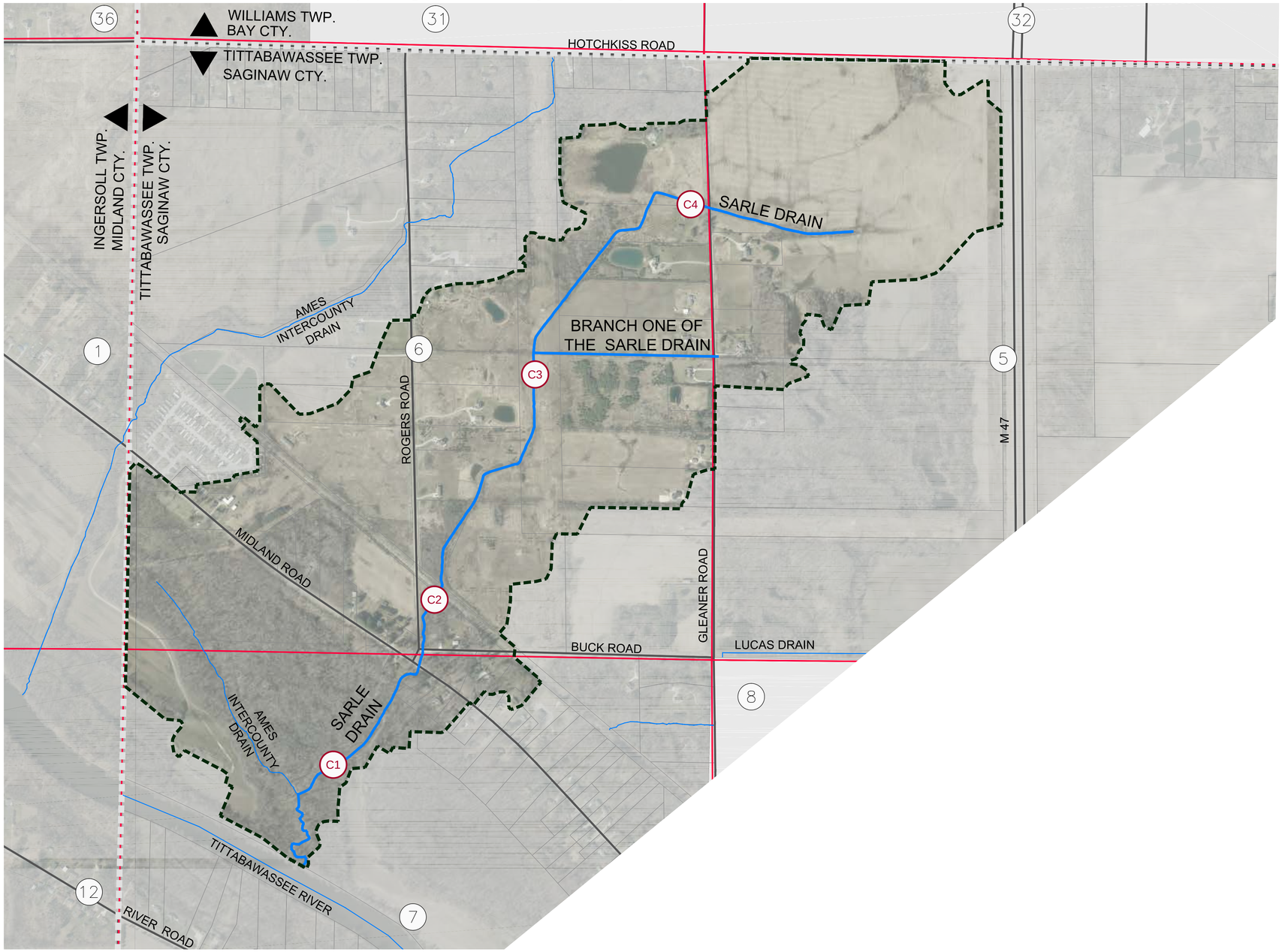
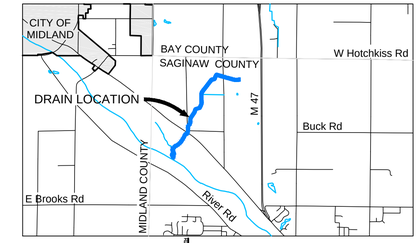
Sarle Drain

SAGINAW COUNTY PUBLIC WORKS COMMISSIONER - BRIAN J. WENDLING

Sections 5 - 7
T13N, R3E
Tittabawassee Township, Saginaw County, Michigan





VICINITY MAP
NOT TO SCALE

INDEX OF SHEETS

CS - COVER SHEET
C1 - PLAN & PROFILE
(STA. 00+00 - 24+50)
C2 - PLAN & PROFILE
(STA. 24+50 - 49+50)
C3 - PLAN & PROFILE
(STA. 49+50 - 72+50)
C4 - PLAN & PROFILE
(STA. 72+50 - 95+50)
C5 - SESC PLAN
C6 - DETAILS

DRAIN INFORMATION

SARLE DRAIN LENGTH	1.80 MILES
SARLE DRAIN DRAINAGE DISTRICT AREA	512.52 ACRES

LEGEND

- ENCLOSED CHANNEL DRAIN
- OPEN CHANNEL DRAIN
- DRAINAGE DISTRICT BOUNDARY
- SECTION LINE
- COUNTY LINE
- ROADS
- PROPERTY LINES
- # SECTION NUMBERS
- C# SHEET NUMBERS

3 WORKING DAYS
BEFORE YOU DIG
CALL MISS DIG
1-800-482-7171

NORTH

0 500 1000
Horizontal Scale in Feet

ALL UTILITIES AS SHOWN ARE APPROXIMATE LOCATIONS DERIVED FROM ACTUAL MEASUREMENTS AND AVAILABLE RECORDS. THEY SHOULD NOT BE INTERPRETED TO BE EXACT LOCATION NOR SHOULD IT BE ASSUMED THAT THEY ARE THE ONLY UTILITIES IN THE AREA.

LRE ENGINEERS & SURVEYORS
2121 3 Mile Rd. NW
Walker, MI 49544
Ph: 616-301-7888
www.LREMI.com

REVISIONS:

NO.	ISSUED FOR	DATE
1.	50% REVIEW	4/26/22
2.	95% REVIEW	6/24/22
3.	FINAL REVIEW	8/19/22

CLIENT: SAGINAW COUNTY PUBLIC WORKS COMMISSIONER
111 S. MICHIGAN AVENUE, SAGINAW, MI 48602

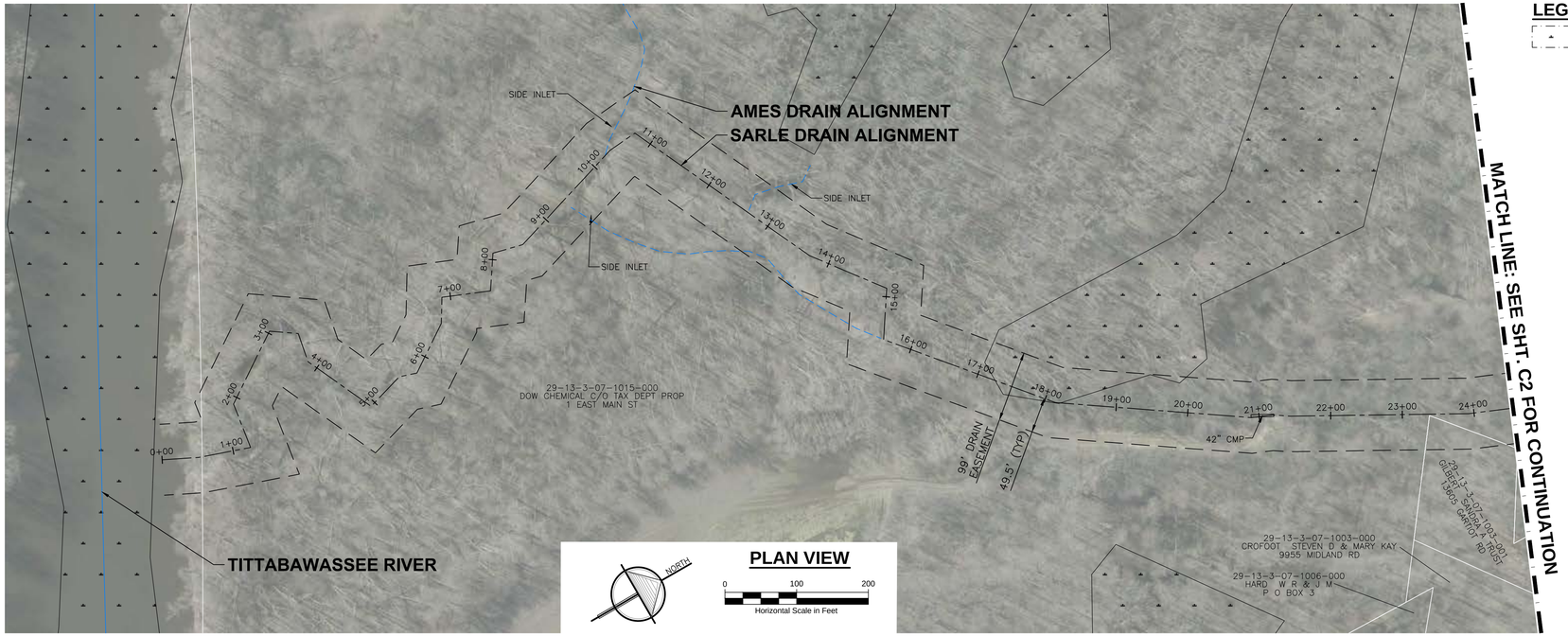
PROJECT: SARLE DRAIN
TITTABAWASSEE TOWNSHIP, SAGINAW COUNTY, MI

PROJECT NUMBER: 21-140

	DATE
SURVEYED BY: LSG / ADK / AHR	03/2022
DESIGNED BY: TRM	04/2022
DRAFTED BY: NDJ / KJB	03/2022
QAQC: DJF	04/2022

SHEET NAME: COVER SHEET

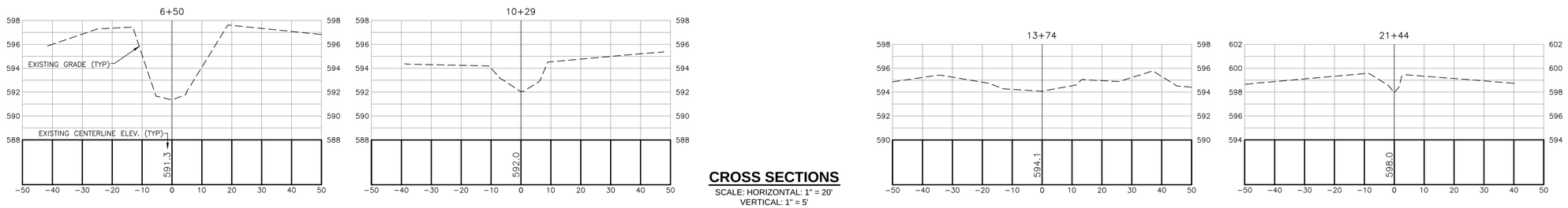
SHEET NUMBER
CS



LEGEND

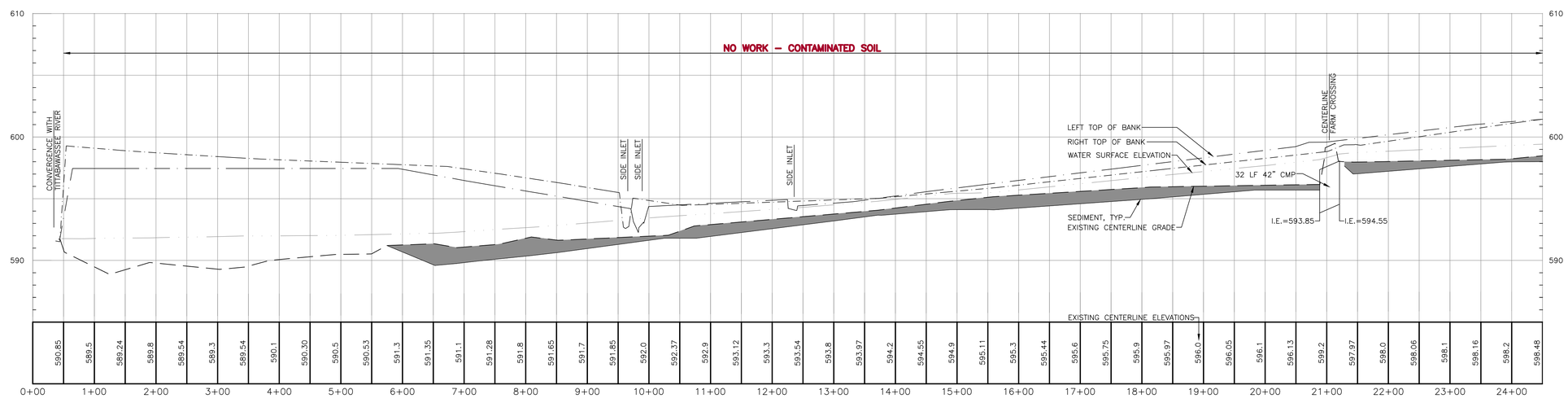
WETLAND (USFWS NATIONAL WETLAND INVENTORY)

NO WORK THIS SHEET



CROSS SECTIONS

SCALE: HORIZONTAL: 1" = 20'
VERTICAL: 1" = 5'



CENTERLINE PROFILE

SCALE: HORIZONTAL: 1" = 100'
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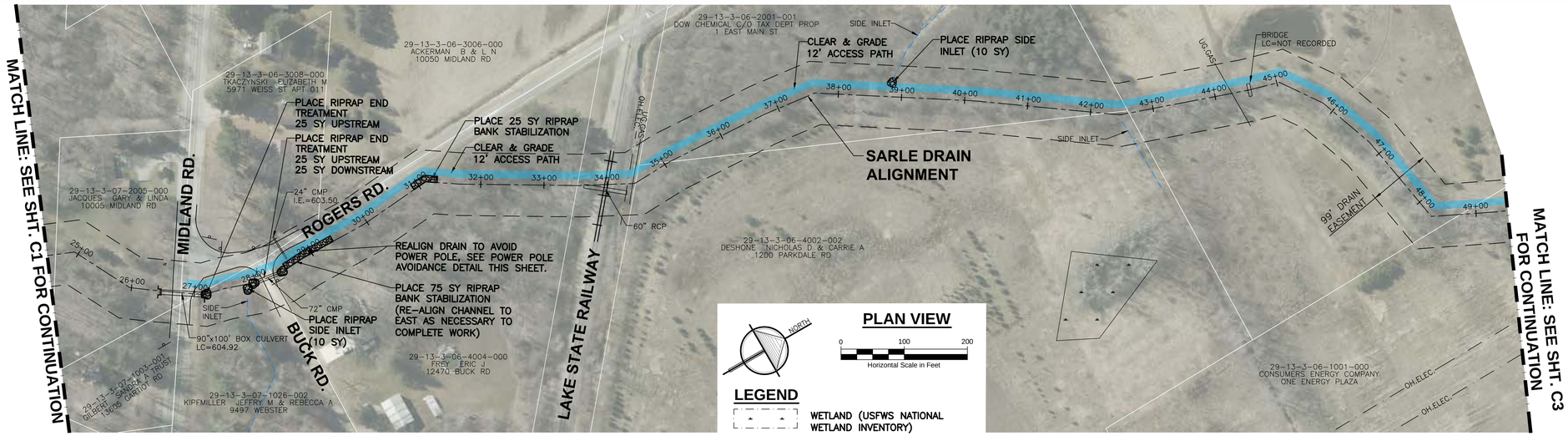
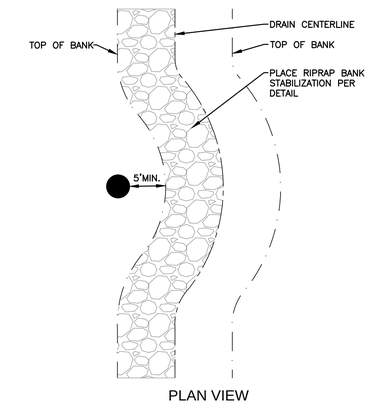
SHEET NAME:
PLAN & PROFILE
STA: 00+00 - 24+50

SHEET NUMBER
C1

Aug 25, 2022 - 2:23pm M:\Projects\21-140 Sarle Drain\21-140 - Plan and Profile.dwg XREFs: [Sarle] [cpa
by:AJE



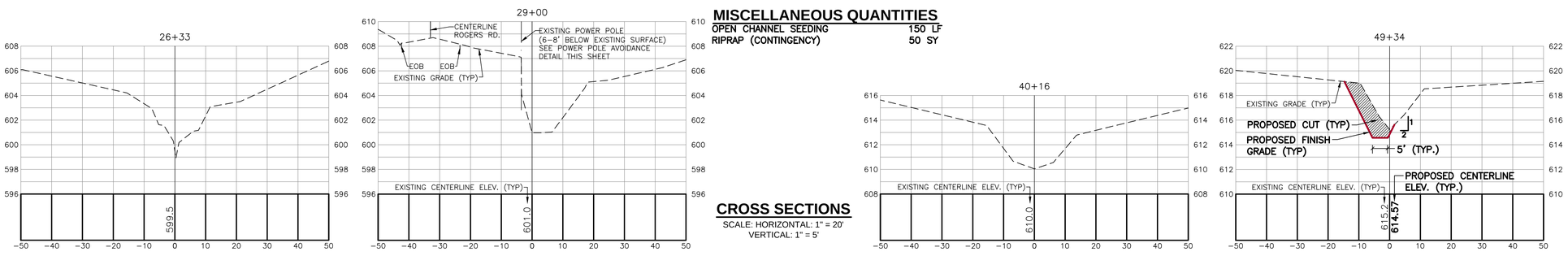


POWER POLE AVOIDANCE DETAIL

NOT TO SCALE

MISCELLANEOUS QUANTITIES

OPEN CHANNEL SEEDING	150 LF
RIPRAP (CONTINGENCY)	50 SY



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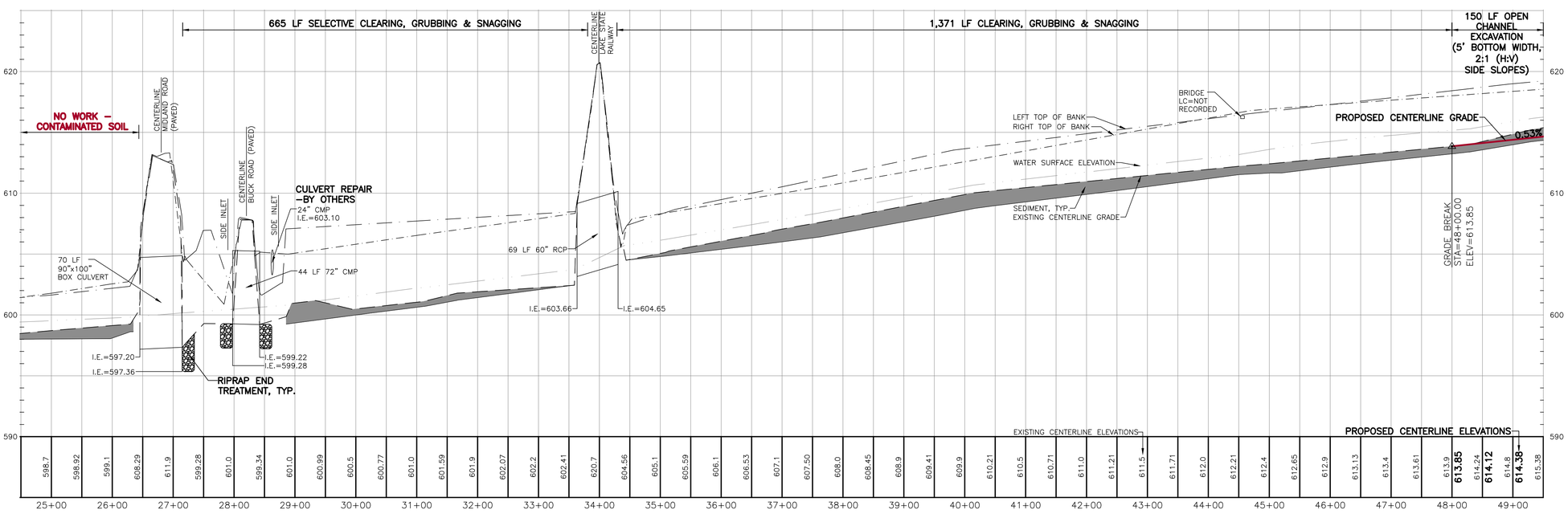

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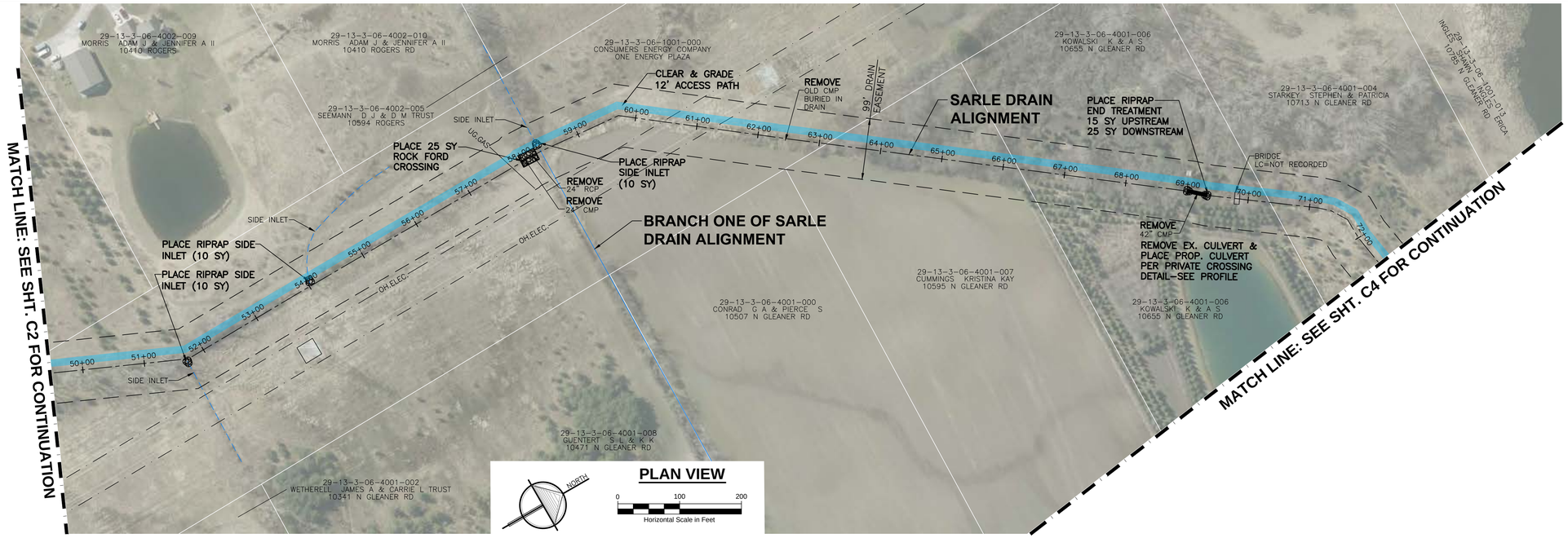
SHEET NAME: PLAN & PROFILE STA: 24+50 - 49+50

SHEET NUMBER: C2



PLAN VIEW

NORTH

0 100 200

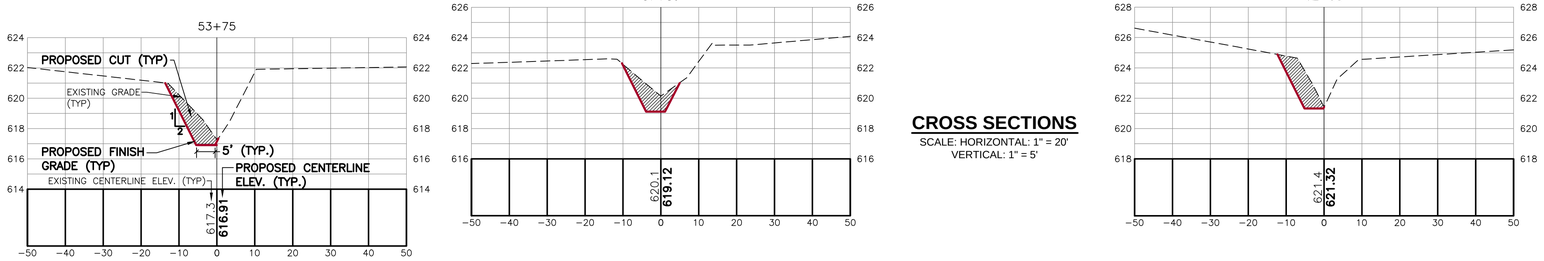
Horizontal Scale in Feet

LEGEND

WETLAND (USFWS NATIONAL WETLAND INVENTORY)

MISCELLANEOUS QUANTITIES

OPEN CHANNEL SEEDING	2,300 LF



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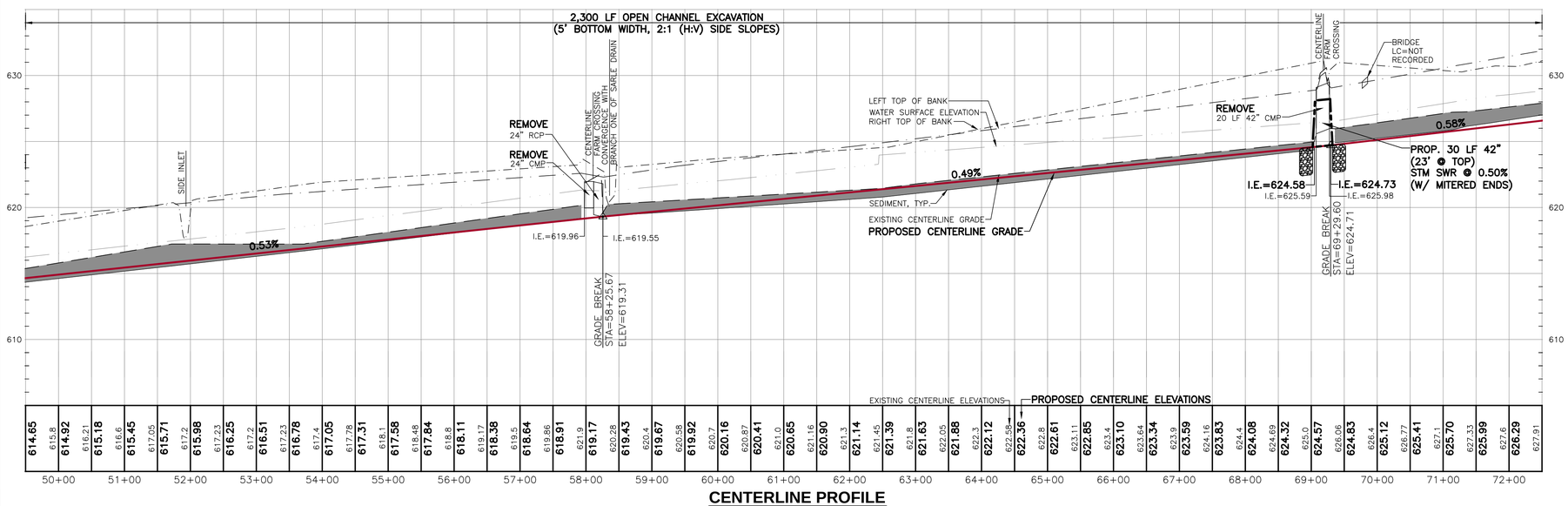

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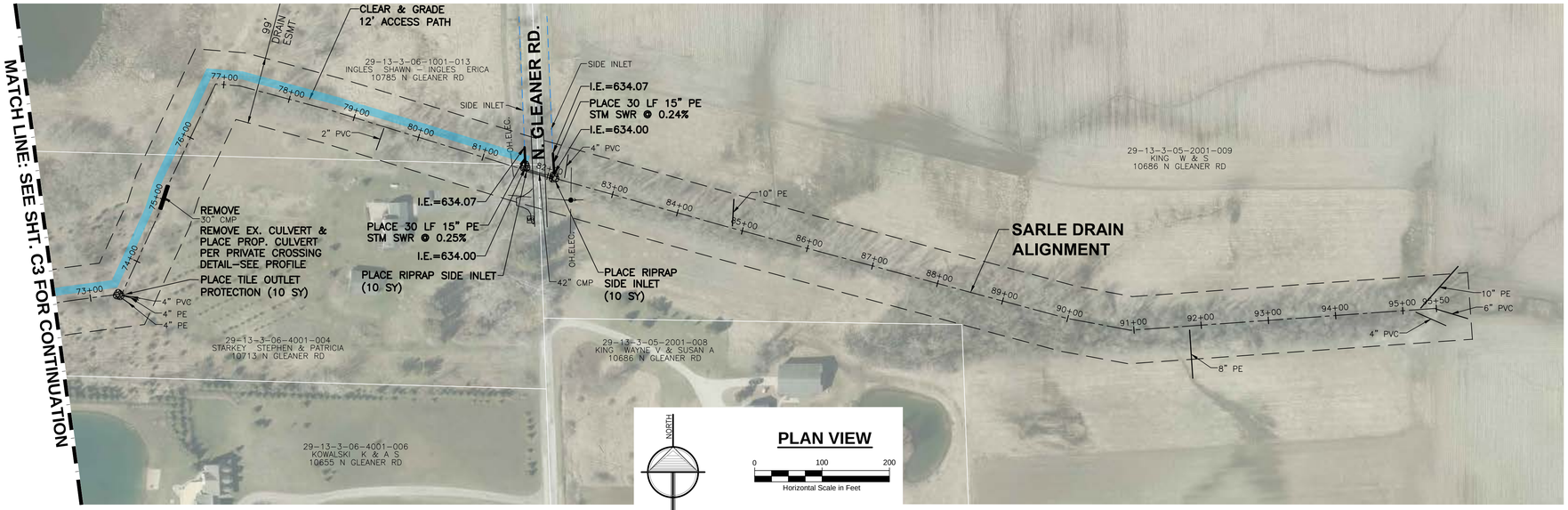
SHEET NAME:
PLAN & PROFILE
STA: 49+50 - 72+50

SHEET NUMBER
C3



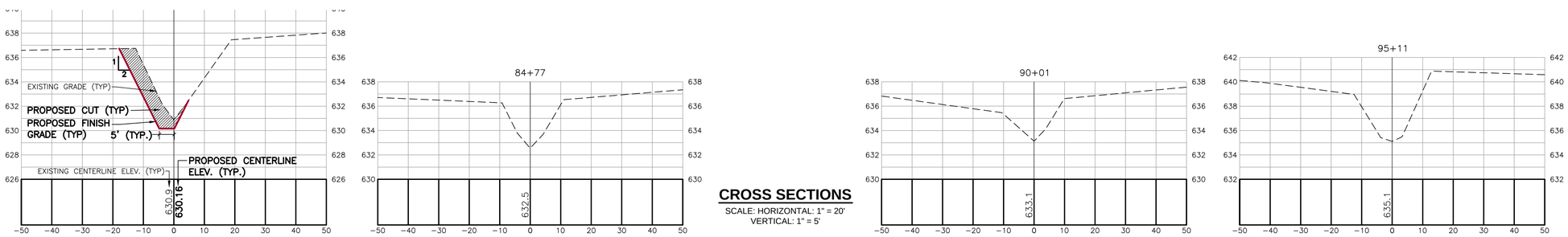
PLAN VIEW

LEGEND

WETLAND (USFWS NATIONAL WETLAND INVENTORY)

MISCELLANEOUS QUANTITIES

OPEN CHANNEL SEEDING	935 LF



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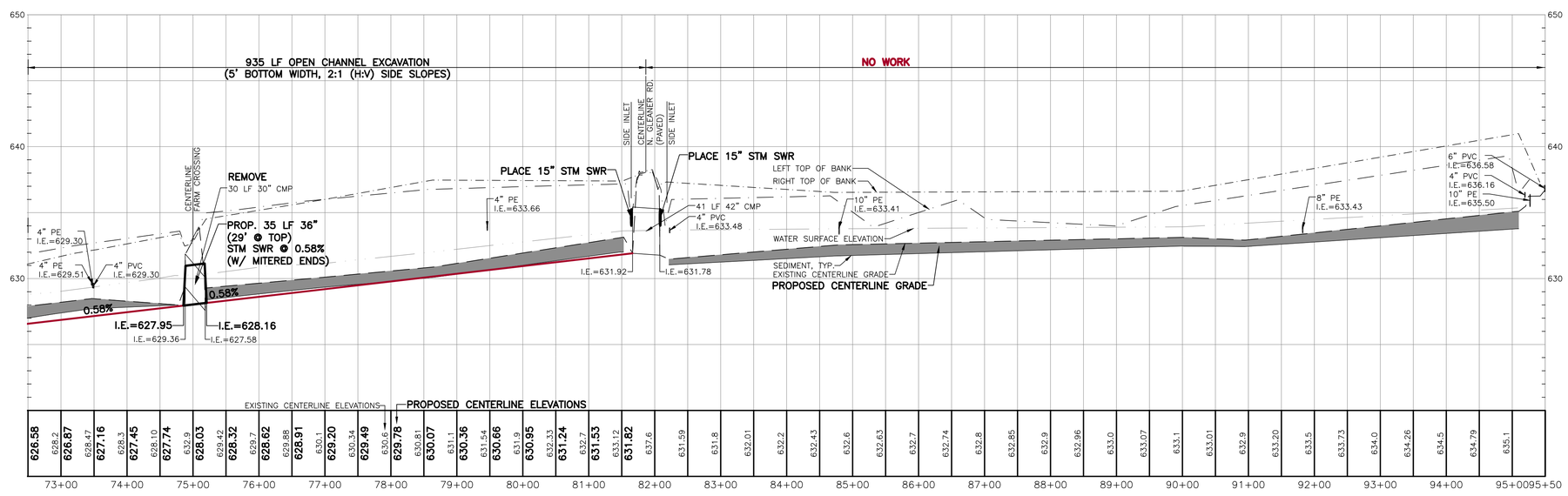

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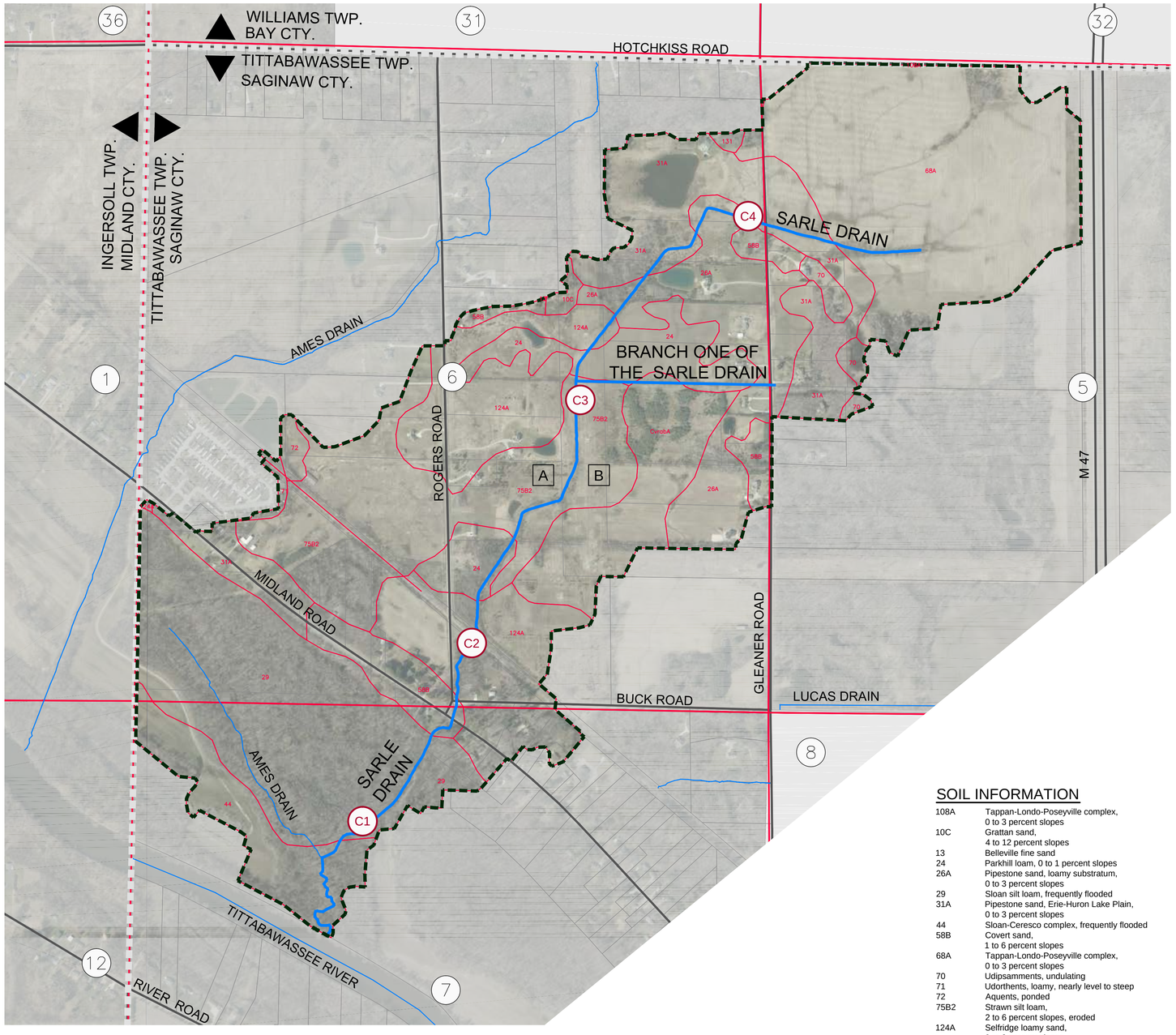
QA/QC: DJE	04/2022

SHEET NAME: PLAN & PROFILE
STA: 72+50 - 95+50

SHEET NUMBER
C4



LEGEND

- ENCLOSED CHANNEL DRAIN
- OPEN CHANNEL DRAIN
- DRAINAGE DISTRICT BOUNDARY
- SECTION LINE
- COUNTY LINE
- ROADS
- SOIL REGIONS (WEB SOIL SURVEY)
- PROPERTY LINES
- # SECTION NUMBERS
- C# SHEET NUMBERS

NOTES:

1. CLEAR, GRUB AND SNAG THE DRAIN EASEMENT AS NECESSARY TO ACCESS AND COMPLETE THE WORK. PROVIDE 12' WIDE (MIN.) ACCESS ALONG ONE SIDE OF DRAIN FOR FUTURE MAINTENANCE. REMOVE AND DISPOSE OF ALL MATERIAL IN ACCORDANCE WITH THE CONTRACT SPECIFICATIONS.
2. SALVAGE AND RE–SPREAD TOPSOIL AND SEED ALL DISTURBED AREAS.
3. QUANTITIES WILL NOT BE PAID ABOVE THE CONTRACT AMOUNT UNLESS AUTHORIZED BY ENGINEER.
4. CONTRACTOR TO DISPOSE OF REMOVED CULVERTS.
5. "LANDOWNER REQUEST FOR CHANGE" AGREEMENT SHALL BE OBTAINED PRIOR TO CONTRACTOR PERFORMING ANY WORK OR ACCESS BEYOND THE DRAIN EASEMENT.

MACDC UNIFIED KEYING SYSTEM
EROSION CONTROL MEASURES (SESC)

KEY	SESC MEASURE	SYMBOL	WHERE USED
1	Seeding		When bare soil is exposed, temporarily or permanently, to erosive forces from wind and or water on flat areas, mild slopes, grassed waterways and spillways, diversion ditches and dikes, burrow and stockpile areas, and spoil piles.
2	Mulch		On flat areas, slopes, grassed waterways and spillways, diversion ditches & dikes, borrow & stockpile areas, & spoil piles when areas are subject to raindrop impact, & erosive forces from wind or water.
9	Vegetation Removal without Grubbing	Grubbing Omitted	Retains existing root mat which assists in stabilizing slopes. Assisst in the revegetation process by providing sprout growth. Reduces sheet flow velocities preventing rilling and gullying. Discourages off–road vehicle use.
13	Slope Stablization		Slope stabilizing measures provde an immediate and effective cover over raw erodible slopes affording excellent protection against rain and wind erosion.
15	Riprap		Along drain banks, shorelines, or where concentrated flows occur. slows velocity, reduces erosion and sedimentation.
16	Riprap Toe of Slope		Riprap toe of slope protection is used in areas where velocities are causing drain bank erosion and are too high to stabilize using other methods.
19	Armored Spillway		When concentrated flow must be conveyed down a drain bank or slope of discharge into anther drain. Where slope failure or channel scour is observed or is likely to occur, or when runoff must be redirected around work in the drain.
23	Outfall Stabilization		In the stream or drain bank usually above the ordinary high water mark where an enclosed drain or tile discharges to an open drain.

MACDC UNIFIED KEYING SYSTEM –
ROUTINE MAINTENANCE ACTIVITIES

KEY	BEST MANAGEMENT PRACTICE	SESC PLAN
A	Debris Removal	NO
B	Sediment Removal	> 100 FEET

SOIL INFORMATION

108A	Tappan-Londo-Poseyville complex, 0 to 3 percent slopes
10C	Grattan sand, 4 to 12 percent slopes
13	Belleville fine sand
24	Parkhill loam, 0 to 1 percent slopes
26A	Pipestone sand, loamy substratum, 0 to 3 percent slopes
29	Sloan silt loam, frequently flooded
31A	Pipestone sand, Erie-Huron Lake Plain, 0 to 3 percent slopes
44	Sloan-Ceresco complex, frequently flooded
58B	Covert sand, 1 to 6 percent slopes
68A	Tappan-Londo-Poseyville complex, 0 to 3 percent slopes
70	Udipsamments, undulating
71	Udorthents, loamy, nearly level to steep
72	Aquents, ponded
75B2	Strawn silt loam, 2 to 6 percent slopes, eroded
124A	Selfridge loamy sand, 0 to 3 percent slopes
131	Belleville loamy sand
CvrabA	Conover-Williamstown loams, 0 to 6 percent slopes

UTILITY CONTACTS:

SAGINAW COUNTY PUBLIC WORKS
COMMISSIONER – COUNTY DRAINS
ATTN: BRIAN WENDLING
111 SOUTH MICHIGAN AVE.
SAGINAW, MI 48602
PHONE: (989) 790–5258

ELECTRIC
CONSUMERS ENERGY
ATTN: GREG SQUANDA
2400 WEISS ST.
SAGINAW, MI 48602
PHONE: (989) 529–2720

GAS
CONSUMERS ENERGY
ATTN: BENJAMIN LOUIS
PHONE: (989) 791–5918
CELL: (517) 581–1424
EMAIL: BENJAMIN.LEWIS
@CMSENERGY.COM

ROAD & STORM SEWER
SAGINAW COUNTY ROAD
COMMISSION
ATTN: HALEY SHEPHERD
3020 SHERIDAN AVE
SAGINAW, MI 48601
PHONE: (989) 752–6140

CABLE
WINDSTREAM COMMUNICATIONS
1450 N CENTER POINT RD
HIAWATHA, IA 52233
PHONE: (800) 695–1901

TELEPHONE
AT&T
ATTN: KATHY HENDERSON
309 S. WASHINGTON AVE
SAGINAW, MI 48607
PHONE: (989) 771–5412
(248) 425–1859

FIBER
FRONTIER COMMUNICATIONS
ATTN: DOUG HOVEY
305 S MAIN ST
MT. PLEASANT, MI 48858
PHONE: (989) 463–5497

WATER
TITTABAWASSEE TOWNSHIP
ATTN: TRACY AINSWORTH
4870 SHATTUCK RD
SAGINAW, MI 48603
PHONE: (989) 695–6517

GAS TRANSMISSION
CONSUMERS ENERGY
ATTN: DIRK WELTE
2400 WEISS ST
SAGINAW, MI 48602
PHONE: (517) 416–3269
EMAIL: DIRK.WELTE@CMSENERGY.COM

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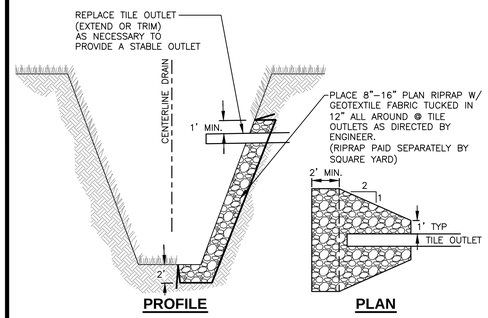
SHEET NAME:
SESC PLAN

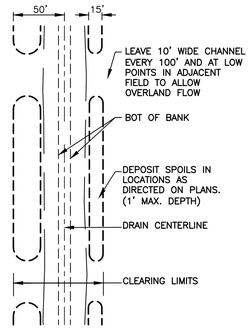
SHEET NUMBER
C5

Aug 25, 2022 – 2:38pm w:\Projects\21-140 Sarle Drain\LD\R – Cover.dwg, ANSI36, Color By:AHR



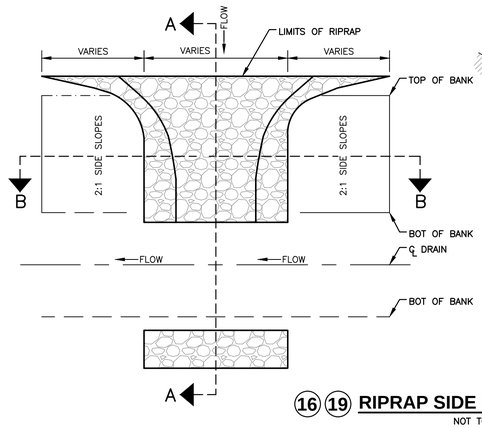
23 TILE OUTLET PROTECTION DETAIL

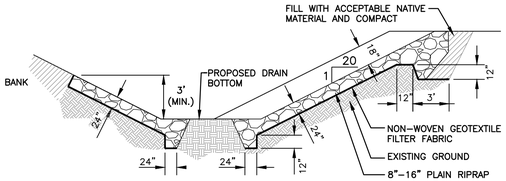
NOT TO SCALE



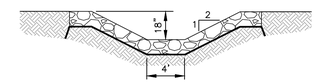
B SPOILS LEVELING DETAIL

NOT TO SCALE





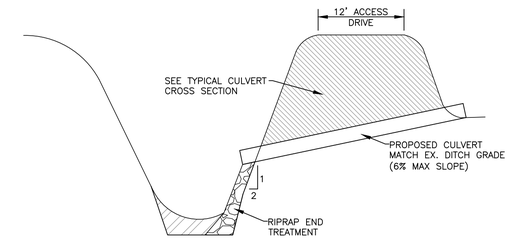
SECTION A-A



SECTION B-B

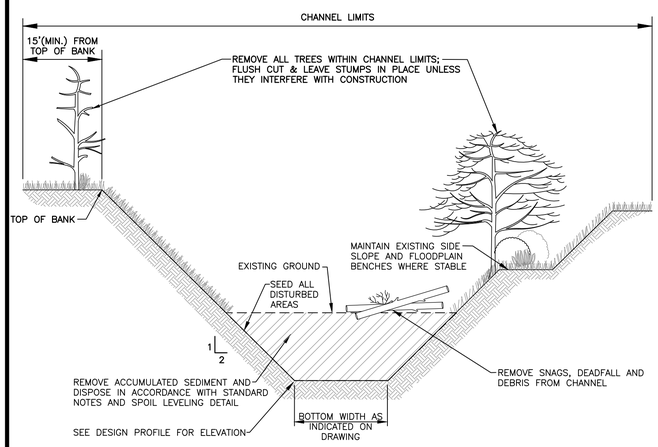
16 19 RIPRAP SIDE INLET DETAIL

NOT TO SCALE



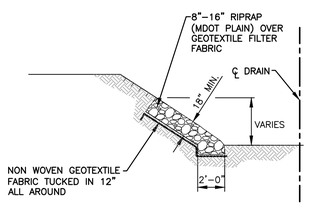
SIDE INLET CULVERT DETAIL

NOT TO SCALE



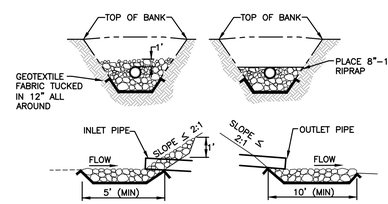
A B OPEN CHANNEL EXCAVATION DETAIL

NOT TO SCALE



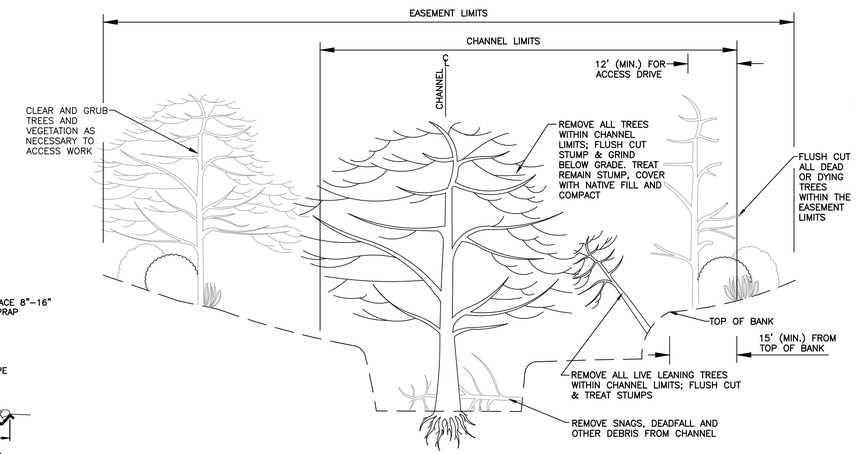
RIPRAP BANK STABILIZATION DETAIL

NOT TO SCALE



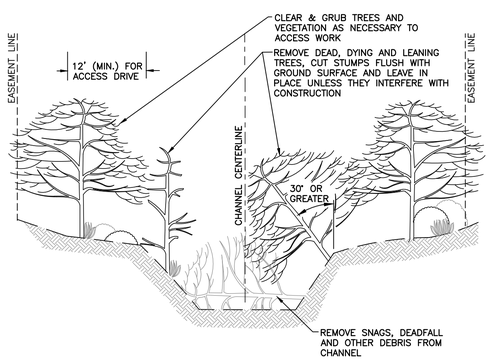
15 RIPRAP END TREATMENT DETAIL

NOT TO SCALE



A 9 CLEARING, GRUBBING & SNAGGING DETAIL

NOT TO SCALE



A 9 SELECTIVE CLEARING, GRUBBING & SNAGGING DETAIL

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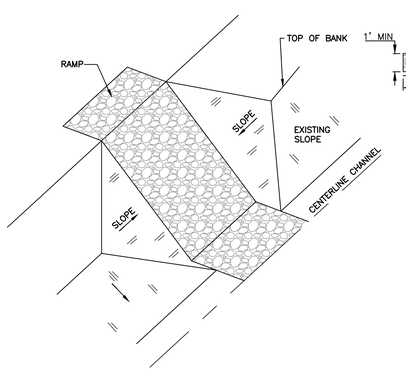
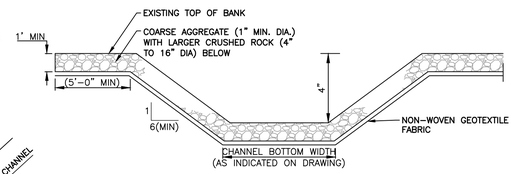


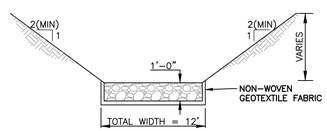
ISOMETRIC VIEW

NOT TO SCALE



CROSSING PROFILE

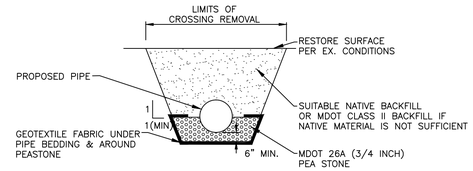
NOT TO SCALE



CROSSING CROSS SECTION

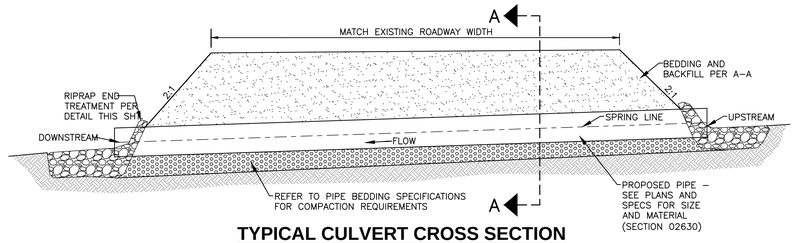
NOT TO SCALE

15 ROCK FORD CROSSING DETAIL



TYPICAL CULVERT CROSS SECTION A-A

NOT TO SCALE



TYPICAL CULVERT CROSS SECTION

NOT TO SCALE

LRE ENGINEERS & SURVEYORS
2121 3 Mile Rd. NW
Walker, MI 49544
Ph: 616-301-7888
www.LREMI.com

REVISIONS:

NO.	ISSUED FOR	DATE
1.	50% REVIEW	4/26/22
2.	95% REVIEW	6/24/22
3.	FINAL REVIEW	8/19/22

CLIENT: SAGINAW COUNTY PUBLIC WORKS COMMISSIONER
111 S. MICHIGAN AVENUE, SAGINAW, MI 48602

PROJECT: SARLE DRAIN
TITTABAWASSEE TOWNSHIP, SAGINAW COUNTY, MI

PROJECT NUMBER: 21-140	
SURVEYED BY: LSG / ADK / AHR	03/2022
DESIGNED BY: TRM	04/2022
DRAFTED BY: NDJ/ EJB	03/2022
QAQC: DJF	04/2022

SHEET NAME: DETAILS

SHEET NUMBER

C6

Oct 05, 2022 – 11:13am W:\Projects\21-140 Sarle Drain\21121- DETAIL SHEET.dwg, HORIZ, Color By:LAYOUT