse, subangular blocky; friable; moderately to violently effervescent; abrupt lower boundary.
384-390 (12.6-12.8)	9Ab <sub>6</sub>	black (10YR2.5/1) silt clay loam, with few granules; weak, medium breaking to fine subangular blocky; friable; slightly effervescent; many fine pores; clear lower boundary.
390-395 (12.8-13.0)	9Bwb <sub>6</sub>	very dark grayish brown (10YR3/2) silt clay loam down to heavy loam diamicton; weak, medium, subangular blocky; friable; slightly effervescent; many fine pores; clear to abrupt lower boundary.

Depth cm(ft)	Horizon or Zone	Description
<b>BR-21 (Continued)</b>		
395-418 (13.0-13.7)	9BCb <sub>6</sub>	dark brown (10YR3/3) silt clay loam, with much sand, and to olive brown (2.5Y4/3) silty clay loam, with few beds of very dark grayish brown (10YR3/2) silty clay loam; common, very fine, dark yellowish brown (10YR3/6) mottles; very weak, coarse and medium, subangular blocky over laminae to beds, very weakly expressed; friable to firm; moderately effervescent; clear to abrupt lower boundary.
418-474 (13.7-15.5)	10Cg1	olive gray (5Y5/2) and (5Y4/2) silt clay loam, silt loam and silt clay; common, medium and coarse, strong brown (7.5YR4/6 and 3/6) and dark yellowish brown (10YR4/6) mottles; laminae, weakly to moderately expressed; firm to plastic; violently effervescent, with common, hard, fine to medium, secondary carbonate concretions in upper half, and common, horizontal trending, soft, secondary carbonate masses and laminae in lower half; abrupt lower boundary.
474-486 (15.5-15.9)	10Cg2	olive gray (5Y5/2) and (5Y4/2) and dark brown (10YR3/3) silt clay diamicton, with sandstone pebbles; thin beds to thick laminae, moderately expressed; firm; violently effervescent, with few, fine, soft, secondary carbonate masses; abrupt lower boundary.
486-489+ (15.9-16.0+)	11R	sandstone; violently effervescent.

Core/Profile: NL-1

Location: Gruber Fan Transect

Legal description: NW ¼ Section 7 T110N R30W

County: Nicollet

Parent material: Alluvium

Vegetation: Grass

Slope: 2-5%

Elevation: 803 feet

Topo. Map: New Ulm

Remarks: closest core to river; along field road through bean field; beyond distal fan on Minnesota River floodplain; near Huelskamp Creek

Depth cm(ft)	Horizon or Zone	Description
0-20 (0-.7)	Ap	black (2.5Y2.5/0) heavy silty clay loam with very few, fine pebbles; cloddy structure; firm; noneffervescent; abrupt lower boundary.
20-38 (.7-1.2)	A1	black (2.5Y2.5/0) heavy silty clay loam; very weak, medium, subangular blocky to blocky, granular and crumbly; friable; noneffervescent; clear lower boundary.
38-71 (1.2-2.3)	A2	black to very dark gray (2.5Y2.5/1) heavy silty clay loam with very few, fine pebbles and granules; weak, coarse, blocky to medium subangular blocky; firm; noneffervescent; clear lower boundary.
71-100 (2.3-3.3)	ABg	very dark gray to very dark grayish brown (2.5Y3/1) silty clay loam with very few, fine pebbles and granules; weak, coarse, subangular blocky, tending to prismatic; friable, but soft; slightly to moderately effervescent; abrupt lower boundary.
100-123 (3.3-4.0)	Bg	very dark grayish brown (2.5Y3/2) heavy silt loam with few granules and few, fine pebbles; very weak, coarse, subangular blocky over very weak, medium, platy; friable, but soft; violently effervescent; abrupt lower boundary; few krotovinos filled with overlying material; 8 cm inferred (no recovery).
123-183 (4.0-6.0)	2C	olive brown to dark grayish brown (2.5Y4/3) medium and coarse sand, little fines, moderately to well sorted; single grain; loose; violently effervescent; abrupt lower boundary; 147-183 cm not recovered (not cut).
183-220 (6.0-7.2)	3Cg1	very dark grayish brown (2.5Y3/1.5) light silt loam to light loam transition; weak thinly bedded; soft, wet; moderately effervescent; abrupt lower boundary; very few snail shell fragments.
220-303 (7.2-9.9)	4Cg2	very dark grayish brown (10YR3/2) to (2.5Y3/2) gravel, up to 4 cm, with poorly sorted medium to very coarse sand and loamy sand matrix; single grain; loose; some secondary carbonate cement, violently effervescent; abrupt lower boundary.
303-436 (9.9-14.3)	4Cg3	very dark grayish brown (2.5Y3/2) loamy granules, medium to coarse sand to gravel with medium to coarse sand matrix, includes clasts of black to very dark gray (2.5Y2.5/0) silty clay loam; single grain; loose; violently effervescent; abrupt lower boundary; no recovery from 362-403 cm (driller's notes specify no cut from 383-403 cm).
436-453+ (14.3-14.9+)	5Cg4	black (2.5Y2.5/0) silty clay loam with many snail shell fragments and whole shells changing rapidly to very dark grayish brown (2.5Y3.5/2) loamy, very fine to fine sand, with few snail shell fragments; thinly bedded; firm to single grain, loose; violently effervescent; unknown lower boundary (end of tubes); refused on compact gravel and sand.

Core/Profile: NL-2

Location: Gruber Fan Transect

Legal description: NW ¼ Section 7 T110N R30W

County: Nicollet

Parent material: Alluvium

Vegetation: Grass

Slope: 2-5%

Elevation: 807 feet

Topo. Map: New Ulm

Remarks: Upper distal fan; on vegetated field road in bean field; Minnesota River Valley; near Huelskamp Creek

Depth cm(ft)	Horizon or Zone	Description
0-20 (0-.7)	Ap	black (10YR2/1) silty clay loam; moderate, medium, cloddy; firm; noneffervescent; abrupt lower boundary.
20-41(.7-1.3)	A1	black (10YR2/1) light loam, with very few granules and fine pebbles; moderate, medium, blocky to fine subangular blocky; friable; noneffervescent; clear lower boundary.
41-66 (1.3-2.2)	A2	black to very dark brown (10YR2/1.5) silt loam, close to light loam, very few granules, fine pebbles; weak, fine, subangular blocky to blocky, crumbly; friable; slightly effervescent, few, very fine secondary carbonates; clear lower boundary.
66-81 (2.2-2.7)	AB	very dark brown (10YR2/2) light loam, with very few granules, fine pebbles; weak, coarse, blocky to medium subangular blocky; friable; slightly effervescent; clear lower boundary.
81-133 (2.7-4.4)	Bw1	very dark grayish brown (10YR3/2) light loam, with very few granules, fine pebbles; weak, medium, blocky to fine subangular blocky; friable; common, very fine, secondary carbonates; probably violently effervescent; diffuse lower boundary.
133-194 (4.4-6.4)	Bw2	very dark gray to very dark grayish brown (10YR3/1.5) light loam, with very few granules, fine pebbles; mottles are common, fine, faint, very dark grayish brown (10YR3/2) and dark brown (10YR3/3); weak, coarse, blocky to medium subangular blocky; friable; strongly effervescent; abrupt lower boundary(?); foil at 194 cm.
194-232 (6.4-7.6)	C	very dark grayish brown (10YR3/2) and olive brown to dark grayish brown (2.5Y4/3.5) pebbly light loam upper half, with stratified light loam and loamy very fine sand in lower half; loam with gravel in some strata, including redeposited black (10YR2/1) heavy silt loam peds, rounded; very weak subangular blocky over thinly bedded; friable; violently to strongly effervescent, variable; abrupt lower boundary; very few charcoal fragments at 228-230 cm.
232-252 (7.6-8.3)	2BCb	dark grayish brown (2.5Y4/2) silt loam and silty clay loam; mottles are many, fine, dark brown (10YR3/3), very dark grayish brown (2.5Y3/2), faint; massive over thinly bedded; friable; one coarse, soft, secondary carbonate mass, strongly effervescent; abrupt lower boundary.
252-271 (8.3-8.9)	3Ab	black (10YR2/1) to very dark gray to very dark grayish brown (10YR3/1.5) light loam, with very few, fine pebbles; very weak subangular blocky; friable; noneffervescent; abrupt lower boundary.
271-289 (8.9-9.7)	4C1	olive brown to dark grayish brown (2.5Y4/3) fine gravel with loamy medium to fine sand matrix; single grain; loose; strongly effervescent; abrupt lower boundary.
289-336 (9.7-11.0)	5C2	olive brown to dark grayish brown (2.5Y4/3) loamy fine sand; very weak, coarse, subangular blocky and blocky, single grain; very friable to loose; strongly effervescent; abrupt lower boundary; fines in segment 6 are probably spoil; 22 cm of slump from previous tube.
336-373 (11.0-12.2)	6BCb	dark grayish brown (2.5Y4/2) to very dark grayish brown (2.5Y3/2) heavy loam; very weak subangular blocky; soft and wet; slightly to noneffervescent, variable, with very few, medium, soft secondary carbonate masses; abrupt lower boundary; one snail shell, fragments.
373-461 (12.2-15.1)	7C1	olive brown (2.5Y4/4) granules, medium and coarse sand; single grain; loose; strongly effervescent; abrupt lower boundary; fines in segment 7 are slop.
461-481 (15.1-15.8)	7C2	very dark grayish brown (2.5Y3/2) gravel with matrix of loamy medium to coarse sand; single grain; loose; violently effervescent; clear lower boundary.

Depth cm(ft)	Horizon or Zone	Description
<b>NL-2</b> (Continued)		
481-561+ (15.8-18.4+)	8C3	very dark grayish brown to olive brown to dark brown (2.5Y-10YR3/3) and (2.5Y3/2) pebbly loam and pebbly sandy loam; indeterminate structure; violently effervescent; unknown lower boundary (end of tubes); includes several medium pebbles of grayish brown (2.5Y5/2) heavy silt loam, with secondary carbonates, concretions, soft; base of last segment - 3 cm of granular coarse sand with some fines, abruptly overlying 2 cm of very dark gray (2.5Y3/1) silty clay loam, which is a medium size clast in the sand; no recovery 483-511 cm (not cut).
561-586 (18.4-19.2)		no cut; refused in gravel.
Auger Samples:		
586-711 (19.2-23.3)		driller's notes: gravel/coarse sand (lower half sandy loam).
711-836 (23.3-27.4)		driller's notes: gravel/coarse sand with few, fine, unoxidized silty clay strata at very base (floodplain) with some uncarbonized organic matter.

Core/Profile: NL-3

Location: Gruber Fan Transect

Legal description: NW ¼ NE ¼ Section 7 T110N R30W

County: Nicollet

Parent material: Alluvium

Vegetation: Grass

Slope: 5-9%

Elevation: 810 feet

Topo. Map: New Ulm

Remarks: Medial alluvial fan in Minnesota River Valley; on vegetated field road in bean field; near Huelskamp Creek

Depth cm(ft)	Horizon or Zone	Description
0-14 (0-.5)	Ap	black (10YR2/1) heavy silt loam with very few fine pebbles; cloddy structure; firm; noneffervescent; abrupt lower boundary; spoil.
14-38 (.5-1.2)	A1	black (10YR2/1) heavy silt loam with few granules and very few, fine pebbles; weak, medium blocky to fine subangular blocky and granular; friable; noneffervescent; clear lower boundary.
38-75 (1.2-2.5)	A2	black to very dark brown (10YR2/1.5) silt loam; weak, coarse, blocky to medium subangular blocky; friable; noneffervescent, with few, fine, soft, secondary carbonate pore linings and masses; gradual lower boundary.
75-126 (2.5-4.1)	Bw1	very dark grayish brown to dark brown (10YR3/2) to (10YR3/3) silt loam, slightly more sand than above; weak, coarse, subangular blocky tending toward prismatic; friable; violently effervescent, with common, fine, soft secondary carbonate pore linings and masses; gradual lower boundary.
126-178 (4.1-5.8)	Bw2	very dark grayish brown to dark brown (10YR3/2.5) light loam, with very few granules and fine pebbles; weak, coarse, subangular blocky; friable; violently effervescent, with very few, fine, soft secondary carbonate pore linings and masses; very abrupt lower boundary.
178-213 (5.8->7.0)	2C	very dark grayish brown to dark brown (10YR3/2.5) pebbly, loamy medium and fine sand; single grain; loose; violently effervescent; unknown lower boundary (end of tubes).
213-246 (7.0-8.1)		not cut - gravel.
246-282 (8.1-9.3)		sample not described - driller's notes state "gravel and sand"
282-306 (9.3-10.0)		not cut - gravel
<306-324 (<10.0-10.6)	3C1	very dark grayish brown (10YR3/2) and dark brown (10YR3/3) gravelly light loam, gravel up to 3 cm; indeterminate structure; friable; violently effervescent.
324->409 (10.6-13.4)	3C2	very dark to dark grayish brown (10YR3.5/2) gravel with loamy medium and coarse sand matrix, gravel up to 7 cm; one 7 cm bed of silt loam; single grain; loose; violently effervescent; unknown lower boundary (end of tube); poor recovery, not cut from 358-366 cm - gravel.
409-426 (13.4-14.0)		not cut - gravel.
>426-<551 (>14.0-<18.1)	4Bw(?)	very dark grayish brown (10YR3/2) gravelly heavy silt loam; subangular blocky(?); friable; slightly to noneffervescent, variable.
<551-?602 (<18.1-?19.8)	5C1	brown (10YR5/3) gravel with loamy medium sand matrix; single grain; loose; slightly effervescent.
?602-623+ (?19.8-20.4+)	5C2	grayish brown to dark grayish brown to olive brown to light olive brown (2.5Y4.5/3) granular loamy fine sand to fine sand; mottles are few, coarse, faint, horizontal, yellowish brown (10YR5/4); thinly bedded; single grain; loose; slightly effervescent; unknown lower boundary (end of tubes).

Core/Profile: NL-4  
 Location: Gruber Fan Transect  
 Legal description: NW ¼ NE ¼ Section 7 T110N R30W  
 County: Nicollet  
 Parent material: Alluvium  
 Vegetation: Grass  
 Slope: 5-9%  
 Elevation: 815 feet  
 Topo. Map: New Ulm  
 Remarks: Upper distal fan in Minnesota River Valley; along a vegetated field road in bean field; near Huelskamp Creek

Depth cm(ft)	Horizon or Zone	Description
0-14 (0-.5)	A1	black (10YR2/1) heavy silt loam, with very few granules and fine pebbles; cloddy structure; firm; noneffervescent; clear lower boundary.
14-25 (.5-.8)	A2	black (10YR2/1) silt loam; moderate, medium, blocky to fine subangular blocky and angular blocky; friable; noneffervescent; clear lower boundary.
25-41 (.8-1.3)	A3	black to very dark brown (10YR2/1.5) silt loam; weak, medium, blocky to fine subangular blocky and crumb; friable to very friable; noneffervescent; clear lower boundary.
41-64 (1.3-2.1)	A4	black to very dark brown (10YR2/1.5) silt loam; very weak, medium, blocky to fine subangular blocky and crumbly; very friable; noneffervescent; clear lower boundary.
64-77 (2.1-2.5)	BC	very dark grayish brown (10YR3/2) granular silt loam, more fine sand than above; weak, coarse, subangular blocky; friable; noneffervescent, with very few, very fine, soft secondary carbonate pore linings and masses; clear to abrupt lower boundary.
77-128 (2.5-4.2)	2ABb	very dark brown (10YR2/2) silt loam, more clay than above; weak, coarse, blocky to medium subangular blocky; friable; noneffervescent, with very few, very fine, soft secondary carbonate pore linings and masses; diffuse lower boundary.
128-174 (4.2-5.7)	2Bwb	very dark grayish brown (10YR3/2) silt loam as above; weak, coarse, blocky to medium subangular blocky, possibly tending toward prismatic; friable; noneffervescent, with few, very fine, soft secondary carbonate pore linings and masses; gradual lower boundary.
174-217 (5.7-7.1)	3ABb'	very dark brown (10YR2/2) silt loam as above; weak, coarse, blocky to medium subangular blocky, possibly tending toward prismatic; friable; very slightly effervescent, with secondary carbonates as above; clear lower boundary; 178 cm - possible charcoal.
217-238 (7.1-7.8)	4Ab	black to very dark brown (10YR2/1.5) silt loam as above; weak blocky to medium subangular blocky; friable; very slightly to moderately effervescent, variable; abrupt lower boundary(?); boundary not representative.
238-249 (7.8-8.2)	4C1	dark brown (10YR-2.5Y3/3) light silt loam to very dark brown (10YR2/2) heavy silt loam with very few pebbles; graded, massive; friable; strongly effervescent; very abrupt lower boundary; possibly section of core upside down.
249-290 (8.2-9.5)	4C2	dark brown (10YR-2.5Y3/3) light silt loam to sandy loam, with very few granules; very weak, coarse, subangular blocky; friable; strongly effervescent; abrupt lower boundary; possibly section of core upside down.
290-332 (9.5-10.9)	4C3	dark to very dark grayish brown to dark brown (2.5Y-10YR3.5/2.5) very fine sandy loam, fine sandy loam, granular loam; very weak subangular blocky over thinly bedded; friable; violently effervescent; clear lower boundary; one piece of unconsolidated organic matter at 328 cm, questionable.
332-376 (10.9-12.3)	4C4	dark to very dark grayish brown to dark brown (2.5Y-10YR3.5/2.5) light loam to very fine sand, borderline texture; massive; friable; violently effervescent with few, fine, soft secondary carbonate masses; clear lower boundary; no recovery from 357-373 cm (dropped).
376-398 (12.3-13.1)	4C5ca	dark to very dark grayish brown to dark brown (2.5Y-10YR3.5/2.5) silt loam to light loam borderline texture; massive; soft, wet; violently effervescent, with common, fine, soft, secondary carbonate masses; clear lower boundary.
398-468 (13.1-15.4)	5C6	dark to very dark grayish brown to olive brown (2.5Y3.5/3) coarse and very coarse sand, moderately sorted, little fines, with upper half with few thin beds of fine sandy loam; thinly bedded, single grain; friable to loose; violently effervescent with few, fine, soft, secondary carbonate masses in fines; very abrupt lower boundary; 3 cm inferred.
468-489 (15.4-16.0)	6C7ca	dark to very dark grayish brown (2.5Y-10YR3.5/2) silt loam, with thin gravely silt loam bed, gravel up to 4 cm; thinly bedded; soft - wet; strongly effervescent, with common, fine to medium, soft, secondary carbonate masses; clear lower boundary.

Depth cm(ft)	Horizon or Zone	Description
<b>NL-4</b> (Continued)		
489-504 (16.0-16.5)	7Abca	very dark grayish brown (2.5Y3/2) silt loam with much very fine sand; massive; soft- wet; slightly effervescent, with common, fine to medium, soft, secondary carbonate masses; gradual lower boundary.
504-523 (16.5-17.2)	7Bwb	dark to very dark grayish brown (2.5Y3.5/2) silt loam with much very fine sand, one thin black (2.5Y2/0) bed; very weak subangular blocky; soft - wet; moderately to violently effervescent, dolomitic with few, fine to medium, soft, secondary carbonate masses; abrupt lower boundary; thin black bed, possibly with charcoal at 517-520 cm - wood from bed C-14 dated at 7,830±60 BP.
523-636 (17.2-20.9)	8C1	dark to very dark grayish brown to olive brown (2.5Y3.5/3) pebbly medium to very coarse sand, somewhat poorly sorted; pebbles up to 2 cm; single bed at base of fine sand, moderately to well sorted; single grain; loose; violently effervescent; abrupt lower boundary; 28 cm not recovered (sand lost).
636-659 (20.9-21.6)	9C2	dark to very dark grayish brown (10YR3.5/2) and (2.5Y4/2) light silt loam, with two thin beds of dark to very dark grayish brown to black (2.5Y2.5/1) silt loam; colors finely horizontal, discontinuous mottles; thinly bedded; friable; strongly to violently effervescent; abrupt lower boundary.
659-702+ (21.6-23.0+)	10C3	olive brown (2.5Y4/4) fine sand, very few granules; single grain; loose; violently effervescent; unknown lower boundary (end of tubes).

Core/Profile: RN-1

Location: Renville County Park No. 4

Legal description: SE ¼ NE ¼ Section 34 T112N R33W

County: Renville

Parent material: Alluvium, psa/alluvial fan/alluvium

Vegetation: Grass

Slope: <2%

Elevation: 778 feet

Topo. Map: Morgan NE

Remarks: Renville County Park No. 4 transect; close to Nicollet County border; near bluff line; poor recovery of reduced wet gravely sands to coarse sandy loams

Depth cm(ft)	Horizon or Zone	Description
0-24 (0-.8)	Ap	black to very dark brown (10YR2/1.5) loam with very few granules; weak, fine, to medium, subangular blocky; friable; moderately to slightly effervescent; abrupt lower boundary; alluvium, psa.
24-48 (.8-1.6)	AC	black (10YR2/1) loam, with few granules and fine pebbles; weak, fine to medium, platy to thinly bedded; friable; slightly to strongly effervescent; very abrupt lower boundary, marked by one thick lamination of dark grayish brown (2.5Y4/2) very fine sand; alluvium, psa.
48-73 (1.6-2.4)	2Ab	black (10YR2/1) loam, with few granules and fine pebbles; moderate, fine, subangular blocky; friable; noneffervescent; clear lower boundary; alluvial fan.
73-103 (2.4-3.4)	2ABb	black (10YR2/1) loam, with few granules and fine pebbles; weak, medium, subangular blocky; friable; slightly effervescent; clear lower boundary; alluvial fan.
103-114 (3.4-3.7)	2Bwb	very dark brown to very dark grayish brown (10YR2.5/2) light loam, with few granules and fine pebbles; weak, fine, faint, dark yellowish brown (10YR3/4) mottles; weak, coarse breaking to medium subangular blocky; friable; slightly effervescent; abrupt lower boundary; alluvial fan.
114-140 (3.7-4.6)	2Cg	dark grayish brown (2.5Y4/2) light loam, with few granules and fine pebbles; many, very fine, faint, olive brown (2.5Y4/4) mottles; very weak, coarse, subangular blocky; friable to very friable; violently effervescent; many fine pores; abrupt lower boundary; alluvial fan.
140-157 (4.6-5.2)	3CA	very dark grayish brown (10YR-2.5Y3/2) and black (2.5Y2/2) light loam, with few granules and fine pebbles; very weak, very coarse, prismatic blocky; friable to very friable; violently effervescent; many fine pores; very abrupt lower boundary; base of sequence; alluvial fan.
157-178 (5.2-5.8)	4Ab	black (10YR2/1) silty clay loam, with few, fine pebbles and granules; weak, fine, subangular blocky; firm, soft; noneffervescent to very slightly effervescent; clear lower boundary; alluvium.
178-215 (5.8-7.1)	4ABb	black to very dark brown (10YR2/1.5) silty clay loam, with few, fine pebbles and granules, with more sand than above; weak, medium, subangular blocky; plastic; moderately effervescent; clear lower boundary; alluvium.
215-225 (7.1-7.4)	4Bgb	very dark grayish brown (2.5Y3/2) heavy loam, with few granules; weak, medium, subangular blocky; plastic; violently effervescent; clear lower boundary; alluvium.
225-240 (7.4-7.9)	4Cg1	dark grayish brown (2.5Y4/2) loam, with few granules and fine pebbles; very weak subangular blocky; plastic; violently effervescent, with very few indistinct filaments; very fine pores; very abrupt lower boundary; one krotovino filled with few, black (10YR2/1) loam; alluvium.
240->305 (7.9->10.0)	4Cg2	dark grayish brown to olive brown (2.5Y4/3) heavy loam, with very dark grayish brown (2.5Y3/2) beds with few granules and fine pebbles; thin beds, internally massive; plastic; violently effervescent, with very few to few, fine to medium, soft, indistinct filaments and masses; very few, very fine pores to no pores; abrupt lower boundary; alluvium.
<335-360 (<11.0-11.8)	4Cg3	dark grayish brown (2.5Y4/2) gravely loam; weak, medium, subangular blocky over thin beds; friable; violently effervescent, with very few to few, fine to medium, soft, indistinct filaments and masses; very abrupt lower boundary; alluvium.
360-377 (11.8-12.4)	5CAb	black to very dark gray (2.5Y2.5/1) heavy loam, with very few granules down to silty clay loam; weak, fine down to medium, platy; firm; violently effervescent, with very few to few, fine to medium, soft, indistinct filaments and masses; two snail shells, whole; abrupt lower boundary; alluvium.
377-448 (12.4-14.7)	5Cg	olive gray (5Y4.5/2) heavy silt loam down to olive gray (5Y5/2) heavy silt loam with common very fine sand and silt laminae; none to many, very fine, dark yellowish brown (10YR3/6) mottles; massive(?) over thin beds and laminae, moderately expressed; friable; violently effervescent, with very few to few, fine to medium, soft, indistinct filaments and masses; one lignified medium root; unknown lower boundary; alluvium.
448-505 (14.7-16.6)		no recovery; core rejected on rock.

Core/Profile: RN-2

Location: Renville County Park No. 4

Legal description: SE ¼ NE ¼ Section 34 T112N R33W

County: Renville

Parent material: Alluvial fan, psa/alluvial fan/alluvium/bedrock

Vegetation: Grass

Slope: 5-9%

Elevation: 784 feet

Topo. Map: Morgan NE

Remarks: Renville County Park No. 4 transect; near bluff line in Minnesota River Valley; on northeast side of river; close to Nicollet County border

Depth cm(ft)	Horizon or Zone	Description
0-17 (0-.6)	A	black (10YR2/1) silt loam, with very few granules and very few, fine pebbles; moderate, fine, subangular blocky; friable; very slightly to noneffervescent; clear lower boundary; possibly a former Ap; alluvial fan, psa.
17-34 (.6-1.1)	AB	black (10YR2/1) silt loam, with very few granules and very few, fine pebbles; weak, medium, subangular blocky; friable; noneffervescent; abrupt lower boundary; possibly a former Ap; alluvial fan, psa.
34-62 (1.1-2.0)	Bw1	very dark brown to very dark grayish brown (10YR2.5/2) silt loam, with much sand and clay, few granules and fine pebbles; moderate, medium, subangular blocky; friable; noneffervescent to strongly effervescent; clear lower boundary; alluvial fan.
62-79 (2.0-2.6)	Bw2	very dark brown to very dark grayish brown (10YR2.5/2) silt loam, with much sand and clay; moderate, coarse, breaking to medium subangular blocky; friable; violently effervescent; clear lower boundary; alluvial fan.
79-103 (2.6-3.4)	Bk1	very dark brown to very dark grayish brown (10YR2.5/2) silt loam, with much sand and clay; moderate, coarse, subangular blocky, tending toward angular blocky; friable to firm; violently effervescent, with many secondary carbonate coats along root pores and filaments; clear lower boundary; alluvial fan.
103-123 (3.4-4.0)	Bk2	dark grayish brown (2.5Y4/2) light silt loam; weak, very coarse, subangular blocky; friable; violently effervescent, with many secondary carbonate coats along root pores and filaments; clear lower boundary; alluvial fan.
123-159 (4.0-5.2)	2C1	dark grayish brown (2.5Y4/2) gravely sandy loam to fine pebbly gravel; weak, medium breaking to fine subangular blocky to loose; friable to single grain; violently effervescent; very abrupt lower boundary; alluvial fan.
159-220 (5.2-7.2)	3C2	olive brown (2.5Y4/4) with very fine to coarse zones of black to very dark gray (2.5Y2.5/1) light silt loam, with few granules and fine pebbles; massive over thin beds, very weakly expressed; friable; violently effervescent, with common, very fine, soft, indistinct secondary carbonate filaments; darker zones are possibly reworked A-horizon material; alluvial fan.
220-264 (7.2-8.7)	3C3	olive brown (2.5Y4/4) heavy sandy loam, with few granules and very few, fine pebbles; massive; friable; violently effervescent; clear lower boundary; alluvial fan.
264-431 (8.7-14.1)	3C4	very dark grayish brown (2.5Y3/2) loam, with few granules and very few, fine pebbles; very weak subangular blocky; friable; violently effervescent, with very few, very fine, soft, indistinct secondary carbonate filaments; charcoal at 426 cm; alluvial fan.
431-449 (14.1-14.7)	4Ab	black to very dark grayish brown (10YR-2.5Y2.5/2) loam, with few granules and fine pebbles; very weak subangular blocky; friable; violently effervescent, with very few, fine, soft, indistinct secondary carbonate filaments; clear lower boundary; alluvium.
449-473 (14.7-15.5)	4C	dark brown (2.5Y-10YR3/3) sandy loam, with few granules; very weak, subangular blocky; very friable; violently effervescent, with filaments as above; clear lower boundary; one darker zone from above; alluvium.
473-494 (15.5-16.2)	5Ab	very dark grayish brown (10YR3/2) silty clay loam, with very few granules and very few fine pebbles; very weak subangular blocky; friable; violently effervescent, with very few, soft, indistinct secondary carbonate filaments, but fine, and tending to concretions; few, fine to medium pores; clear to abrupt lower boundary; alluvium.
494-519 (16.2-17.0)	5C1	olive brown to dark grayish brown (2.5Y4/3) heavy silt loam, with very few granules; strata, very weakly expressed; friable; violently effervescent, with few, fine, soft, secondary carbonate filaments; abrupt lower boundary; alluvium.

Depth cm(ft)	Horizon or Zone	Description
RN-2 (continued)		
519-581 (17.0-19.1)	6C2	olive brown (2.5Y4/4) pebbly loamy sand; loose; single grain; strongly effervescent; indeterminate lower boundary; alluvium.
581-618 (19.1-20.3)	7Cg1	black (2.5Y2/0) silty clay loam, with some sand; very weak, medium, platy; plastic; strongly effervescent; very abrupt lower boundary; one oblate cobble, at least 6 cm long, broken, surrounded on top by sand from above; alluvium.
618-695+(20.3-22.8+)	8Cg2	olive gray (5Y5/2±) silt loam, fine and medium sand and silty clay; few, medium and coarse, horizontal, dark yellowish brown (10YR4/6) mottles; thin beds to laminae, strongly expressed; variable consistency; violently effervescent; alluvium.
695-744 (22.8-24.4)		no recovery; very firm sandy loam or clay; alluvium.
Auger Samples:		
841-851 (27.6-27.9)	9Cg3	olive (5Y4/3) clay loam with few gray (5Y5/1) laminae, with very few, fine pebbles; indeterminate structure, but probably stratified; firm; moderately effervescent; indeterminate lower boundary; alluvium.
851->876 (27.9->28.7)	10R	olive gray (5Y4/2) silty clay loam(?), with very many very fine yellow (2.5Y7/6) inclusions; indeterminate structure; very firm; noneffervescent; feels like shale; bed rock.

Core/Profile: RN-3

Location: Renville County Park No. 4

Legal description: NE ¼ SE ¼ Section 34 T112N R33W

County: Renville

Parent material: Alluvium, overbank deposits

Vegetation: Grass

Slope: <2%

Elevation: 778 feet

Topo. Map: Morgan NE

Remarks: Renville County Park No. 4 transect; on northeast side of Minnesota River Valley; midway between bluff and river; 30 meters south of old log cabin

Depth cm(ft)	Horizon or Zone	Description
0-30 (0-1.0)	A1	black (10YR2/1) silty clay loam, with very few granules; weak granular; friable; noneffervescent; gradual lower boundary; alluvium, overbank deposits.
30-81 (1.0-2.7)	A2	black (10YR2/1) silty clay loam; weak, fine, subangular blocky; plastic; very slightly effervescent; one whole snail shell at 69 cm; gradual lower boundary; alluvium, overbank deposits.
81-153 (2.7-5.0)	A3	black (10YR2/1) silty clay loam, with very few granules and fine pebbles; weak, medium, blocky to fine subangular blocky; plastic; very slightly effervescent; one tooth fragment at 84 cm; gradual lower boundary; alluvium, overbank deposits.
153-180+ (5.0-5.9+)	AB	black to very dark brown (10YR2/1.5) silty clay loam, with few granules and fine pebbles; weak, medium, subangular blocky; plastic; strongly to violently effervescent, with common, very fine, soft, indistinct, secondary carbonate concretions; alluvium, overbank deposits.
180-200 (5.9-6.6)		no recovery; refused on rock; bedrock.

Core/Profile: RN-4

Location: Renville County Park No. 4

Legal description: SW ¼ SE ¼ Section 34 T112N R33W

County: Renville

Parent material: Alluvium, psa/alluvium, overbank deposits/ alluvium, channel and bar deposits

Vegetation: Grass

Slope: <2%

Elevation: 774 feet

Topo. Map: Morgan NE

Remarks: Renville County Park No. 4 transect; on northeast side of Minnesota River Valley; 15 meters from bank along main channel

Depth cm(ft)	Horizon or Zone	Description
0-7 (0-.2)	C	very dark gray to very dark grayish brown (10YR-2.5Y3/1.5) very fine sand, with few pebbles; stratified to platy; friable; violently effervescent; abrupt lower boundary; alluvium, psa.
7-27 (.2-.9)	A	black (10YR2/1) silt loam; weak, fine, subangular blocky breaking to granular; friable; strongly to moderately effervescent; very few snail shell fragments; clear lower boundary; alluvium, psa.
27-99 (.9-3.2)	AC1	very dark grayish brown (2.5Y3/2) silt loam (close to loam); weak, medium, subangular blocky; friable; strongly to violently effervescent; common, fine and medium charcoal 84-88 cm; very few snail shells, whole and fragments; clear lower boundary; alluvium, psa.
99-154 (3.2-5.1)	AC2	very dark gray (2.5Y3/1) silt loam (close to loam), very few, fine pebbles; weak, medium, subangular blocky, one zone with very weak, medium, platy; friable; moderately effervescent; common, fine and medium, charcoal, 108 cm; abrupt lower boundary; alluvium, psa.
154-160 (5.1-5.2)	AC3	very dark gray (2.5Y3/1) heavy silt loam; weak, medium breaking to fine subangular blocky; friable; moderately effervescent; very few snail shell fragments and whole shells; abrupt lower boundary; alluvium, psa.
160-186 (5.2-6.1)	2Ab	black (10YR2/1) silty clay loam; very weak, medium, subangular blocky breaking to granular; friable; slightly effervescent; very few snail shell fragments; clear lower boundary; alluvium, overbank deposits.
186-263 (6.1-8.6)	2Bwb1	black (2.5Y2.5/1) to very dark grayish brown (2.5Y2.5/2) silty clay loam; moderate, medium, subangular blocky; friable; very slightly effervescent; very few snail shell fragments; clear lower boundary; alluvium, overbank deposits.
263-288 (8.6-9.4)	2Bwb2	very dark grayish brown (2.5Y3/2) silty clay loam; weak, coarse breaking to medium subangular blocky; firm to friable; slightly effervescent; very few snail shell fragments and whole shells; one charcoal fragment at 273 cm; clear lower boundary; alluvium, overbank deposits.
288-360 (9.4-11.8)	2BCb	dark grayish brown (2.5Y4/2) down to very dark to dark grayish brown (2.5Y3.5/2) heavy silt loam; zones with common, fine, dark yellowish brown (10YR3/4) mottles; very weak, coarse, subangular blocky over strata, very weakly expressed; friable; violently effervescent, with common soft secondary carbonate masses and filaments; gradual lower boundary; alluvium, overbank deposits.
360->435 (11.8->14.3)	3C1	very dark grayish brown (10YR3/2) very fine and fine sandy loam; common, fine to coarse, faint, dark brown to dark yellowish brown (10YR3/3,3/4) mottles; strata, moderately expressed; friable; violently effervescent, dolomitic; alluvium, overbank deposits.
<636-654 (<20.9-21.5)	3C2	very dark grayish brown (10YR3/2) very fine and fine sandy loam; common, fine to coarse, faint, dark brown to dark yellowish brown (10YR3/3,3/4) mottles, faint; strata, moderately expressed; friable; violently effervescent, dolomitic; clear lower boundary; alluvium, channel and bar deposits.
654-696 (21.5-22.8)	3Cg1	very dark grayish brown (2.5Y3/1.5) very fine sandy loam, more clay than above; few, fine, very dark grayish brown (10YR3/2) mottles; strata, very weakly expressed; friable; violently effervescent; clear lower boundary; alluvium, channel and bar deposits.
696-752+ (22.8-24.7+)	3Cg2	black (5Y2.5/1) very fine to fine sandy loam, with few thin beds of loamy, very fine sand in lower 0.5m; moderate, thin beds; friable; violently effervescent, dolomitic; stratified with common, fine, uncarbonized organic matter in lower 0.15m; alluvium, channel and bar deposits.

Core/Profile: RN-5

Location: Renville County Park - Beaver Falls

Legal description: SE ¼ NE ¼ Section 21 T113N R35W

County: Renville

Parent material: Alluvial fan/alluvium, channel deposits

Vegetation: Grass

Slope: 5-9%

Elevation: 903 feet

Topo. Map: Redwood Falls

Remarks: Renville County Park at Beaver Falls; along Beaver Creek upstream from confluence with the Minnesota River; taken on an alluvial fan

Depth cm(ft)	Horizon or Zone	Description
0-19 (0-.6)	A(p?)	black (10YR2/1) light loam, very few granules and very few, fine pebbles; moderate, fine, subangular blocky; friable; noneffervescent; many, very fine to fine roots; clear lower boundary; alluvial fan.
19-41 (.6-1.3)	A1	black (10YR2/1) light loam, very few granules and very few, fine pebbles; weak, crumbly; very friable; noneffervescent; clear lower boundary; alluvial fan.
41-78 (1.3-2.6)	A2	black (10YR2/1) light loam, very few granules and very few, fine pebbles; weak, fine, subangular blocky breaking to crumb in upper half; friable; noneffervescent; gradual lower boundary; alluvial fan.
78-107 (2.6-3.5)	AB	black to very dark brown (10YR2/1.5) light loam, very few granules and very few, fine pebbles; weak, medium, subangular blocky; friable; very slightly effervescent; gradual lower boundary; alluvial fan.
107-133 (3.5-4.4)	Bw	very dark brown (10YR2/2) light loam, very few granules and very few, fine pebbles; very weak, coarse breaking to medium subangular blocky; friable; slightly to moderately effervescent; clear lower boundary; alluvial fan.
133-149 (4.4-4.9)	BC	very dark brown to very dark grayish brown (10YR-2.5Y2.5/2) sandy loam, very few granules and very few, fine pebbles; very weak, coarse, subangular blocky breaking to crumb; very friable; violently effervescent; clear lower boundary; alluvial fan.
149-179 (4.9-5.9)	2Ab	black to very dark brown (10YR-2.5Y2/2) loam; weak, medium breaking to fine subangular blocky; friable; violently effervescent, few, fine, soft, secondary carbonate filaments and masses; clear lower boundary; alluvial fan.
179-196 (5.9-6.4)	2BCb	very dark brown to dark brown to very dark grayish brown (10YR-2.5Y2.5/2.5) pebbly heavy sandy loam; very weak, medium, subangular blocky breaking to crumb and single grain; very friable; violently effervescent; clear lower boundary; alluvial fan.
196-213 (6.4-7.0)	3Ab	black to very dark grayish brown (10YR2.5/1.5) pebbly loam; moderate, medium, subangular blocky; friable; violently effervescent; clear lower boundary; alluvial fan.
213-262 (7.0-8.6)	3ACb	black to very dark grayish brown (10YR2.5/1.5) loam, very few granules and very few, fine pebbles; weak, coarse, subangular blocky, possibly over stratified; friable; violently effervescent; abrupt lower boundary; alluvial fan.
262-318 (8.6-10.4)	4BCb1	very dark grayish brown to olive brown (2.5Y3/2.5) light loam, few granules, few, fine pebbles; very weak, coarse, subangular blocky breaking to crumb, and single grain over stratified; very friable; violently effervescent; abrupt lower boundary; alluvial fan.
318-359 (10.4-11.8)	4BCb2	very dark grayish brown (2.5Y3/2) loam, very few granules and very few pebbles; massive; friable; violently effervescent, with common, fine, soft secondary carbonate masses and filaments; very abrupt lower boundary; alluvial fan.
359-413+ (11.8-13.5+)	4C	olive brown (2.5Y4/4) loamy fine sand with very few down to few, fine pebbles; stratified, single grain; loose; violently effervescent; indeterminate lower boundary; alluvium.
Auger Sample:		
437-523 (14.3-17.2)		dark grayish brown to olive brown (2.5Y4/3) pebbly, medium and coarse sand, little fines; single grain; loose; violently effervescent; alluvium.

Core/Profile: RN-6

Location: Renville County Park - Beaver Falls

Legal description: SE ¼ NE ¼ Section 21 T113N R35W

County: Renville

Parent material: Alluvial fan/alluvium, channel deposits

Vegetation: Grass

Slope: 2-5%

Elevation: 896 feet

Topo. Map: Redwood Falls

Remarks: Renville County Park at Beaver Falls; along Beaver Creek upstream from its confluence with the Minnesota River; taken from toe slope of same fan as RN-5 taken from; approximately 2 meters lower in elevation than RN-5

Depth cm(ft)	Horizon or Zone	Description
0-20 (0-.7)	A(p?)	black (10YR2/1) light loam, very few granules and very few, fine pebbles; weak, coarse and medium, cloddy; friable to firm; noneffervescent; abrupt lower boundary; alluvial fan.
20-49 (.7-1.6)	A1	black (10YR2/1) light loam, very few granules and very few, fine pebbles; weak, medium, subangular blocky breaking to crumb; very friable; noneffervescent; concretions, pebbles at 36-38 cm; clear lower boundary; alluvial fan.
49-68 (1.6-2.2)	A2	black (10YR2/1) light loam, very few granules and very few, fine pebbles; weak, medium breaking to fine subangular blocky and crumb; friable; noneffervescent; gradual lower boundary; alluvial fan.
68-87 (2.2-2.9)	AB	black to very dark brown (10YR2/1.5) light loam; weak, medium, subangular blocky; friable; noneffervescent; gradual lower boundary; alluvial fan.
87-114 (2.9-3.7)	Bw	very dark brown (10YR2/2) loam, few granules and few, fine pebbles; weak, coarse breaking to medium subangular blocky; friable; moderately effervescent; clear lower boundary; alluvial fan.
114-145 (3.7-4.8)	2Ab	black to very dark brown (10YR2/1.5) loam, very few granules and very few, fine pebbles; weak, medium breaking to fine subangular blocky; friable; violently effervescent; clear lower boundary; alluvial fan.
145-169 (4.8-5.5)	2Bwb1	very dark brown (10YR2/2) loam, very few granules and very few to few, fine pebbles; weak, coarse breaking to medium subangular blocky; friable; violently effervescent, with very few, fine, soft, secondary carbonate filaments and masses; gradual lower boundary; alluvial fan.
169-215 (5.5-7.1)	2Bwb2	very dark brown (10YR2/2.5) loam, very few granules and very few to few, fine pebbles; weak, coarse, subangular blocky; friable; violently effervescent, with few, fine, soft, secondary carbonate filaments and masses; abrupt lower boundary; alluvial fan.
215-269 (7.1-8.8)	2C1	very dark brown to very dark grayish brown (10YR-2.5Y2.5/2) beds of sandy loam, with very few granules and fine pebbles, one bed each of olive brown to dark yellowish brown (2.5Y-10YR3.5/4) loamy fine sand, one bed loamy coarse sand; very weak subangular blocky and single grain; very friable and loose; violently effervescent; very abrupt lower boundary; alluvium.
269-299+ (8.8-9.8+)	2C2	very dark grayish brown (2.5Y3/1.5) light loam; very weak subangular blocky to massive; friable; violently effervescent; alluvium.
Auger Sample:		
351-486 (11.5-15.9)	3C3	olive brown (2.5Y4/5) medium sand, little fines, moderately to well sorted; single grain; loose; violently effervescent; alluvium.

Core/Profile: RN-7

Location: Renville County Park - Beaver Falls

Legal description: SE ¼ NE ¼ Section 21 T113N R35W

County: Renville

Parent material: Alluvium/vertical accretion deposits/alluvium, channel deposits

Vegetation: Grass

Slope: <2%

Elevation: 881 feet

Topo. Map: Redwood Falls

Remarks: Renville County Park at Beaver Falls; along Beaver Creek upstream from its confluence with the Minnesota River; north of confluence of small creek with Beaver Creek; approximately 0.5 meter lower in elevation than RN-6 - may be due to earth moving for trail system

Depth cm(ft)	Horizon or Zone	Description
0-4 (0-.1)	C	black (10YR2/1); very abrupt lower boundary; spoil; alluvium, vertical accretion deposits.
4-20 (.1-.7)	A(p?)	black (10YR2/1) light loam; weak, coarse and medium, cloddy; firm; noneffervescent; abrupt lower boundary; alluvium, vertical accretion deposits.
20-61 (.7-2.0)	A	black (10YR2/1) light loam, very few granules and very few, fine pebbles; weak, medium, subangular blocky breaking to crumb; very friable; noneffervescent; clear lower boundary; alluvium, vertical accretion deposits.
61-93 (2.0-3.1)	AB	black to very dark brown (10YR2/1.5) loam, very few granules and very few, fine pebbles; moderate, medium, subangular blocky; friable; noneffervescent; clear lower boundary; alluvium, vertical accretion deposits.
93-109 (3.1-3.6)	Bw	very dark brown (10YR2/2) loam, very few granules and very few, fine pebbles; weak, coarse, subangular blocky; friable; noneffervescent; abrupt lower boundary; alluvium, vertical accretion deposits.
109-153 (3.6-5.0)	C1	very dark grayish brown (10YR3/2), very dark grayish brown (10YR-2.5Y3/2) and very dark grayish brown to olive brown (2.5Y3/2.5) loam, sandy loam, and loamy sand, with few granules and few, fine pebbles; very weak, subangular blocky and single grain over thin beds, moderately expressed; friable to loose; violently effervescent; abrupt lower boundary; alluvium, vertical accretion deposits.
153-168+ (5.0-5.5+)	2C2	dark brown (10YR3/3) loamy, medium to coarse sand, with few granules; single grain; loose; violently effervescent; rejected on rock (boulders noted in creek bed approximately 20 m to the west); alluvium, channel deposits.

Core/Profile: RN-8

Location: Renville County Park -Beaver Falls

Legal description: NE ¼ SE ¼ Section 21 T113N R35W

County: Renville

Parent material: Colluvium, psa/alluvium/alluvium, channel deposits

Vegetation: Grass

Slope: 2-5%

Elevation: 868 feet

Topo. Map: Redwood Falls

Remarks: Renville County Park at Beaver Falls; along Beaver Creek upstream from its confluence with the Minnesota River; located on broad terrace/fan of small drainage way

Depth cm(ft)	Horizon or Zone	Description
0-119 (0-3.9)	C	black (10YR2/1) light silty clay loam to silt loam; very dark brown (10YR2/2) loamy fine gravel, loamy medium sand, and very few granules; and black to very dark gray (10YR2.5/1) light silty clay loam; thinly bedded, with weak, medium and fine, subangular blocky structure in fine units, single grain in coarse units; friable to loose; violently to slightly to violently effervescent; abrupt lower boundary; colluvium, psa.
119-130 (3.9-4.3)	4Ab	black (10YR2/0) light silty clay loam; moderate, fine, subangular blocky; firm; noneffervescent; abrupt lower boundary; alluvium.
130-152 (4.3-5.0)	4ABb	black (10YR2/1) light loam; weak, medium, subangular blocky; friable; very slightly to noneffervescent; clear lower boundary; alluvium.
152-180 (5.0-5.9)	4Bwb	coarse and medium, faintly mottled, very dark brown (10YR2/2) and very dark grayish brown (10YR3/2) light loam; weak, coarse, subangular blocky; very slightly to noneffervescent; clear lower boundary; alluvium.
180-205 (5.9-6.7)	4CBb	dark grayish brown to very dark grayish brown to olive brown (2.5Y3.5/2.5) sandy loam, with few, fine pebbles; very weak, coarse, subangular blocky; friable to very friable; moderately to strongly effervescent; clear lower boundary; alluvium.
205-229+ (6.7-7.5+)	5C	dark grayish brown (2.5Y4/2) loamy medium sand to loamy coarse sand, with few thick laminae of fine sandy loam, with very few granules and fine pebbles, sandy strata with very dark brown (7.5YR2/3±) oxidation stains; single grain; loose; violently effervescent; alluvium, channel deposits.
Auger Sample:		
<250->377 (<8.2->12.4)	6R	olive gray (5Y4/2), with zones with olive (5Y5/3), micaceous clay, possibly bedrock; appears thinly stratified; soft; noneffervescent to slightly effervescent; bedrock.

Core/Profile: RN-9

Location: Renville County Park - Beaver Falls

Legal description: NE ¼ SE ¼ Section 21 T113N R35W

County: Renville

Parent material: Colluvium, psa/alluvium/alluvium, channel deposits

Vegetation: Grass

Slope: 2-5%

Elevation: 864 feet

Topo. Map: Redwood Falls

Remarks: Renville County Park at Beaver Falls; along Beaver Creek upstream from its confluence with the Minnesota River; on same fan/terrace as RN-8; approximately 1 meter lower in elevation than RN-8

Depth cm(ft)	Horizon or Zone	Description
0-8 (0-.3)	C	very dark grayish brown (10YR-2.5Y3/2) gravely, fine and medium sand, with little fines; single grain; loose; violently effervescent; very abrupt lower boundary; colluvium, psa.
8-21 (.3-.7)	2Ab1	black (10YR2/0) light silty clay loam, with much fine sand; moderate, medium breaking to fine subangular blocky and angular blocky tending to weak, medium, platy; friable; noneffervescent; gradual lower boundary; alluvium.
21-38 (.7-1.2)	2Ab2	black (10YR2/1) loam, one medium pebble, 5 cm long axis; moderate to weak, medium, subangular blocky and angular blocky; friable; noneffervescent; gradual lower boundary; alluvium.
38-63 (1.2-2.1)	2ABb	very dark brown (10YR2/2) loam; weak, coarse, subangular blocky; friable; alluvium; noneffervescent; gradual lower boundary; alluvium.
63->84 (2.1->2.8)	2Bwb	very dark brown to very dark grayish brown (10YR2.5/2) light loam, with very few, fine pebbles in lower half; weak, coarse, subangular blocky; very friable; strongly to violently effervescent; abrupt lower boundary; alluvium.
<127-137 (<4.2-4.5)	3C1	very dark grayish brown (2.5Y3/2) pebbly sandy loam, with few pebbles of black (10YR2/1) light silty clay loam; very weak subangular blocky over single bed; friable; strongly to violently effervescent; abrupt lower boundary; alluvium, channel deposits.
137-151+ (4.5-5.0)	3C2	very dark grayish brown (2.5Y3/2) pebbly, loamy granular gravel; very weak subangular blocky over stratified; very friable; strongly to violently effervescent; alluvium, channel deposits.
151-175 (5.0-5.7)		no recovery; rejected on coarse gravel and pebbles; alluvium, channel deposits.

Core/Profile: RN-10

Location: Renville County Park - Beaver Falls

Legal description: NE ¼ SE ¼ Section 21 T113N R35W

County: Renville

Parent material: Alluvium, psa/alluvium/alluvium, channel deposits

Vegetation: Grass

Slope: <2%

Elevation: 857 feet

Topo. Map: Redwood Falls

Remarks: Renville County Park at Beaver Falls; along Beaver Creek upstream from its confluence with the Minnesota River; closest core and on lowest terrace to the tributary of Beaver Creek; approximately 1 meter lower in elevation than RN-9

Depth cm(ft)	Horizon or Zone	Description
0-21 (0-.7)	A(p?)	black to very dark gray (2.5Y2.5/1) loam, with few granules and very few, fine pebbles; very weak, coarse and medium, cloddy; friable; moderately effervescent; abrupt lower boundary; alluvium, psa.
21-30 (.7-1.0)	C	black to very dark brown (10YR2/1.5) loamy, medium and coarse sand, moderately to poorly sorted, with few granules and very few, fine pebbles; very weak, medium, subangular blocky to blocky, single grain; loose; strongly effervescent; very abrupt lower boundary; alluvium, psa.
30-67 (1.0-2.2)	2Ab	black to very dark gray (2.5Y2.5/0) silty clay; very weak, coarse, subangular blocky breaking to crumb; friable; noneffervescent; clear lower boundary; one chert chip(?) at 58 cm; alluvium.
67-143 (2.2-4.7)	2ABb	very dark gray (2.5Y3/1) loam, very few granules; one zone with very dark grayish brown (2.5Y3.5/2) mottles; massive; friable; noneffervescent to very slightly effervescent; diffuse lower boundary; alluvium.
143-163 (4.7-5.3)	2Bgb1	very dark grayish brown to very dark gray (2.5Y3/1.5) loam, with very few granules; very weak subangular blocky; friable; very slightly effervescent; gradual lower boundary; alluvium.
163-191 (5.3-6.3)	2Bgb2	grayish brown to dark gray (2.5Y4.5/1.5) loam; many, fine, distinct, dark yellowish brown (10YR3/6) mottles; massive; friable; slightly to strongly effervescent; very abrupt lower boundary; alluvium.
191-239+ (6.3-7.8+)	3C	light olive brown (2.5Y5/3) medium sand, moderately well sorted, little fines; many, coarse, faint, olive brown (2.5Y5/4) mottles; single grain; loose; violently effervescent; alluvium, channel deposits.
Auger Sample:		
<280->401 (<9.2->13.2)	4R?	olive gray (5Y4/2), zones with olive (5Y5/3) micaceous clay, possibly bedrock; appears thin stratified; soft; noneffervescent to slightly effervescent; similar to auger sample in RN-8; bedrock.

Core/Profile: RN-11

Location: Renville County Park - Beaver Falls

Legal description: SW ¼ NW ¼ Section 22 T113N R35W

County: Renville

Parent material: Alluvium, vertical accretion deposits/alluvium, channel deposits

Vegetation: Grass

Slope: <2%

Elevation: 911 feet

Topo. Map: Redwood Falls

Remarks: Renville County Park at Beaver Falls; along Beaver Creek upstream from its confluence with the Minnesota River; on a high rock-cored meander (abandoned) - taken in the lowest channel form; unusual core - Bt horizon

Depth cm(ft)	Horizon or Zone	Description
0-17 (0-.6)	A1	black to very dark grayish brown (2.5Y2.5/1) silty clay loam; weak, medium breaking to fine subangular blocky; friable; noneffervescent; clear lower boundary; alluvium, vertical accretion deposits.
17-44 (.6-1.4)	A2	black to very dark gray (2.5Y2.5/0) silty clay loam; weak, coarse, subangular blocky breaking to crumb; friable; noneffervescent; clear lower boundary; alluvium, vertical accretion deposits.
44->66 (1.4->2.2)	A3	black to very dark grayish brown (2.5Y2.5/1) silty clay loam; weak, medium and fine, subangular blocky and angular blocky; noneffervescent; firm; alluvium, vertical accretion deposits.
<125-131 (<4.1-4.3)	A4	black to very dark grayish brown (2.5Y2.5/1) silty clay loam; weak, medium and fine, subangular blocky and angular blocky; firm; noneffervescent; abrupt lower boundary, alluvium, vertical accretion deposits.
131-152 (4.3-5.0)	Bt1	dark grayish brown (2.5Y4/2) silty clay loam; moderate, coarse, subangular blocky and angular blocky, tending to prismatic; coatings are many, thin, discontinuous, very dark grayish brown (2.5Y3/2), clay coats on ped faces and lining pores; firm; noneffervescent; clear lower boundary; alluvium, vertical accretion deposits.
152-165 (5.0-5.4)	Bt2	very dark grayish brown (2.5Y3/2) silty clay loam; moderate, coarse, angular blocky and subangular blocky; many, thin, discontinuous, very dark grayish brown (2.5Y3/2) clay coats on ped faces and lining pores; firm; noneffervescent; clear lower boundary; alluvium, vertical accretion deposits.
165-176+ (5.4-5.8)	2C	very dark gray to black (10YR2.5/1) loam, with few, fine pebbles, mostly in one strata; very weak subangular blocky; friable to firm; noneffervescent; alluvium, channel deposits.
176-234 (5.8-7.7)		no recovery; rejected at 234 cm; alluvium, channel deposits.
Auger Sample:		
<234->325 (<7.7->10.7)		black to very dark gray (2.5Y2.5/0) to very dark grayish brown (10YR-2.5Y3/2) pebbly silty clay loam, probably with some very dark grayish brown (2.5Y3/2) sandy strata; subangular blocky; plastic; noneffervescent; alluvium, channel deposits.

Core/Profile: RN-12

Location: Renville County Park - Beaver Falls

Legal description: SW ¼ NW ¼ Section 22 T113N R35W

County: Renville

Parent material: Alluvium, vertical accretion deposits/alluvium, channel deposits

Vegetation: Grass

Slope: <2%

Elevation: 914 feet

Topo. Map: Redwood Falls

Remarks: Renville County Park at Beaver Falls; along Beaver Creek upstream from its confluence with the Minnesota River; 60 meters north of RN-11

Depth cm(ft)	Horizon or Zone	Description
0-10 (0-.3)	A1	black (10YR2/1) silty clay loam, with much fine sand; moderate, fine, subangular blocky; friable; noneffervescent; many very fine to fine roots; abrupt lower boundary; alluvium, vertical accretion deposits.
10-29 (.3-.8)	A2	black (10YR2/1) silty clay loam, with much fine sand; weak, fine, subangular blocky; friable; noneffervescent; abrupt lower boundary; alluvium, vertical accretion deposits.
24-71 (.8-2.3)	A3	black (10YR2/0) silty clay loam, less sand than above, very few granules and fine pebbles; weak, medium and fine, subangular blocky breaking to moderate granular; friable; noneffervescent; gradual lower boundary; alluvium, vertical accretion deposits.
71-84 (2.3-2.8)	AB	black to very dark grayish brown (2.5Y2.5/1) silty clay loam, with more sand than above, very few granules and fine pebbles; moderate, medium breaking to fine subangular blocky; friable to firm; noneffervescent; clear lower boundary; alluvium, vertical accretion deposits.
84-106 (2.8-3.5)	2Ab	black to very dark grayish brown (2.5Y2.5/1) heavy loam, with very few granules; weak, medium and fine, subangular blocky breaking to very weak granular; friable to firm; noneffervescent; clear lower boundary; alluvium, vertical accretion deposits.
106-141 (3.5-4.6)	2ABgb	very dark gray to very dark grayish brown (2.5Y2.5/2) heavy loam, with very few granules; weak, coarse, subangular blocky and angular blocky; firm to plastic; noneffervescent; gradual lower boundary; alluvium, vertical accretion deposits.
141-186 (4.6-6.1)	3Cg1	very dark grayish brown (2.5Y3/2) and very dark to dark grayish brown (2.5Y3.5/2) down to very dark to dark grayish brown to olive brown (2.5Y3.5/3) sandy loam, with very few, fine pebbles and granules; very weak, subangular blocky to massive; friable; noneffervescent; clear lower boundary; alluvium, channel deposits.
186->218 (6.1->7.2)	3Cg2	olive gray (5Y4.5/2) loamy sand with few fine pebbles and dark olive gray (5Y3/2) pebbly loamy sand; many, fine, faint, olive (5Y4/3) mottles in olive gray loamy sand; massive over thin beds; friable; noneffervescent; alluvium, channel deposits.
Auger Sample:		
<235-326 (<7.7-10.7)	4Cg	olive gray (5Y5/2±) granular loam, with many, feldspar crystals; plastic; moderately to strongly effervescent, slow to react; similar to other basal gravel.

Core/Profile: RN-13

Location: Renville County Park - Beaver Falls

Legal description: SE ¼ SW ¼ Section 15 T113N R35W

County: Renville

Parent material: Colluvium, psa

Vegetation: Grass

Slope: <2%

Elevation: 938 feet

Topo. Map: Redwood Falls

Remarks: Renville County Park at Beaver Falls; along Beaver Creek upstream from its confluence with the Minnesota River; uppermost core in transect (RN-13 to RN-15); on T-3 terrace in field notes (10 to 12 meters below T-4 and 3 to 4 meters above T-2 in elevation)

Depth cm(ft)	Horizon or Zone	Description
0-10 (0-.3)	CA	black (10YR2/1) light silty clay loam, with very few granules and fine pebbles; weak, fine, subangular blocky and granular; friable; slightly effervescent; abrupt lower boundary; colluvium, psa.
10-62 (.3-2.0)	2Ab1	black to very dark gray (2.5Y2.5/0) silty clay loam, much sand and very few granules and fine pebbles; weak, medium and fine, subangular breaking to crumb; friable; noneffervescent; diffuse lower boundary; colluvium, psa.
62-78 (2.0-2.6)	2Ab2	black to very dark gray (2.5Y2.5/0) silty clay loam; weak, coarse breaking to medium and fine, subangular blocky and crumbly; friable; noneffervescent; clear lower boundary; colluvium, psa.
78-98 (2.6-3.2)	2ABb	black to very dark gray (2.5Y2.5/1) light loam; weak, coarse breaking to medium subangular blocky; friable; very slightly effervescent; abrupt lower boundary; colluvium, psa.
98-129 (3.2-4.2)	3C1	very dark grayish brown to olive brown (2.5Y3/2.5) loamy fine sand; single grain; loose; slightly to strongly effervescent; abrupt lower boundary; colluvium, psa.
129-188+ (4.2-6.2+)	3C2	olive brown (2.5Y4/3) to very dark grayish brown to olive brown (2.5Y3/2.5) loamy fine sand, with very few granules and fine pebbles with depth; thin beds; single grain; loose; violently effervescent; rejected at 188 cm; colluvium, psa.
Auger Sample:		
<188->309 (<6.2->10.1)	3C3	very dark grayish brown (2.5Y3/2) pebbly, medium and coarse sand, with much fines; single grain; loose; violently effervescent; colluvium, psa.

Core/Profile: RN-14

Location: Renville County Park - Beaver Falls

Legal description: SE ¼ SW ¼ Section 15 T113N R35W

County: Renville

Parent material: Alluvium

Vegetation: Grass

Slope: <2%

Elevation: 916 feet

Topo. Map: Redwood Falls

Remarks: Renville County Park at Beaver Falls; along Beaver Creek upstream from its confluence with the Minnesota River; on next terrace down (T-2) from RN-13; T-2 is 3 to 4 meters lower in elevation than T-3 and approximately 1 meter higher in elevation than T-1

Depth cm(ft)	Horizon or Zone	Description
0-25 (0-.8)	Ap?	black (10YR2/1) heavy silt loam, with much sand; moderate, fine, subangular blocky (mostly due to trapped worm); friable; very slightly effervescent; few, very fine to fine roots; abrupt lower boundary; alluvium.
25-41 (.8-1.3)	AB	black to very dark brown (10YR2/1.5) light loam, very few, fine pebbles and granules; weak, medium, subangular blocky breaking to fine subangular blocky and crumb; friable; slightly to moderately effervescent; few, very fine to fine roots; clear lower boundary; more sand than above; alluvium.
41-62 (1.3-2.0)	Bw	very dark grayish brown (10YR3/2) very fine and fine sandy loam; many, fine, faint, dark brown (10YR3/3) mottles; weak, coarse breaking to medium and fine, subangular blocky; friable to very friable; strongly effervescent, dolomitic; few, very fine to fine roots; gradual lower boundary; alluvium.
62-94 (2.0-3.1)	Cg	very dark gray (5Y3/1) down to dark gray (5Y4/1) fine sandy loam, with few, fine pebbles and granules, with a black (2.5Y2/0) bed, 88-90 cm, of bioturbated silty clay loam; massive, probably over thin beds friable, soft; violently effervescent; few, fine and medium roots, partially lignified; very abrupt lower boundary; alluvium.
94-135 (3.1-4.4)	2C	dark grayish brown (2.5Y4/2) medium and coarse sand, little fines, moderately sorted; common, coarse, dark yellowish brown (10YR3/4) mottles; stratified, single grain; loose; violently effervescent; abrupt lower boundary; alluvium.
135-155+ (4.4-5.1+)	3Cg'	stratified dark grayish brown (2.5Y4/2) fine sand and very coarse sand, grayish brown to dark grayish brown (2.5Y5/2,4/2) loamy very fine sand, and black (2.5Y2/0) silty clay loam; few, medium, dark yellowish brown (10YR3/4) mottles in sands; thin beds to thick laminae; plastic to single grain; violently effervescent; black loams are probably redeposited A-horizon; possibly abrupt lower boundary on sand (as in 2C); alluvium.
Auger Samples:		
155-316 (5.1-10.4)	3Cg1	very dark gray (5Y3/1) loamy, very fine to fine sand, with few, fine pebbles; few black (2.5Y2/0) inclusions of silty clay loam; structure is probably single grain(?); consistency is probably loose(?); violently effervescent; indeterminate lower boundary; inclusions probably contamination; alluvium.
400-532 (13.1-17.5)	4Cg2	gray to olive gray (5Y5/1.5) granular, light loam; indeterminate structure; violently effervescent; indeterminate lower boundary; alluvium.

Core/Profile: RN-15

Location: Renville County Park - Beaver Falls

Legal description: SE ¼ SW ¼ Section 15 T113N R35W

County: Renville

Parent material: Alluvium, psa/alluvium

Vegetation: Grass

Slope: <2%

Elevation: 915 feet

Topo. Map: Redwood Falls

Remarks: Renville County Park at Beaver Falls; along Beaver Creek upstream from its confluence with the Minnesota River; on low terrace by creek; approximately 1 meter lower than RN-14 (on next higher terrace); above point bar

Depth cm(ft)	Horizon or Zone	Description
0-127 (0-4.2)	AC	very dark brown (10YR2/2) and very dark grayish brown (10YR3/2), variable textures; very weak subangular blocky to massive; thin beds with C units; very friable; violently to moderately effervescent; moderately bioturbated; very abrupt lower boundary; alluvium, psa.
	C	dark grayish brown (10YR-2.5Y4/2) to dark brown to dark yellowish brown to olive brown (10YR-2.5Y4/3.5), variable textures; single grain; thin beds with AC units; loose; violently effervescent; very abrupt lower boundary; alluvium, psa.
127-148+ (4.2-4.9+)	AC	very dark gray (2.5Y3/1) loam; very weak subangular blocky; plastic; violently effervescent; alluvium, psa.
Auger Samples:		
<244-378 (<8.0-12.4)	Cg	very dark gray (5Y3/1) pebbly loam; indeterminate structure, massive(?); plastic; violently effervescent; alluvium.
425-559 (13.9-18.3)	Cg	very dark to dark gray (5Y3.5/1) pebbly loam to pebbly sandy loam; indeterminate structure, massive(?); plastic; violently effervescent, dolomitic(?); alluvium.
690-800 (22.6-26.2)	Cg	gray to olive gray (5Y5/1.5) granular loam; indeterminate structure; plastic; violently effervescent; alluvium.
920-1044 (30.2-34.3)	Cg	gray to olive gray (5Y5/1.5) granular loam; indeterminate structure; plastic; violently effervescent; alluvium.

Core/Profile: RN-16

Location: Renville County Park No. 2

Legal description: NW ¼ SW ¼ Section 19 T114N R36W

County: Renville

Parent material: Alluvium, vertical accretion deposits

Vegetation: Grass

Slope: <2%

Elevation: 850 feet

Topo. Map: Vicksburg

Remarks: Renville County Park No. 2; on northeast side of Minnesota River in meander scar; lower in elevation than RN-16

Depth cm(ft)	Horizon or Zone	Description
0-28 (0-.9)	A(p?)	black (10YR2/1) silt loam; moderate, medium breaking to fine subangular blocky; friable; moderately effervescent; very few shell fragments; clear lower boundary; alluvium, vertical accretion deposits.
28-37 (.9-1.2)	C	very dark grayish brown (10YR3/2±) light silt loam; weak, medium, subangular blocky; very friable; violently effervescent; bioturbated with colors from above/below; abrupt lower boundary (bioturbated); alluvium, vertical accretion deposits.
37-69 (1.2-2.3)	2ABb1	very dark brown (10YR2/2) silt loam; weak, medium breaking to fine subangular blocky and granular; friable; slightly effervescent; charcoal and few snail shells, whole, at 0.49 m; wood from 49 cm C-14 dated at 820±50 BP; clear lower boundary; alluvium, vertical accretion deposits.
69->90 (2.3->3.0)	2ABb2	black to very dark brown (10YR2/1.5) silt loam; moderate, medium breaking to fine subangular blocky; friable; slightly effervescent; very few shell fragments; clear lower boundary; alluvium, vertical accretion deposits.
<119-129 (<3.9-4.2)	3Ab	black (10YR2/1) heavy silt loam; weak, medium breaking to fine subangular blocky; friable; very slightly effervescent; few snail shell fragments; two coarse roots; clear lower boundary; alluvium, vertical accretion deposits.
129-137 (4.2-4.5)	3ABb	black (10YR2/1) to very dark brown (10YR2/2) heavy silt loam; very weak, subangular blocky to massive; friable; slightly effervescent, with few, fine, soft secondary carbonates lining pores; very few snail shell fragments; clear lower boundary; alluvium, vertical accretion deposits.
137-161 (4.5-5.3)	3Bwb	dark grayish brown (10YR4/2) light silt loam, much more very fine sand; very weak, medium breaking to fine subangular blocky; friable; strongly effervescent, with very few, fine, soft, secondary carbonates lining pores; abrupt lower boundary; alluvium, vertical accretion deposits.
161-170 (5.3-5.6)	4Ab	black (10YR2/1) heavy silt loam; weak, medium breaking to fine subangular blocky; friable; moderately effervescent, with few, fine, soft, secondary carbonate linings and masses; clear lower boundary; alluvium, vertical accretion deposits.
170-180 (5.6-5.9)	4BCb	very dark to dark grayish brown (10YR3.5/2) loamy very fine sand; very weak, medium, subangular blocky; very friable; moderately effervescent; clear lower boundary; alluvium, vertical accretion deposits.
180-194 (5.9-6.4)	5ABb	black to very dark brown (10YR2/1.5) silt loam; weak, medium breaking to fine subangular blocky; friable; slightly effervescent; clear lower boundary; alluvium, vertical accretion deposits.
194-213 (6.4-7.0)	6Ab	black (10YR2/1) silt loam; weak, medium breaking to fine subangular blocky and granular; friable; noneffervescent, with very few, fine, soft, secondary carbonate masses and linings; clear lower boundary; alluvium, vertical accretion deposits.
213-233 (7.0-7.6)	6Bwb	very dark to dark grayish brown to dark brown to brown (10YR3.5/2.5) silt loam, more very fine sand than above; very weak, medium, subangular blocky; friable; moderately effervescent, with few, fine, soft, secondary carbonate linings and masses; very few shell fragments; clear lower boundary; alluvium, vertical accretion deposits.
233-289 (7.6-9.5)	6BCb1	dark to very dark grayish brown (10YR3.5/2) to very dark grayish brown (10YR3/2) silt loam; weak to very weak, medium, platy to breaking to weak, fine, subangular blocky and angular blocky over strata, very weakly expressed; friable; strongly effervescent, with common, fine, soft, secondary carbonate masses and linings; clear lower boundary; alluvium, vertical accretion deposits.
289-?330 (9.5-?10.8)	6BCb2	very dark to dark grayish brown to dark brown to brown to olive brown (10YR-2.5Y3.5/2.5) to very dark grayish brown (10YR-2.5Y3/2) light silt loam to silt loam; weak, medium breaking to fine subangular blocky; friable; strongly effervescent; indistinct, probably clear lower boundary; alluvium, vertical accretion deposits.

Depth cm(ft)	Horizon or Zone	Description
<b>RN-16 (Continued)</b>		
?330-339+ (?10.8-11.1)	7Ab	black (10YR2/1) silt loam; weak, fine, subangular blocky and granular; friable; noneffervescent; alluvium, vertical accretion deposits.
Auger Sample:		
<339->390 (<11.1->12.8)	7CA	black (10YR-2.5Y2/1) heavy silt loam, silty clay loam, with few, fine pebbles; indeterminate structure; plastic; very slightly effervescent; rejected on rock; alluvium, vertical accretion deposits.

Core/Profile: RN-17  
 Location: Renville County Park No. 2  
 Legal description: SW ¼ Section 19 T114N R36W  
 County: Renville  
 Parent material: Alluvium, vertical accretion deposits  
 Vegetation: Grass  
 Slope: <2%  
 Elevation: 860 feet  
 Topo. Map: Redwood Falls  
 Remarks: Renville County Park No. 2; on northeast side of Minnesota River in intermittent "oxbow" lake

Depth cm(ft)	Horizon or Zone	Description
0-24 (0-.8)	A1	black (10YR2/1) heavy silt loam; moderate, medium breaking to fine subangular blocky and granular; friable; noneffervescent; clear lower boundary; alluvium, vertical accretion deposits.
24-73 (.8-2.4)	A2	black (10YR2/1) heavy silt loam to silty clay loam; moderate, granular and crumb; friable; noneffervescent; gradual lower boundary; alluvium, vertical accretion deposits.
73-89 (2.4-2.9)	A3	black (10YR2/1) heavy silt loam; moderate, medium breaking to fine subangular blocky and granular; friable; noneffervescent; clear lower boundary; alluvium, vertical accretion deposits.
89-105 (2.9-3.4)	AB1	very dark brown (10YR2/2) heavy silt loam; weak, medium, subangular blocky; friable; noneffervescent; one bone-rib? fragment at 0.95 meter; clear lower boundary; alluvium, vertical accretion deposits.
105-136 (3.4-4.5)	AB2	black to very dark brown (10YR2/1.5) silt loam (more very fine sand); weak, coarse, subangular blocky; friable; noneffervescent; clear lower boundary; alluvium, vertical accretion deposits.
136-154 (4.5-5.1)	Bw	very dark grayish brown (10YR3/2) very fine sandy loam; many, fine, faint, very dark to dark grayish brown (10YR3.5/2) and dark brown (10YR3/3) mottles; weak, coarse breaking to medium subangular blocky; friable; very slightly effervescent; clear lower boundary; alluvium, vertical accretion deposits.
154-167 (5.1-5.5)	2Ab	black to very dark brown (10YR2/1.5) silt loam; weak, medium, subangular blocky; friable; slightly effervescent; clear lower boundary; alluvium, vertical accretion deposits.
167-186 (5.5-6.1)	2C	dark grayish brown to brown to dark brown to olive brown (10YR-2.5Y4/2.5) very fine sandy loam down to light, very fine sand; very weak, subangular blocky; friable to very friable; strongly effervescent; abrupt lower boundary; alluvium, vertical accretion deposits.
186-?261 (6.1-?8.6)	3Bw or BA	very dark to dark grayish brown (2.5Y-10YR3.5/2) very fine sandy loam down to very dark grayish brown (10YR3/2) silty clay loam; many, fine, faint, very dark to dark grayish brown (2.5Y-10YR3.5/2), and very dark grayish brown (10YR3/2) mottles; weak, coarse, subangular blocky and in lower half, tending to columnar; friable to plastic; very slightly to noneffervescent; clear lower boundary; alluvium, vertical accretion deposits.
?261-283+ (?8.6-9.3+)	4CA	black to very dark grayish brown (10YR2/1,3/2) to (2.5Y3/2) silty clay loam; structure unclear, but appears subangular blocky; plastic; very slightly to noneffervescent; horizon not in good condition; alluvium, vertical accretion deposits.
283-301 (9.3-9.9)		no recovery; rejected on rock.

Core/Profile: YM-1

Location: Homme - high abandoned channel

Legal description: SW ¼ SW ¼ Section 34 T115N R38W

County: Yellow Medicine

Parent material: Wetland/alluvium and colluvium

Vegetation: Grass

Slope: <2%

Elevation: 976 feet

Topo. Map: Lone Tree Lake

Remarks: Homme property; in high abandoned straight channel 1 mile SE of the Yellow Medicine River, parallel to Minnesota River valley (approximately one-third mile to NE); approximately 143 meters SE of cutoff meander in uplands

Depth cm(ft)	Horizon or Zone	Description
0-21 (0-.7)	Ap	black (2.5Y2/0) organic silty clay loam, with few, fine sand; moderate, fine, subangular blocky to blocky to granular; friable to firm; many very fine roots; abrupt lower boundary; wetland.
21-38 (.7-1.2)	A	black (2.5Y2/0) organic silty clay loam, with very few granules and few, fine sand; weak, fine, subangular blocky; friable; many to common very fine roots; clear lower boundary; wetland.
38-68 (1.2-2.2)	AB	black to very dark gray to very dark grayish brown (2.5Y2.5/1) silty clay loam, with common, fine sand; weak, fine and medium, subangular blocky; friable; few, very fine roots; diffuse lower boundary; wetland.
68-96 (2.2-3.1)	2Bgb	dark grayish brown (2.5Y4/2) loam, with few granules; mottles are very few, fine, dark yellowish brown (10YR3/4); weak, coarse, subangular blocky; firm to friable; very few, very fine roots; abrupt lower boundary; alluvium and colluvium.
96-111 (3.1-3.6)	3CAb	very dark gray to very dark grayish brown (2.5Y3/1) silty clay loam, with very few, fine sand; very very fine mottles, with dark grayish brown (2.5Y4/2) decreasing downward; massive to very weak, coarse, subangular blocky (1b); firm to friable; abrupt lower boundary; alluvium and colluvium.
111-119+ (3.6-3.9+)	4ACb	black to very dark gray to very dark grayish brown (2.5Y2.5/1) organic silty clay, with very few, fine sand, one granule; mottles are few, fine to medium, light olive brown (2.5Y5/4), (possibly inclusions); very weak, subangular blocky over thickly laminated to thinly bedded, poorly expressed; firm; alluvium and colluvium.
119-150 (3.9-4.9)		no recovery; rejected on rock.

Core/Profile: YM-2  
 Location: Homme property  
 Legal description: SE SW SW 34 T115N R38W  
 County: Yellow Medicine  
 Parent material: Wetland/alluvium and colluvium  
 Vegetation: Grass  
 Slope: <2%  
 Elevation: 979 feet  
 Topo. Map: Lone Tree Lake  
 Remarks: High abandoned channel

Depth cm(ft)	Horizon or Zone	Description
0-24 (0-.8)	A1	black (10YR2/1) silty clay loam; weak cloddy; friable to firm; noneffervescent; few medium and coarse roots; clear lower boundary; wetland.
24-58 (.8-1.9)	A2	black (2.5Y2/0) silty clay loam; weak subangular blocky; friable to firm; noneffervescent; few medium and coarse roots; clear lower boundary; wetland.
58->81 (1.9->2.7)	AB	black (2.5Y2/0) silty clay loam; weak subangular blocky; firm; noneffervescent; abrupt lower boundary; wetland.
<123-174 (<4.0-5.7)	2Cg	very dark gray (2.5Y4/2) loam, with common granules at base; many very fine, faint, dark yellowish brown (10YR3/6) mottles; massive; friable; violently down to slightly effervescent, with few firm hard secondary carbonate coats lining pores and few soft masses; alluvium and colluvium.

Core/Profile: YM-3  
 Location: Homme property  
 Legal description: NW SW SW 34 T115N R38W  
 County: Yellow Medicine  
 Parent material: Alluvium  
 Vegetation: Grass  
 Slope: <2%  
 Elevation: 945 feet  
 Topo. Map: Lone Tree Lake  
 Remarks: Tributary paleochannel, associated with high terrace

Depth cm(ft)	Horizon or Zone	Description
0-20 (0-.7)	Ap	black (2.5Y2.5/1) loam; weak cloddy and weak subangular blocky and angular blocky; friable; strongly effervescent; many, very fine and fine roots; abrupt lower boundary.
20-49 (.7-1.6)	A	black (2.5Y2.5/0) organic silty clay loam, with very light sand; very weak, medium subangular blocky breaking to crumb; friable; moderately down to noneffervescent; common, very fine roots; clear lower boundary.
49-76 (1.6-2.5)	AC	black (10YR2/1) silty clay loam, with very light sand and one granule in lower half; massive; friable; noneffervescent; few discontinuous laminae of underlying color in lower 7 cm; probably abrupt lower boundary, but somewhat mixed.
76-122 (2.5-4.0)	C1	dark grayish brown (2.5Y4/2) and very dark grayish brown (2.5Y3/2) loam, much more sand than Ap; few pebbles, with few strata of very dark gray (2.5Y3/1); very weak subangular blocky over thin beds to thick laminae, very weakly expressed; plastic; violently effervescent; very few very fine roots and pores; very abrupt lower boundary.
122-198 (4.0-6.5)	C2	olive brown (2.5Y4/3±) heavy loam in upper one-third, then mixed dark grayish brown (2.5Y4/2), very dark grayish brown (2.5Y3/2) and very dark gray (2.5Y3/1), with granules down to pebbles; few very fine dark yellowish brown (10YR3/6) mottles in few zones (<1%); thick laminae, very weakly expressed, thin beds, and/or mixed (krolovina?); plastic; violently effervescent; no pores; gradual lower boundary.
198-209 (6.5-6.9)	2C3	black (2.5Y2.5/0) clean silty clay loam, with some dark grayish brown (2.5Y4/2) inclusions; massive, freezing made it weak, medium angular blocky; plastic; violently effervescent; few snail shells; very abrupt lower boundary.
209-232 (6.9-7.6)	3Cg1	olive gray (5Y5/2) clean silt, one medium pebble; common, medium dark yellowish brown (10YR3/6,4/6) mottles; massive; friable; violently effervescent; loess-like; abrupt lower boundary.
232-278 (7.6-9.1)	3Cg2	greenish gray (5G5/1) silt loam and greenish gray (5GY5/1) silt; common, fine and very fine dark yellowish brown (10YR3/6) mottles (<10%); thick laminae over thin strata, weakly expressed; friable; violently effervescent; very few fine lignified roots; very abrupt lower boundary.
278-280+ (9.1-9.2+)	4Cg3	olivegray (5Y5/2) fine sand; indeterminate structure; loose, single grain; violently effervescent; few pores.

Core/Profile: YM-4  
Location: Homme property  
Legal description: NW SW SW 34 T115N R38W  
County: Yellow Medicine  
Parent material: Colluvium  
Vegetation: Grass  
Slope: 5-9%  
Elevation: 953 feet  
Topo. Map: Lone Tree Lake  
Remarks: Small alluvial fan; alluvial fan with cobbles

Depth cm(ft)	Horizon or Zone	Description
0-94 (0-3.1)		no description
Auger Sample:		
94-477 (3.1-15.6)		

Core/Profile: YM-5  
 Location: Homme Property  
 Legal description: NW SW SW 34 T115N R38W  
 County: Yellow Medicine  
 Parent material: Alluvium  
 Vegetation: Grass  
 Slope: 2-5%  
 Elevation: 950 feet  
 Topo. Map: Lone Tree Lake  
 Remarks: Tributary paleochannel associated with high terrace

Depth cm(ft)	Horizon or Zone	Description
0-27 (0-.9)	Ap	black (10YR2/1) silt loam, with sand; weak, cloddy; firm to friable; noneffervescent; abrupt lower boundary.
27-43 (.9-1.4)	A1	black (10YR2/1) silt loam, with sand; weak, fine, subangular blocky down breaking to blocky, granular; friable; noneffervescent; clear lower boundary.
43-73 (1.4-2.4)	A2	black (10YR2/1) heavy silt loam, with sand; moderate, medium, blocky breaking to fine subangular blocky; friable; noneffervescent; clear lower boundary.
73-93 (2.4-3.1)	AB	very dark brown (10YR2/2) heavy silt loam, with sand; weak coarse, blocky breaking to medium subangular blocky, tending to angular block; friable; noneffervescent; clear lower boundary.
93-131 (3.1-4.3)	Bw	very dark to dark grayish brown (10YR3/2.5) light loam (fine); very weak, coarse, subangular blocky; friable; violently effervescent; few inclusions of fine peds from underlying (?) 2Ab; abrupt lower boundary.
131-150 (4.3-4.9)	B/A	mostly very dark brown (10YR2/2) with peds of very dark to dark grayish brown (10YR3/2.5) silt loam; common sand; mixed peds of overlying and underlying horizons; friable; violently effervescent; abrupt lower boundary.
150-199 (4.9-6.5)	2Ab	black (10YR2/1) silt loam, little sand, few granules and very coarse sand; very weak, coarse subangular blocky; friable; violently effervescent; abrupt lower boundary.
199-210 (6.5-6.9)	3Cg1	dark grayish brown (2.5Y4/2±) silt diamicton and silt diamicton with thin gravely bed in middle; single bed, strata, weakly expressed; friable; violently effervescent; abrupt lower boundary.
210-294 (6.9-9.6)	4Cg2	grayish brown (2.5Y5/2) and light grayish brown (2.5Y6/2) silt and very fine sand, with sandy loam, loamy sand, and granular fine sand strata, with few fine pebbles throughout; common to many dark yellowish brown (10YR4/6,3/6) horizontal mottles; moderate laminae to thin beds; friable; violently effervescent; abrupt lower boundary.
425-532 (13.9-17.4)	5Cg3	dark gray (5Y4/1) silt loam diamicton and few pebbles; common dark yellowish brown (10YR4/6) mottles; indeterminate structure; slightly plastic; violently effervescent; till.

Core/Profile: YM-6

Location: Homme property - uplands

Legal description: SW ¼ SW ¼ Section 34 T115N R38W

County: Yellow Medicine

Parent material: Catastrophic flood deposits or loess

Vegetation: Grass

Slope: <2%

Elevation: 1018 feet

Topo. Map: Lone Tree Lake

Remarks: Homme property; on uplands south of meander between Yellow Medicine and Minnesota River valleys; 105 meters east of T.H. 67

Depth cm(ft)	Horizon or Zone	Description
0-15 (0-.5)	A1	black (10YR2/1) heavy silt loam, with very little very fine sand; crumb; very friable; noneffervescent; many many very fine roots; clear lower boundary; catastrophic flood deposits or loess.
15-41 (.5-1.3)	A2	black to very dark brown (10YR2/1.5) silt loam, with very little, very fine sand; moderate, fine, subangular blocky; friable; noneffervescent to slightly effervescent at base; many very fine roots and pores; clear lower boundary; catastrophic flood deposits or loess.
41-51 (1.3-1.7)	AB	very dark brown (10YR2/2) and very dark grayish brown (10YR3/2) heavy silt loam, with very few, fine pebbles, bioturbated into base; weak, medium breaking to fine subangular blocky; friable; slightly to moderately effervescent; heavily bioturbated mixing of over/under colors; many very fine roots; many very fine, fine, and medium pores; abrupt to clear lower boundary; catastrophic flood deposits or loess.
51-70 (1.7-2.3)	2Bwb	dark yellowish brown to olive brown (10YR-2.5Y4/4) loam diamicton, with stone line at top ≤4 cm; weak, medium, subangular blocky; friable; violently effervescent; few very fine and fine roots; many fine and medium pores; abrupt to clear lower boundary; till.
70-87 (2.3-2.9)	2BCb	grayish brown (10YR5/2) loam diamicton; many, fine and medium, dark yellowish brown (10YR4/4) mottles; weak, coarse and very coarse, subangular blocky; firm; violently effervescent; many fine and medium pores; very few medium roots; gradual lower boundary; till.
87-142+ (2.9-4.7+)	2C	grayish brown (10YR5/2) to dark yellowish brown (10YR4/4) loam diamicton; many, fine and medium, dark yellowish brown (10YR4/4), and common, medium and coarse, grayish brown (10YR5/2) mottles; massive, with some platyness in zones; firm; violently effervescent; refused on rock at 142 cm; till.

Core/Profile: YM-7

Location: Homme property - meander core

Legal description: NW ¼ SW ¼ Section 34 T115N R38W

County: Yellow Medicine

Parent material: Wetland/catastrophic flood deposits

Vegetation: Grasses

Slope: 2-5%

Elevation: 990 feet

Topo. Map: Lone Tree Lake

Remarks: Homme property; located on "rock" core of abandoned meander at one of the two peaks of 990 feet elevation; near Yellow Medicine and Minnesota River valleys

Depth cm(ft)	Horizon or Zone	Description
0-2 (0-.1)	O	black (10YR2/1) peat, with little fine and medium sand; fibrous; moderately effervescent; abrupt lower boundary; wetland.
2-9 (.1-.3)	A	very dark brown (10YR2/2) pebbly loamy sand and sandy loam; very weak, fine, subangular blocky over very weak platy; friable; violently effervescent; many very fine roots; very abrupt lower boundary; catastrophic flood deposits.
9-25 (.3-.8)	2C1	dark brown (10YR3/3) gravel and very coarse and coarse sand; single bed; loose; single grain; violently effervescent; few very fine roots; abrupt lower boundary; catastrophic flood deposits.
25->60 (.8->2.0)	2C2	dark brown (10YR3/3) very coarse sand to coarse sand, with few pebbles; single bed; loose; single grain; violently effervescent; abrupt lower boundary; catastrophic flood deposits.
<125-142+ (<4.1-4.7+)	2C3	dark grayish brown (10YR4/2) medium to fine sand; indeterminate structure, loose and single grain; violently effervescent; rejected on sand; catastrophic flood deposits.

Core/Profile: YM-8

Location: Finness - first step above floodplain

Legal description: NW ¼ NE ¼ Section 32 T115N R38W

County: Yellow Medicine

Parent material: Alluvium/alluvium channel deposits/alluvium, vertical accretion deposits or till

Vegetation: Plowed field

Slope: 2-5%

Elevation: 900 feet

Topo. Map: Lone Tree Lake

Remarks: Finness property; on first step above floodplain of Yellow Medicine River; 5 feet higher in elevation than floodplain

Depth cm(ft)	Horizon or Zone	Description
0-23 (0-.8)	Ap1	black to very dark gray (10YR2/1.5) very fine sandy loam; weak, cloddy; friable; moderately to violently effervescent, variable; common, very fine roots; very abrupt lower boundary; alluvium.
23-28 (.8-.9)	Ap2	very dark grayish brown (10YR3/2) loamy very fine sand; weak, cloddy; friable; violently effervescent; common, very fine roots; very abrupt lower boundary; alluvium.
28-51 (.9-1.7)	A	black (10YR2/1) very fine sandy loam; weak, fine, subangular blocky; friable; moderately effervescent; many very fine roots and pores; clear lower boundary; alluvium.
51-76 (1.7-2.5)	AB	black to very dark gray (10YR2/1.5) very fine sandy loam, with very few, fine pebbles; moderate, fine, subangular blocky, very friable; violently effervescent; many very fine roots; abrupt lower boundary; alluvium.
76-87 (2.5-2.9)	AC	black to very dark gray (10YR2/1.5) loam, with more clay than above, with very fine sand; weak, medium and coarse, platy; firm; violently effervescent; common, very fine roots and pores; abrupt lower boundary; alluvium.
87-140 (2.9-4.6)	C1	very dark grayish brown (10YR3/2) heavy very fine sandy loam down to very dark to dark grayish brown (10YR-2.5Y3.5/2) light very fine sandy loam; weak, medium and coarse, platy to weak, coarse, subangular blocky; firm to friable; violently effervescent; few, very fine roots and pores; gradual lower boundary; alluvium.
140-183 (4.6-6.0)	C2	olive brown (2.5Y4/3) light very fine sandy loam to very fine sandy loam; weak, coarse, subangular blocky to massive over thin beds; friable to very friable; violently effervescent; abrupt lower boundary; alluvium.
183-197 (6.0-6.5)	C3	olive brown (2.5Y4/3) very fine sandy loam; massive over thin beds; friable; violently effervescent; common, with very fine, soft, secondary carbonate concretions; abrupt lower boundary; alluvium.
197->228 (6.5->7.5)	C4	olive brown to dark grayish brown (2.5Y4/2.5) loamy very fine sand to loamy fine sand with slightly more fines, few fine pebbles at base; massive over thin beds; very friable; violently effervescent; very few fine shells, whole snails and fragments; very abrupt lower boundary; alluvium.
<240-252 (<7.9-8.3)	C5	grayish brown to gray (2.5Y5/1.5) loam, gray (2.5Y5/1) very fine sandy loam and olive brown to dark grayish brown (2.5Y4/2.5) fine and medium sandy loam, with few granules; thin beds, strongly expressed; friable, plastic; violently effervescent; common, fine snail shell fragments; two charcoal fragments at 249 cm; abrupt lower boundary; alluvium.
252-271 (8.3-9.0)	2C6	light olive brown (2.5Y5/3±) gravel, with much very coarse to coarse sand; thin beds, weakly expressed; loose; single grain; violently effervescent; clear lower boundary; alluvium, channel deposits.
271->283+ (9.0->9.3+)	2C7	very dark grayish brown (2.5Y3/2) gravel, with much very coarse to coarse sand; moderate, medium, dark brown (7.5YR3/4) mottles; loose; single grain; violently effervescent; alluvium, channel deposits.
Auger Sample:		
<304->387 (<10.0->12.7)	3Cg	has peds of black to very dark gray to very dark grayish brown (2.5Y-5Y2/0,2.5/1) and mixed laminae of previous and dark gray (10YR4/1), all surrounded by oxidized fine gravel with gravel pieces up to 4.5 cm; violently effervescent; some peds have pebbles on interior; alluvium, vertical accretion deposits, or till.

Core/Profile: YM-9

Location: Finness - high terrace

Legal description: NW ¼ NE ¼ Section 32 T115N R38W

County: Yellow Medicine

Parent material: Colluvium

Vegetation: Plowed field

Slope: 5-9%

Elevation: 914 feet

Topo. Map: Lone Tree Lake

Remarks: Finness property; on high abandoned terrace along Yellow Medicine River; till - cored meander channel

Depth cm(ft)	Horizon or Zone	Description
0-2 (0-.1)	A1	black (2.5Y2/0) organic silty clay loam, with little very fine sand; moderate, fine, crumb; very friable; noneffervescent; common, very fine roots; abrupt lower boundary.
2-21 (.1-.7)	Ap1	black (2.5Y2/0) organic silty clay loam, with little very fine sand; blocky; friable; noneffervescent; many very fine roots; abrupt lower boundary.
21-26 (.7-.9)	Ap2	black (2.5Y2/0) organic silty clay loam, with little very fine sand; moderate, granular and crumb; very friable; noneffervescent; common, very fine roots; very few, very fine shell fragment, unidentified; abrupt lower boundary.
26-32 (.9-1.0)	Ap3	black (2.5Y2/0) organic silty clay loam and peds of very dark grayish brown (2.5Y3/2), silty clay loam; moderate, granular and crumb; very friable; noneffervescent; common, very fine roots; abrupt lower boundary.
32-41 (1.0-1.3)	A1	black (2.5Y2/0) organic silty clay loam; weak, fine, subangular blocky; friable; noneffervescent; few very fine roots and many very fine pores; clear lower boundary.
41-72 (1.3-2.4)	A2	black (10YR2/1) silty clay loam; weak, fine, subangular blocky; friable; very slightly effervescent; few very fine roots; many very fine pores; very abrupt lower boundary.
72->82 (2.4->2.7)	2ACb1 <sub>1</sub>	very dark gray (10YR3/1) silty clay; massive, single bed; very plastic; moderately effervescent; very abrupt lower boundary.
<125-139 (<4.1-4.6)	2ACb2 <sub>1</sub>	very dark grayish brown (2.5Y3/2) silty clay; very weak, medium, subangular blocky, single bed; very plastic; strongly effervescent; indeterminate lower boundary, probably abrupt.
139-153 (4.6-5.0)	2Bwb <sub>1</sub>	dark grayish brown to olive brown (2.5Y4/3) silty clay; common, fine, brown to dark brown (10YR4/3) mottles; weak, medium and coarse, subangular blocky; very plastic; violently effervescent; many very fine pores; indeterminate lower boundary, probably clear.
153-177 (5.0-5.8)	3ACb <sub>2</sub>	very dark grayish brown (2.5Y3/2) silty clay; weak, medium, blocky to fine subangular blocky; very plastic; violently effervescent; many very fine pores; few snail shells in lower part; clear to abrupt lower boundary.
177-196 (5.8-6.4)	3C1	olive brown (2.5Y4/3.5) silty clay, with band of very dark grayish brown (2.5Y3/2) near top; thin beds; violently effervescent; common laminae; clear lower boundary.
196-238 (6.4-7.8)		no recovery.
238-249 (7.8-8.2)	3C2	olive brown (2.5Y4/3.5) to very dark gray (2.5Y3/1) to black to very dark gray (2.5Y2.5/1) silty clay; common, fine, dark yellowish brown (10YR4/6) mottles; thin to thick laminae, moderately expressed; very plastic; violently effervescent; abrupt lower boundary.
249-262 (8.2-8.6)	4Ab <sub>3</sub>	black (2.5Y2/0) clay; fine subangular blocky; very plastic, but shows fine, subangular blocky; violently effervescent; many whole and fragmented snail shells, mostly whole; monocot culm (? <i>Poaceae</i> ) C-14 dated at 7,960±50 BP; abrupt lower boundary.
262-263+ (8.6-8.6+)	5C	light gray (2.5Y7/1) silty clay, with fine pebbles; indeterminate structure; very plastic; violently effervescent; rejected on rock (auger also rejected).

Core/Profile: YM-10

Location: Finness - high terrace

Legal description: NW NW NE 32 T115N R38W

County: Yellow Medicine

Parent material: Colluvium

Vegetation: Plowed field

Slope: 5-9%

Elevation: 917 feet

Topo. Map: Lone Tree Lake

Remarks: Cored approximately 2.5m west of YM-9 to get duplicate sample; basal strata may be reworked till

Depth cm(ft)	Horizon or Zone	Description
<250->300 (<8.2->9.8)	Cg	Grayish brown (2.5Y5/2) and dark grayish brown (2.5Y4/2) silty clay; few very fine oxide dots; thin beds, weakly expressed; firm; violently effervescent, with many very fine secondary carbonate coats lining pores.
<349-362 (<11.4-11.9)	Cg	very dark grayish brown (2.5Y3/2±) silty clay, with few sand granules; thin beds, weakly expressed; firm to friable; violently effervescent; few snail shell fragments; abrupt lower boundary.
362-382 (11.9-12.5)	Cg	black (2.5Y2.5/1) silty clay, with few fine pebbles and granules; thin beds, very weakly expressed; firm to friable; violently effervescent; many whole snail shells near top, decreasing with depth; rejected on rock.

Core/Profile: YM-11  
 Location: Finness  
 Legal description: NE NW NE 32 T115N R38W  
 County: Yellow Medicine  
 Parent material: Alluvium  
 Vegetation: Plowed field  
 Slope: 2-5%  
 Elevation: 918 feet  
 Topo. Map: Lone Tree Lake  
 Remarks: First terrace in set beneath till - cored meander

Depth cm(ft)	Horizon or Zone	Description
0-20 (0-.7 )	Ap	black (10YR2/1) light loam; weak, medium block breaking to subangular blocky; friable; noneffervescent; many very fine and fine roots; clear lower boundary.
20-39 (.7-1.3)	A1	black (2.5Y2.5/1) light loam; originally massive looking breaking to weak coarse blocky breaking to fine anuglar blocky, weak medium platy in lower 4 cm; friable to firm; noneffervescent; abrupt lower boundary.
39-74 (1.3-2.4)	A2	black (2.5Y2.5/1) down to black (10YR2/1) light loam, very few fine pebbles; originally massive breaking to weak, coarse, breaking to medium angular blocky and subangular blocky; friable; noneffervescent; few, very fine roots and very few medium roots; abrupt lower boundary.
74-99 (2.4-3.2)	Bw1	very dark brown (10YR2/2) light loam; weak, coarse breaking to medium subangular blocky; friable; violently effervescent; few very fine pores; clear lower boundary.
99-134 (3.2-4.4)	Bw2	very dark brown (10YR2/2) sandy loam; very weak, medium subangular blocky breaking to crumb; very friable; violently effervescent; clear to abrupt lower boundary.
134-160 (4.4-5.2)	C1	very dark to dark grayish brown (2.5Y 3/2.5) loamy sand and sandy loam; very weak, coarse breaking to fine subangular blocky and crumb; very friable to friable; violently effervescent; no pores; abrupt lower boundary.
160-198 (5.2-6.5)	C2	olive brown to light olive brown (2.5Y4.5/4) and dark olive brown (2.5Y3/3) loamy sand, one bed; very weak, coarse subangular blocky over thin beds, very weakly expressed; very friable to loose, single grain; violently effervescent; no pores; abrupt lower boundary.
198-214 (6.5-7.0)	C3	olive brown to light olive brown (2.5Y4.5/4) down to dark olive brown (2.5Y3.5/3) loamy sand and sandy loam; single upward fining bed; friable; violently effervescent; no pores; very abrupt lower boundary.
214-225 (7.0-7.4)	2Ab	very dark grayish brown (2.5Y3/2) down to very dark grayish brown to olive brown (2.5Y3/2.5) light loam; weak, coarse subangular blocky; friable; violently effervescent, with many soft pore linings and filaments; many very fine pores; abrupt lower boundary.
225-249 (7.4-8.2)	2Bwb	dark olive brown to olive brown (2.5Y3.5/4) light loam; weak, coarse subangular blocky; friable; violently effervescent, with many soft pore linings and filaments; many very fine pores; abrupt lower boundary.
249-281+ (8.2-9.2)	3C	olive brown (2.5Y4/5) granular and pebbly medium sand and poorly sorted, little fines; indeterminate structure; loose; single grain; violently effervescent.

Core/Profile: YM-12  
 Location: Finness  
 Legal description: SE NW NE 32 T115N R38W  
 County: Yellow Medicine  
 Parent material: Alluvium  
 Vegetation: Plowed field  
 Slope: 2-5%  
 Elevation: 987 feet  
 Topo. Map: Lone Tree Lake  
 Remarks: Core taken in what appears to be one of the oldest meander scars on this low surface

Depth cm(ft)	Horizon or Zone	Description
0-31 (0-1.0)	A (Ap?)	black (10YR2/1) light loam; weak, medium breaking to fine subangular blocky; friable; moderately to strongly effervescent; few, fine roots; clear lower boundary.
31-55 (1.0-1.8)	AB	black (10YR2/1) light loam; weak, coarse blocky breaking to fine subangular blocky; friable; slightly to moderately effervescent; few very fine and fine roots; many very fine and fine pores; clear lower boundary.
55-77 (1.8-2.5)	Bw1	black (10YR2/1.5) light loam; weak, coarse subangular blocky breaking to crumb; friable; violently effervescent; few very fine roots; clear to abrupt lower boundary.
77-95 (2.5-3.1)	Bw2	very dark brown (10YR2/2) sandy loam; originally breaks massive, very coarse, angular blocky; friable to firm; violently effervescent; abrupt lower boundary.
95-152 (3.1-5.0)	Bw3	very dark grayish brown (10-2.5Y3/2) heavy loamy sand down to sandy loam; very weak, coarse subangular blocky; friable; violently effervescent; few very fine pores; abrupt lower boundary.
152-177 (5.0-5.8)	Bw4	very dark grayish brown to dark olive brown (2.5Y3/2.5) down to very dark to dark grayish brown (2.5Y3.5/2) sandy loam; very weak, coarse subangular blocky breaking to blocky and granular; friable; violently effervescent; common fine and few medium pores; gradual lower boundary.
177-199 (5.8-6.5)	Bw5	dark grayish brown (2.5Y4/2) loam; very weak, very coarse subangular blocky; soft; violently effervescent; common, very fine pores; very abrupt lower boundary.
199-232 (6.5-7.6)	2C1	dark brown to olive brown (10-2.5Y3.5/3) coarse and very coarse sand, common granules, moderately well sorted; no stratification, loose; single grain; violently effervescent; abrupt lower boundary.
232-238 (7.6-7.8)	2C2	dark grayish brown (2.5Y4/2) loam and fine sand; common, medium olive brown (2.5Y4/4) mottles (40%), and many coarse dark olive brown (2.5YR3/4) mottles in horizontal bands; probably stratified; friable; violently effervescent; very abrupt lower boundary.
238-249 (7.8-8.2)	3Cg	very dark gray (5Y3/1) and dark gray (5Y4/1) silty clay loam; medium laminae, moderately expressed; soft; violently effervescent.

Core/Profile: YM-13

Location: Upper Sioux Agency State Park - low angle alluvial fan of the Yellow Medicine River

Legal description: SE SE NW 28 T115N R38W

County: Yellow Medicine

Parent material: Alluvial fan deposits

Vegetation: Grass

Slope: <2%

Elevation: 877 feet

Topo. Map: Lone Tree Lake

Remarks: Top half of core badly broken up

Depth cm(ft)	Horizon or Zone	Description
0-19 (0-.6)	A1	black (2.5Y2.5/1) silty clay loam; weakly granular; friable; noneffervescent; common, very fine and fine roots; clear lower boundary.
19-38 (.6-1.2)	A2	black (2.5Y2.5/0) silty clay loam, with rare pebbles; weak, fine subangular blocky; firm; noneffervescent; common very fine and fine roots; clear lower boundary.
38-85 (1.2-2.8)	Bw	very dark brown (2.5Y3/1) silty clay loam, with few basal black (2.5Y2.5/1) strata; weak, medium subangular blocky; firm; moderately to violently effervescent; few very fine shell fragments; clear lower boundary.
85-134 (2.8-4.4)	Bg	very dark gray to dark olive gray (5Y3/1.5) silty clay loam, with few basal very dark gray (2.5Y3/1) strata; very weak, coarse subangular blocky breaking to blocky, granular; plastic; violently effervescent; common snail shells, whole and fragments; clear lower boundary.
134-161 (4.4-5.3)	Cg1	dark grayish brown to olive gray (2.5-5Y4/2) light loam with much very fine sand; many fine olive brown (2.5Y4/4) mottles (20%); very weak, coarse subangular blocky to massive; plastic; violently effervescent; very few very fine shell fragments; abrupt lower boundary.
161-218 (5.3-7.2)	2Cg2	dark grayish brown (2.5Y4/2) fine sand, with little fines, moderately well sorted down to granular coarse sand with little fines, moderately well sorted; upwardly fine, graded; loose; single grain; very few snail shells, whole and fragments, few bivalve shells, whole and fragments; abrupt lower boundary.
218-236+ (7.2-7.7+)	2Cg3	gray brown (2.5Y5/2) pebbly and very fine and fine sandy loam largest is 3.5 cm; very weak, crude strata; very friable; violently effervescent; few snail and bivalve shell fragments.

Core/Profile: YM-14

Location: Upper Sioux Agency State Park - low angle alluvial fan of the Yellow Medicine River

Legal description: SE NE SW 28 T115N R38W

County: Yellow Medicine

Parent material: Alluvial fan deposits

Vegetation: Grass

Slope: <2%

Elevation: 879 feet

Topo. Map: Lone Tree Lake

Remarks: Upper Sioux Agency State Park along Minnesota River; on floodplain slightly upstream from confluence with Yellow Medicine River; approximately 1.5 to 2.0 meters higher in elevation than YM-13

Depth cm(ft)	Horizon or Zone	Description
0-24 (0-.8)	Ap	black (10YR2/1) loam, with much very fine sand; moderate, fine, subangular blocky, did not break on splitting; friable; strongly effervescent; many very fine roots; abrupt lower boundary.
24-49 (.8-1.6)	A	black (2.5Y2.5/1) silty clay loam, with much very fine sand, less than above; moderate, fine, subangular blocky and granular to crumb; friable to very friable; noneffervescent to moderately effervescent; common, very fine roots; abrupt lower boundary.
49->75 (1.6->2.5)	AB	very dark gray (2.5Y3/1) loam, with much very fine sand; weak, medium, subangular blocky; friable; violently effervescent; common, very fine roots; abrupt lower boundary.
<125-133 (<4.1-4.4)	Bw	very dark grayish brown (2.5Y3/2) loam, with much very fine sand; weak, medium, subangular blocky; friable; violently effervescent; common, very fine roots; abrupt lower boundary.
133-141 (4.4-4.6)	2ABb <sub>1</sub>	very dark gray (2.5Y3/1) loam, with much very fine sand; weak, fine, subangular blocky; friable to plastic; violently effervescent; common, very fine roots; abrupt lower boundary.
141-161 (4.6-5.3)	2C	very dark grayish brown (2.5Y3/2) loam, with much very fine sand; massive; friable to plastic; violently effervescent; common, very fine roots; abrupt lower boundary.
161-172 (5.3-5.6)	3ACb <sub>2</sub>	very dark grayish brown to very dark gray (2.5Y3/1.5) loam, with much very fine sand; weak, fine, subangular blocky and granular and crumb - shows on splitting; plastic; violently effervescent; common, very fine roots; abrupt to clear lower boundary.
172-211 (5.6-6.9)	3CB	very dark grayish brown to grayish brown (2.5Y3/2,4/2,5/2) loam, with much very fine sand, more than above; very weak, subangular blocky over thinly bedded, weakly to moderately expressed; plastic; violently effervescent; few snail shells, whole; 1.43-1.49m with common, very fine unconsolidated organic matter; few very fine roots; abrupt lower boundary.
211-251 (6.9-8.2)	3C1	dark grayish brown (2.5Y4/2) to grayish brown (2.5Y5/2) very fine sandy loam; common, faint, medium, olive brown to dark grayish brown (2.5Y4/3) mottles; thin beds, weakly to moderately expressed, thin to thick laminae internally, weakly expressed; plastic; violently effervescent; few very fine roots; few snail shells, whole; 1.59-1.61m organic matter as above; abrupt lower boundary.
251-255 (8.2-8.4)	3C2	dark to very dark gray (2.5Y3.5/1) very fine sandy loam; few, faint, fine, olive brown (2.5Y4/4) and common, fine, dark grayish brown (2.5Y4/2) mottles, tending horizontal; single bed, thick laminae internally, very weakly expressed; plastic; violently effervescent; abrupt lower boundary.
255-303 (8.4-9.9)	3C3	dark grayish brown to grayish brown (2.5Y4.5/2,4/2) very fine sand; few, horizontal at top of next horizon, dark yellowish brown (10YR3/6) mottles; moderate, thin beds, upper laminae, very weakly expressed; loose; single grain; violently effervescent; few unidentified shell fragments; abrupt lower boundary.
303-324 (9.9-10.6)	3Cg1	very fine and fine sand; thin beds, weakly expressed, thick laminae internally, weakly expressed; soft to loose; single grain; violently effervescent; very few unidentified shell fragments, 313-316 cm, with common, very fine unconsolidated organic matter; few lignified roots, organic matter; abrupt lower boundary.
324-345 (10.6-11.3)	3Cg2	upward fining, very fine sandy loam to silt loam; thin beds, moderately expressed, thin laminae internally, moderately expressed; plastic; violently effervescent; abrupt lower boundary; very few to few snail shell fragments and whole shells; finer with laminae of common, very fine unconsolidated organic matter; sampled for organic matter and shells; seeds from 324-419 cm C-14 dated at 6,170±70 BP.

Depth cm(ft)	Horizon or Zone	Description
<b>YM-14</b> (Continued)		
345-512+ (11.3-16.8+)	3Cg3	fine sand, with beds of medium sand, medium loamy sand, silt loam with organics; thin beds, main bed possibly cross-stratified, weakly expressed, organic zones also, thick to thin laminae, moderately expressed; sand is loose and single grain; friable and soft; violently effervescent; zones with few and common snail and bivalve shells, whole and fragmented; zones with common and few very fine unconsolidated organic matter; samples for C <sup>14</sup> - snail and organic matter, 395-419 cm, 419-423 cm, and 423-431 cm; no recovery from 355-395 cm and 431-502 cm; abrupt lower boundary.
512-532 (16.8-17.5)		no recovery; rejected at 532 cm.