

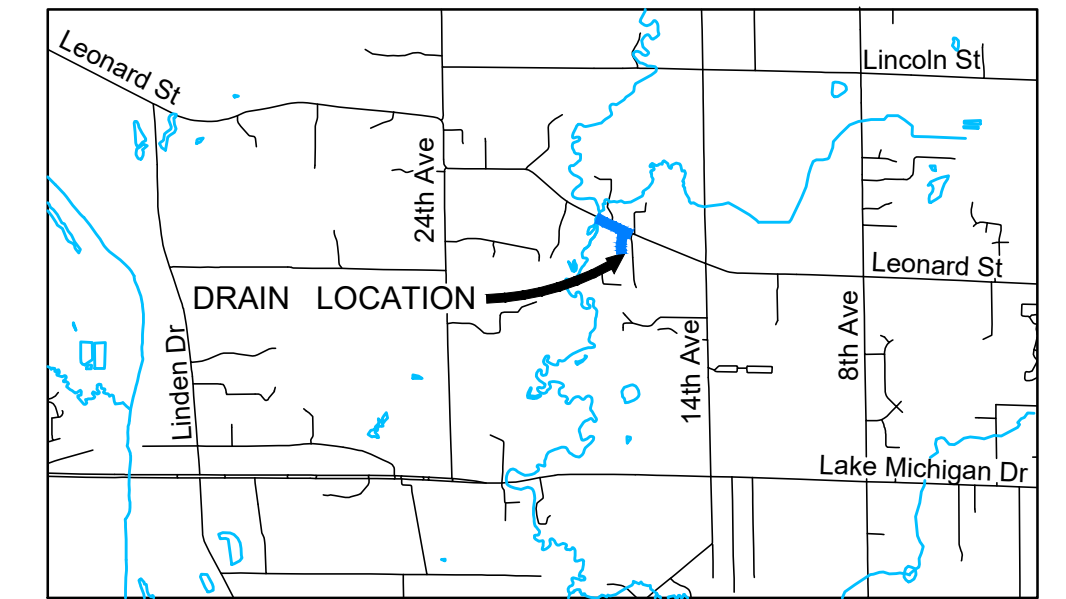
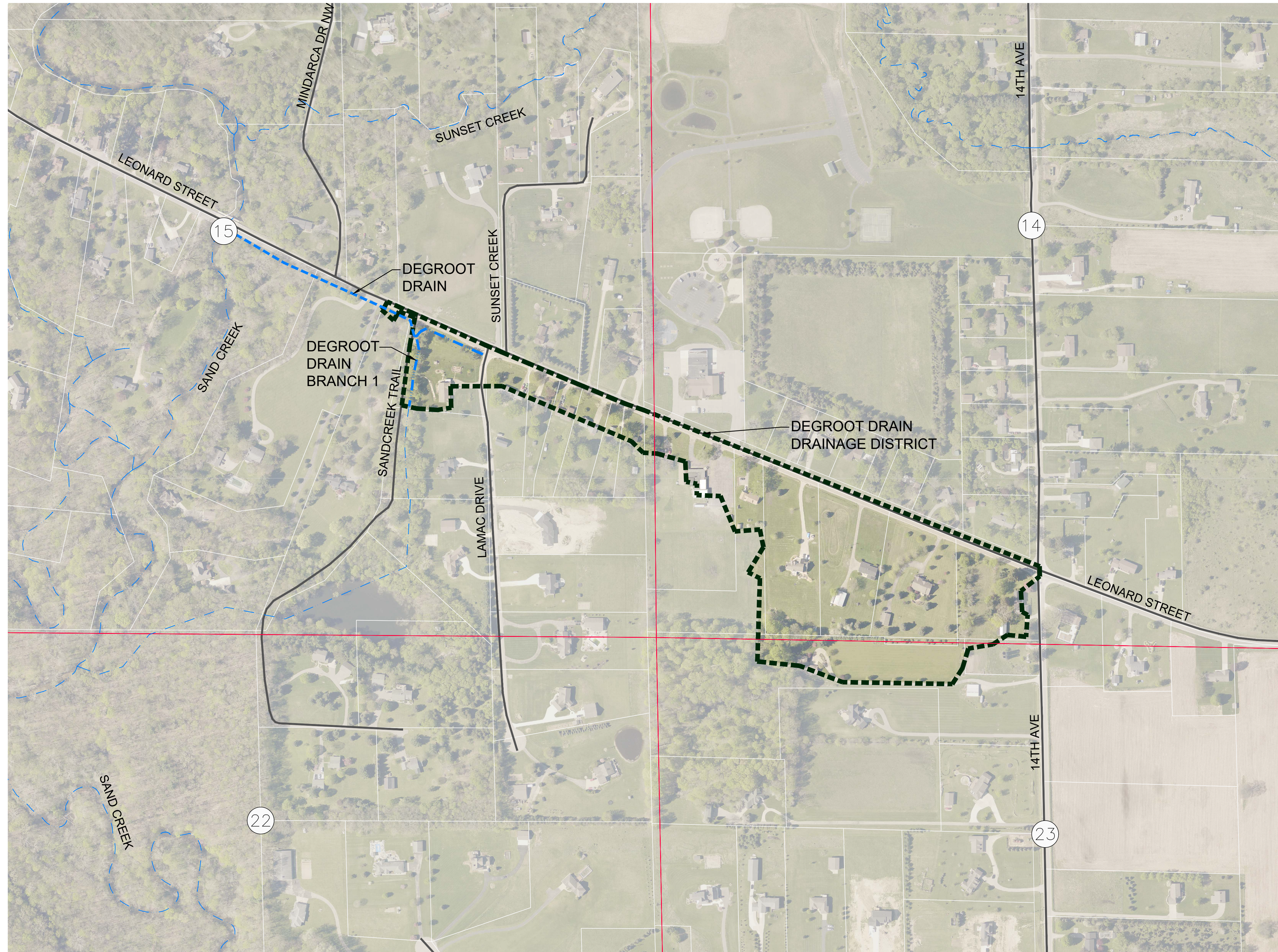


DeGroot Drain

Sections 14-15 & 23

T7N, R13W

Tallmadge Township, Ottawa County, Michigan



VICINITY MAP
NOT TO SCALE

INDEX OF SHEETS

CS - COVER SHEET

C1 - PLAN & PROFILE
DEGROOT DRAIN
(STA. 0+00 - 10+50)

C2 - PLAN & PROFILE
DEGROOT DRAIN-BRANCH #1
(STA. 0+00 - 6+50)

C3 - DETAILS

C4 - SESC PLAN

LEGEND

- ENCLOSED CHANNEL DRAIN
- OPEN CHANNEL DRAIN
- DRAINAGE DISTRICT BOUNDARY
- SECTION LINE
- TOWNSHIP LINE
- ROADS
- PROPERTY LINES
- SECTION NUMBERS
- SHEET NUMBERS

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

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Walker, MI 49544
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LRE
ENGINEERS & SURVEYORS

REVISIONS:	NO.	ISSUED FOR	DATE
	1.	PRELIMINARY REVIEW	9/8/2022
	2.	OWNER REVIEW	8/10/2023
	3.	OWNER REVIEW	10/20/2023
	4.	ISSUED FOR BID	2/1/2024

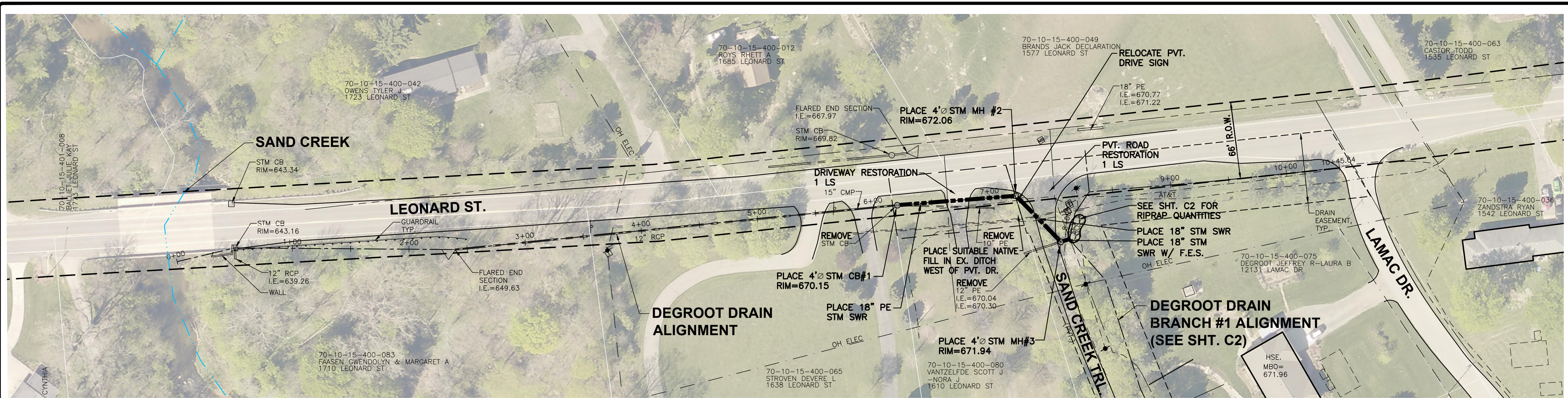
CLIENT: OTTAWA COUNTY WATER RESOURCES COMMISSIONER
1220 FILLMORE STREET, WEST OLIVE, MICHIGAN 49660

PROJECT: DEGROOT DRAIN
TALLMADGE TOWNSHIP, OTTAWA COUNTY, MICHIGAN

PROJECT NUMBER:	DATE
21-033	01/2022
SURVEYED BY: CVF, ADK	10/2023
DESIGNED BY: TRM	01/2022
DRAFTED BY: LGG	11/2024
QA/QC: DJF/MPB	

SHEET NAME: COVER SHEET

SHEET NUMBER: CS



- NOTES:**
- EASEMENT WIDTH: AS INDICATED ON DRAWINGS.
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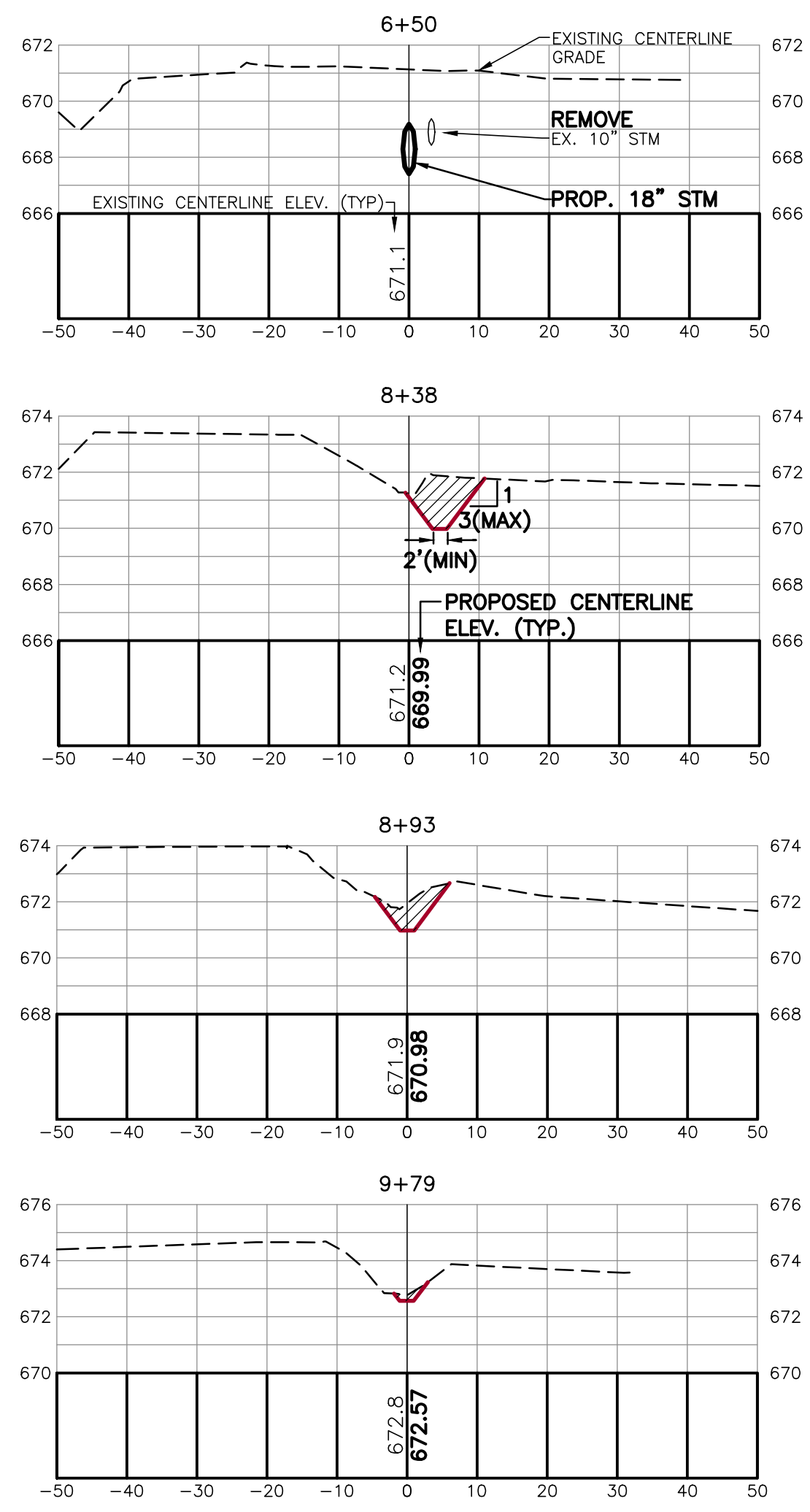
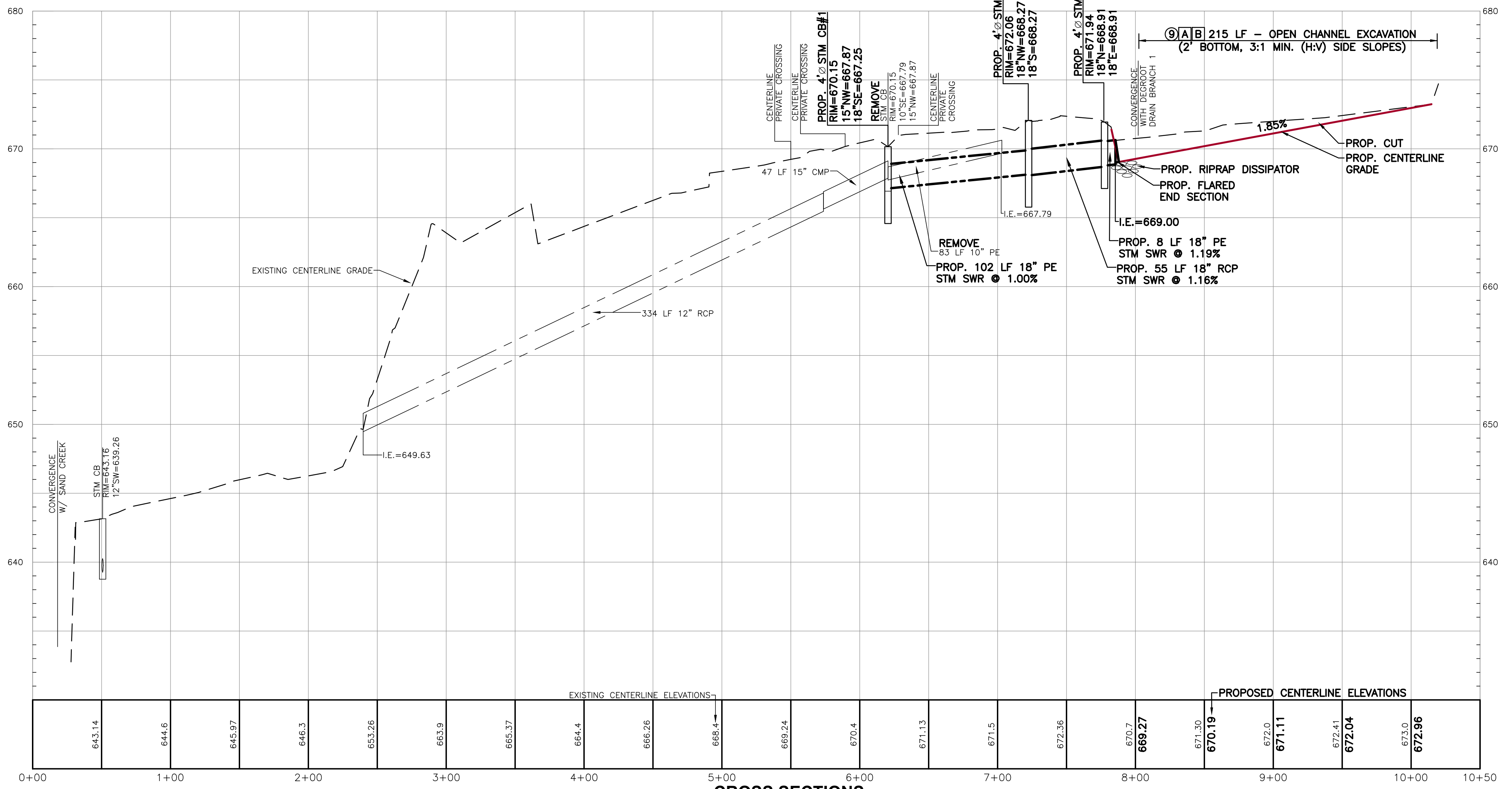
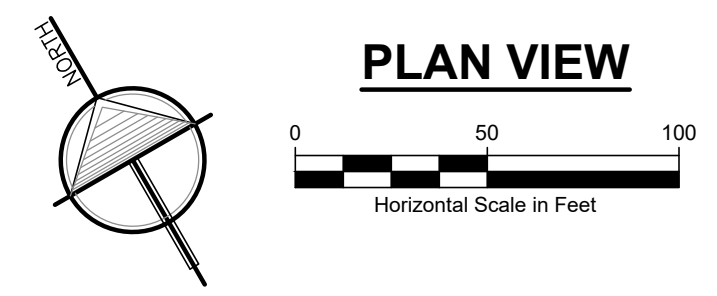
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MISCELLANEOUS QUANTITIES

MOBILIZATION	1	LS
UTILITY COORDINATION	1	LS
TRAFFIC CONTROL	1	LS
STORM SEWER RESTORATION	165	LF (1)
OPEN CHANNEL SEEDING	215	LF (1)
MULCH BLANKET	600	SY (2)(13)
RIPRAP (CONTINGENCY)	25	SY (15)(19)(23)



CROSS SECTIONS

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



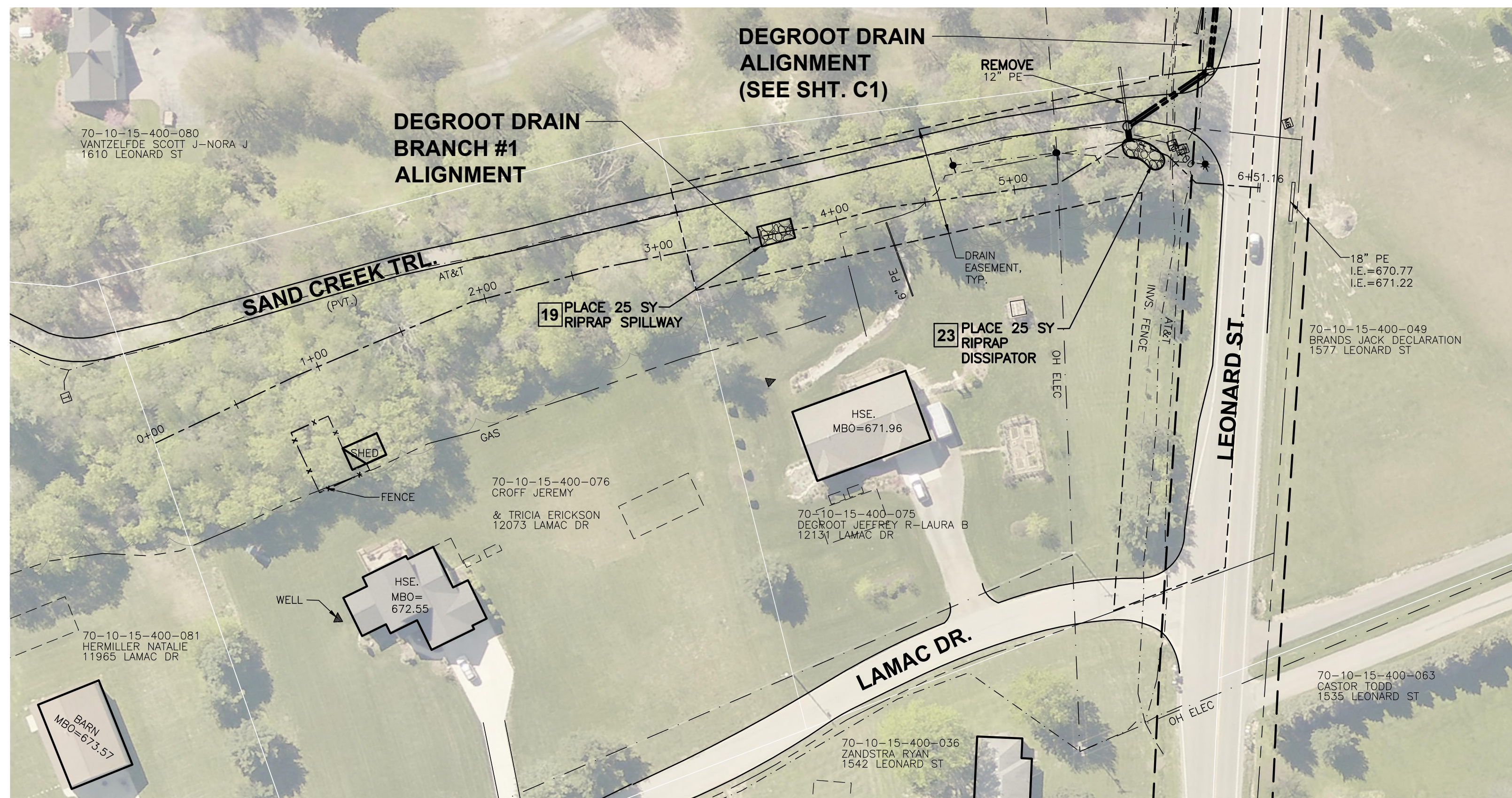
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12220 PILLMORE STREET, WEST OLIVE, MICHIGAN 49660
PROJECT: DEGROOT DRAIN
TALLMADGE TOWNSHIP, OTTAWA COUNTY, MICHIGAN

DATE	BY
01/20/22	CVF, ADK
10/20/23	TRM
01/20/22	LGG
11/20/24	DJF/MPB

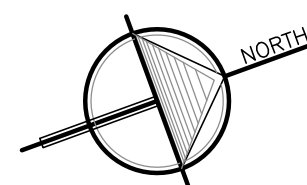
PROJECT NUMBER: 21-033
SHEET NUMBER: C1

PLAN & PROFILE
DEGROOT DRAIN
STA: 0+00 - 10+00

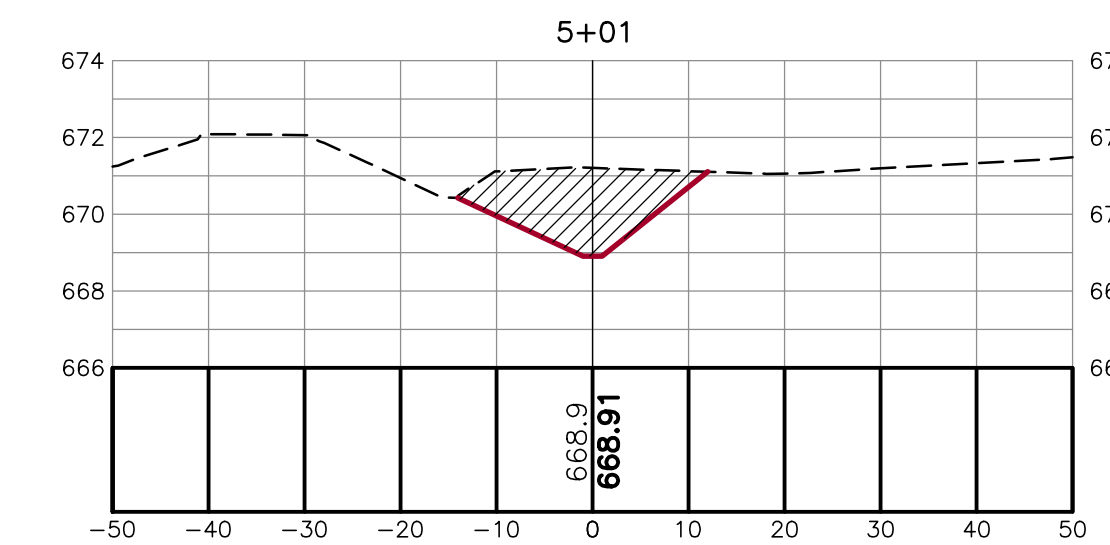
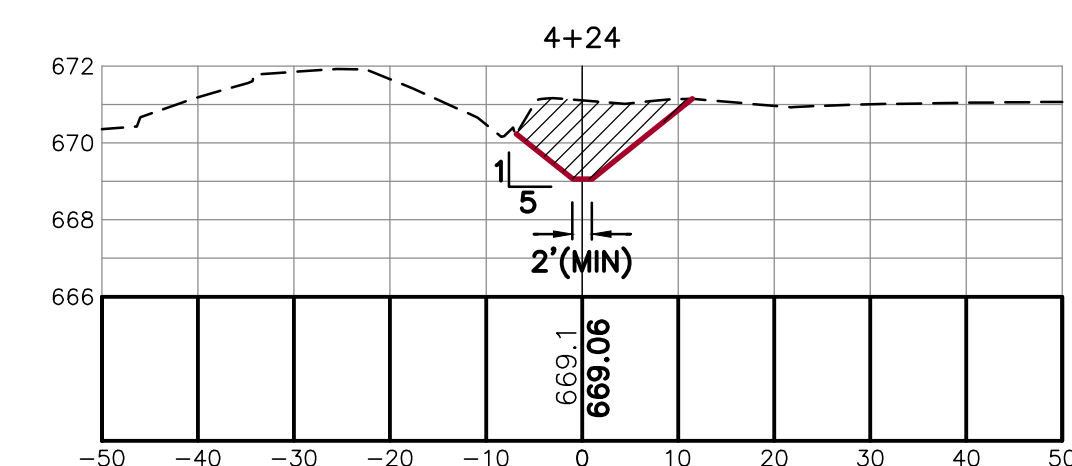
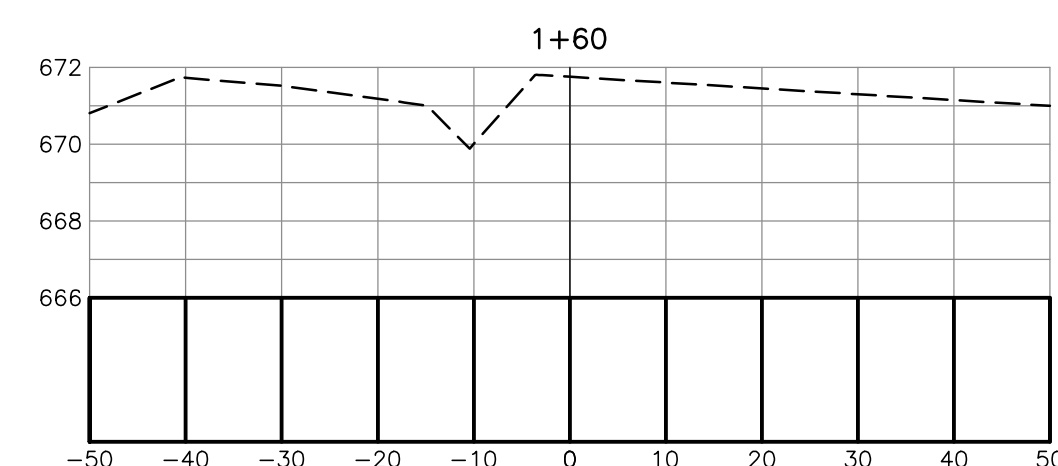
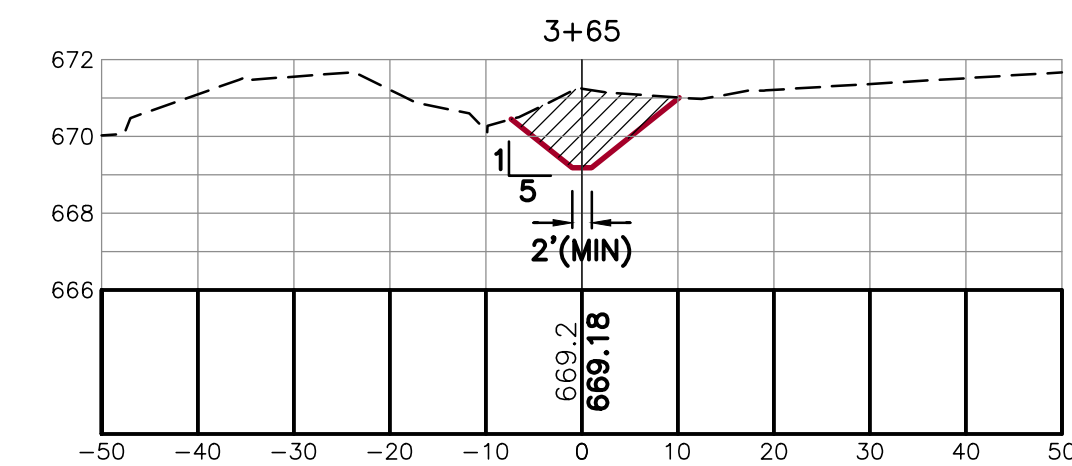
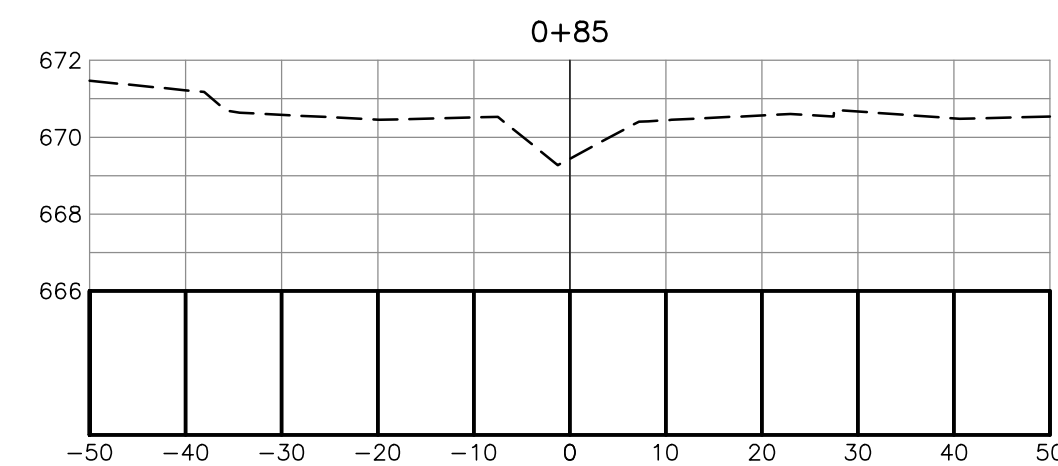
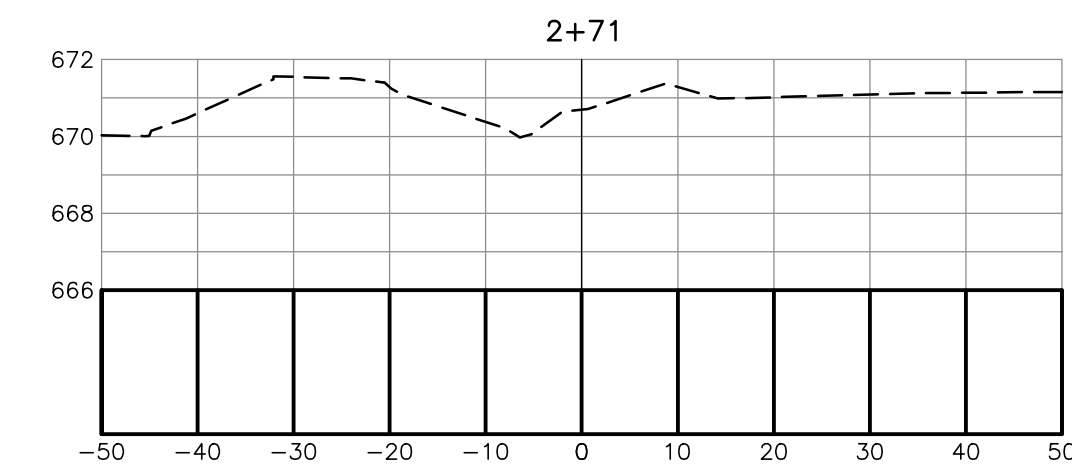
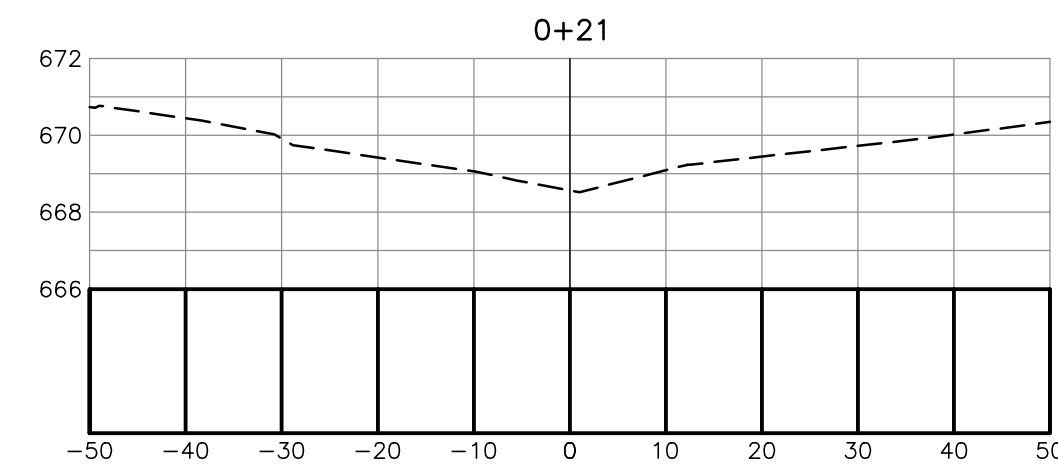
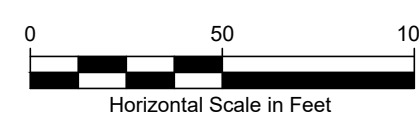


MISCELLANEOUS QUANTITIES

OPEN CHANNEL SEEDING 235 LF (1)
 MULCH BLANKET 500 SY (2)(13)

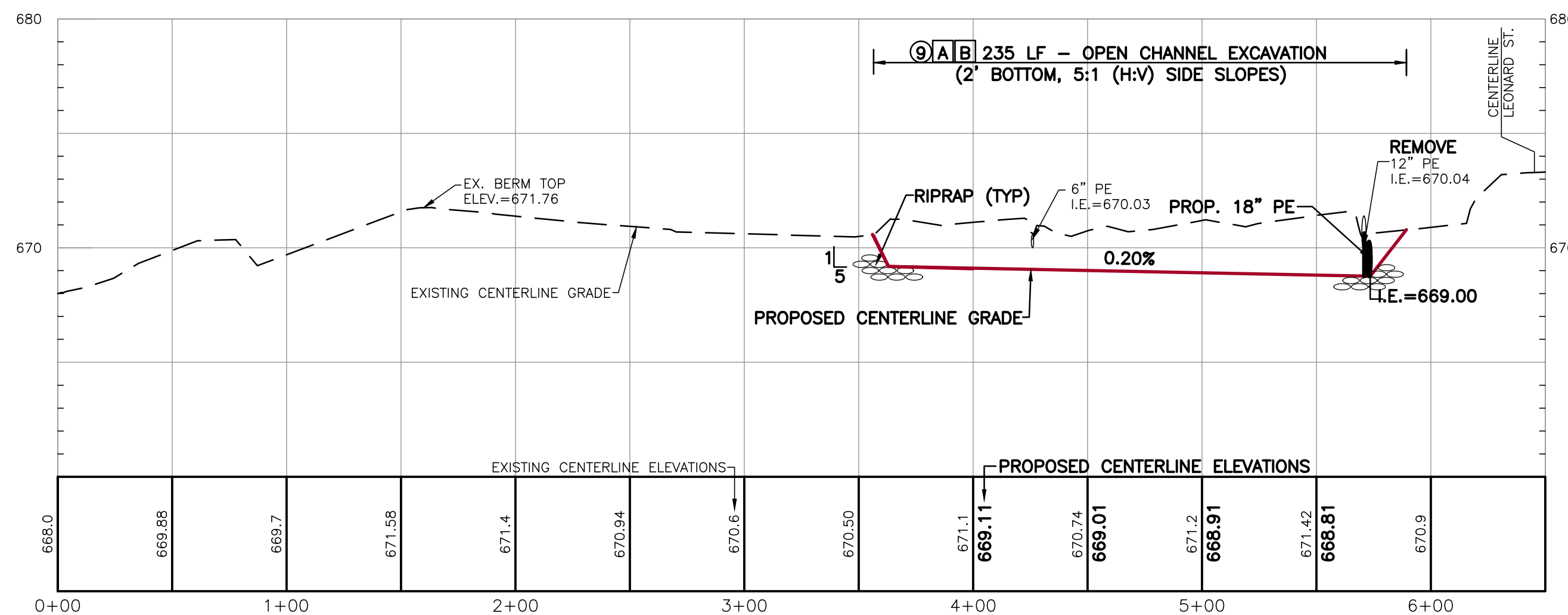


BRANCH #1 PLAN VIEW



CROSS SECTIONS

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



BRANCH #1 - CENTERLINE PROFILE

SCALE: HORIZONTAL: 1" = 50'
 VERTICAL: 1" = 5'

NOTES:

- EASEMENT WIDTH: AS INDICATED ON DRAWINGS.
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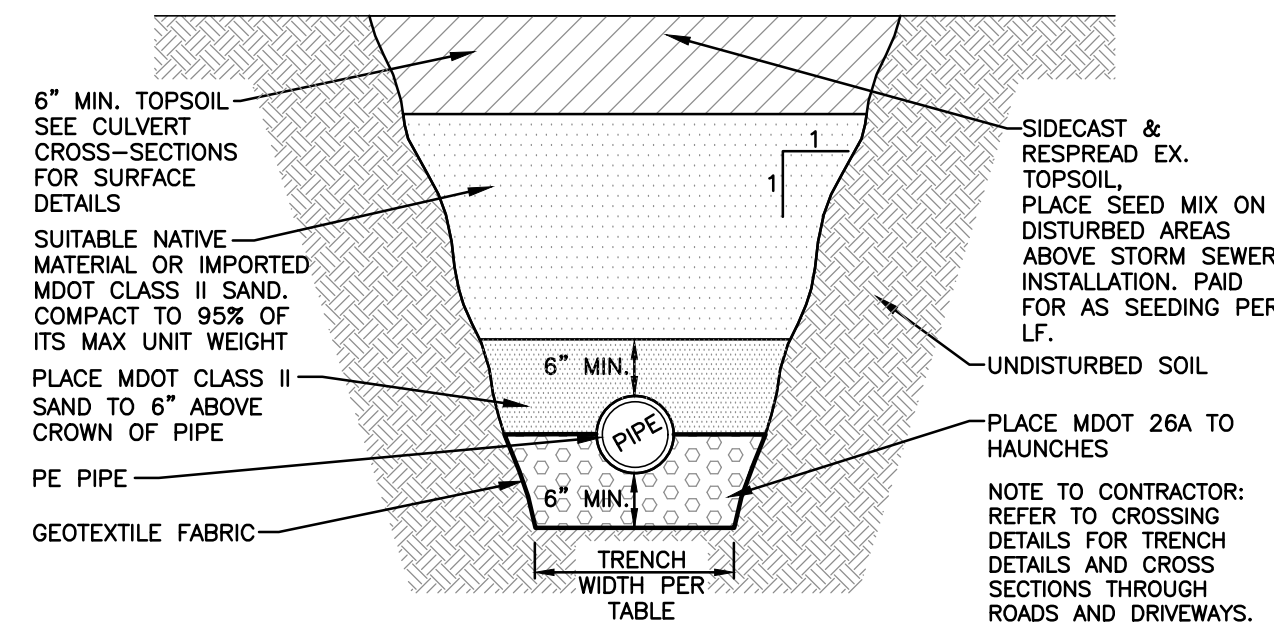
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 1220 PILLMORE STREET, WEST OLIVE, MICHIGAN 49660
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PROJECT NUMBER:	DATE
21-033	01/2022
	10/2023
	11/2024

SURVEYED BY: C.V.F. ADK
 DESIGNED BY: TRM
 DRAFTED BY: LGG
 QA/QC: DJF/MPB

PLAN & PROFILE
BRANCH #1
STA: 0+00 - 6+50

SHEET NUMBER
C2

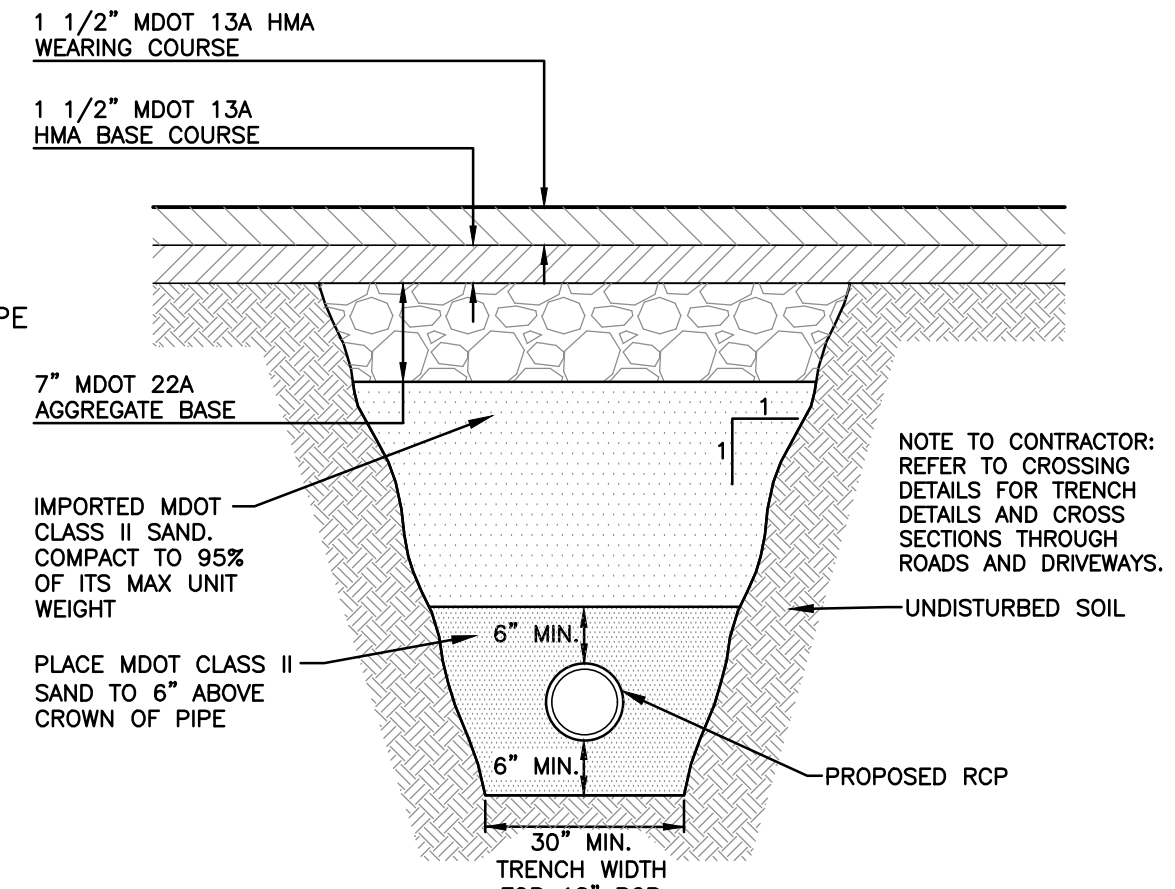


STORM SEWER TRENCH DETAIL
NOT TO SCALE

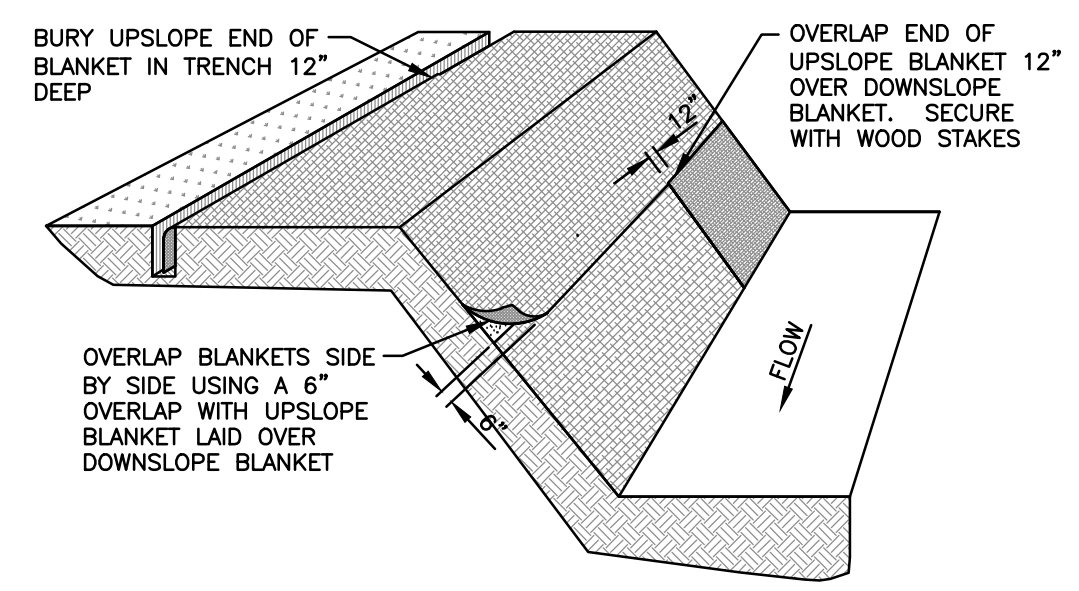
MINIMUM TRENCH WIDTH FOR N-12 PLASTIC PIPE
(PER ADS STANDARD DRAWING STD-101)

PIPE DIAMETER	TRENCH WIDTH
4"	21"
6"	23"
8"	26"
10"	28"
12"	30"
15"	34"
18"	39"
24"	48"
30"	56"
36"	64"
42"	72"
48"	80"
60"	96"

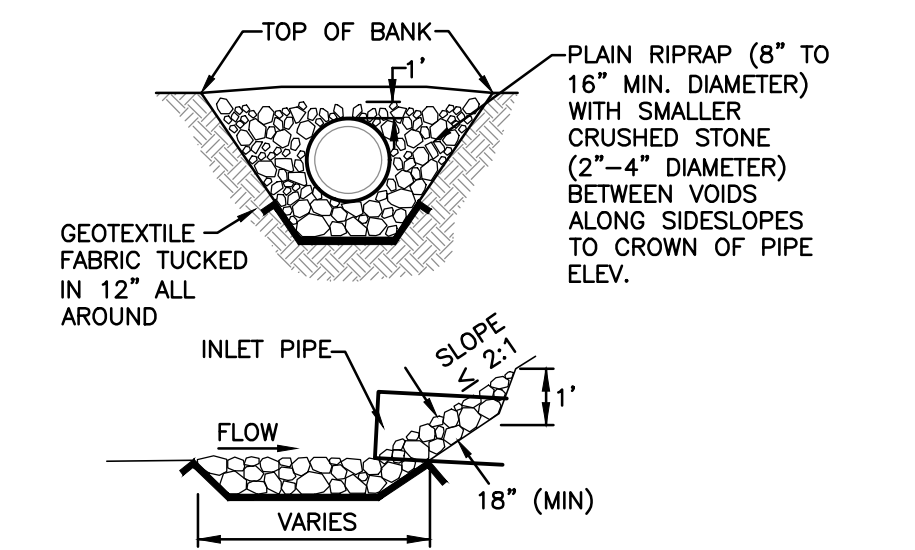
TRENCH WIDTH TABLE



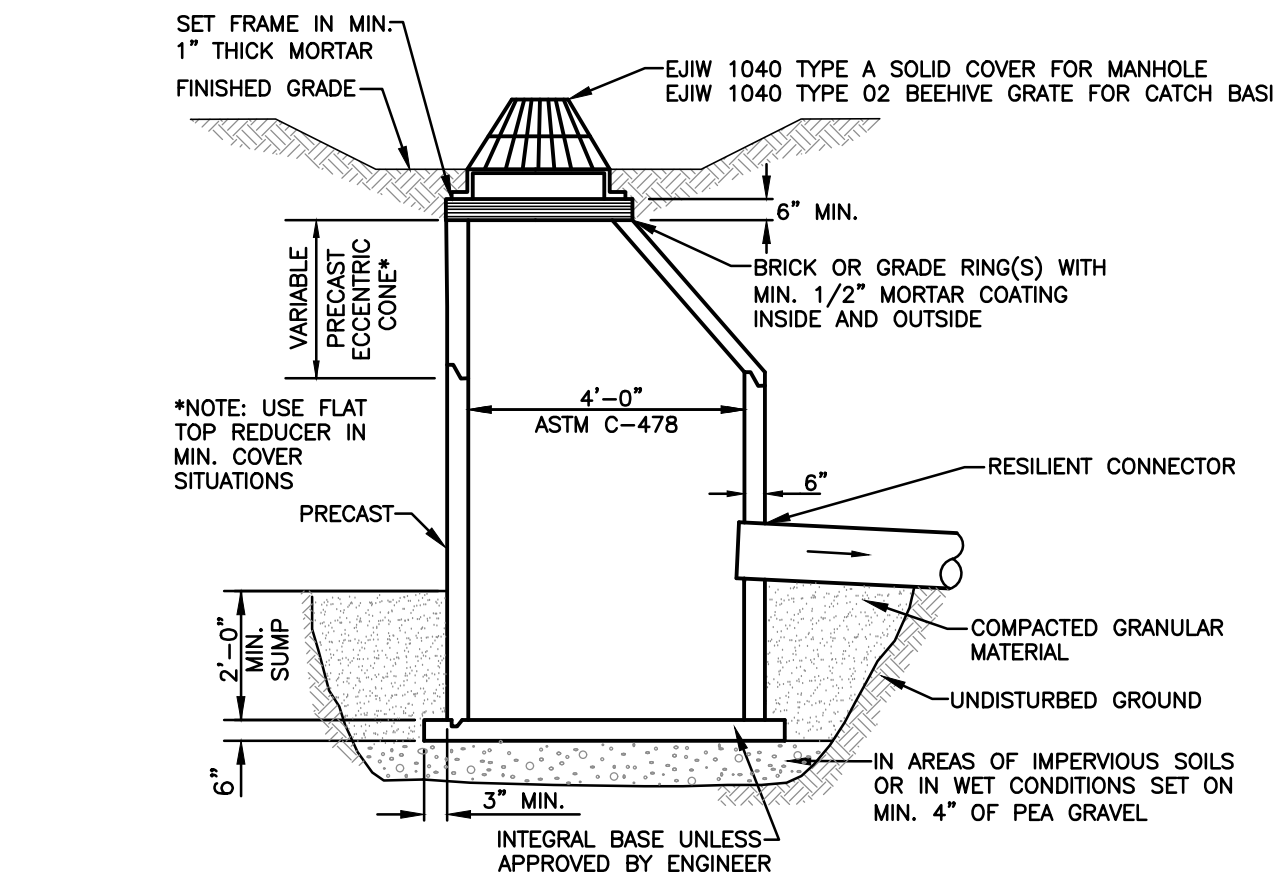
SAND CREEK TRAIL RESORATION
UNDER ASPHALT SURFACES ONLY
NOT TO SCALE



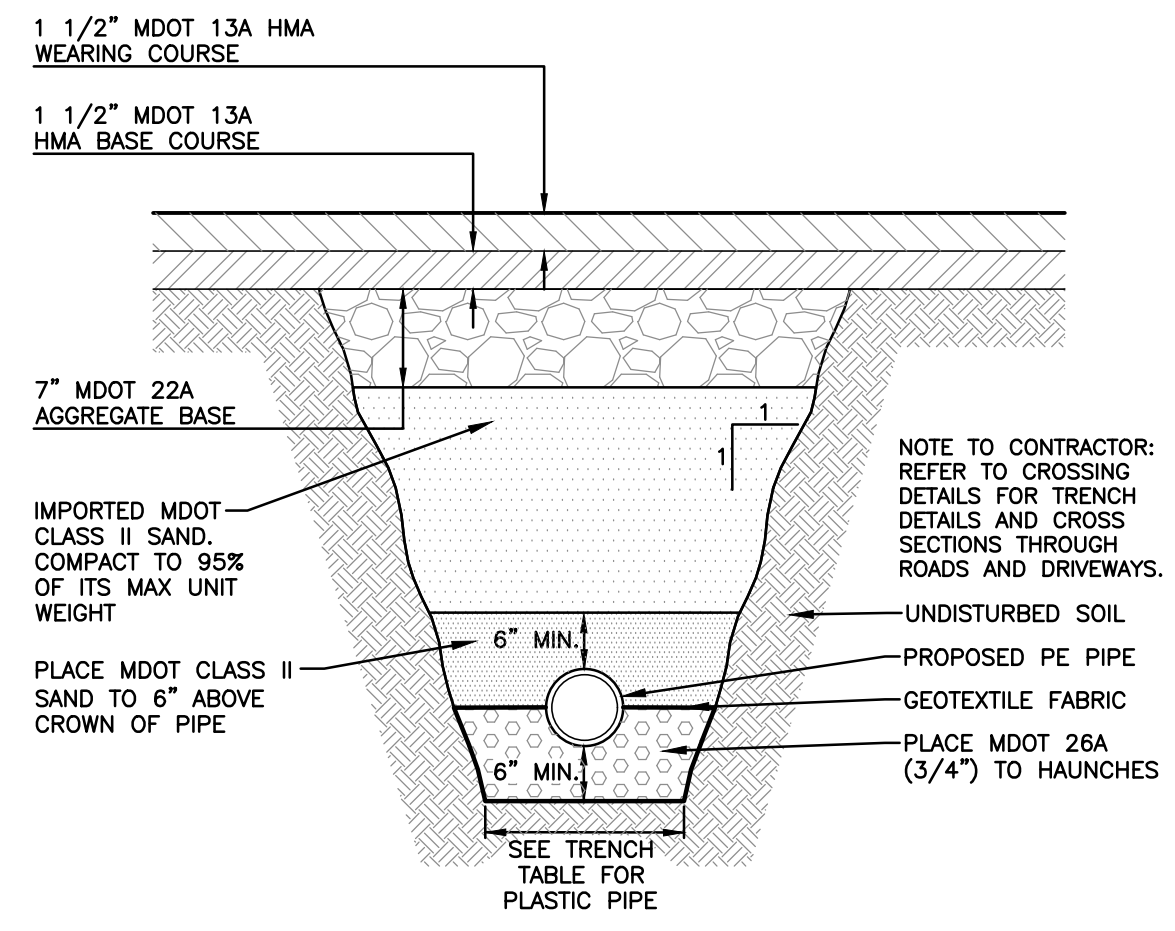
2 13 MULCH BLANKETS INSTALLATION DETAIL
NOT TO SCALE



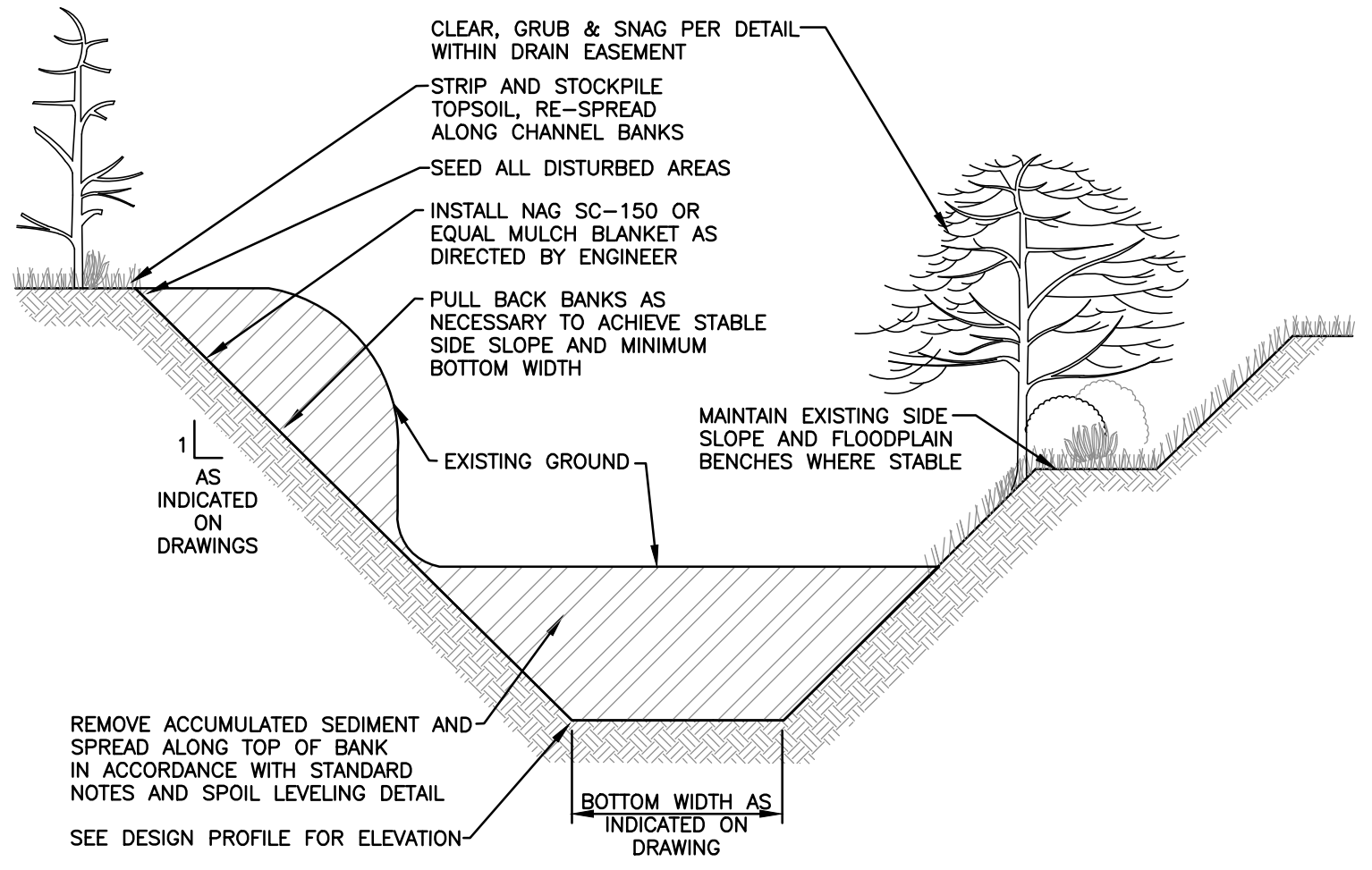
23 RIPRAP ENERGY DISSIPATOR DETAIL
NOT TO SCALE



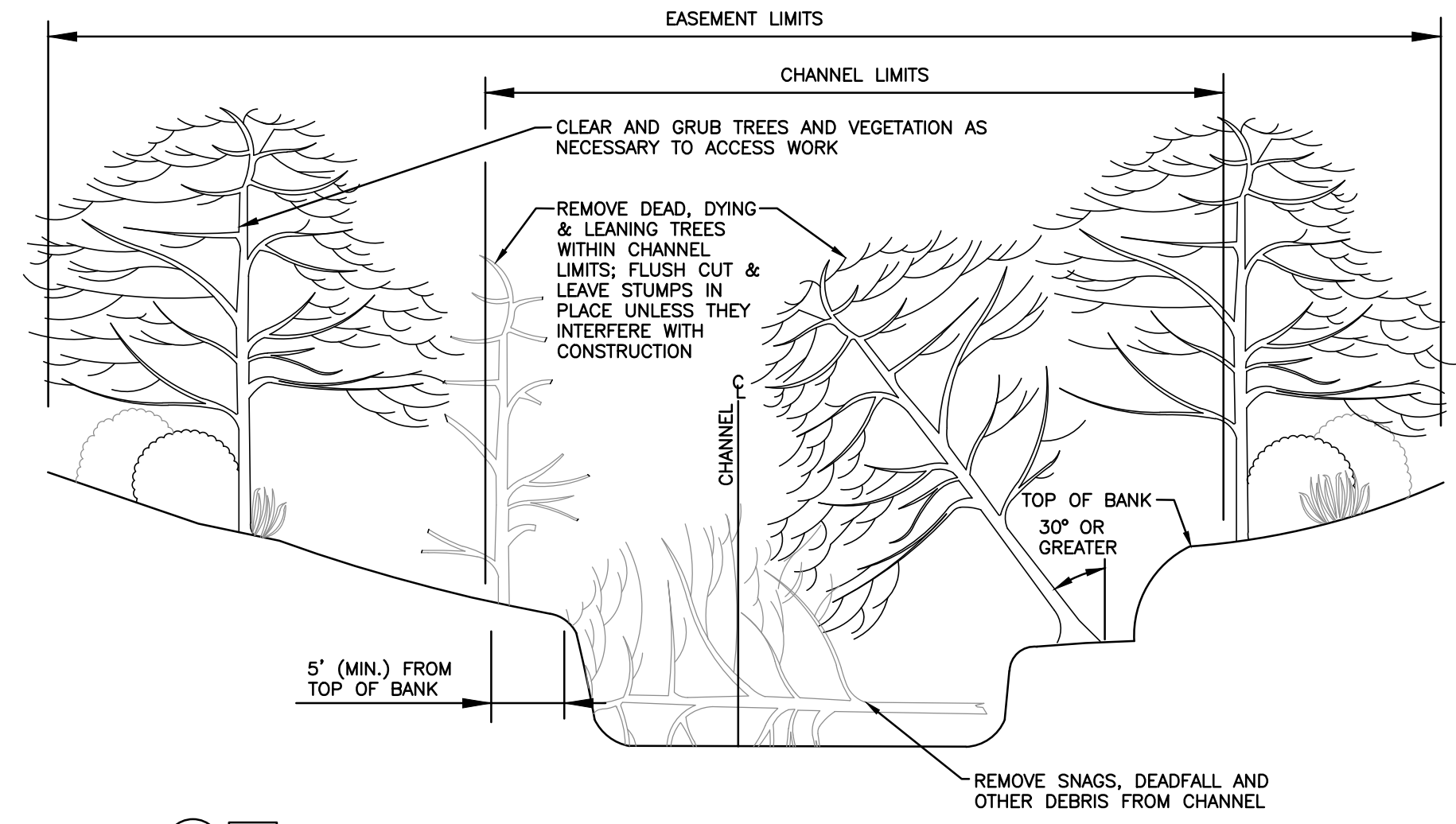
PRECAST CONCRETE BASIN
NOT TO SCALE



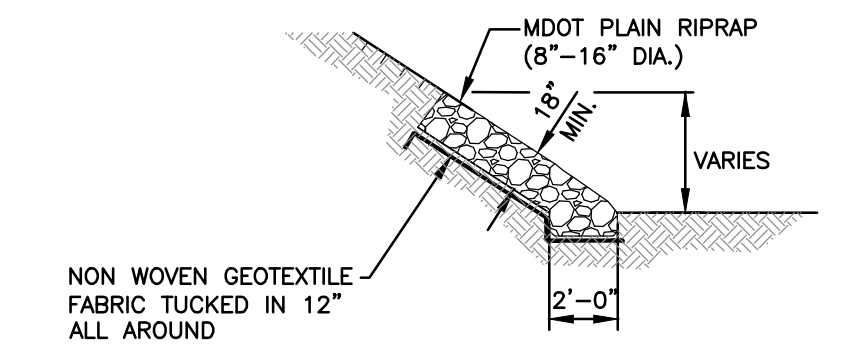
1610 LEONARD ST. RESORATION
UNDER ASPHALT SURFACES ONLY
NOT TO SCALE



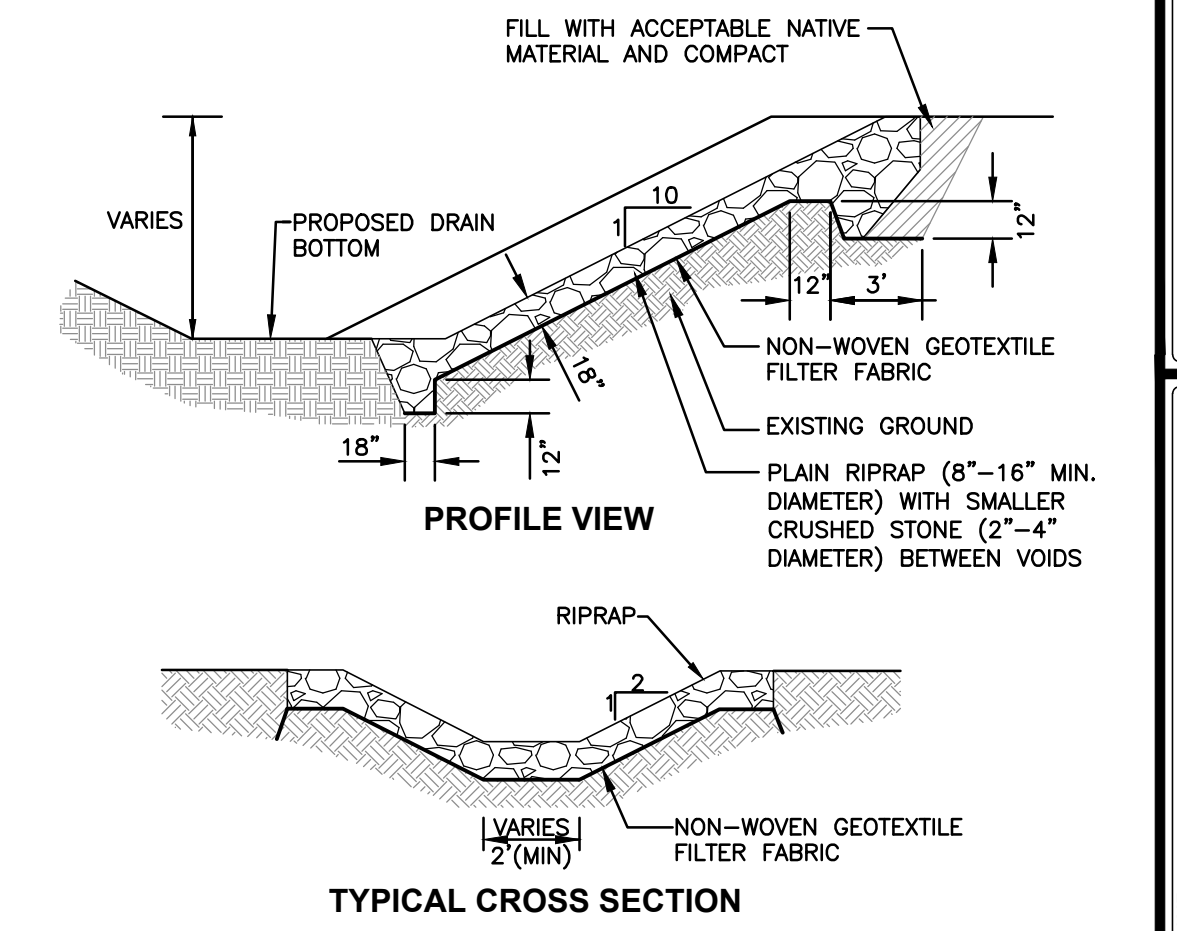
9 A B OPEN CHANNEL EXCAVATION DETAIL
NOT TO SCALE



9 A CLEARING, GRUBBING & SNAGGING DETAIL
NOT TO SCALE



15 RIPRAP BANK STABILIZATION DETAIL
NOT TO SCALE



19 RIPRAP SPILLWAY DETAIL
NOT TO SCALE

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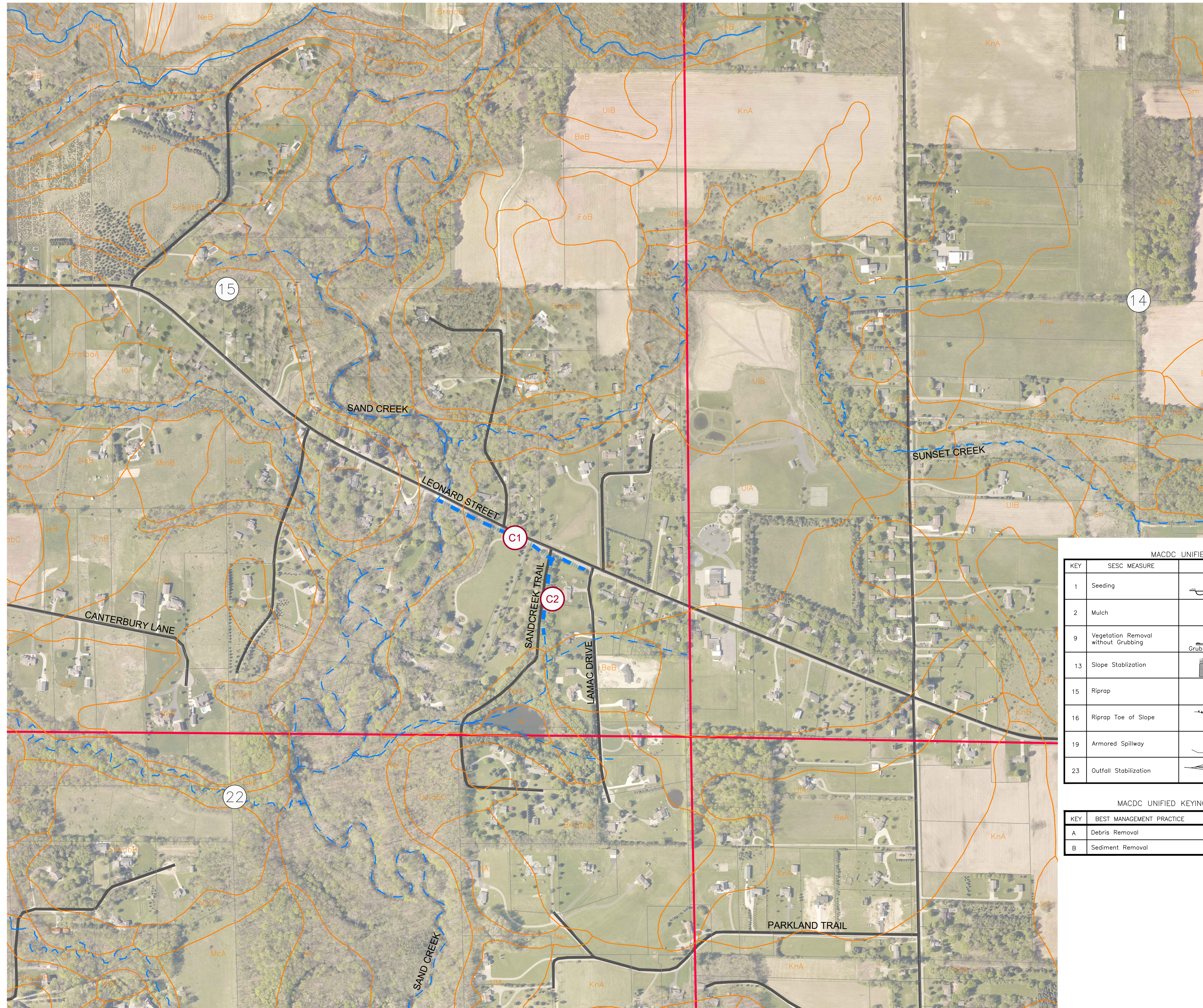
PROJECT NUMBER:	DATE
21-1033	01/20/22
	10/20/23
	01/20/22
	11/20/24

CLIENT:
OTTAWA COUNTY WATER RESOURCES COMMISSIONER
12220 FILLMORE STREET, WEST OLIVE, MICHIGAN 49660

PROJECT:
DEGROOT DRAIN
TALLMADGE TOWNSHIP, OTTAWA COUNTY, MICHIGAN

SHEET NAME:
DETAILS

SHEET NUMBER:
C3



NOTES

1. PROPOSED EARTH CHANGE LIMITED TO EASEMENT AREA.
2. SOIL DATA FROM USDA NRCS WEB SOIL SURVEY.
3. REFER TO OTTAWA COUNTY DRAIN COMMISSIONER'S STANDARD CONSTRUCTION SPECIFICATIONS FOR SESC STANDARD DETAILS.

LEGEND

SOIL TYPE (USDA NRCS WEBSOIL SURVEY)

SOILS LEGEND

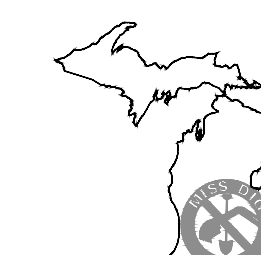
- Ak ALGANSEE LOAMY SAND
- BeA BELDING SANDY LOAM, 0-2% SLOPES
- BeB BELDING SANDY LOAM, 2-6% SLOPES
- BrmaA BREMS-SPINKS COMPLEX, 0-2% SLOPES
- Cc CARLISLE MUCK, 0-2% SLOPES
- Ce CARLISLE MUCK, 0-2% SLOPES
- ChB COLOMA LOAMY SAND, 0-6% SLOPES
- Cm COHOCTAH LOAM
- FoB FOX SANDY LOAM, 0-6% SLOPES
- Gl GLENDORA SANDY LOAM
- IoA IOSCO LOAMY SAND, 0-4% SLOPES
- KnA KAWKAWLIN LOAM, 0-2% SLOPES
- KnB KAWKAWLIN LOAM, 2-6% SLOPES
- Ma MADE LAND
- MaraaB MARLETTE-CAPAC-THETFORD COMPLEX 2-6% SLOPES
- McA MANCELONA LOAMY SAND, 0-2% SLOPES
- MmB MENOMINEE LOAMY SAND, 2-6% SLOPES
- NeB PERRINTON LOAM, LAKE MICHIGAN LOBE, 2-6% SLOPES
- NeC ONEKAMA LOAM, LAKE MICHIGAN LOBE 6-12% SLOPES
- NeD NESTER LOAM, 12-18% SLOPES
- NeF NESTER LOAM, 25-45% SLOPES
- NsC3 NESTER CLAY LOAM, 6-12% SLOPES, SEVERELY ERODED
- NsD3 NESTER CLAY LOAM, 12-18% SLOPES, SEVERELY ERODED
- PifafF PLAINFIELD-METEA-SPINKS COMPLEX 35-60% SLOPES
- RcA RICHTER SANDY LOAM, 0-2% SLOPES
- Sh SHOALS LOAM
- Sm SIMS LOAM
- Sn SLOAN LOAM
- SnkabB SPINKS-FERN COMPLEX, 2-6% SLOPES
- SpC SPINKS LOAMY SAND, 6-12% SLOPES
- TknabC TEKENINK-SPINKS LOAMY SAND, 6-12% SLOPES
- UIA ULBY SANDY LOAM, 0-2% SLOPES
- UIB ULBY SANDY LOAM, 2-6% SLOPES
- UIC ULBY SANDY LOAM, 6-12% SLOPES
- W WATER

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		Retains existing root mat which assists in stabilizing slopes. Assists in the revegetation process by providing sprout growth. Reduces sheet flow velocities preventing rilling and gullying, Discourages off-road vehicle use.
13	Slope Stabilization		Slope stabilizing measures provide 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 another 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



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SHEET NUMBER

C4

SESC PLAN