ALLEGAN COUNTY ROAD COMMISSION

144TH AVENUE IMPROVEMENTS
KALAMAZOO AVENUE TO SUNRISE TRAIL - LEIGHTON TOWNSHIP

ACRC PROJECT NO. LH 4908

NOTES

EXCEPT WHERE OTHERWISE INDICATED ON THESE PLANS OR IN THE PROPOSAL AND SUPPLEMENTAL SPECIFICATIONS CONTAINED THEREIN, ALL MATERIALS AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH THE 2012 MICHIGAN DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR CONSTRUCTION.

THE PLACING OF PAVEMENT MARKINGS AND TRAFFIC CONTROL SIGNS SHALL BE DONE IN ACCORDANCE WITH THE 2011 MICHIGAN MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES AS AMENDED.

IN CONFORMANCE WITH PUBLIC ACT 174 OF 2013, ALL CONTRACTORS SHALL CALL MISS DIG @ 811 OR 800-482-7171 FOR PROTECTION OF UNDERGROUND UTILITIES A MINIMUM OF THREE FULL WORKING DAYS (EXCLUDING SATURDAYS, SUNDAYS AND HOLIDAYS) PRIOR TO BEGINNING EACH EXCAVATION IN ANY AREA. MEMBERS WILL THUS BE ROUTINELY NOTIFIED. THIS DOES NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY OF NOTIFYING UTILITY OWNERS WHO MAY NOT BE A PART OF THE "MISS DIG" ALERT SYSTEM.

UTILITIES

OVERHEAD ELECTRIC	CONSUMERS ENERGY 4000 CLAY AVENUE SW GRAND RAPIDS, MI 49548 (616) 530-4115 MR. JIM MIXTER
OVERHEAD ELECTRIC:	GREAT LAKES ENERGY 1049 - 133RD AVENUE WAYLAND, MI 49348 (269) 792-0532 MR. JEFF HICKS
NATURAL GAS	MICHIGAN GAS UTILITIES 742 EAST ALLEGAN STREET OTSEGO, MI 49078 (269) 692-6352 MR. JIM SHAUM
TELEPHONE	AT&T 955 36TH STREET SE GRAND RAPIDS, MI 49508 (616) 246-7302 MS. CHERYL BENNET
SANITARY SEWER	DORR/LEIGHTON SEWER AUTHORITY 4451 12TH ST A WAYLAND, MI 49348 616-891-8238 STEVE DEER
"MISS DIG"	811

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M.D.O.T. STANDARD PLANS

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R-60-J	GUARDRAIL TYPES A, B, BD, T, TD, MGS-8, & MGS-8D
R-62-H	GUARDRAIL APPROACH TERMINAL TYPES 2M
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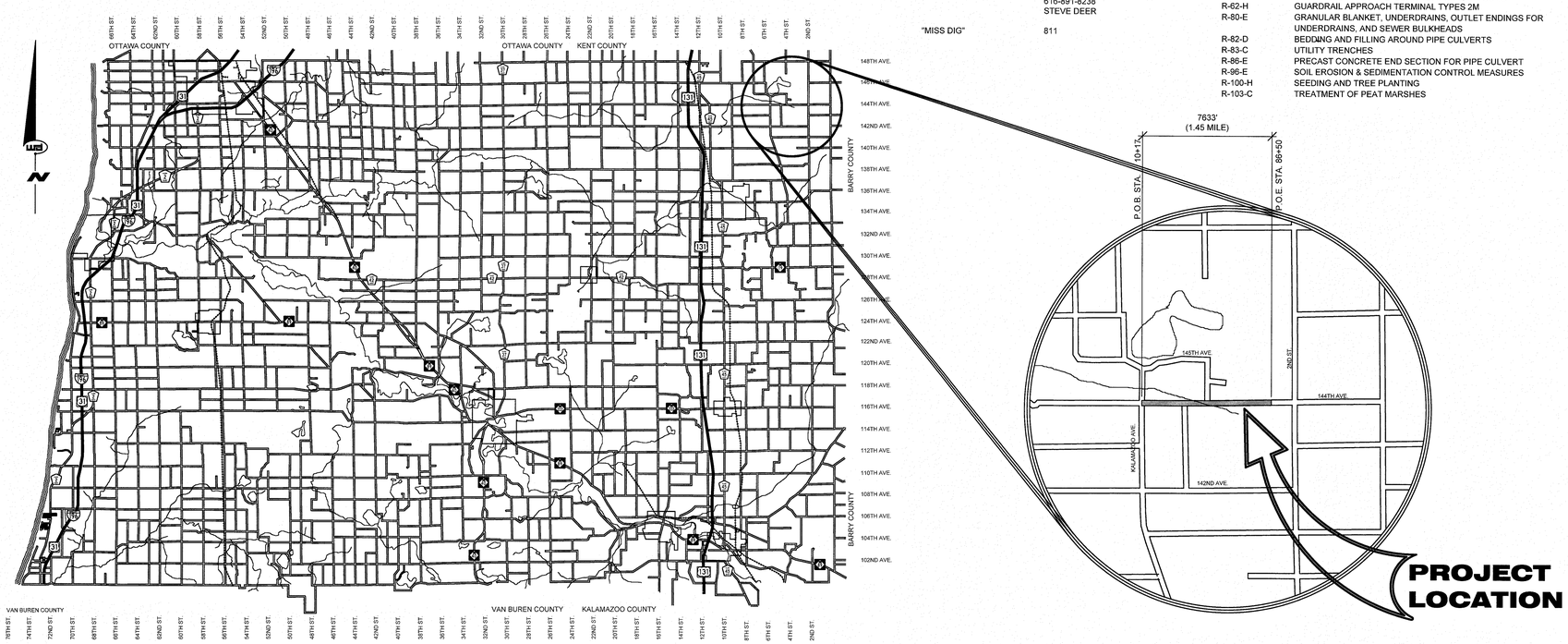
R-96-E	SOIL EROSION & SEDIMENTATION CONTROL MEASURES
R-100-H	SEEDING AND TREE PLANTING
R-103-C	TREATMENT OF PEAT MARSHES



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AARON J. NEITLING
ENGINEER NO. 50508

PROJECT NAME:

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02 8/10/18 AEH
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01 7/20/18 AEH
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00 12/27/2017 AMZ
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DATE: AUGUST 2018
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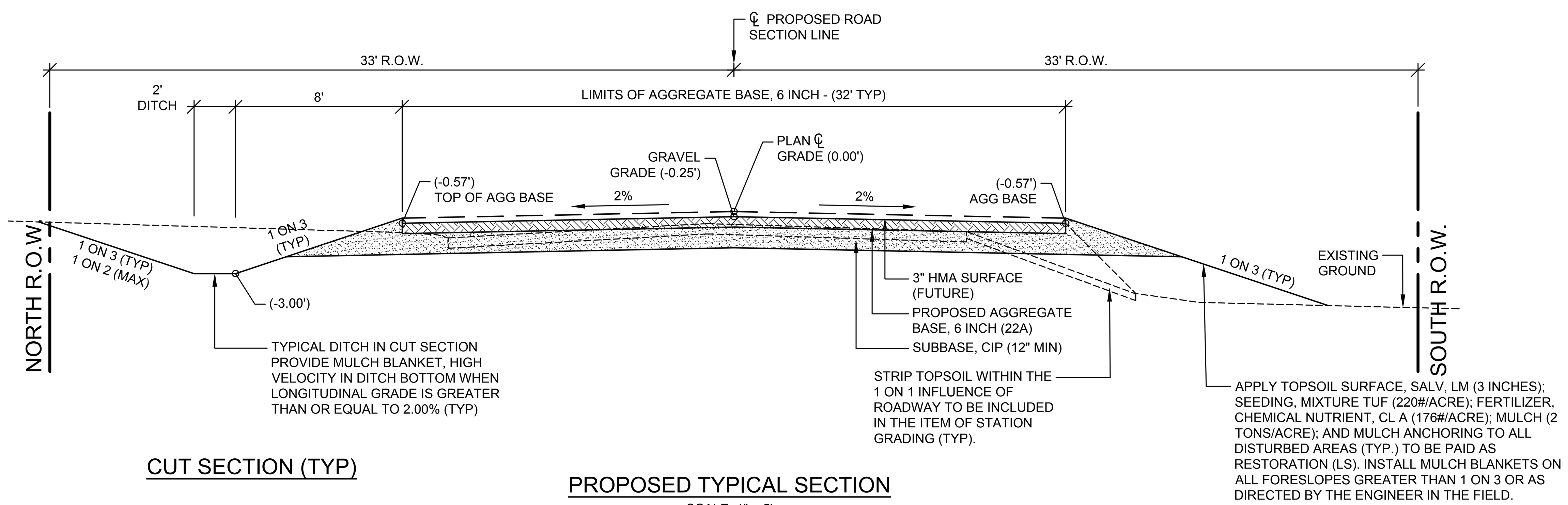
COVER SHEET

JOB No.
172272-01

LH 4908

PROJECT NOTES

1. THE "2012 STANDARD SPECIFICATIONS FOR CONSTRUCTION" AND "STANDARD PLANS" BY THE MICHIGAN DEPARTMENT OF TRANSPORTATION (MDOT) ARE HEREBY INCORPORATED INTO THESE CONTRACT DOCUMENTS. COPIES OF THESE STANDARDS ARE AVAILABLE FOR INSPECTION AT THE OFFICE OF THE ENGINEER.
2. IN CONFORMANCE WITH PUBLIC ACT 174 OF 2013, ALL CONTRACTORS SHALL CALL MISS DIG @ 811 OR 800-482-7171 FOR PROTECTION OF UNDERGROUND UTILITIES A MINIMUM OF THREE FULL WORKING DAYS (EXCLUDING SATURDAYS, SUNDAYS AND HOLIDAYS) PRIOR TO BEGINNING EACH EXCAVATION IN ANY AREA. MEMBERS WILL THUS BE ROUTINELY NOTIFIED. THIS DOES NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY OF NOTIFYING UTILITY OWNERS WHO MAY NOT BE A PART OF THE "MISS DIG" ALERT SYSTEM.
3. THE CONTRACTOR SHALL LOCATE ALL ACTIVE UNDERGROUND UTILITIES PRIOR TO STARTING WORK AND SHALL CONDUCT HIS OPERATIONS IN A MANNER AS TO ENSURE THAT THOSE UTILITIES NOT REQUIRING RELOCATION WILL NOT BE DISTURBED.
4. THE CONTRACTOR WILL BE RESPONSIBLE FOR CONTACTING THE ALLEGAN COUNTY ROAD COMMISSION TO NOTIFY THEM THAT WORK IS COMMENCING.
5. THE CONTRACTOR SHOULD NOTE THAT STATION GRADING WILL INCLUDE THE REMOVAL OF FENCES, CULVERTS, BRUSH, TREES SMALLER THAN 6", CONCRETE FOUNDATIONS, AND MISCELLANEOUS ITEMS AS REQUIRED AND WILL ALSO INCLUDE ALL EARTH EXCAVATION, EMBANKMENT, AND ALL OTHER OPERATIONS NECESSARY TO DEVELOP THE DESIRED CROSS SECTION. ALL TOPSOIL LOCATED BENEATH THE PROPOSED PAVEMENT SECTION WILL BE REMOVED TO THE SUBGRADE ELEVATION AS PART OF STATION GRADING. ALL TOPSOIL REMOVED MAY BE STOCKPILED AND REUSED AS TOPSOIL SURFACE, SALV, LM.
6. ALL FILL FOR THIS PROJECT MUST BE OBTAINED AND FURNISHED BY THE CONTRACTOR. ALL REQUIRED FILL SHALL BE SELECTED EXCAVATED MATERIAL FROM THE SITE APPROVED BY THE ENGINEER, OR MDOT CLASS II GRANULAR MATERIAL FROM BORROW. EXCESS FILL SHALL BE REMOVED FROM SITE BY THE CONTRACTOR. NOTE: NO BORROW OR SOIL REMOVAL ARRANGEMENTS HAVE BEEN PREARRANGED FOR THIS PROJECT, AND SHALL BE THE TOTAL RESPONSIBILITY OF THE CONTRACTOR.
7. THE SOIL BORINGS WERE TAKEN BY GREAT LAKES DRILLING COMPANY, P.O. BOX 51, ALLEGAN, MI 49010 ON APRIL 4, 2018. THE TEST BORINGS REPRESENT POINT INFORMATION AND MAY NOT HAVE ENCOUNTERED ALL THE TYPES AND MATERIALS WHICH ARE PRESENT AT THE SITE. THESE BORING LOGS DO NOT CONSTITUTE A GUARANTEE OF THE SOIL OR GROUNDWATER CONDITIONS, OR THAT THE TEST BORINGS ARE AN EXACT REPRESENTATION OF THE SOIL OR GROUNDWATER CONDITIONS AT ALL POINTS ON THE SITE.
8. SEE SHEET 172272-04 FOR SOIL BORING DATA.
9. DRIVE REPLACEMENT SHALL BE AS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER IN THE FIELD.
10. THE ITEM OF SUBBASE, CIP WILL BE PAID FOR AT PLAN QUANTITY EXCEPT IN THE CASE OF A DESIGN CHANGE OR DEMONSTRATED ERROR.
11. AS PART OF THE PROJECT THE CONTRACTOR WILL COORDINATE WITH THE ALLEGAN COUNTY ROAD COMMISSION TO PRESERVE AND RESET ALL GOVERNMENT CORNERS WITHIN THE PROJECT LIMITS.
12. CONTRACTOR SHALL RELOCATE ALL MAILBOXES TO A TEMPORARY CENTRAL LOCATION APPROVED BY THE POSTAL SERVICE PRIOR TO CONSTRUCTION. CONTRACTOR SHALL INSTALL A 1" x 3" STAKE WITH THE RESPECTIVE PROPERTY ADDRESS WRITTEN ON IT IN THE FRONT YARD OF EACH RESIDENCE TO ASSIST WITH IDENTIFICATION FOR EMERGENCY VEHICLES. PAYMENT FOR RELOCATION SHALL BE INCLUDED IN THE ITEM OF PROJECT CLEANUP. AT THE COMPLETION OF THE PROJECT SAID MAILBOXES SHALL BE RESET AT THEIR APPROPRIATE LOCATIONS.
13. ALL DISTURBED AREAS NOT TO BE PAVED WILL BE RESTORED WITH TOPSOIL SURFACE, SALV, LM (3 INCHES), MDOT SEED MIXTURE TUF (220#/ACRE), FERTILIZER, CHEMICAL NUTRIENT, CL A (176#/ACRE); AND MULCH AND MULCH ANCHORING (2 TON/ACRE). TO BE PAID AS RESTORATION (LUMP SUM)
14. ADEQUATE DUST CONTROL MEASURES WILL BE MAINTAINED BY THE CONTRACTOR AS DIRECTED BY THE ENGINEER IN THE FIELD, TO BE INCLUDED IN THE VARIOUS ITEMS OF WORK.
15. MULCH BLANKET, HIGH VELOCITY WILL BE PLACED ON THE BOTTOM OF ALL DITCHES WHEN THE LONGITUDINAL GRADE IS GREATER THAN OR EQUAL TO 2.00% UNLESS OTHERWISE NOTED, OR AS DIRECTED BY THE ENGINEER IN THE FIELD.
16. WHEN FIELD DRAIN TILES ARE ENCOUNTERED IN THE EXISTING DITCHES, THE CONTRACTOR WILL EXTEND THEM AS REQUIRED WITH UNDERDRAIN, SUBGRADE 4" OR 6" AND ADJUST THE DITCH GRADES AS NECESSARY TO PROVIDE POSITIVE DRAINAGE AS DIRECTED BY THE ENGINEER IN THE FIELD. THE COST OF THE CONNECTION WILL BE INCLUDED IN THE NEW PIPE ITEM. IF THE ENGINEER DETERMINES THAT AN EXISTING TILE IS TOO LONG THE CONTRACTOR WILL REMOVE THE TILE AS NECESSARY, TO BE INCLUDED IN THE ITEM OF STATION GRADING. DRAINS THAT ARE ENCOUNTERED AND IDENTIFIED AS SOMETHING OTHER THAN A FIELD DRAIN SHOULD BE REPORTED TO THE ENGINEER IMMEDIATELY.
17. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING EXISTING DRAINAGE PATTERNS, AND WILL RESOLVE ANY DRAINAGE PROBLEMS ON ADJACENT PROPERTIES WHICH MAY RESULT FROM THE CONTRACTORS ACTIVITIES.
18. DATUM REFERS TO NAVD88.
19. ALL SCALES FOR DRAWINGS AND DETAILS ARE BASED ON 24"x36" PRINTED PLANS. DIMENSIONS TAKE PRECEDENCE OVER SCALE. CONTRACTOR TO VERIFY ALL DIMENSIONS IN FIELD.
20. THE ALLEGAN COUNTY ROAD COMMISSION WILL INSTALL ALL NECESSARY PERMANENT SIGNS BEFORE OPENING THE ROAD TO TRAFFIC. THE CONTRACTOR SHALL NOTIFY THE ROAD COMMISSION WHEN PERMANENT SIGNS CAN BE PLACED.
21. PROPERTY OWNER'S NAMES, WHERE SHOWN, ARE FOR INFORMATION ONLY, AND THEIR ACCURACY IS NOT GUARANTEED.

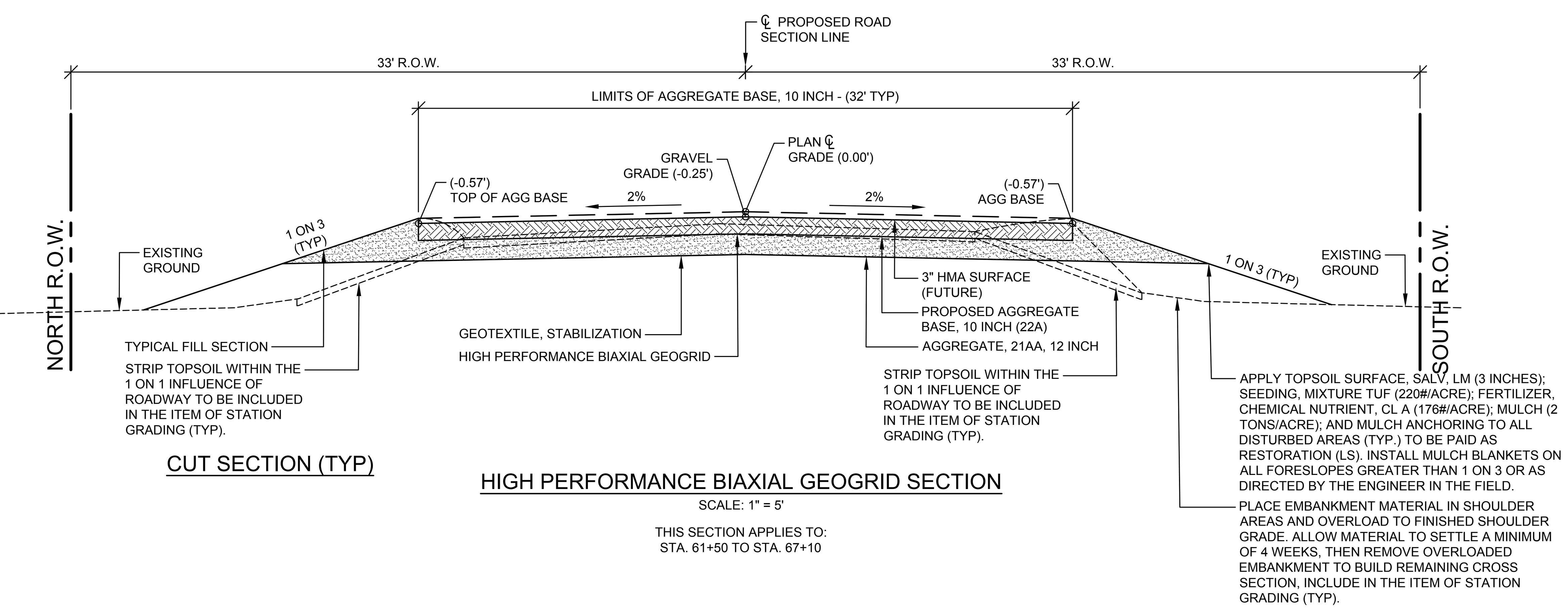


PROPOSED TYPICAL SECTION

SCALE: 1" = 5'

THIS SECTION APPLIES TO:
STA. 10+17 (P.O.B.) TO STA. 61+50
STA. 67+10 TO STA. 86+50 (P.O.E.)

FILL SECTION (TYP)



HIGH PERFORMANCE BIAXIAL GEOGRID SECTION

SCALE: 1" = 5'

THIS SECTION APPLIES TO:
STA. 61+50 TO STA. 67+10

FILL SECTION (TYP)

LEGEND

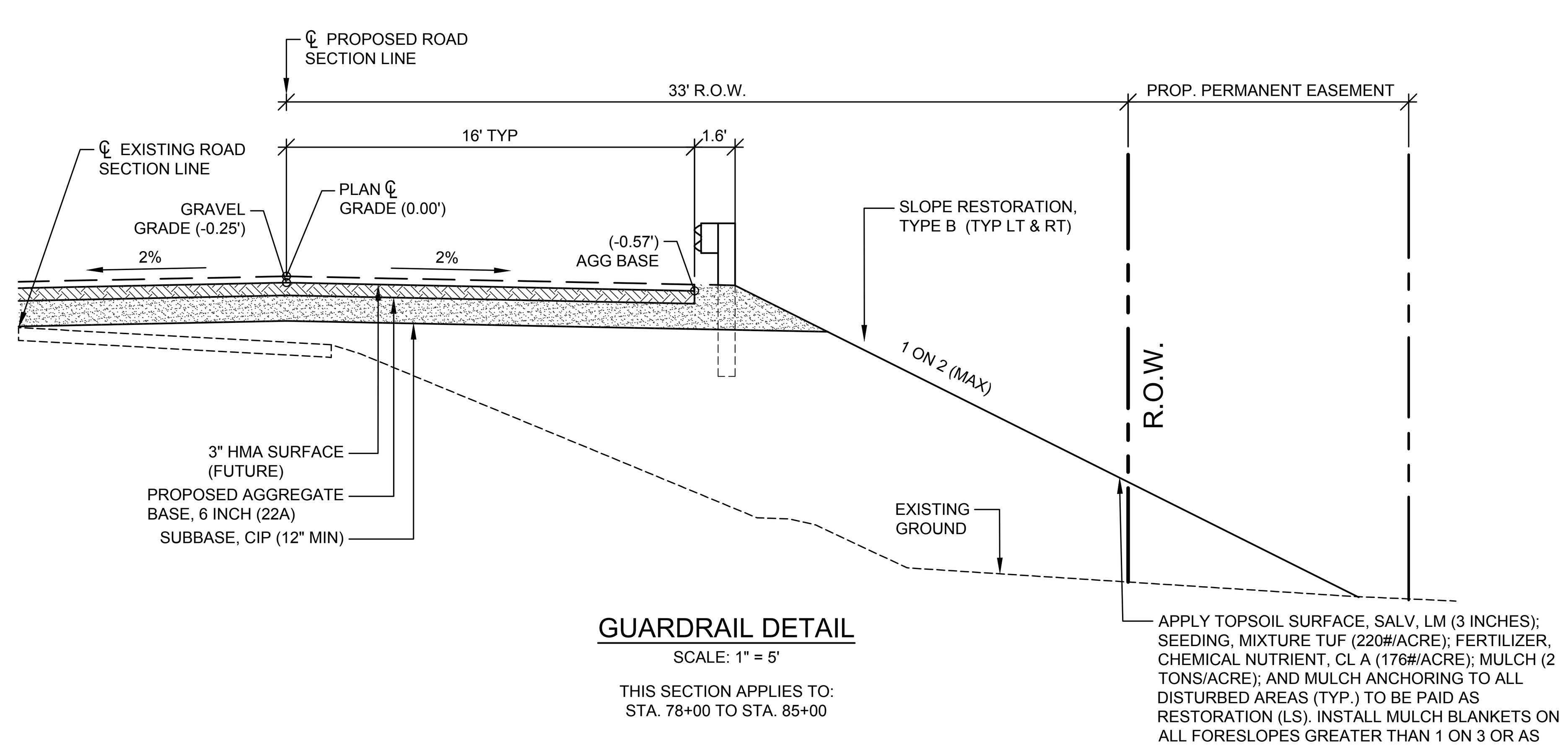
EXISTING	PROPOSED	
C	C	CABLE
E	E	ELECTRIC LINE
OHE	OHE	ELECTRIC LINE (OVERHEAD)
FO	FO	FIBER OPTIC LINE
G	G	GAS LINE
T	T	TELEPHONE LINE
		FENCE
		FORCEMAIN
		GUARDRAIL
		SANITARY SEWER
		STORM SEWER
		WATER MAIN
		CENTER LINE

EXISTING TREE LINE
EXISTING DITCH LINE
EASEMENT LINE/GRADING PERMIT
GRADING LIMITS/LIMITS OF DISTURBANCE
PROPERTY LINE
RIGHT-OF-WAY LINE
SECTION LINE
TO BE ABANDONED

= ANTENNA	= PAVEMENT/SOIL BORING
= CATCH BASIN	= PROPOSED HYDRANT
= CABLE RISER BOX	= PROPOSED GATE VALVE & BOX
CO = CLEAN OUT	= PROPOSED GATE VALVE & VAULT
= CURB INLET	= PROPOSED REDUCER
= ELECTRIC MANHOLE	= PROPOSED SANITARY MANHOLE
= FIRE HYDRANT	= PROPOSED STORM MANHOLE
= FOUND IRON PIPE	= STORM MANHOLE
= GAS VALVE	= TELEPHONE MANHOLE
= GUY ANCHOR	= TELEPHONE RISER BOX
= LIGHT POLE	= TURNING POINT/TRAVERSE
= MAILBOX	= UTILITY POLE
MW = MONITORING WELL	= VAULT
= POST	= WATER ELEVATION
= SATELLITE DISH	= WATER MANHOLE
= SANITARY MANHOLE	= WATER METER
= SECTION CORNER	= WATER VALVE
= SIGN	= WATER SPIGOT
	= WELL

TREE DESIGNATORS

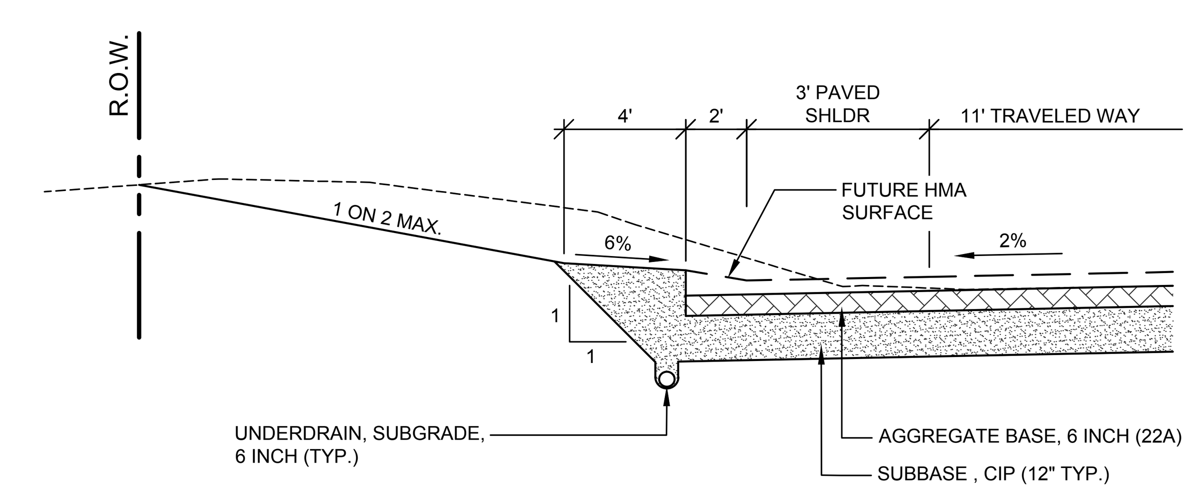
BUSH	STUMP
CONIFEROUS TREE	DECIDUOUS TREE
CONIFEROUS TREE TO BE REMOVED	DECIDUOUS TREE TO BE REMOVED



GUARDRAIL DETAIL

SCALE: 1" = 5'

THIS SECTION APPLIES TO:
STA. 78+00 TO STA. 85+00



HMA CURB HALF SECTION

SCALE: 1" = 5'

THIS SECTION APPLIES TO:
STA. 67+50 TO STA. 69+50 LT
STA. 73+00 TO STA. 77+05 RT
STA. 73+00 TO STA. 78+00 LT

MISCELLANEOUS QUANTITIES

ITEM	QTY.	
Clearing	1	LS
Station Grading	1	LS
Subbase, CIP	9,500	Cyd
Topsoil Surface, Salv, LM	9,240	Cyd
Geotextile, Stabilization	1,000	Syd
Aggregate, 6A	50	Ton
Subgrade Undercutting, Type II	1,000	Cyd
Culv, Cl F, 12 inch	40	Ft
Culv, Cl F, 18 inch	80	Ft
Culv, Cl F, 24 inch	40	Ft
Culv, Cl E, Conc, 24 inch	16	Ft
Underdrain, Subgrade, 6 inch	500	Ft
Underdrain Outlet, 6 inch	20	Ft
Underdrain, Outlet Ending, 6 inch	2	Ea
Approach, Cl II	50	Ton
Approach, HMA Millings	25	Ton
Restoration	1	LS
Extended Restoration	1	LS
Seeding, Mixture CR	60	Lb
Sign, Type B, Temp, Modified	212	Sft
Plastic Drum, High Intensity, Ltd, Modified	50	Ea
Barricade, Type III, High Intensity, Dbl Sided, Ltd, Modified	8	Ea
Erosion Control, Silt Fence	50	Ft
Erosion Control, Check Dam	50	Ft
Project Cleanup	1	LS

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AARON J. NEITLING
ENGINEER NO. 50508

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1308 LINCOLN ROAD
ALLEGAN, MI 49010-9762

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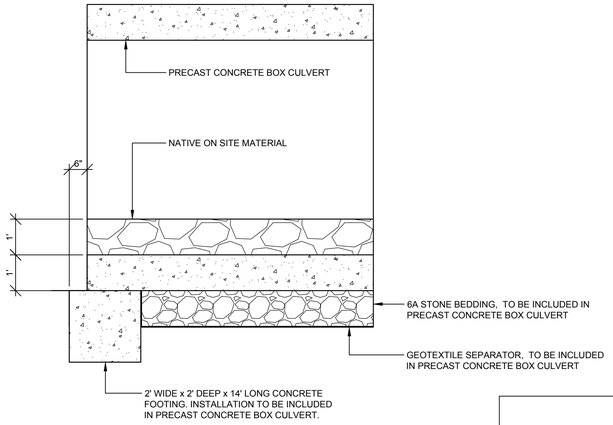
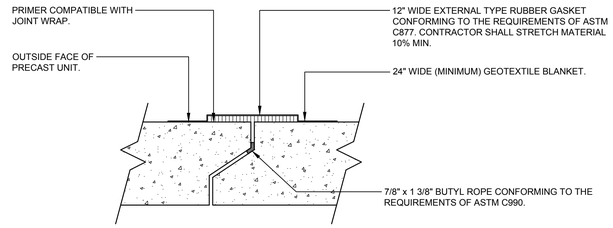
TYPICAL SECTIONS AND NOTES



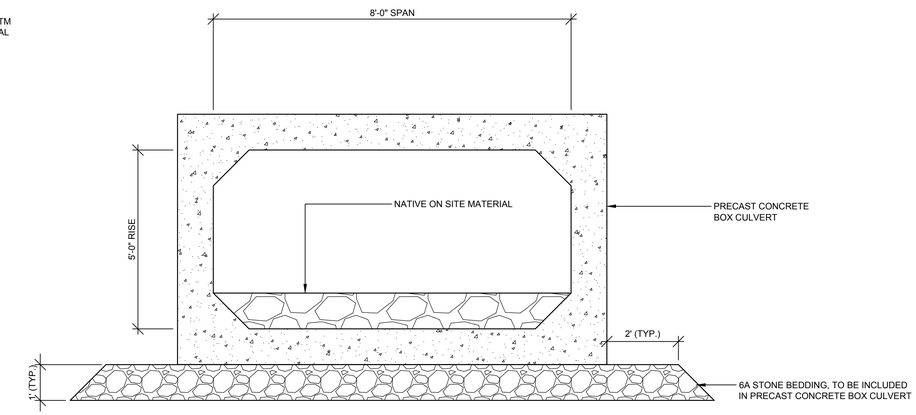
SECTION B - B

SCALE: 1" = 2'



TYPICAL JOINT SEAL DETAIL

NOTE: THE BOX CULVERT SECTIONS SHALL HAVE TONGUE AND GROOVE ENDS. THE CONTRACTOR SHALL INCLUDE A JOINT DETAIL ON THE SHOP DRAWINGS TO BE APPROVED BY THE ENGINEER. THE EXTERNAL TYPE RUBBER GASKET SHALL BE COVERED WITH A MINIMUM 2' STRIP OF GEOTEXTILE BLANKET CENTERED OVER THE JOINT.

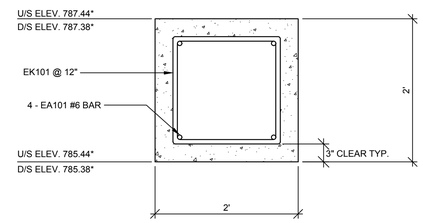


SECTION A - A

SCALE: 1" = 2'

CULVERT CONTROL DATA

REF. LINE/PT NO.	DESCRIPTION	NORTHING	EASTING	ELEVATION
A-1	INSIDE CORNER @ INLET	453951.22	12797254.93	788.44
A-2	INSIDE EDGE @ ℄ ROAD	453985.39	12797248.51	788.41
A-3	INSIDE CORNER @ OUTLET	454014.12	12797243.11	788.38
B-1	INSIDE CORNER @ INLET	453952.70	12797262.80	788.44
B-2	INSIDE EDGE @ ℄ ROAD	453985.36	12797256.65	788.41
B-3	INSIDE CORNER @ OUTLET	454015.60	12797250.97	788.38

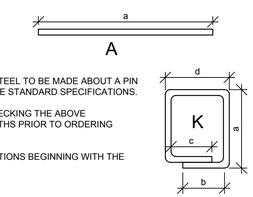


FOOTING DETAIL

SCALE: 1" = 1'

STEEL REINFORCEMENT SCHEDULE

BAR	a	b	c	d	SIZE	LENGTH	NO. REQ'D	TOTAL WEIGHT
EA101	13'-6"				#6	13'-6"	8	163
EK101	1'-6"	1'-0"	1'-0"	1'-6"	#6	6'-6"	34	332
							TOTAL	495 LBS

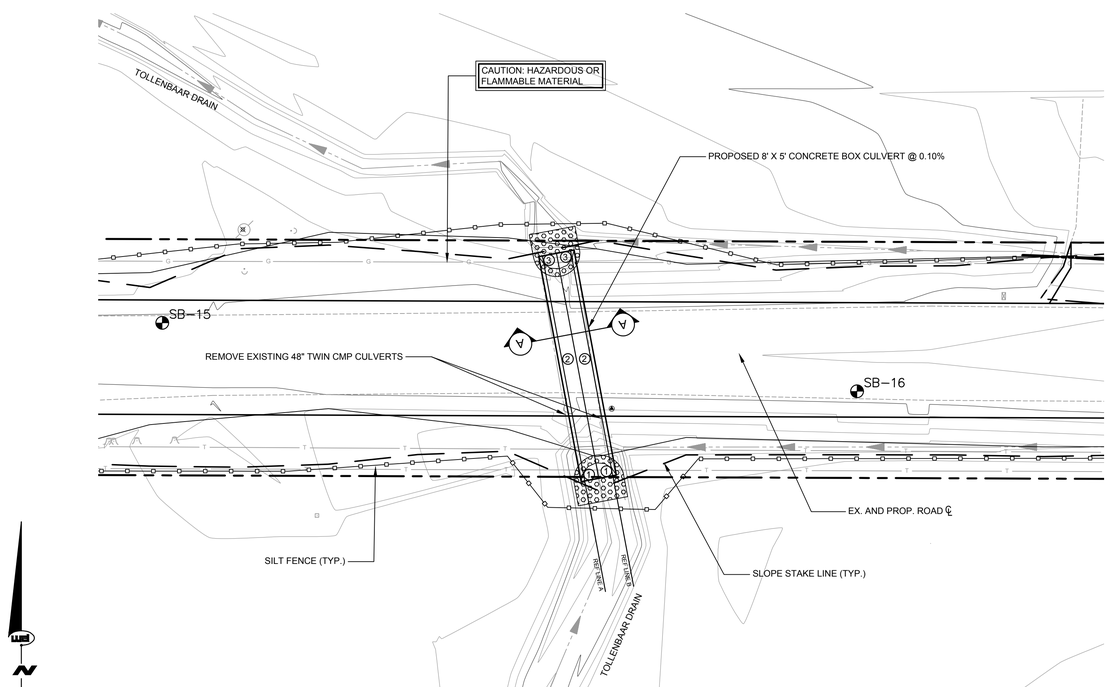


NOTES

ALL RIGHT ANGLE BENDS IN REINFORCING STEEL TO BE MADE ABOUT A PIN OF THE MINIMUM DIAMETER ALLOWED BY THE STANDARD SPECIFICATIONS.

THE CONTRACTOR IS RESPONSIBLE FOR CHECKING THE ABOVE REINFORCING STEEL QUANTITIES AND LENGTHS PRIOR TO ORDERING DELIVERY OF STEEL.

STEEL REINFORCEMENT WITH BAR DESIGNATIONS BEGINNING WITH THE LETTER "E" SHALL BE EPOXY COATED.



PROFILE - PROPOSED BOX CULVERT

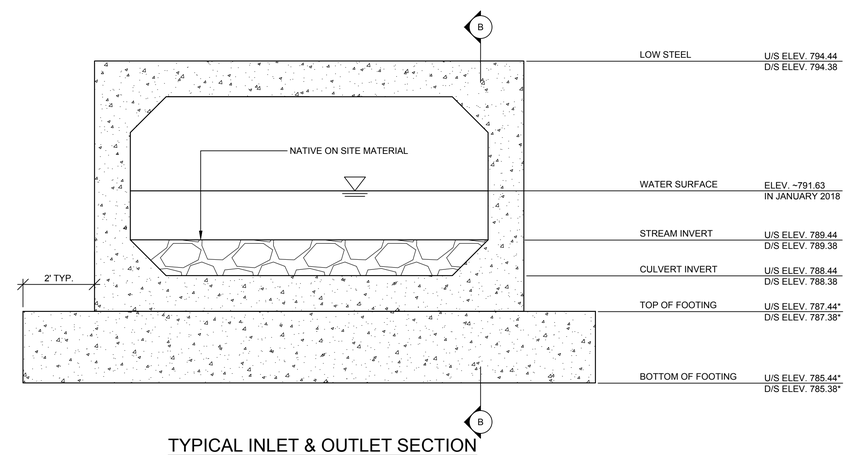
SCALE: 1" = 5'

INSTALL RIPRAP, PLAIN IN ALL FOUR QUADRANTS AS DIRECTED BY THE ENGINEER IN THE FIELD

INSTALL SILT FENCE IN ALL FOUR QUADRANTS AS DIRECTED BY THE ENGINEER IN THE FIELD.

INSTALL MULCH BLANKETS ON ALL DISTURBED AREAS NOT TO BE PAVED AS DIRECTED BY THE ENGINEER IN THE FIELD

CONTRACTOR SHALL NOTIFY ENGINEER A MINIMUM OF 2 WORKING DAYS PRIOR TO PLACING THE PRECAST CONCRETE BOX CULVERT SO THAT A VISUAL INSPECTION MAY OCCUR. ALL UNSUITABLE SOILS SHALL BE REMOVED AND REPLACED WITH CLASS II GRANULAR MATERIAL AS NECESSARY



TYPICAL INLET & OUTLET SECTION

SCALE: 1" = 2'

*NOTE: INVERT ELEVATION OF BOX CULVERT SHALL GOVERN. TOP OF FOOTING & BOTTOM OF FOOTING ELEVATIONS MAY VARY BASED UPON THE MANUFACTURER'S CULVERT DESIGN. CONTRACTOR IS RESPONSIBLE FOR ADJUSTING THE FOOTINGS ACCORDINGLY.

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REVISIONS

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DATE: AUGUST 2018

SCALE:

BOX CULVERT DETAILS

JOB No.
172272-03
OF 22

SOIL BORINGS: SHEET 172272-05

SB-1	0 - 18"	BROWN MED SAND & FINE TO COARSE GRAVEL & COBBLES
	18" - 60"	BROWN CLAYEY MED SAND - LAYERS OF FINE TO COARSE GRAVEL
	60"	END OF BORING
SB-2	0 - 10"	BROWN MED SAND & FINE TO COARSE GRAVEL
	10" - 38.5"	BROWN SANDY CLAY TO FINE GRAVEL
	38.5" - 60"	BROWN MED SAND
	60"	END OF BORING

SOIL BORINGS: SHEET 172272-06

SB-3	0 - 14"	BROWN MED SAND & FINE TO COARSE GRAVEL
	14" - 42"	DARK BROWN MED SAND - SOME FINE TO COARSE GRAVEL - TR. CLAY
	42" - 60"	BROWN MED TO COARSE SAND & FINE GRAVEL - TR. CLAY
	60"	END OF BORING
SB-4+50 W	0 - 16"	BROWN MED SAND & FINE TO COARSE GRAVEL
	16" - 36"	DARK BROWN CLAYEY MED SAND - A LITTLE FINE GRAVEL
	36" - 60"	BROWN SANDY CLAY
	60" - 72"	BROWN CLAYEY MED TO COARSE SAND & FINE GRAVEL
	72"	WATER TABLE
	72" - 120"	BROWN CLAYEY MED TO COARSE SAND & FINE GRAVEL
	120"	END OF BORING
SB-4	0 - 14"	BROWN MED SAND & FINE TO COARSE GRAVEL
	14" - 36"	DARK BROWN MED SAND - TR. FINE GRAVEL
	36"	WATER TABLE
	36" - 78"	BLACK SANDY PEAT
	78" - 120"	GRAY CLAYEY MED SAND - A LITTLE FINE GRAVEL
	120"	END OF BORING
SB-4+50 E	0 - 22"	BROWN MED SAND & FINE TO COARSE GRAVEL
	22" - 42"	DARK BROWN MED SAND - LAYERS OF GRAVEL - TR. CLAY
	42" - 78"	BLACK SANDY PEAT
	78"	WATER TABLE
	78" - 120"	GRAY VERY CLAYEY MED TO COARSE SAND - SOME FINE GRAVEL
	120"	END OF BORING
SB-5+15 E (W/B LANE)	0 - 23"	BROWN MED SAND & FINE TO COARSE GRAVEL
	23" - 36"	DARK BROWN CLAYEY MED SAND
	36" - 106"	BLACK SANDY, MARL, PEAT
	106"	WATER TABLE
	106" - 180"	GRAY CLAYEY MED TO COARSE SAND & FINE GRAVEL
	180"	END OF BORING

SOIL BORINGS: SHEET 172272-07

SB-5 A	0 - 14"	BROWN MED SAND & FINE TO COARSE GRAVEL
	14" - 36"	DARK BROWN CLAYEY MED SAND - A LITTLE FINE GRAVEL
	36"	END OF BORING (2 ATTEMPTS - BOTH TIMES HIT SOMETHING AT 3')

SOIL BORINGS: SHEET 172272-07

SB-5+100 E (W/B LANE)	0 - 22"	BROWN MET SAND & FINE TO COARSE GRAVEL
	22" - 48"	DARK BROWN CLAYEY MED SAND - TR. FINE GRAVEL
	48"	WATER TABLE
	48" - 72"	BLACK SANDY PEAT/MARL
	72" - 90"	GRAY CLAYEY MED SAND - A LITTLE FINE GRAVEL
	90" - 120"	BROWN MED TO COARSE SAND - SOME FINE GRAVEL
	120"	END OF BORING
SB-5+200 E (W/B LANE)	0 - 18"	BROWN MED SAND & FINE TO COARSE GRAVEL
	18" - 36"	DARK BROWN MED SAND - TR. CLAY
	36" - 48"	DARK GRAY CLAYEY MED SAND - A LITTLE FINE GRAVEL
	48" - 60"	BLACK VERY SANDY PEAT/MARL
	60" - 90"	GRAY CLAYEY MED SAND - SOME FINE GRAVEL
	90"	WATER TABLE
	90" - 120"	BROWN CLAYEY MED TO COARSE SAND & FINE GRAVEL
	120"	END OF BORING
SB-6	0 - 18"	BROWN MED SAND & FINE TO COARSE GRAVEL
	18" - 42"	DARK BROWN MED SAND - SOME FINE TO COARSE GRAVEL
	42" - 54"	BROWN CLAYEY MED SAND - A LITTLE FINE GRAVEL
	54" - 57.5"	BROWN MED TO COARSE SAND & FINE GRAVEL - TR. CLAY
	57.5"	WATER TABLE
	57.5" - 60"	BROWN MED TO COARSE SANE & FINE GRAVEL - TR. CLAY
	60"	END OF BORING
SB-7	0 - 10"	BROWN MED SAND & FINE TO COARSE GRAVEL
	10" - 24"	BROWN CLAYEY FINE TO MED SAND
	24" - 36"	BROWN CLAYEY MED SAME & FINE GRAVEL
	36" - 60"	BROWN SANDY CLAY - A LITTLE FINE GRAVEL
	60"	END OF BORING

SOIL BORINGS: SHEET 172272-08

SB-8	0 - 6"	BROWN MED SAND & FINE TO COARSE GRAVEL
	6" - 12"	DARK BROWN MED SAND & FINE TO COARSE GRAVEL
	12" - 36"	DARK GRAY FINE TO MED SAND - TR. FINE GRAVEL
	36" - 42"	DARK GRAY CLAYEY MED SAND
	42" - 60"	BROWN & GRAY MOTTLED SANDY CLAY
	60"	END OF BORING
SB-9	0 - 9"	BROWN MED SAND & FINE TO COARSE GRAVEL
	9" - 24"	DARK GRAY CLAYEY FINE TO MED SAND - A LITTLE FINE GRAVEL
	24" - 36"	GREENISH GRAY & BROWN SANDY CLAY
	36" - 60"	BROWN & GRAY SANDY CLAY
	60"	END OF BORING

SOIL BORINGS: SHEET 172272-09

SB-10	0 - 24"	BROWN MED SAND & GRAVEL
	24" - 48"	DARK BROWN MED SAND - A LITTLE FINE GRAVEL - TR. CLAY
	48" - 60"	BLACK PEAT
	60" - 96"	GRAY SILTY CLAY
	96"	WATER TABLE
	96" - 120"	GRAY SILTY CLAY
	120"	END OF BORING
SB-10+100 E (W/B LANE)	0 - 24"	BROWN MED SAND & FINE TO COARSE GRAVEL
	24" - 48"	DARK BROWN MED SAND - TR. CLAY & FINE GRAVEL
	48" - 54"	BLACK PEAT
	54" - 72"	DARK GRAY ORGANIC SILT - (PEATY SANDY MARL)
	72"	WATER TABLE
	72" - 120"	DARK GRAY ORGANIC SILT - (PEATY SANDY MARL)
	120" - 156"	GRAY CLAYEY MED SAND - A LITTLE FINE GRAVEL
	156" - 180"	GRAY SILTY CLAY
	180"	END OF BORING
SB-11	0 - 19"	BROWN MED SAND & FINE TO COARSE GRAVEL
	19" - 30"	DARK BROWN CLAYEY FINE TO MED SAND - A LITTLE FINE GRAVEL
	30" - 54"	BLACK PEAT
	54" - 107"	DARK GRAY ORGANIC SILT
	107"	WATER TABLE
	107" - 126"	DARK GRAY ORGANIC SILT
	126" - 144"	GRAY VERY SILTY & CLAYEY FINE TO MED SAND
	144" - 180"	GRAY VERY SANDY, CLAYEY SILT
	180"	END OF BORING
SB-11+60 E (W/B LANE)	0 - 24"	BROWN MED SAND & FINE TO COARSE GRAVEL
	24" - 30"	DARK BROWN CLAYEY MED SAND
	30" - 72"	BLACK PEAT GRADING? TO ORGANIC SILT
	72"	WATER TABLE
	72" - 120"	GRAY MED TO COARSE SAND - SOME FINE GRAVEL - TR. CLAY
	120"	END OF BORING
SB-12	0 - 30"	BROWN MED SAND & FINE TO COARSE GRAVEL
	30" - 54"	DARK BROWN CLAYEY FINE TO MED SAND - TR. FINE GRAVEL
	54"	WATER TABLE
	54" - 84"	GRAY CLAYEY MED TO COARSE SAND & FINE GRAVEL
	84" - 120"	GRAY CLAYEY, VERY SILTY FINE SAND
	120"	END OF BORING
SB-13	0 - 7"	BROWN MED SAND & FINE TO COARSE GRAVEL
	7" - 24"	DARK BROWN CLAYEY MED SAND - A LITTLE FINE GRAVEL
	24" - 45.5"	BROWN SANDY CLAY
	45.5" - 54"	LIGHT BROWN FINE TO MED SAND
	54"	WATER TABLE
	54" - 60"	LIGHT BROWN FINE TO MED SAND
	60"	END OF BORING

SOIL BORINGS: SHEET 172272-09 (CONT.)

SB-14	0 - 24"	BROWN MED SAND & FINE TO COARSE GRAVEL
	24" - 48"	BLACK PEAT & DARK GRAY CLAYEY MED SAND
	48" - 56"	GRAY CLAYEY FINE & MED SAND - TR. FINE GRAVEL
	56"	WATER TABLE
	56" - 72"	GRAY CLAYEY FINE & MED SAND - TR. FINE GRAVEL
	72" - 120"	GRAY MED SAND - TR. FINE GRAVEL
	120"	END OF BORING
SB-14+75 E (W/B LANE)	0 - 30"	BROWN MED SAND & FINE TO COARSE GRAVEL
	30" - 48"	DARK BROWN CLAYEY FINE TO MED SAND
	48" - 75"	DARK BROWN PEAT
	75"	WATER TABLE
	75" - 78"	DARK BROWN PEAT
	78" - 186"	BROWN VERY ORGANIC MARL (ORGANIC SILT)
	186" - 240"	GRAY CLAYEY FINE TO MED SAND
	240"	END OF BORING

SOIL BORINGS: SHEET 172272-10

SB-15	0 - 18"	BROWN MED SAND & FINE TO COURSE GRAVEL
	18" - 22"	DARK BROWN FINE TO MED SAND
	22" - 54"	BLACK PEAT
	54" - 55"	DARK GRAY FINE SAND - SOME MARL
	55"	WATER TABLE
	55" - 60"	DARK GRAY FINE SAND - SOME MARL
	60" - 120"	BROWN FINE TO COURSE SAND - TR. CLAY & FINE GRAVEL
	120"	END OF BORING
SB-15+70 E (W/B LANE)	0 - 18"	BROWN MED SAND & FINE TO COARSE GRAVEL
	18" - 48"	DARK BROWN PEAT
	48" - 58"	DARK GRAY VERY SANDY MARL
	58"	WATER TABLE
	58" - 66"	DARK GRAY VERY SANDY MARL
	66" - 90"	GRAY MED TO COARSE SAND - TR. FINE GRAVEL
	90" - 120"	BROWN FINE TO COARSE SAND - A LITTLE FINE GRAVEL
	120"	END OF BORING
SB-16	0 - 7"	BROWN MED SAND & GRAVEL
	7" - 18"	DARK BROWN MED SAND & GRAVEL
	18" - 28"	DARK BROWN CLAYEY FINE TO MED SAND - TR. FINE GRAVEL
	28" - 48"	DARK BROWN PEAT
	48"	WATER TABLE
	48" - 54"	DARK BROWN PEAT
	54" - 84"	BROWN MARL
	84" - 120"	DARK BROWN SANDY ORGANIC SILT/SEDIMENT
	120" - 180"	BROWN FINE TO MED SAND
	180"	END OF BORING

SOIL BORINGS: SHEET 172272-10 (CONT.)

SB-16+100 E (E/B LANE)	0 - 11"	BROWN MED SAND & GRAVEL
	11" - 42"	DARK BROWN FINE TO MED SAND & FINE GRAVEL - TR. CLAY
	42" - 48"	DARK BROWN PEAT
	48"	WATER TABLE
	48" - 90"	DARK BROWN PEAT
	90" - 198"	GRAY MARL
	198" - 240"	BROWN FINE TO MED SAND - TR. CLAY
	240"	END OF BORING
SB-16+200 E (E/B LANE)	0 - 36"	BROWN MED SAND & FINE TO COARSE GRAVEL
	36" - 48"	DARK BROWN PEAT
	48"	WATER TABLE
	48" - 54"	DARK BROWN PEAT
	54" - 108"	DARK GRAY MARL
	108" - 180"	BROWN FINE TO COARSE SAND - TR. FINE GRAVEL
	180"	END OF BORING
SB-16+270 E (E/B LANE)	0 - 32.5"	BROWN MED SAND & FINE TO COARSE GRAVEL
	32.5" - 44"	DARK BROWN PEAT
	44"	WATER TABLE
	44" - 72"	DARK BROWN PEAT
	72" - 126"	BROWN MARL (ORGANIC SILT/SEDIMENT)
	126" - 180"	BROWN FINE TO MED SAND
	180"	END OF BORING
SB-17	0 - 39"	BROWN MED SAND & FINE TO COARSE GRAVEL & COBBLES
	39"	WATER TABLE
	39" - 42"	BROWN MED SAND & FINE TO COARSE GRAVEL & COBBLES
	42" - 96"	DARK BROWN PEAT
	96" - 174"	GRAY/BROWN MARL
	174" - 240"	BROWN MOSTLY MED SAND
	240"	END OF BORING
SB-17+85 E (W/B LANE)	0 - 30"	BROWN MED SAND & FINE TO COARSE GRAVEL
	30" - 40"	DARK GRAY MED SAND - TR. FINE GRAVEL
	40"	WATER TABLE
	40" - 54"	DARK GRAY MED SAND - TR. FINE GRAVEL
	54" - 90"	DARK BROWN SANDY PEAT - TR. ORGANIC SILT
	90" - 120"	BROWN FINE TO MED SAND - TR. FINE GRAVEL
	120"	END OF BORING
SB-18	0 - 22"	BROWN MED SAND & FINE TO COARSE GRAVEL
	22" - 51"	DARK BROWN FINE TO MED SAND - TR. CLAY & FINE GRAVEL
	51"	WATER TABLE
	51" - 54"	DARK BROWN FINE TO MED SAND - TR. CLAY & FINE GRAVEL
	54" - 81.5"	BLACK VERY SANDY & CLAYEY PEAT & ORGANIC SILT
	81.5" - 120"	BROWN FINE TO MED SAND - A LITTLE FINE GRAVEL
	120"	END OF BORING

SOIL BORINGS: SHEET 172272-10 (CONT.)

SB-18+50 E (W/B LANE)	0 - 24"	BROWN MED SAND & FINE TO COARSE GRAVEL
	24" - 66"	BROWN FINE TO MED SAND
	66"	WATER TABLE
	66" - 120"	BROWN MED TO COARSE SAND - A LITTLE FINE GRAVEL
	120"	END OF BORING

SOIL BORINGS: SHEET 172272-11

SB-19	0 - 36"	BROWN MED SAND & FINE TO COARSE GRAVEL
	36" - 60"	DARK BROWN CLAYEY MED SAND - TR. FINE GRAVEL
	60"	END OF BORING
SB-20	0 - 18"	BROWN MED SAND & FINE TO COARSE GRAVEL & COBBLES
	18" - 42"	BROWN VERY CLAYEY MED SAND
	42" - 72"	BROWN MED TO COARSE SAND - TR. GRAVEL
	72" - 120"	LIGHT BROWN FINE TO MED SAND
	120"	END OF BORING

SOIL BORINGS: SHEET 172272-12

SB-21	0 - 17"	BROWN MED SAND & FINE TO COARSE GRAVEL
	17" - 36"	DARD BROWN CLAYEY MED TO COARSE SAND - SOME FINE GRAVEL
	36" - 60"	BROWN MOSTLY MED SAND
	60"	END OF BORING
SB-22+20 W (E/B LANE)	0 - 9"	BROWN MED SAND & GRAVEL
	9" - 42"	BROWN FINE TO MED SAND
	42" - 60"	BROWN CLAYEY MED SAND - TR. FINE GRAVEL
	60"	END OF BORING

KEY

SB-XX+YY E/W E/B OR W/B LANE

- LANE OF TRAVEL IN WHICH THE BORING WAS TAKEN
- DIRECTION FROM SOIL BORING
- DISTANCE FROM SOIL BORING MARK
- SOIL BORING NUMBER

WIGHTMAN

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Benton Harbor, MI 49022
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ALLEGAN
1670 Lincoln Road
Allegan, MI 49010
Phone: 269.673.8465

www.gowightman.com

AARON J. NEITLING
ENGINEER NO. 50508

PROJECT NAME:

144TH AVENUE IMPROVEMENTS
KALAMAZOO AVENUE TO SUNRISE TRAIL - LEIGHTON TOWNSHIP
KALAMAZOO AVENUE TO SUNRISE TRAIL

ALLEGAN COUNTY ROAD COMMISSION
1308 LINCOLN ROAD
ALLEGAN, MI 49010-9762

02	8/10/18	AEH
	REVISED DITCHING - REISSUED FOR BIDDING	
01	7/20/18	AEH
	ISSUED FOR BIDDING	
00	12/27/2017	AMZ
	PRELIMINARY - NOT FOR CONSTRUCTION	

REVISIONS

P:\Allegan\172272 ACRC - 144th Avenue Reconstruction\B) Drawings\B50 Aux\CAD\172272-04.dwg 172272-04 8/8/2018 10:43:30 AM

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DATE: AUGUST 2018

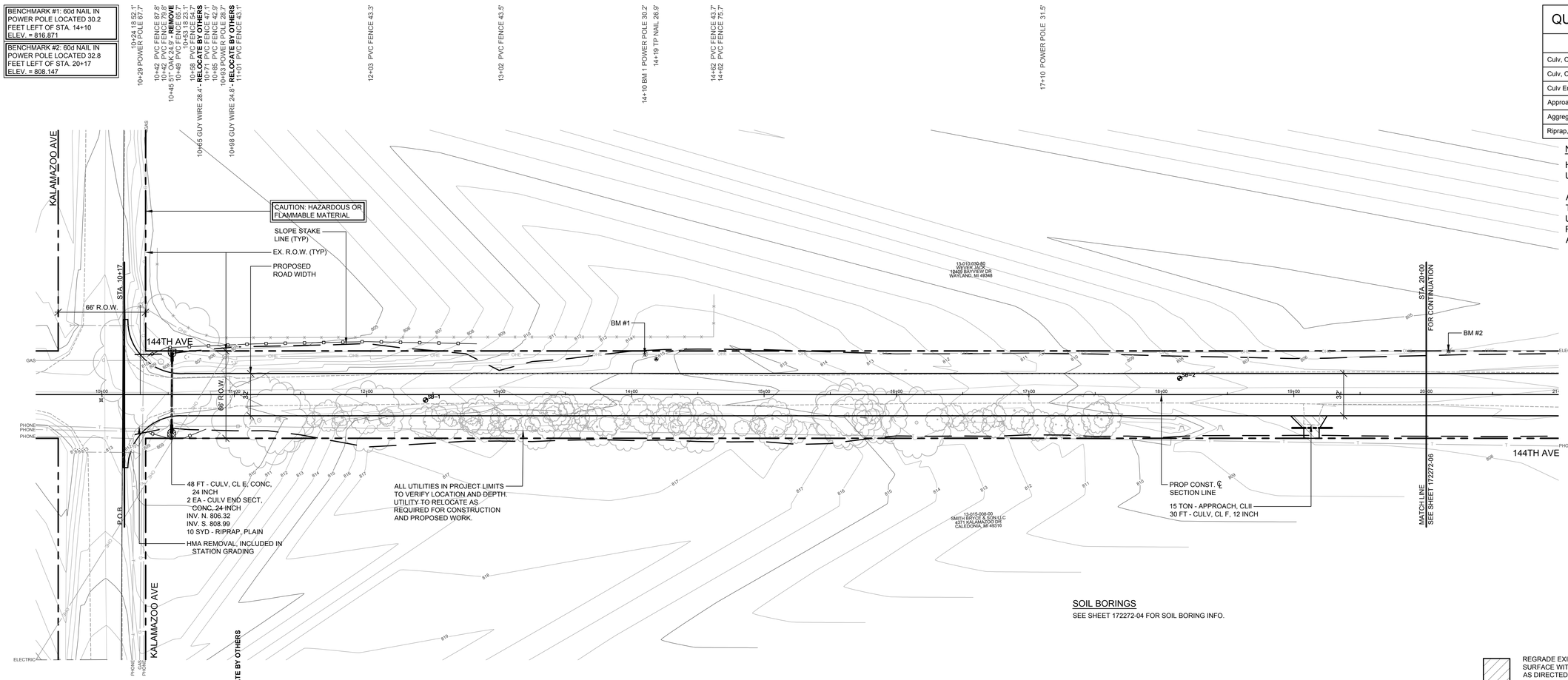
SCALE:

SOIL BORING INFORMATION

JOB No.
172272-04
OF 22

BENCHMARK #1: 60d NAIL IN POWER POLE LOCATED 30.2 FEET LEFT OF STA. 14+10 ELEV. = 816.871

BENCHMARK #2: 60d NAIL IN POWER POLE LOCATED 32.8 FEET LEFT OF STA. 20+17 ELEV. = 808.147



QUANTITIES THIS SHEET

ITEM	QTY.
Culv, Cl F, 12 inch	30 Ft
Culv, Cl E, Conc, 24 inch	48 Ft
Culv End Sect, Conc, 24 inch	2 Ea
Approach, Cl II	15 Ton
Aggregate Base, 6 inch	3,570 Syd
Riprap, Plain	10 Syd

NOTE:

HMA SURFACE TO BE INSTALLED UNDER SEPARATE CONTRACT.

ALL UTILITIES IN PROJECT LIMITS TO VERIFY LOCATION AND DEPTH. UTILITY TO RELOCATE AS REQUIRED FOR CONSTRUCTION AND PROPOSED WORK.

SOIL BORINGS

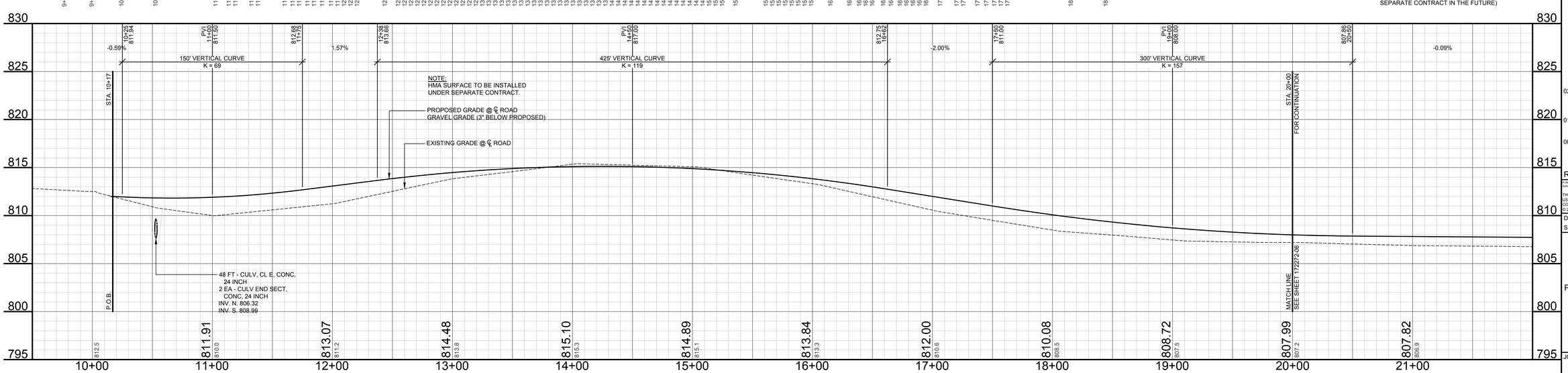
SEE SHEET 172272-04 FOR SOIL BORING INFO.

LEGEND

REGRADE EXISTING DRIVE AS REQUIRED AND SURFACE WITH APPROACH, CLASS II A DEPTH OF 6", AS DIRECTED BY THE ENGINEER IN THE FIELD, PAID FOR AS APPROACH, CL II BY THE TON.

SAWCUT AND REMOVE EXISTING HMA PAVEMENT, INCLUDED IN STATION GRADING. REGRADE EXISTING DRIVEWAY AS REQUIRED AND SURFACE WITH APPROACH, CL II; 165#/SYD HMA, 13A; AND 165#/SYD HMA, 13A. MATCH EXISTING GRADE AT SAWCUT LINE. (PAVING UNDER SEPARATE CONTRACT IN THE FUTURE)

SAWCUT AND REMOVE EXISTING CONCRETE PAVEMENT INCLUDED IN STATION GRADING. REGRADE EXISTING DRIVEWAY AS REQUIRED AND SURFACE WITH APPROACH, CL II; 165#/SYD HMA, 13A; AND 165#/SYD HMA, 13A. MATCH EXISTING GRADE AT SAWCUT LINE. (PAVING UNDER SEPARATE CONTRACT IN THE FUTURE)



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AARON J. NEITLING
ENGINEER NO. 50508

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ALLEGAN COUNTY ROAD COMMISSION

1308 LINCOLN ROAD
ALLEGAN, MI 49010-9762

REVISIONS

02 8/10/18 AEH
REVISED DITCHING - REISSUED FOR BIDDING

01 7/20/18 AEH
ISSUED FOR BIDDING

00 12/27/2017 AMZ
PRELIMINARY - NOT FOR CONSTRUCTION

P:\Allegan\172272 AORC - 144th Avenue Reconstruction\B) Drawings\B03 AutoCAD\172272-05.dwg 1/12/2018 8:19:03 PM

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DATE: AUGUST 2018

SCALE: 1" = 40' H; 5' V

PLAN & PROFILE - STA. 10+00 TO 20+00

JOB No.

172272-05

OF 22

BENCHMARK #2: 60d NAIL IN POWER POLE LOCATED 32.8 FEET LEFT OF STA. 20+17 ELEV. = 808.147

BENCHMARK #3: 60d NAIL IN POWER POLE LOCATED 37.3 FEET LEFT OF STA. 27+20 ELEV. = 798.056

20+17 BM 2 POWER POLE 32.8'
23+05 21" PINE 67.3'
23+06 15" PINE 53.9'
23+24 MAILBOX, 525 17.5' - **RELOCATE**
23+24 POWER POLE 34.9'
23+72 BUSH 45.4'
24+16 BUSH 45.7'
25+45 3" PINE 30.0' - **REMOVE**
25+45 3" PINE 50.7' - **REMOVE**
25+45 3" PINE 43.6' - **REMOVE**
25+45 3" PINE 37.5' - **REMOVE**
25+45 3" PINE 58.4' - **REMOVE**
25+51 3" PINE 28.4' - **REMOVE**
25+69 3" PINE 28.8' - **REMOVE**
25+69 3" PINE 29.3' - **REMOVE**
25+72 3" PINE 28.8' - **REMOVE**
25+80 3" PINE 27.6' - **REMOVE**
25+82 MAILBOX, 545 17.5' - **RELOCATE**
25+87 3" PINE 26.1' - **REMOVE**
26+20 3" PINE 29.0' - **REMOVE**
26+27 3" PINE 28.8' - **REMOVE**
26+34 3" PINE 29.3' - **REMOVE**
26+41 3" PINE 29.1' - **REMOVE**
26+48 3" PINE 29.0' - **REMOVE**
26+55 3" PINE 28.4' - **REMOVE**
26+62 3" PINE 28.6' - **REMOVE**
26+62 POWER POLE 38.5'
26+69 3" PINE 29.0' - **REMOVE**
26+75 3" PINE 29.1' - **REMOVE**
26+83 3" PINE 28.6' - **REMOVE**
26+90 3" PINE 29.0' - **REMOVE**
26+96 3" PINE 29.8' - **REMOVE**
27+20 BM 3 POWER POLE 37.3'
27+99 9" STUMP 25.9' - **REMOVE**
28+49 21" DEAD TREE 21.3' - **REMOVE**
29+59 18 19.0'

QUANTITIES THIS SHEET

ITEM	QTY.
Excavation, Peat	1,520 Cyd
Backfill, Swamp	1,520 Cyd
Culv, Cl F, 12 inch	160 Ft
Culv, Cl E, Conc, 24 inch	56 Ft
Culv End Sect, Conc, 24 inch	2 Ea
Approach, Cl II	75 Ton
Aggregate Base, 6 inch	3,560 Syd
Riprap, Plain	10 Syd

WIGHTMAN

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NOTE:

HMA SURFACE TO BE INSTALLED UNDER SEPARATE CONTRACT.

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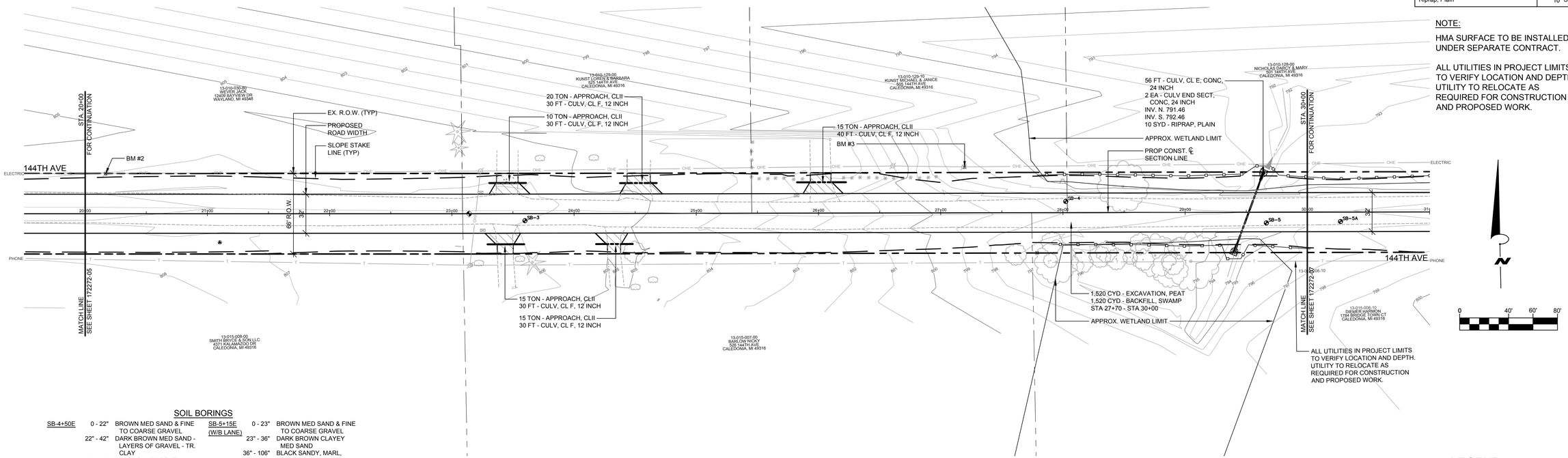


SOIL BORINGS

SB-4+50E		
0 - 22"	BROWN MED SAND & FINE TO COARSE GRAVEL	
22" - 42"	DARK BROWN MED SAND - LAYERS OF GRAVEL - TR. CLAY	
42" - 78"	BLACK SANDY PEAT	
78"	WATER TABLE	
78" - 120"	GRAY VERY CLAYEY MED TO COARSE SAND - SOME FINE GRAVEL	
120"	END OF BORING	

SB-5+15E (W/B LANE)	
0 - 23"	BROWN MED SAND & FINE TO COARSE GRAVEL
23" - 36"	DARK BROWN CLAYEY MED SAND
36" - 106"	BLACK SANDY, MARL, PEAT
106"	WATER TABLE
106" - 180"	GRAY CLAYEY MED TO COARSE SAND & FINE GRAVEL
180"	END OF BORING

SEE SHEET 172272-04 FOR THE REMAINING SOIL BORING INFO.

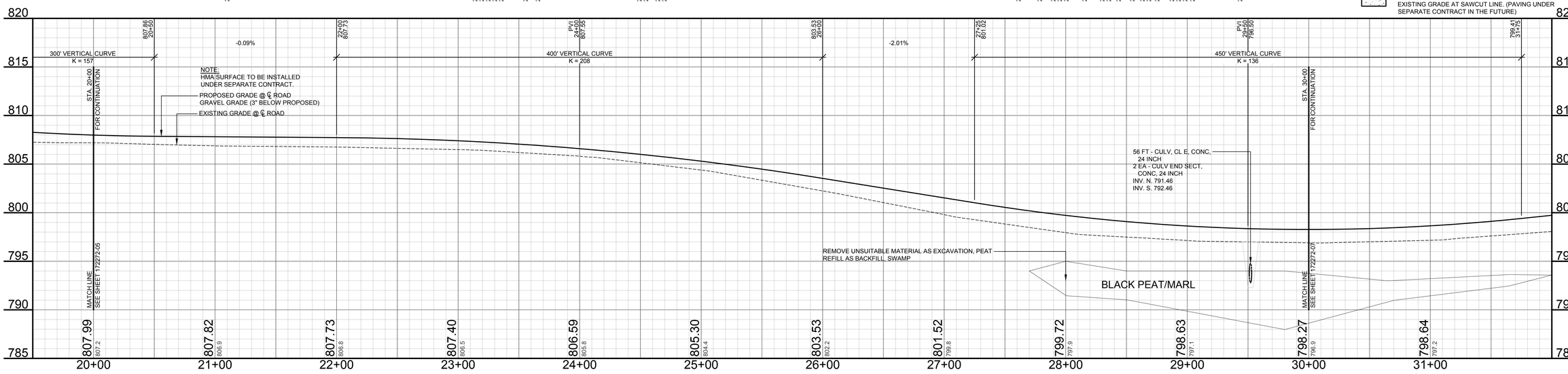
LEGEND

REGRADE EXISTING DRIVE AS REQUIRED AND SURFACE WITH APPROACH, CLASS II A DEPTH OF 6", AS DIRECTED BY THE ENGINEER IN THE FIELD, PAID FOR AS APPROACH, CL II BY THE TON.

SAWCUT AND REMOVE EXISTING HMA PAVEMENT, INCLUDED IN STATION GRADING. REGRADE EXISTING DRIVEWAY AS REQUIRED AND SURFACE WITH APPROACH, CL II; 165#/SYD HMA, 13A; AND 165#/SYD HMA, 13A. MATCH EXISTING GRADE AT SAWCUT LINE. (PAVING UNDER SEPARATE CONTRACT IN THE FUTURE)

SAWCUT AND REMOVE EXISTING CONCRETE PAVEMENT INCLUDED IN STATION GRADING. REGRADE EXISTING DRIVEWAY AS REQUIRED AND SURFACE WITH APPROACH, CL II; 165#/SYD HMA, 13A; AND 165#/SYD HMA, 13A. MATCH EXISTING GRADE AT SAWCUT LINE. (PAVING UNDER SEPARATE CONTRACT IN THE FUTURE)

21+10 TP NAIL 23.5'
23+14 SC REMON 0.0' - **PRESERVE**
23+15 POWER POLE 42.2'
23+16 ELEC BOX 42.1'
23+22 BUSH 40.5'
23+25 MAILBOX 526 13.5' - **RELOCATE**
23+56 BUSH 37.1'
23+66 21" PINE 39.8'
24+49 9"TW 31.5'
24+50 BUSH 60.3'
24+64 BUSH 54.4'
24+68 WELL 71.3'
27+61 9" DEAD TREE 34.1'
27+79 FND JONKER CIB 32.9'
27+90 6" ELM 39.1'
27+91 9" DEAD TREE 24.3' - **REMOVE**
27+95 18" OAK 40.2'
28+16 9" DEAD TREE 40.5'
28+30 9" OAK 38.1'
28+35 9" OAK 32.0' - **REMOVE**
28+44 9" DEAD TREE 38.0'
28+55 6" OAK 36.7'
28+63 9" DEAD TREE 25.6' - **REMOVE**
28+66 9" DEAD TREE 38.7'
28+75 18" DEAD TREE 35.2'
28+88 15" DEAD TREE 46.6'
28+90 9" DEAD TREE 42.3'
28+95 9" DEAD TREE 49.3' - **REMOVE**
29+04 24" WILLOW 39.9'
29+44 CMP 22.8'



AARON J. NEITLING
ENGINEER NO. 50508

PROJECT NAME:

144TH AVENUE IMPROVEMENTS
KALAMAZOO AVENUE TO SUNRISE TRAIL - LEIGHTON TOWNSHIP
KALAMAZOO AVENUE TO SUNRISE TRAIL

ALLEGAN COUNTY ROAD COMMISSION
1308 LINCOLN ROAD
ALLEGAN, MI 49010-9762

REVISIONS

02 8/10/18 AEH
REVISED DITCHING - REISSUED FOR BIDDING

01 7/20/18 AEH
ISSUED FOR BIDDING

00 12/27/2017 AMZ
PRELIMINARY - NOT FOR CONSTRUCTION

Catalogs\172272 AQ\C - 144th Avenue Reconstruction\02 Drawings\02 Plan\CAD\172272-06.dwg,172272-06 8/10/2018 8:21:08 PM

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DATE: AUGUST 2018
SCALE: 1" = 40' H; 5' V

PLAN & PROFILE - STA. 20+00 TO 30+00

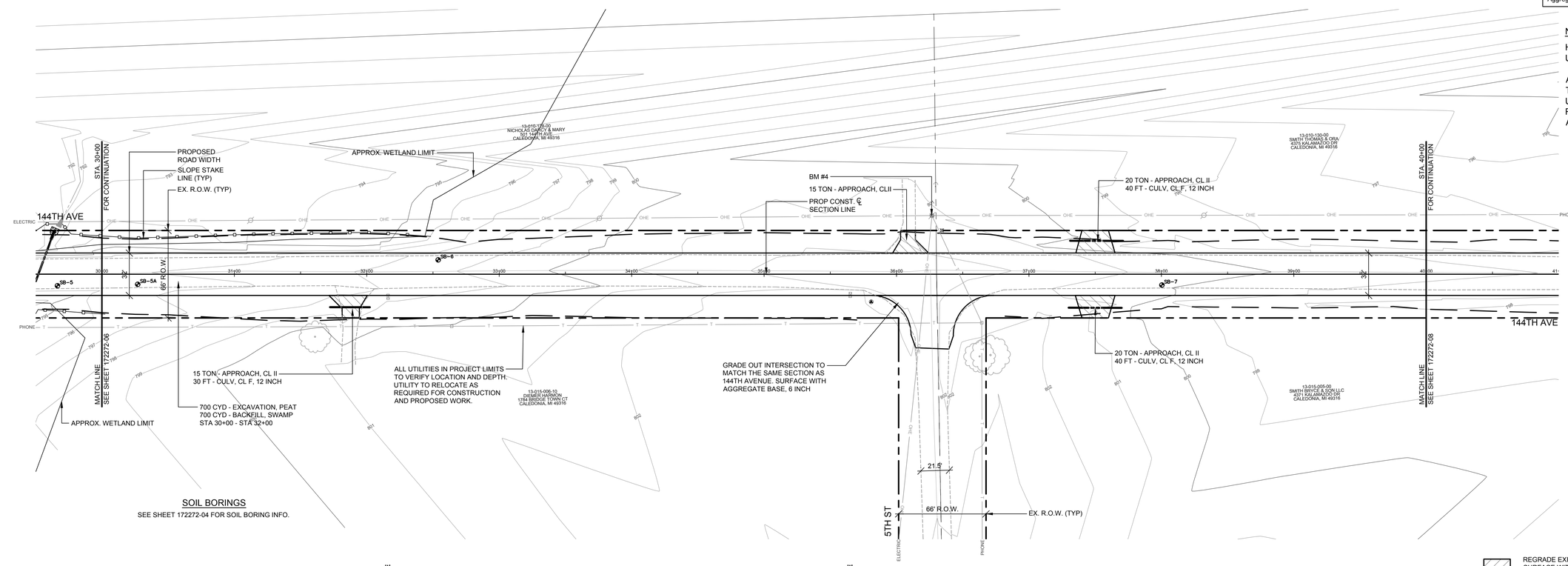
JOB No.
172272-06
OF 22

BENCHMARK #3: 60d NAIL IN POWER POLE LOCATED 37.3 FEET LEFT OF STA. 27+20 ELEV.= 798.056

BENCHMARK #4: 60d NAIL IN POWER POLE LOCATED 44.2 FEET LEFT OF STA. 36+27 ELEV. = 802.872

BENCHMARK #5: 60d NAIL IN POWER POLE LOCATED 44.8 FEET LEFT OF STA. 42+10 ELEV. = 797.032

31+12 POWER POLE 40.7'
33+76 POWER POLE 42.2'
36+27 BM 4 POWER POLE 44.2'
36+27 ATT ELEV BOX 49.2'
36+29 GUY WIRE 66.4'
36+34 FND CIB 8618 33.1'
38+32 POWER POLE 44.5'



SOIL BORINGS

SEE SHEET 172272-04 FOR SOIL BORING INFO.

QUANTITIES THIS SHEET

ITEM	QTY.
Excavation, Peat	700 Cyd
Backfill, Swamp	700 Cyd
Culv, Cl F, 12 inch	110 Ft
Approach, Cl II	70 Ton
Aggregate Base, 6 inch	3,795 Syd

NOTE:

HMA SURFACE TO BE INSTALLED UNDER SEPARATE CONTRACT.

ALL UTILITIES IN PROJECT LIMITS TO VERIFY LOCATION AND DEPTH. UTILITY TO RELOCATE AS REQUIRED FOR CONSTRUCTION AND PROPOSED WORK.

N

0 40' 60' 80'

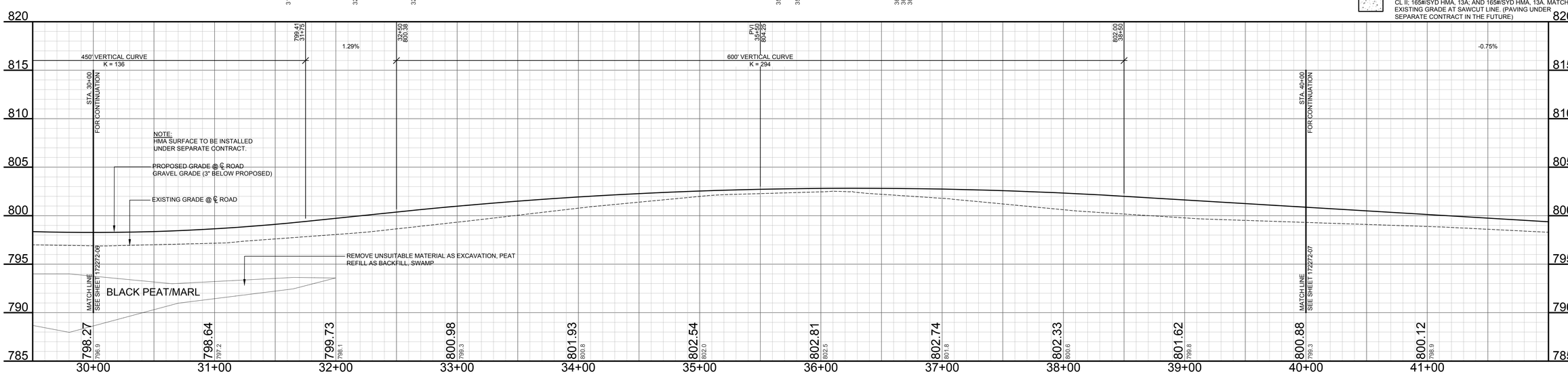
LEGEND

REGRADE EXISTING DRIVE AS REQUIRED AND SURFACE WITH APPROACH, CLASS II A DEPTH OF 6", AS DIRECTED BY THE ENGINEER IN THE FIELD, PAID FOR AS APPROACH, CL II BY THE TON.

SAWCUT AND REMOVE EXISTING HMA PAVEMENT, INCLUDED IN STATION GRADING. REGRADE EXISTING DRIVEWAY AS REQUIRED AND SURFACE WITH APPROACH, CL II; 165#/SYD HMA, 13A; AND 165#/SYD HMA, 13A. MATCH EXISTING GRADE AT SAWCUT LINE. (PAVING UNDER SEPARATE CONTRACT IN THE FUTURE)

SAWCUT AND REMOVE EXISTING CONCRETE PAVEMENT INCLUDED IN STATION GRADING. REGRADE EXISTING DRIVEWAY AS REQUIRED AND SURFACE WITH APPROACH, CL II; 165#/SYD HMA, 13A; AND 165#/SYD HMA, 13A. MATCH EXISTING GRADE AT SAWCUT LINE. (PAVING UNDER SEPARATE CONTRACT IN THE FUTURE)

31+61 12"TW 47.2'
32+16 MAILBOX 492 17.0' - **RELOCATE**
32+64 TELE RISER BOX 39.3'
35+65 MAILBOX 501 15.6' - **RELOCATE**
35+81 TP NAIL 20.9'
36+63 12" WALNUT 62.0'
36+64 TELE RISER BOX 36.6'
36+71 15" WALNUT 61.0'



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AARON J. NEITLING
ENGINEER NO. 50508

PROJECT NAME:

144TH AVENUE IMPROVEMENTS
KALAMAZOO AVENUE TO SUNRISE TRAIL - LEIGHTON TOWNSHIP
KALAMAZOO AVENUE TO SUNRISE TRAIL

ALLEGAN COUNTY ROAD COMMISSION
1308 LINCOLN ROAD
ALLEGAN, MI 49010-9762

02	8/10/18	AEH
	REVISED DITCHING - REISSUED FOR BIDDING	
01	7/20/18	AEH
	ISSUED FOR BIDDING	
00	12/27/2017	AMZ
	PRELIMINARY - NOT FOR CONSTRUCTION	

REVISIONS

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DATE: AUGUST 2018
SCALE: 1" = 40' H; 5' V

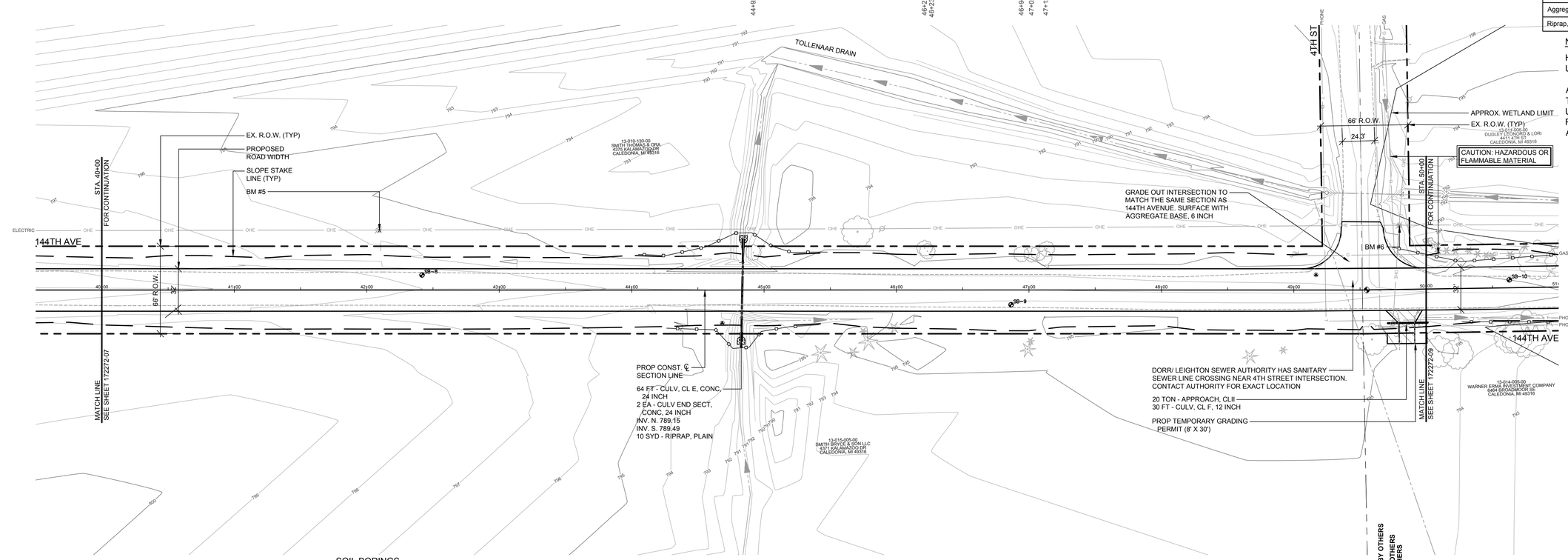
PLAN & PROFILE - STA. 30+00 TO 40+00

JOB No.
172272-07
OF 22

BENCHMARK #5: 60d NAIL IN POWER POLE LOCATED 44.8 FEET LEFT OF STA. 42+10 ELEV. = 797.032

BENCHMARK #6: 60d NAIL IN POWER POLE LOCATED 48 FEET LEFT OF STA. 49+81 ELEV. = 796.014

42+10 BM 5 POWER POLE 44.8'
44+84 18 21.0'
44+92 6" DEAD TREE 28.4' - **REMOVE**
45+71 12" APPLE 43.9'
45+89 POWER POLE 46.2'
46+21 6" DEAD TREE 31.6' - **REMOVE**
46+23 6" SASSAFRAS 29.3' - **REMOVE**
46+94 6" DEAD TREE 27.2' - **REMOVE**
47+02 6" DEAD TREE 27.0' - **REMOVE**
47+07 6"TW 28.1' - **REMOVE**
47+12 6" DEAD TREE 24.2' - **REMOVE**
47+13.6" OAK 31.0' - **REMOVE**
49+98 GAS MARKER POST 25.8'
49+16 18 67.0'
49+17 7"PINE 41.4'
49+26 X 73.3'
49+81 BM 6 POWER POLE 48.0'
49+83 7" 71.7'



QUANTITIES THIS SHEET

ITEM	QTY.
Culv, Cl F, 12 inch	30 Ft
Culv, Cl E, Conc, 24 inch	64 Ft
Culv End Sect, Conc, 24 inch	2 Ea
Approach, Cl II	20 Ton
Aggregate Base, 6 inch	3,695 Syd
Riprap, Plain	10 Syd

NOTE:

HMA SURFACE TO BE INSTALLED UNDER SEPARATE CONTRACT.

ALL UTILITIES IN PROJECT LIMITS TO VERIFY LOCATION AND DEPTH. UTILITY TO RELOCATE AS REQUIRED FOR CONSTRUCTION AND PROPOSED WORK.

SOIL BORINGS

SB-8

0 - 6"	BROWN MED SAND & FINE TO COARSE GRAVEL
6" - 12"	DARK BROWN MED SAND & FINE TO COARSE GRAVEL
12" - 36"	DARK GRAY FINE TO MED SAND - TR. FINE GRAVEL
36" - 42"	DARK GRAY CLAYEY MED SAND
42" - 60"	BROWN & GRAY MOTTLED SANDY CLAY
60"	END OF BORING

SB-9

0 - 9"	BROWN MED SAND & FINE TO COARSE GRAVEL
9" - 24"	DARK GRAY CLAYEY FINE TO MED SAND - A LITTLE FINE GRAVEL
24" - 36"	GREENISH GRAY & BROWN SANDY CLAY
36" - 60"	BROWN & GRAY SANDY CLAY
60"	END OF BORING

44+68 TP NAIL 24.9'
44+83 CMP 21.9'
45+43 15" PINE 47.4'
45+67 9" PINE 47.1'
45+75 6" PINE 31.1' - **REMOVE**
45+78 15" PINE 38.3'
45+98 9" PINE 28.4' - **REMOVE**
46+99 12" PINE 44.7'
47+01 6" PINE 38.5'
48+67 12" PINE 50.0'
48+92 6" PINE 45.3'
49+55 SC REMON 0.0'
49+57 OTHER 37.4'
49+65 TELE RISER BOX 27.8' - **RELOCATE BY OTHERS**
49+75 POWER POLE 25.6' - **RELOCATE BY OTHERS**
49+76 GUY WIRE 32.6' - **RELOCATE BY OTHERS**

LEGEND

REGRADE EXISTING DRIVE AS REQUIRED AND SURFACE WITH APPROACH, CLASS II A DEPTH OF 6", AS DIRECTED BY THE ENGINEER IN THE FIELD, PAID FOR AS APPROACH, CL II BY THE TON.

SAWCUT AND REMOVE EXISTING HMA PAVEMENT, INCLUDED IN STATION GRADING. REGRADE EXISTING DRIVEWAY AS REQUIRED AND SURFACE WITH APPROACH, CL II; 165#/SYD HMA, 13A; AND 165#/SYD HMA, 13A. MATCH EXISTING GRADE AT SAWCUT LINE. (PAVING UNDER SEPARATE CONTRACT IN THE FUTURE)

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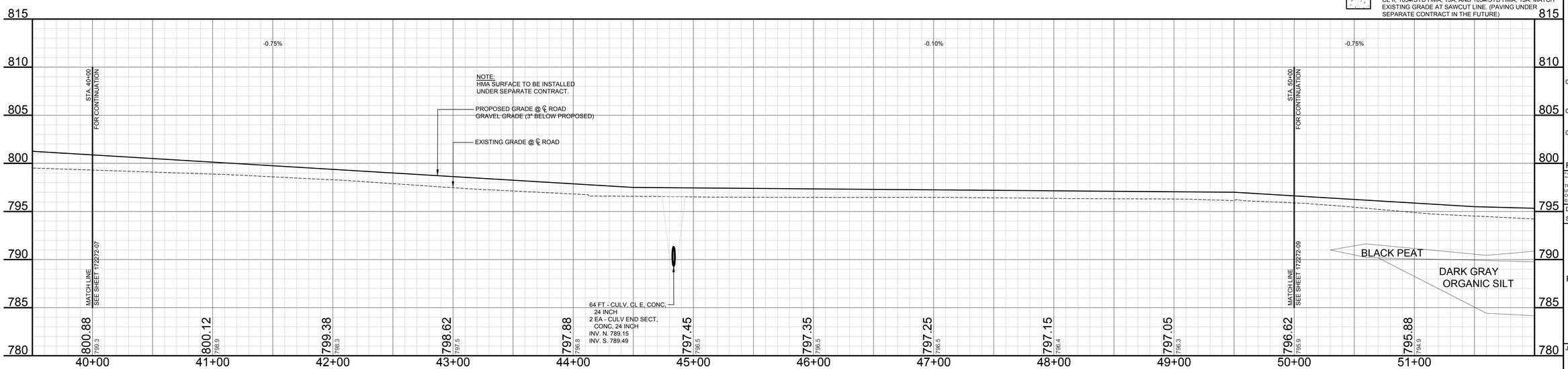

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AARON J. NEITLING
ENGINEER NO. 50508

PROJECT NAME:

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KALAMAZOO AVENUE TO SUNRISE TRAIL

ALLEGAN COUNTY ROAD COMMISSION
1308 LINCOLN ROAD
ALLEGAN, MI 49010-9762

02	8/10/18	AEH
	REVISED DITCHING - REISSUED FOR BIDDING	
01	7/20/18	AEH
	ISSUED FOR BIDDING	
00	12/27/2017	AMZ
	PRELIMINARY - NOT FOR CONSTRUCTION	

REVISIONS

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DATE: AUGUST 2018

SCALE: 1" = 40' H; 5' V

PLAN & PROFILE - STA. 40+00 TO 50+00

JOB No.
172272-08
OF 22

QUANTITIES THIS SHEET

ITEM	QTY.
Excavation, Peat	4,225 Cyd
Backfill, Swamp	4,225 Cyd
Culv, Cl F, 12 inch	70 Ft
Culv, Cl E, Conc, 24 inch	40 Ft
Culv End Sect, Conc, 24 inch	2 Ea
Approach, Cl II	60 Ton
Aggregate Base, 6 inch	3,560 Syd
Riprap, Plain	10 Syd

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KALAMAZOO AVENUE TO SUNRISE TRAIL

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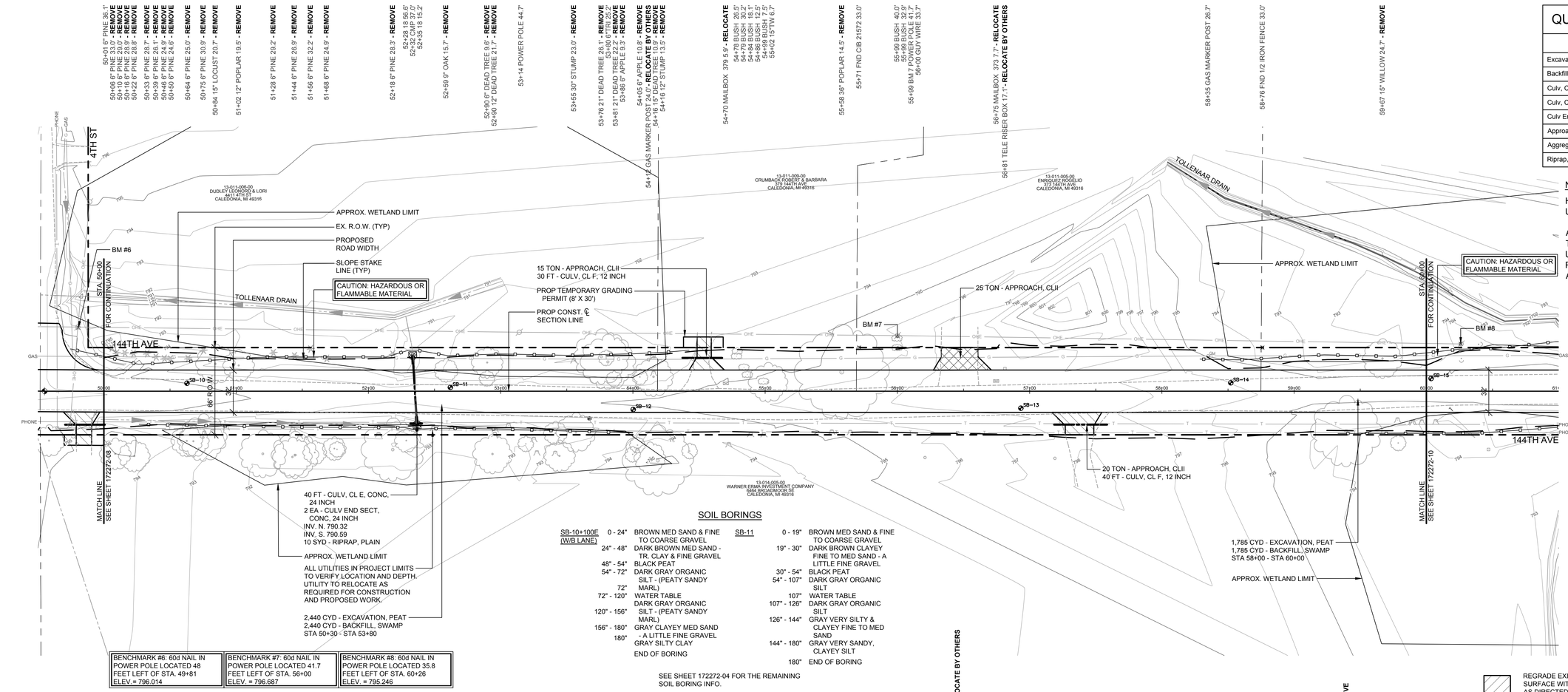
ALLEGAN, MI 49010-9762



BENCHMARK #6: 60d NAIL IN POWER POLE LOCATED 48 FEET LEFT OF STA. 49+81 ELEV. = 796.014

BENCHMARK #7: 60d NAIL IN POWER POLE LOCATED 41.7 FEET LEFT OF STA. 56+00 ELEV. = 796.687

BENCHMARK #8: 60d NAIL IN POWER POLE LOCATED 35.8 FEET LEFT OF STA. 60+26 ELEV. = 795.246

SOIL BORINGS

SB-10+100E (W/B LANE)

0 - 24"	BROWN MED SAND & FINE TO COARSE GRAVEL
24" - 48"	DARK BROWN MED SAND - TR. CLAY & FINE GRAVEL
48" - 54"	BLACK PEAT
54" - 72"	DARK GRAY ORGANIC SILT - (PEATY SANDY MARL)
72"	WATER TABLE
72" - 120"	DARK GRAY ORGANIC SILT - (PEATY SANDY MARL)
120" - 156"	GRAY CLAYEY MED SAND - A LITTLE FINE GRAVEL
156" - 180"	GRAY SILTY CLAY
180"	END OF BORING

SB-11

0 - 19"	BROWN MED SAND & FINE TO COARSE GRAVEL
19" - 30"	DARK BROWN CLAYEY FINE TO MED SAND - A LITTLE FINE GRAVEL
30" - 54"	BLACK PEAT
54" - 107"	DARK GRAY ORGANIC SILT
107"	WATER TABLE
107" - 126"	DARK GRAY ORGANIC SILT
126" - 144"	GRAY VERY SILTY & CLAYEY FINE TO MED SAND
144" - 180"	GRAY VERY SANDY, CLAYEY SILT
180"	END OF BORING

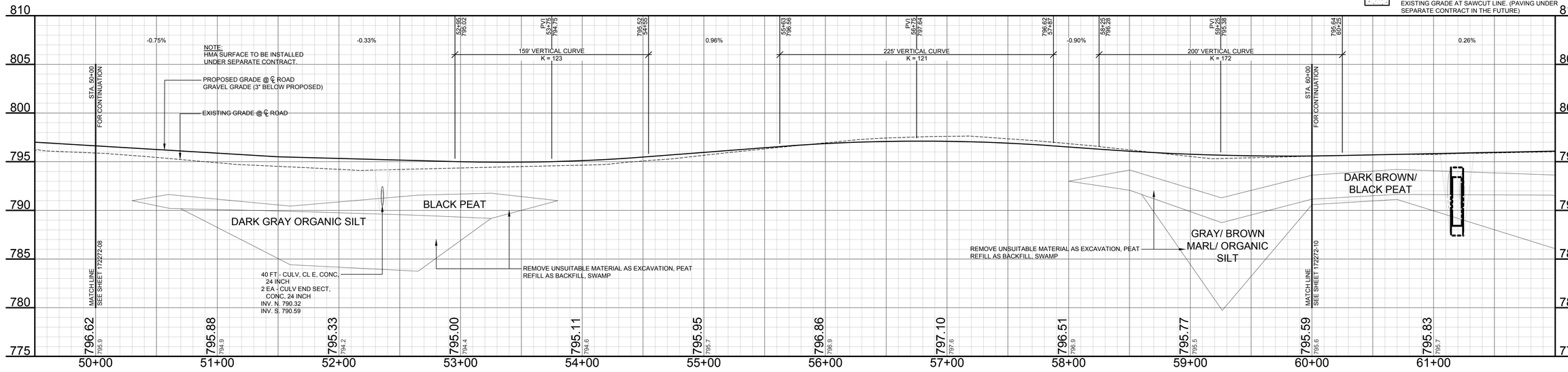
SEE SHEET 172272-04 FOR THE REMAINING SOIL BORING INFO.

NOTE:
HMA SURFACE TO BE INSTALLED UNDER SEPARATE CONTRACT.

ALL UTILITIES IN PROJECT LIMITS TO VERIFY LOCATION AND DEPTH. UTILITY TO RELOCATE AS REQUIRED FOR CONSTRUCTION AND PROPOSED WORK.

LEGEND

- REGRADE EXISTING DRIVE AS REQUIRED AND SURFACE WITH APPROACH, CLASS II A DEPTH OF 6", AS DIRECTED BY THE ENGINEER IN THE FIELD, PAID FOR AS APPROACH, CL II BY THE TON.
- SAWCUT AND REMOVE EXISTING HMA PAVEMENT, INCLUDED IN STATION GRADING. REGRADE EXISTING DRIVEWAY AS REQUIRED AND SURFACE WITH APPROACH, CL II; 165#/SYD HMA, 13A; AND 165#/SYD HMA, 13A. MATCH EXISTING GRADE AT SAWCUT LINE. (PAVING UNDER SEPARATE CONTRACT IN THE FUTURE)
- SAWCUT AND REMOVE EXISTING CONCRETE PAVEMENT INCLUDED IN STATION GRADING. REGRADE EXISTING DRIVEWAY AS REQUIRED AND SURFACE WITH APPROACH, CL II; 165#/SYD HMA, 13A; AND 165#/SYD HMA, 13A. MATCH EXISTING GRADE AT SAWCUT LINE. (PAVING UNDER SEPARATE CONTRACT IN THE FUTURE)



02	8/10/18 REVISED DITCHING - REISSUED FOR BIDDING	AEH
01	7/20/18 ISSUED FOR BIDDING	AEH
00	12/27/2017 PRELIMINARY - NOT FOR CONSTRUCTION	AMZ

REVISIONS

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DATE: AUGUST 2018

SCALE: 1" = 40' H; 5' V

PLAN & PROFILE - STA. 50+00 TO 60+00

JOB No.
172272-09
OF 22

BENCHMARK #8: 60d NAIL IN POWER POLE LOCATED 35.8 FEET LEFT OF STA. 60+26 ELEV. = 795.246

BENCHMARK #9: 60d NAIL IN POWER POLE LOCATED 82.6 FEET LEFT OF STA. 69+15 ELEV. = 812.888

60+26 BM 8 POWER POLE 35.8'
60+26 GUY WIRE 24.8'
60+39 GUY WIRE 35.5'
61+08 48 31.3'
61+18 48 31.8'
62+39 MAILBOX: 355 18.0' - **RELOCATE**
62+47 18 30.8'
62+75 TELE RISER BOX 40.1'
62+77 WIRE FENCE 36.6'
62+79 WIRE FENCE 36.5'
62+80 CPP 27.7'
62+99 9" DEAD TREE 32.3' - **REMOVE**
63+05 9" DEAD TREE 33.3'
63+11 9" DEAD TREE 33.2' - **REMOVE**
64+20 15" WILLOW 31.4' - **REMOVE**
65+38 12" DEAD TREE 32.2' - **REMOVE**
65+54 6" DEAD TREE 23.5' - **REMOVE**
66+87 6" MAPLE 28.7' - **REMOVE**
66+87 GAS MARKER POST 27.5' - **RELOCATE BY OTHERS**
67+84 39" MAPLE 27.0' - **REMOVE**
67+99 24" MAPLE 26.7' - **REMOVE**
68+20 15" MAPLE 26.4' - **REMOVE**
68+42 36" MAPLE 27.4' - **REMOVE**
68+96 36" MAPLE 27.0' - **REMOVE**
68+99 GUY WIRE 85.5'
69+15 BM 9 POWER POLE 82.6'
69+16 MAILBOX: 229 17.5' - **RELOCATE**
69+24 BUSH 43.2'
69+27 BUSH 26.2'
69+32 M ROCK 46' 22.8'

NOTE:

HMA SURFACE TO BE INSTALLED UNDER SEPARATE CONTRACT.

ALL UTILITIES IN PROJECT LIMITS TO VERIFY LOCATION AND DEPTH. UTILITY TO RELOCATE AS REQUIRED FOR CONSTRUCTION AND PROPOSED WORK.

QUANTITIES THIS SHEET

ITEM	QTY.
Geotextile, Stabilization	2,875 Syd
High Performance Biaxial Geogrid	2,875 Syd
Excavation, Peat	865 Cyd
Backfill, Swamp	865 Cyd
Culv, Cl F, 24 inch	40 Ft
Precast Concrete Box Culvert, 8' x 5'	64 Ft
Underdrain, Subgrade, 6 inch	200 Ft
Underdrain Outlet, 6 inch	10 Ft
Underdrain, Outlet Ending, 6 inch	1 Ea
Approach, Cl II	25 Ton
Aggregate Base, 6 inch	1,610 Syd
Aggregate Base, 10 inch	2,130 Syd
Aggregate, 21AA	1,600 Ton
Riprap, Plain	30 Syd

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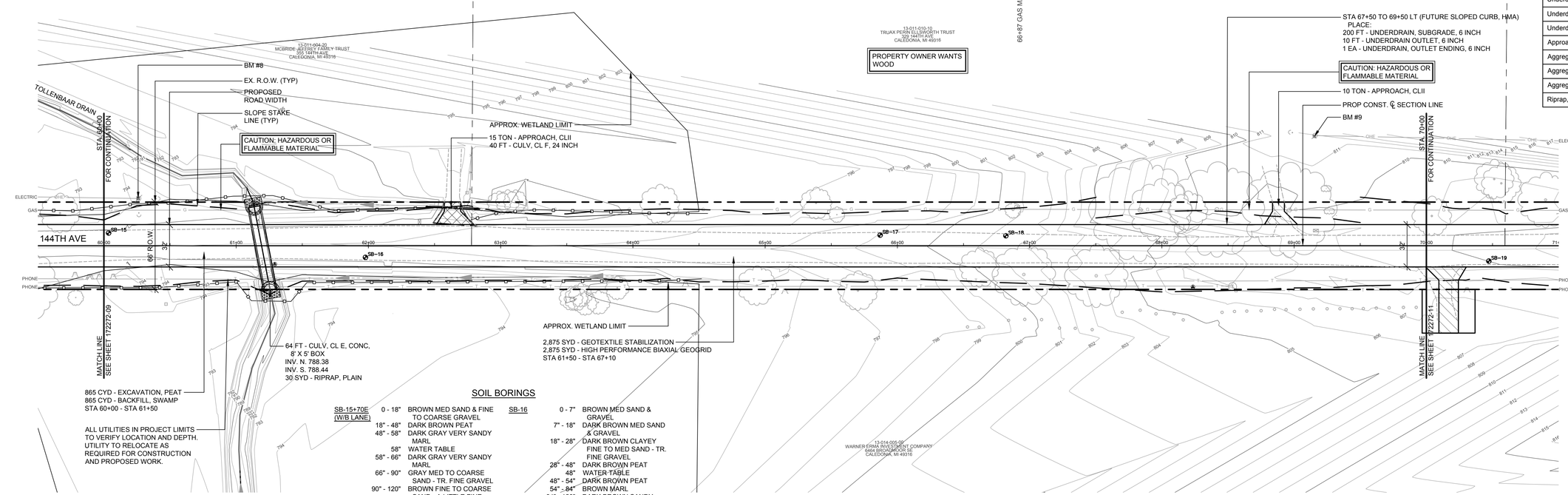

SOIL BORINGS

SB-15+70E (W/B LANE)

0 - 18"	BROWN MED SAND & FINE TO COARSE GRAVEL
18" - 48"	DARK BROWN PEAT
48" - 58"	DARK GRAY VERY SANDY MARL
58"	WATER TABLE
58" - 66"	DARK GRAY VERY SANDY MARL
66" - 90"	GRAY MED TO COARSE SAND - TR. FINE GRAVEL
90" - 120"	BROWN FINE TO COARSE SAND - A LITTLE FINE GRAVEL
120"	END OF BORING

SB-16

0 - 7"	BROWN MED SAND & GRAVEL
7" - 18"	DARK BROWN MED SAND & GRAVEL
18" - 28"	DARK BROWN CLAYEY FINE TO MED SAND - TR. FINE GRAVEL
28" - 48"	DARK BROWN PEAT
48"	WATER TABLE
48" - 54"	DARK BROWN PEAT
54" - 84"	BROWN MARL
84" - 120"	DARK BROWN SANDY ORGANIC SILT/SEDIMENT
120" - 180"	BROWN FINE TO MED SAND
180"	END OF BORING

SEE SHEET 172272-04 FOR THE REMAINING SOIL BORING INFO.

LEGEND

REGRADE EXISTING DRIVE AS REQUIRED AND SURFACE WITH APPROACH, CLASS II A DEPTH OF 6", AS DIRECTED BY THE ENGINEER IN THE FIELD, PAID FOR AS APPROACH, CL II BY THE TON.

SAWCUT AND REMOVE EXISTING HMA PAVEMENT, INCLUDED IN STATION GRADING. REGRADE EXISTING DRIVEWAY AS REQUIRED AND SURFACE WITH APPROACH, CL II; 165#/SYD HMA, 13A; AND 165#/SYD HMA, 13A. MATCH EXISTING GRADE AT SAWCUT LINE. (PAVING UNDER SEPARATE CONTRACT IN THE FUTURE)

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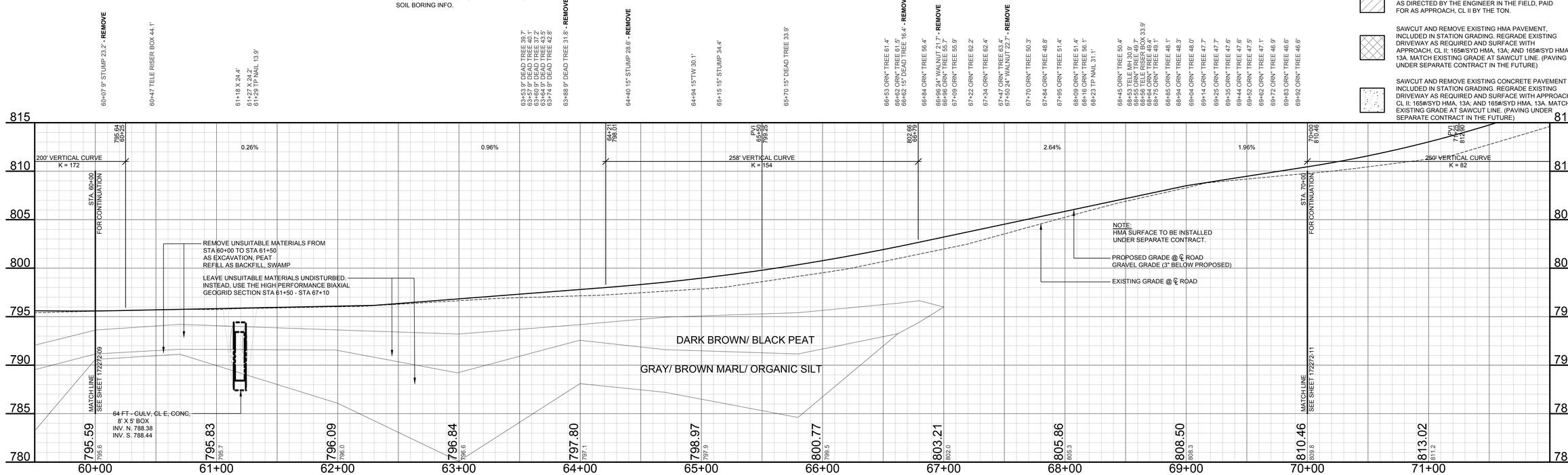

PROJECT NAME:

144TH AVENUE IMPROVEMENTS
KALAMAZOO AVENUE TO SUNRISE TRAIL - LEIGHTON TOWNSHIP
KALAMAZOO AVENUE TO SUNRISE TRAIL

ALLEGAN COUNTY ROAD COMMISSION
1308 LINCOLN ROAD
ALLEGAN, MI 49010-9762

01	7/20/18 ISSUED FOR BIDDING	AEH
00	12/27/2017 PRELIMINARY - NOT FOR CONSTRUCTION	AMZ

REVISIONS

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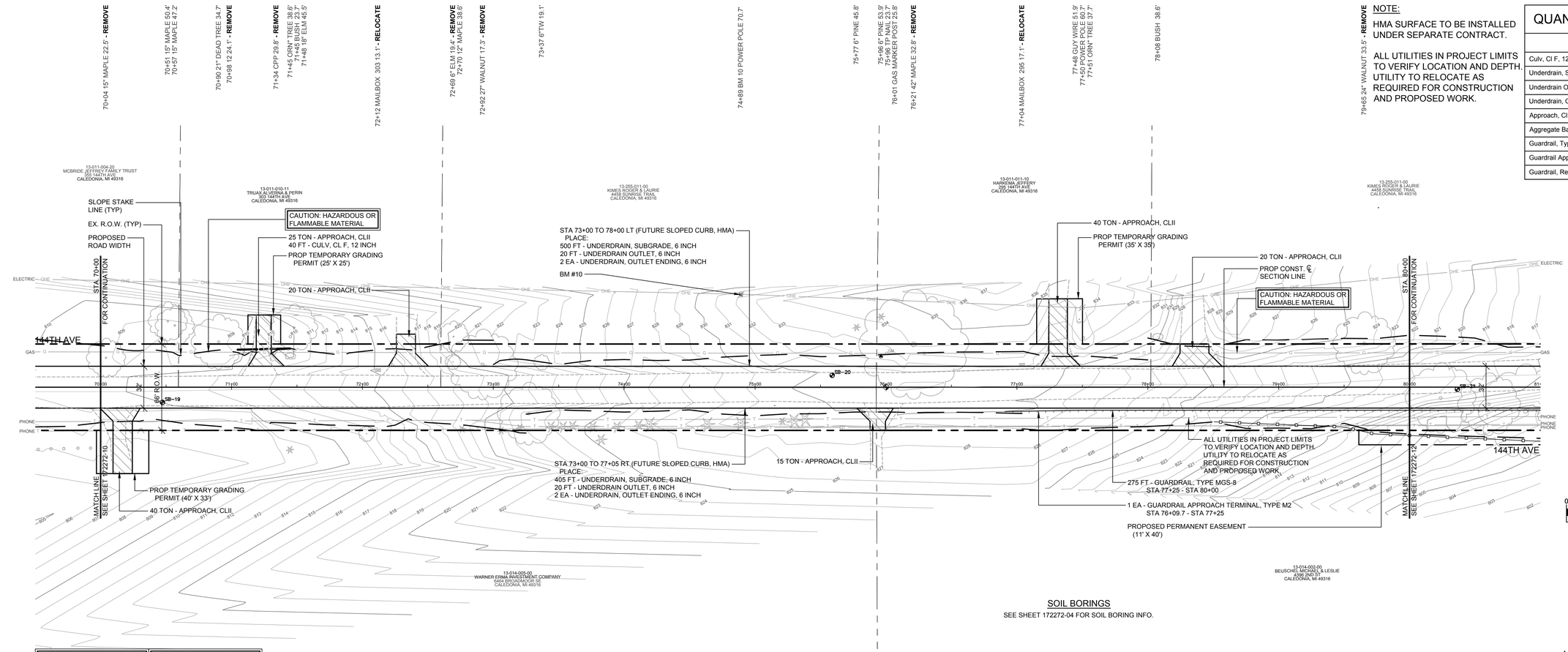
DATE: JULY 2018

SCALE: 1" = 40' H; 5' V

PLAN & PROFILE - STA. 60+00 TO 70+00

JOB No.
172272-10
OF 22



NOTE:

HMA SURFACE TO BE INSTALLED UNDER SEPARATE CONTRACT.

ALL UTILITIES IN PROJECT LIMITS TO VERIFY LOCATION AND DEPTH. UTILITY TO RELOCATE AS REQUIRED FOR CONSTRUCTION AND PROPOSED WORK.

QUANTITIES THIS SHEET

ITEM	QTY.
Culv, Cl F, 12 inch	40 Ft
Underdrain, Subgrade, 6 inch	905 Ft
Underdrain Outlet, 6 inch	40 Ft
Underdrain, Outlet Ending, 6 inch	4 Ea
Approach, Cl II	160 Ton
Aggregate Base, 6 inch	3,560 Syd
Guardrail, Type MGS-8	275 Ft
Guardrail Approach Terminal, Type 2M	1 Ea
Guardrail, Reflector	12 Ea

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AARON J. NEITLING
ENGINEER NO. 50508

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1308 LINCOLN ROAD
ALLEGAN, MI 49010-9762

SOIL BORINGS

SEE SHEET 172272-04 FOR SOIL BORING INFO.

BENCHMARK #9: 60d NAIL IN POWER POLE LOCATED 82.6 FEET LEFT OF STA. 69+15 ELEV. = 812.888

BENCHMARK #10: 60d NAIL IN POWER POLE LOCATED 70.7 FEET LEFT OF STA. 74+89 ELEV. = 835.108

LEGEND

REGRADE EXISTING DRIVE AS REQUIRED AND SURFACE WITH APPROACH, CLASS II A DEPTH OF 6", AS DIRECTED BY THE ENGINEER IN THE FIELD, PAID FOR AS APPROACH, CL II BY THE TON.

SAWCUT AND REMOVE EXISTING HMA PAVEMENT, INCLUDED IN STATION GRADING. REGRADE EXISTING DRIVEWAY AS REQUIRED AND SURFACE WITH APPROACH, CL II; 165#/SYD HMA, 13A; AND 165#/SYD HMA, 13A. MATCH EXISTING GRADE AT SAWCUT LINE. (PAVING UNDER SEPARATE CONTRACT IN THE FUTURE)

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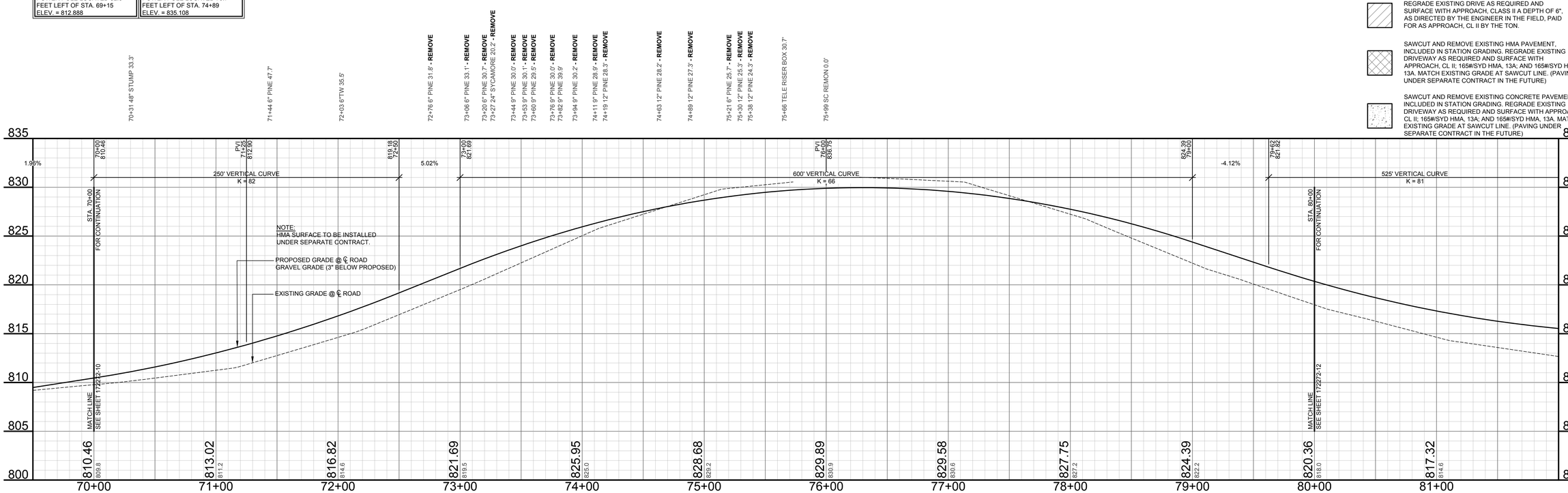

02	8/10/18	AEH
	REVISED DITCHING - REISSUED FOR BIDDING	
01	7/20/18	AEH
	ISSUED FOR BIDDING	
00	12/27/2017	AMZ
	PRELIMINARY - NOT FOR CONSTRUCTION	

REVISIONS

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DATE: AUGUST 2018

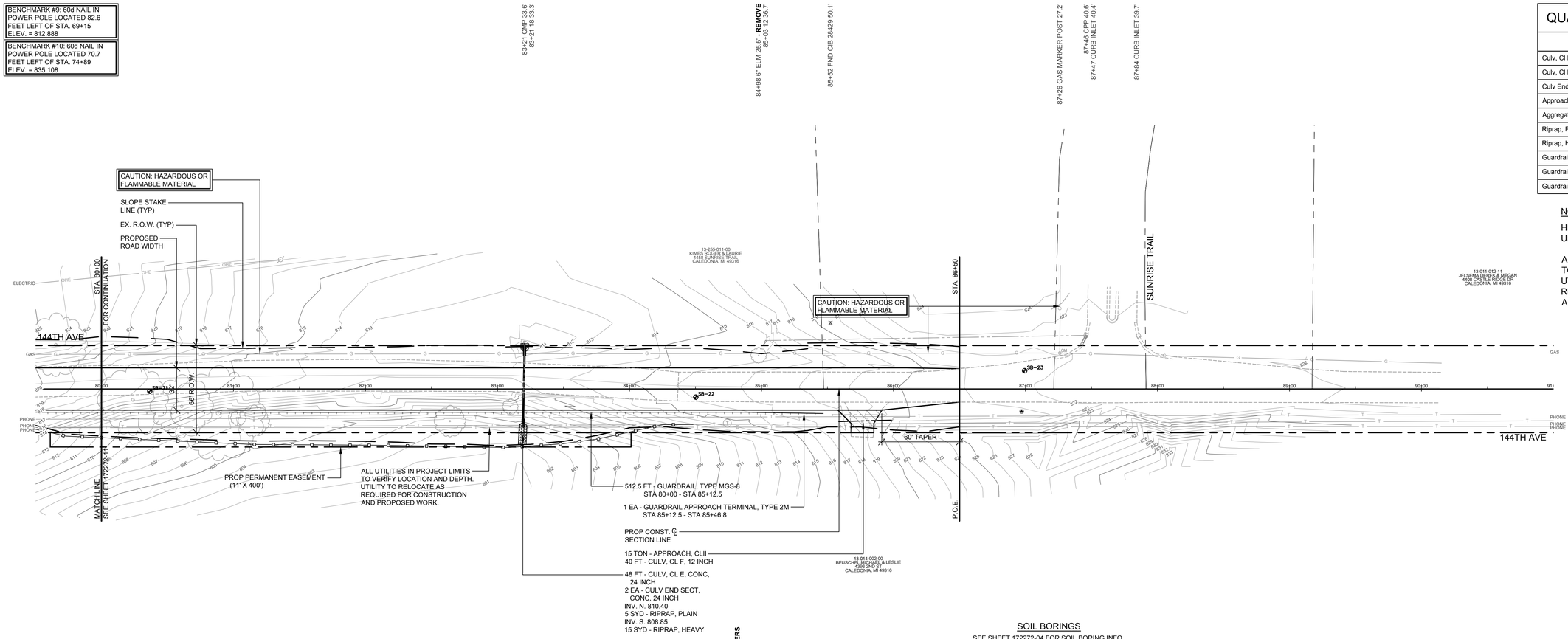
SCALE: 1" = 40' H; 5' V

PLAN & PROFILE - STA. 70+00 TO 80+00

JOB No.
172272-11
OF 22

BENCHMARK #9: 60d NAIL IN POWER POLE LOCATED 82.6 FEET LEFT OF STA. 69+15 ELEV. = 812.888

BENCHMARK #10: 60d NAIL IN POWER POLE LOCATED 70.7 FEET LEFT OF STA. 74+89 ELEV. = 835.108



QUANTITIES THIS SHEET

ITEM	QTY.
Culv, Cl F, 12 inch	40 Ft
Culv, Cl E, Conc, 24 inch	56 Ft
Culv End Sect, Conc, 24 inch	2 Ea
Approach, Cl II	15 Ton
Aggregate Base, 6 inch	2,310 Syd
Riprap, Plain	5 Syd
Riprap, Heavy	15 Syd
Guardrail, Type MGS-8	513 Ft
Guardrail Approach Terminal, Type 2M	1 Ea
Guardrail, Reflector	22 Ea

NOTE:

HMA SURFACE TO BE INSTALLED UNDER SEPARATE CONTRACT.

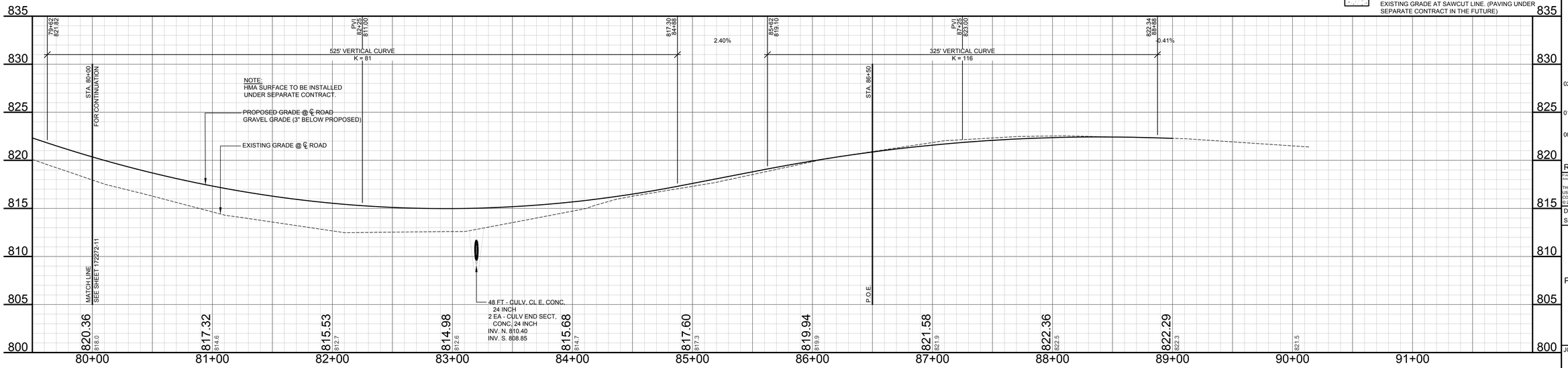
ALL UTILITIES IN PROJECT LIMITS TO VERIFY LOCATION AND DEPTH. UTILITY TO RELOCATE AS REQUIRED FOR CONSTRUCTION AND PROPOSED WORK.

0 40' 60' 80'

SOIL BORINGS

SEE SHEET 172272-04 FOR SOIL BORING INFO.

80+24 27" DEAD TREE 8.3' - **REMOVE**
80+61 24" DEAD TREE 13.1' - **REMOVE**
80+88 36" MAPLE 18.4' - **REMOVE**
81+04 6"TW 21.9'
81+15 12" WALNUT 24.1' - **REMOVE**
82+64 12" DEAD TREE 24.4' - **REMOVE**
83+10 6" DEAD TREE 13.4' - **REMOVE**
83+20 18 6.8'
84+74 TELE MH 26.0'
84+82 TELE RISER BOX 28.7' - **RELOCATE BY OTHERS**
85+53 CPP 19.5'
85+93 12 19.6'
86+97 TP NAIL 17.1'



LEGEND

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AARON J. NEITLING
ENGINEER NO. 50508

PROJECT NAME:

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KALAMAZOO AVENUE TO SUNRISE TRAIL

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1308 LINCOLN ROAD
ALLEGAN, MI 49010-9762

REVISIONS

02 8/10/18 AEH
REVISED DITCHING - REISSUED FOR BIDDING

01 7/20/18 AEH
ISSUED FOR BIDDING

00 12/27/2017 AMZ
PRELIMINARY - NOT FOR CONSTRUCTION

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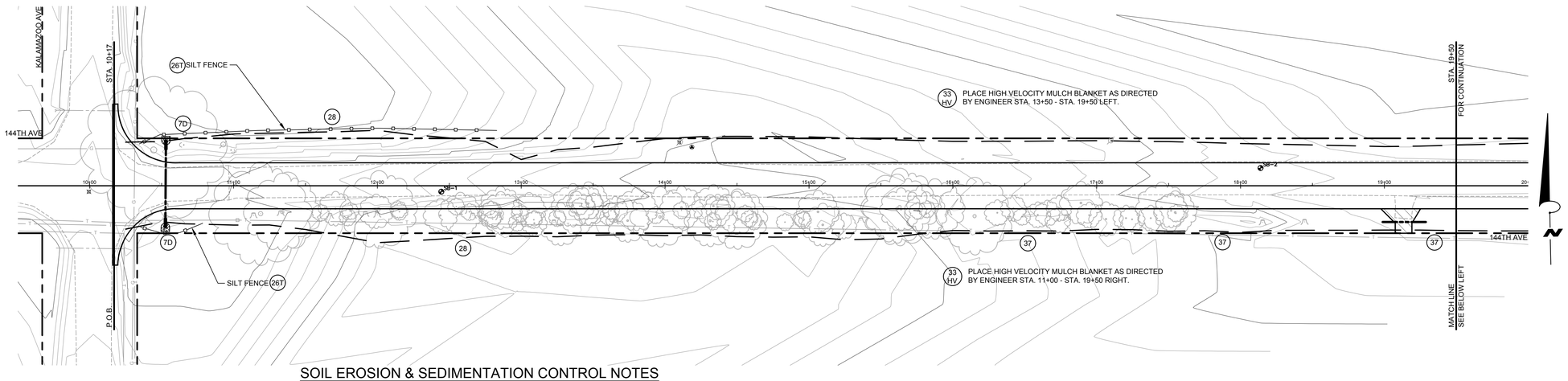
DATE: AUGUST 2018

SCALE: 1" = 40' H; 5' V

PLAN & PROFILE - STA. 80+00 TO 86+50

JOB No.
172272-12
OF 22



0 40 60 80
1 inch = 40 ft.

SOIL EROSION & SEDIMENTATION CONTROL NOTES

1. ALL CONSTRUCTION METHODS SHALL BE DONE IN COMPLIANCE WITH THE MICHIGAN SOIL EROSION AND SEDIMENTATION CONTROL ACT. EROSION CONTROL MEASURES SHOWN ON THE PLANS ARE THE MINIMUM REQUIREMENTS AND SHALL NOT RELIEVE THE CONTRACTOR'S RESPONSIBILITY FOR PROVIDING ALL REQUIRED EROSION CONTROL MEASURES.
2. AVOID UNNECESSARY DISTURBING OR REMOVING OF EXISTING VEGETATED TOPSOIL OR EARTH COVER, THESE COVER AREAS ACT AS SEDIMENT FILTERS.
3. ALL TEMPORARY SOIL EROSION PROTECTION SHALL REMAIN IN PLACE UNTIL REMOVAL IS REQUIRED FOR FINAL CLEAN UP AND APPROVAL.
4. GEOTEXTILE SILT FENCE SHALL BE INSTALLED AS REQUIRED WHEN CROSSING CREEKS OR WHEN ADJACENT TO WETLANDS OR SURFACE WATER BODIES TO PREVENT SILTATION AND ELSEWHERE AS DIRECTED BY THE ENGINEER. SEEDING AND/OR SODDING SHALL BE INSTALLED ON CREEK BANKS IMMEDIATELY AFTER CONSTRUCTION TO PREVENT EROSION.
5. MAINTENANCE, CLEANING, AND REMOVAL OF THE VARIOUS SEDIMENT CONTROL MEASURES SHALL BE INCLUDED IN THE VARIOUS EROSION CONTROL ITEMS.

(##) NUMBER IN CIRCLE REFERS TO NUMBERED DETAILS ON MDOT STANDARD PLAN R-96 SERIES, SOIL EROSION & SEDIMENTATION CONTROL MEASURES. "P" DENOTES PERMANENT MEASURE AND "T" DENOTES TEMPORARY MEASURE. SOIL EROSION CONTROL PLANS DENOTE MINIMUM EROSION MEASURES REQUIRED AS DESCRIBED BELOW.

(3P) PERMANENT SEEDING ON ALL DISTURBED AREAS NOT PAVED OR GRAVELED SHALL BE RESTORED. PLACE TOPSOIL SURFACE, SALV, 3 INCH, MDOT SEEDING, MIXTURE TUF APPLIED AT A RATE OF 220 LB/ACRE, FERTILIZER, CHEMICAL NUTRIENT, CL A APPLIED AT A RATE OF 228 LB/ACRE; MULCH AT A RATE OF 2 TON/ACRE AND MULCH ANCHORING.

(7P) DENOTES RIPRAP, PLAIN. INSTALL RIPRAP AT LOCATIONS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER IN THE FIELD.

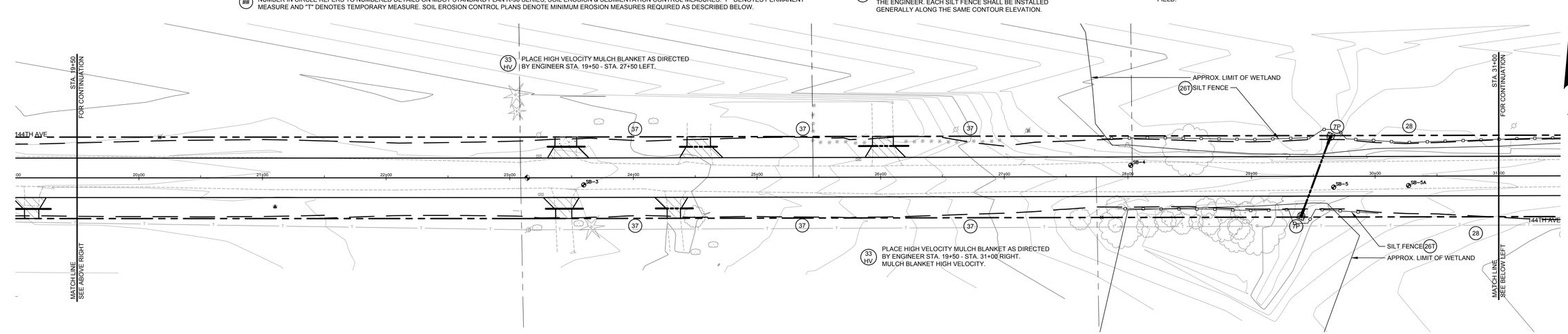
(26T) DENOTES TEMPORARY SILT FENCE. SILT FENCE SHALL BE INSTALLED AT CREEK CROSSINGS, ADJACENT TO ALL WETLANDS AND SURFACE WATERS, AND OTHER LOCATIONS AS DIRECTED BY THE ENGINEER. EACH SILT FENCE SHALL BE INSTALLED GENERALLY ALONG THE SAME CONTOUR ELEVATION.

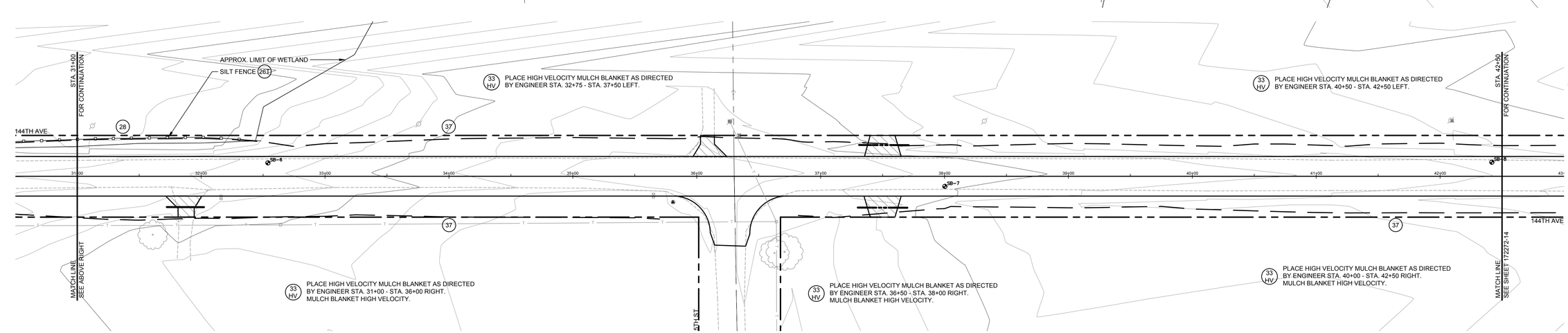
(28) DENOTES MULCHING AND MULCH ANCHORING. INSTALL AT LOCATIONS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER IN THE FIELD.

(33 HV) DENOTES HIGH VELOCITY MULCH BLANKETS FOR USE ON STEEP BANKS. PROVIDE MULCH BLANKET, HIGH VELOCITY CENTERED ON ALL DITCH BOTTOMS WITH A LONGITUDINAL GRADE OF 2.00% OR GREATER AND AT OTHER LOCATIONS AS DIRECTED BY THE ENGINEER IN THE FIELD.

(37) DENOTES CHECK DAM. INSTALL CHECK DAMS AT LOCATIONS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER IN THE FIELD.

QUANTITIES THIS SHEET	
ITEM	QTY.
Seeding, Mixture CR	220 Lb
Mulch Blanket, High Velocity	1,900 Syd
Erosion Control, Silt Fence	995 Ft
Erosion Control, Check Dam	120 Ft





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AARON J. NEITLING
ENGINEER NO. 50508

PROJECT NAME:

144TH AVENUE IMPROVEMENTS
KALAMAZOO AVENUE TO SUNRISE TRAIL - LEIGHTON TOWNSHIP
KALAMAZOO AVENUE TO SUNRISE TRAIL

ALLEGAN COUNTY ROAD COMMISSION
1308 LINCOLN ROAD
ALLEGAN, MI 49010-9762

02 8/10/18 AEH
REVISED DITCHING - REISSUED FOR BIDDING

01 7/20/18 AEH
ISSUED FOR BIDDING

00 12/27/2017 AMZ
PRELIMINARY - NOT FOR CONSTRUCTION

REVISIONS

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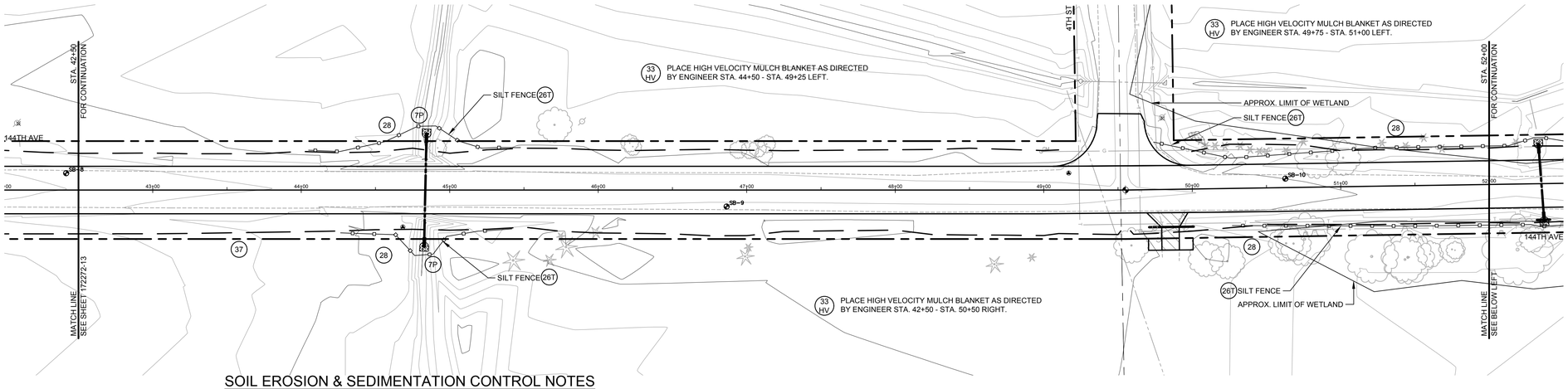
DATE: AUGUST 2018
SCALE: 1" = 40'

SOIL EROSION CONTROL SHEETS - STA 10+00 TO 42+50

JOB No.
172272-13
OF 22



SOIL EROSION & SEDIMENTATION CONTROL NOTES

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4. GEOTEXTILE SILT FENCE SHALL BE INSTALLED AS REQUIRED WHEN CROSSING CREEKS OR WHEN ADJACENT TO WETLANDS OR SURFACE WATER BODIES TO PREVENT SILTATION AND ELSEWHERE AS DIRECTED BY THE ENGINEER. SEEDING AND/OR SODDING SHALL BE INSTALLED ON CREEK BANKS IMMEDIATELY AFTER CONSTRUCTION TO PREVENT EROSION.
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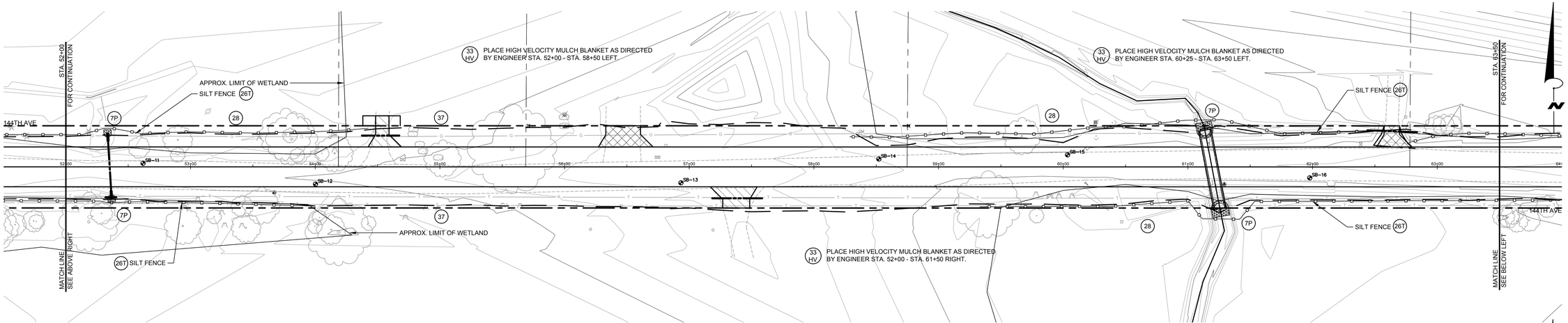

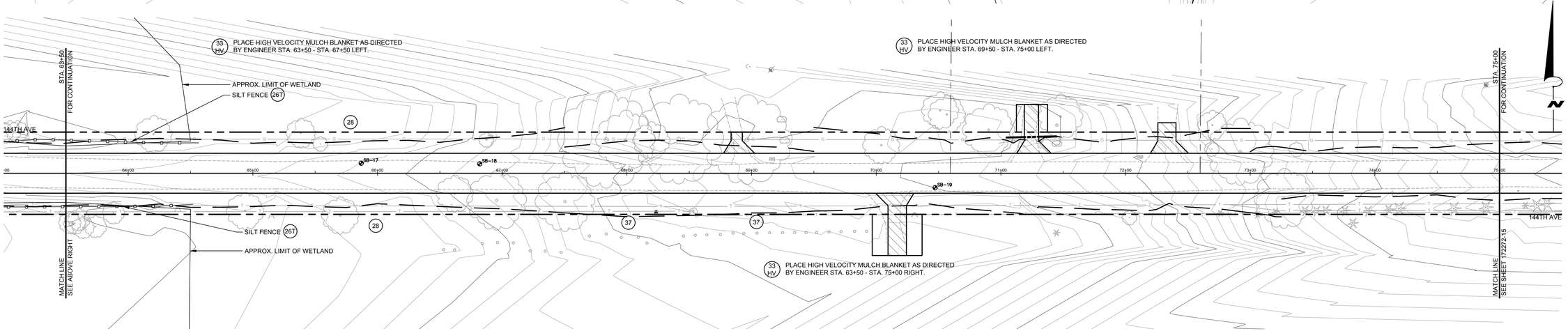

QUANTITIES THIS SHEET	
ITEM	QTY.
Seeding, Mixture CR	220 Lb
Mulch Blanket, High Velocity	2,650 Syd
Erosion Control, Silt Fence	2,255 Ft
Erosion Control, Check Dam	50 Ft

0 40 60 80
1 inch = 40 ft.

WIGHTMAN

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02	8/10/18	AEH
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01	7/20/18	AEH
	ISSUED FOR BIDDING	
00	12/27/2017	AMZ
	PRELIMINARY - NOT FOR CONSTRUCTION	

REVISIONS

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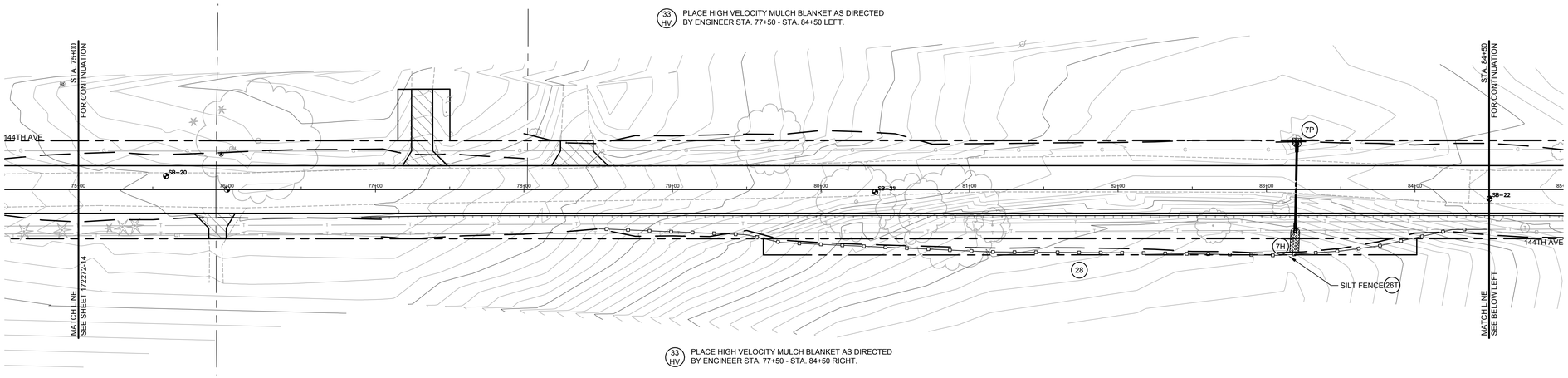
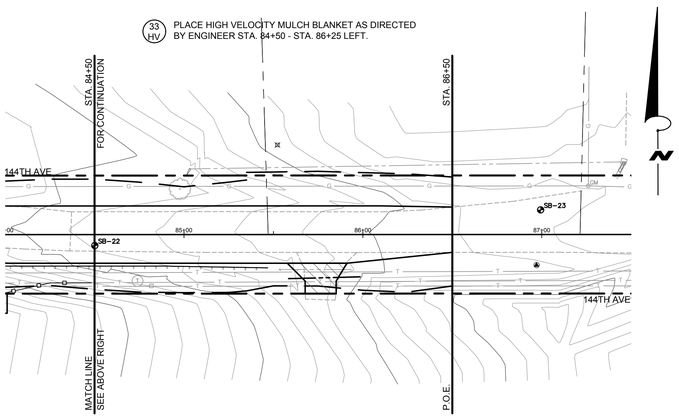
DATE: AUGUST 2018
SCALE: 1" = 40'

SOIL EROSION CONTROL SHEETS - STA 42+50 TO 75+00

JOB No.
172272-14
OF 22





QUANTITIES THIS SHEET

ITEM	QTY.
Seeding, Mixture CR	90 Lb
Mulch Blanket, High Velocity	3,900 Syd
Erosion Control, Silt Fence	600 Ft

0 40 60 80
1 inch = 40 ft.

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5. MAINTENANCE, CLEANING, AND REMOVAL OF THE VARIOUS SEDIMENT CONTROL MEASURES SHALL BE INCLUDED IN THE VARIOUS EROSION CONTROL ITEMS.

(##) NUMBER IN CIRCLE REFERS TO NUMBERED DETAILS ON MDOT STANDARD PLAN R-96 SERIES, SOIL EROSION & SEDIMENTATION CONTROL MEASURES. "P" DENOTES PERMANENT MEASURE AND "T" DENOTES TEMPORARY MEASURE. SOIL EROSION CONTROL PLANS DENOTE MINIMUM EROSION MEASURES REQUIRED AS DESCRIBED BELOW.

(3P) PERMANENT SEEDING ON ALL DISTURBED AREAS NOT PAVED OR GRAVELED SHALL BE RESTORED. PLACE TOPSOIL SURFACE, SALV, 3 INCH, MDOT SEEDING, MIXTURE TUF APPLIED AT A RATE OF 220 LB/ACRE, FERTILIZER, CHEMICAL NUTRIENT, CL A APPLIED AT A RATE OF 228 LB/ACRE; MULCH AT A RATE OF 2 TON/ACRE AND MULCH ANCHORING.

(7P) DENOTES RIPRAP, PLAIN. INSTALL RIPRAP AT LOCATIONS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER IN THE FIELD.

(7H) DENOTES RIPRAP, HEAVY. INSTALL RIPRAP AT LOCATIONS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER IN THE FIELD.

(26T) DENOTES TEMPORARY SILT FENCE. SILT FENCE SHALL BE INSTALLED AT CREEK CROSSINGS, ADJACENT TO ALL WETLANDS AND SURFACE WATERS, AND OTHER LOCATIONS AS DIRECTED BY THE ENGINEER. EACH SILT FENCE SHALL BE INSTALLED GENERALLY ALONG THE SAME CONTOUR ELEVATION.

(28) DENOTES MULCHING AND MULCH ANCHORING. INSTALL AT LOCATIONS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER IN THE FIELD.

(33 HV) DENOTES HIGH VELOCITY MULCH BLANKETS FOR USE ON STEEP BANKS. PROVIDE MULCH BLANKET, HIGH VELOCITY CENTERED ON ALL DITCH BOTTOMS WITH A LONGITUDINAL GRADE OF 2.00% OR GREATER AND AT OTHER LOCATIONS AS DIRECTED BY THE ENGINEER IN THE FIELD.

(37) DENOTES CHECK DAM. INSTALL CHECK DAMS AT LOCATIONS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER IN THE FIELD.

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PROJECT NAME:

144TH AVENUE IMPROVEMENTS
KALAMAZOO AVENUE TO SUNRISE TRAIL - LEIGHTON TOWNSHIP
KALAMAZOO AVENUE TO SUNRISE TRAIL

ALLEGAN COUNTY ROAD COMMISSION
1308 LINCOLN ROAD
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SOIL EROSION CONTROL SHEETS - STA 75+00 TO 86+50

JOB No.
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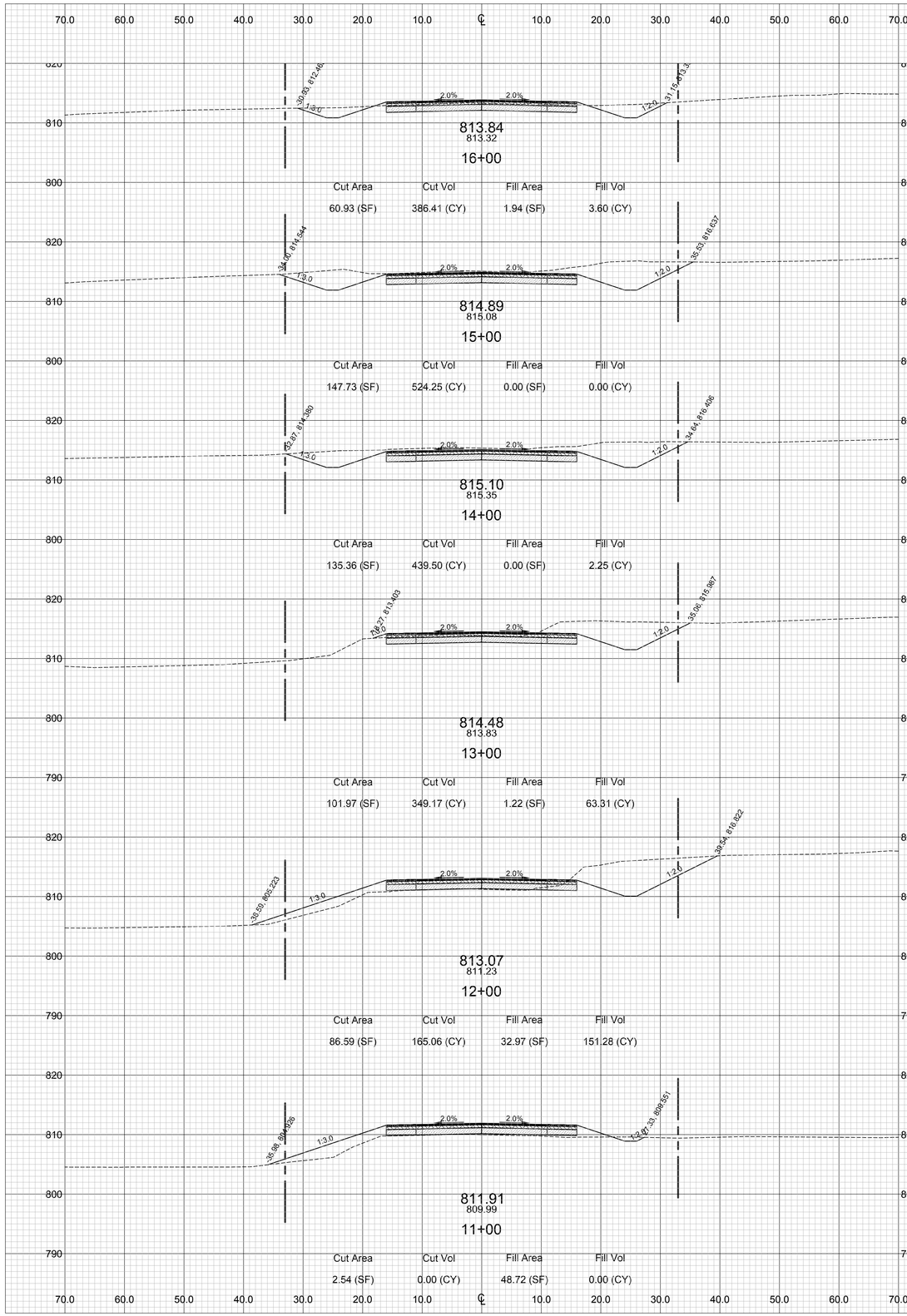
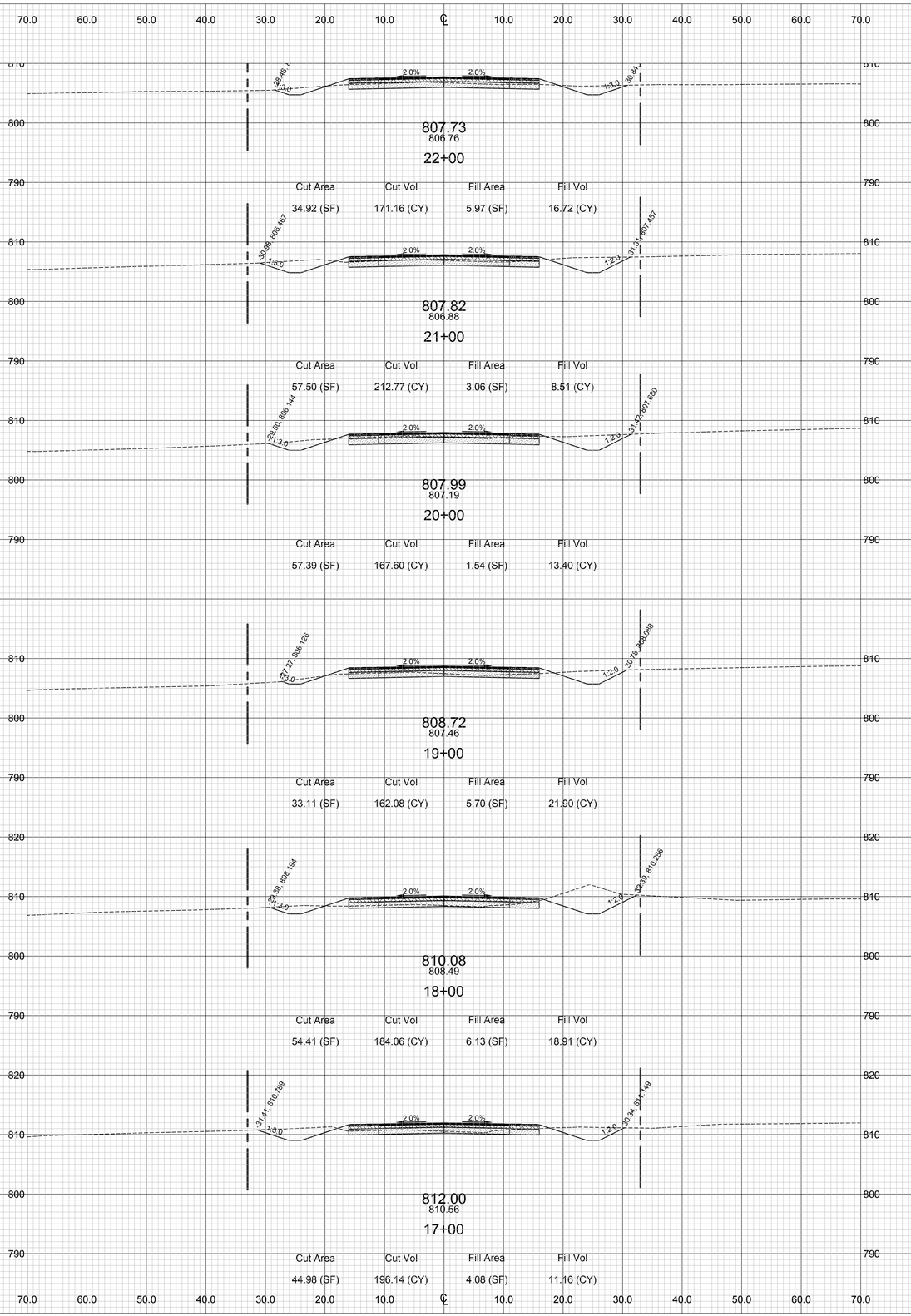
OF 22





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CROSS SECTION - STA 11+00 TO STA 22+00

JOB No.
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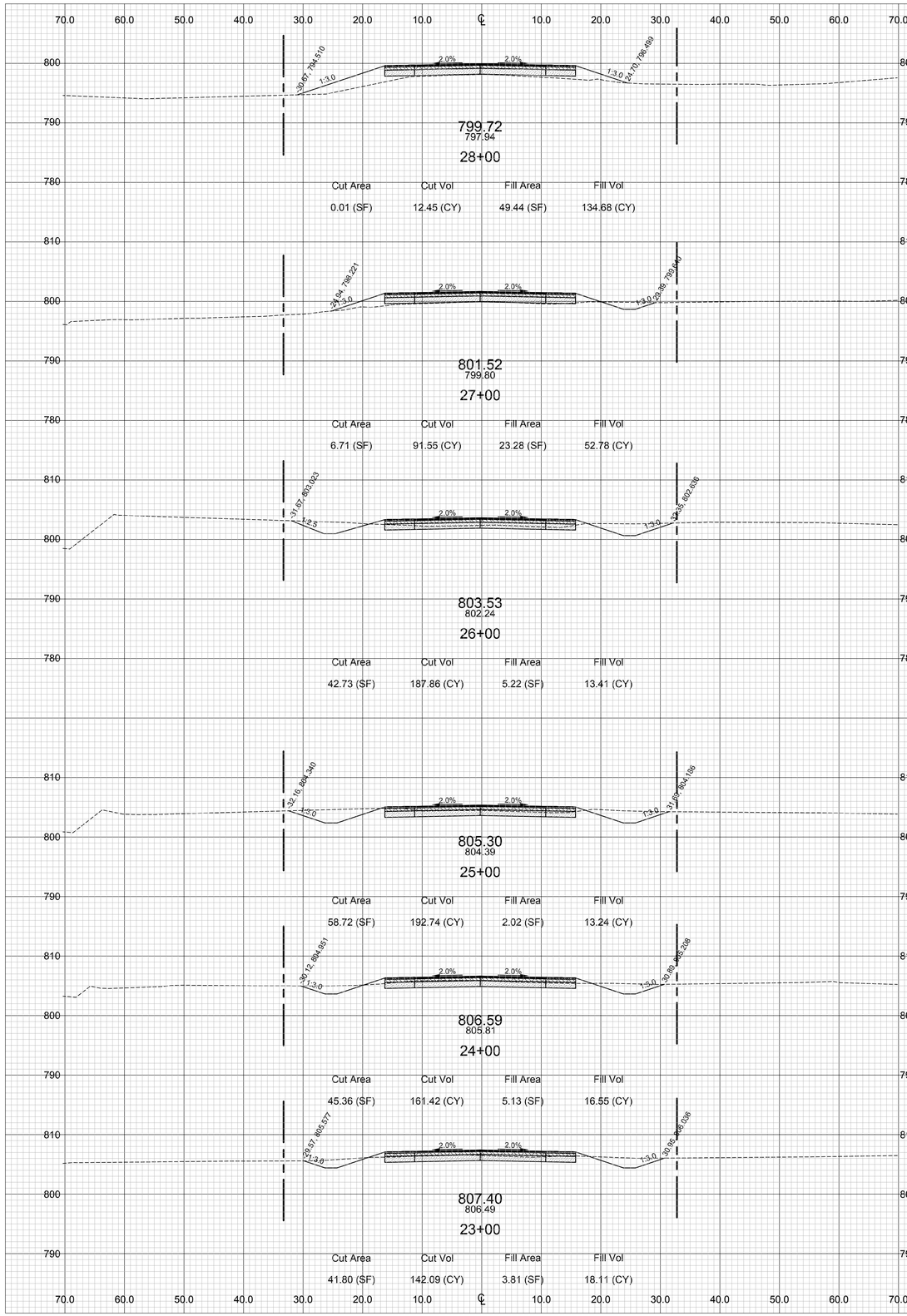

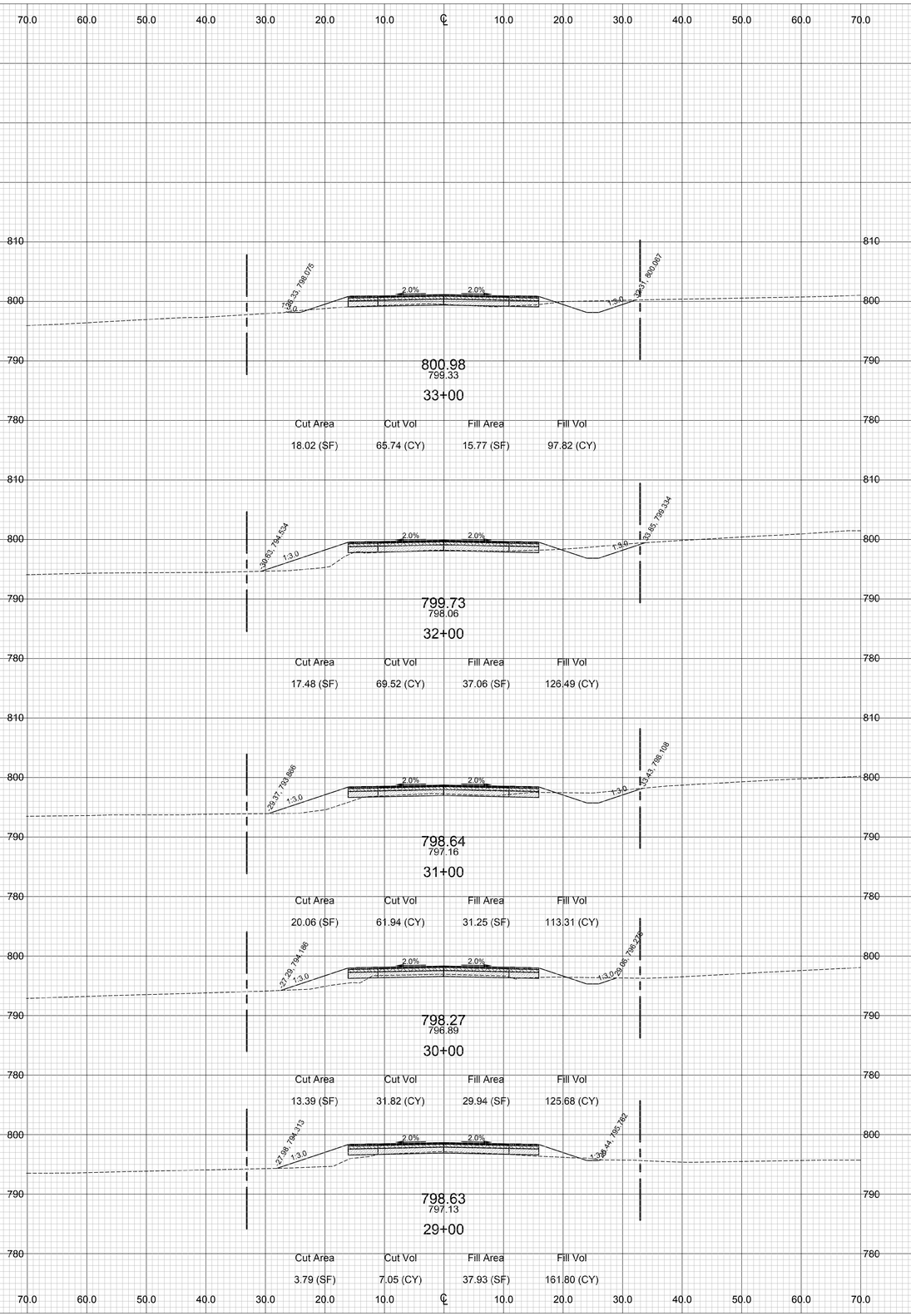

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CROSS SECTION - STA 23+00 TO STA 34+00

JOB No.
172272-17
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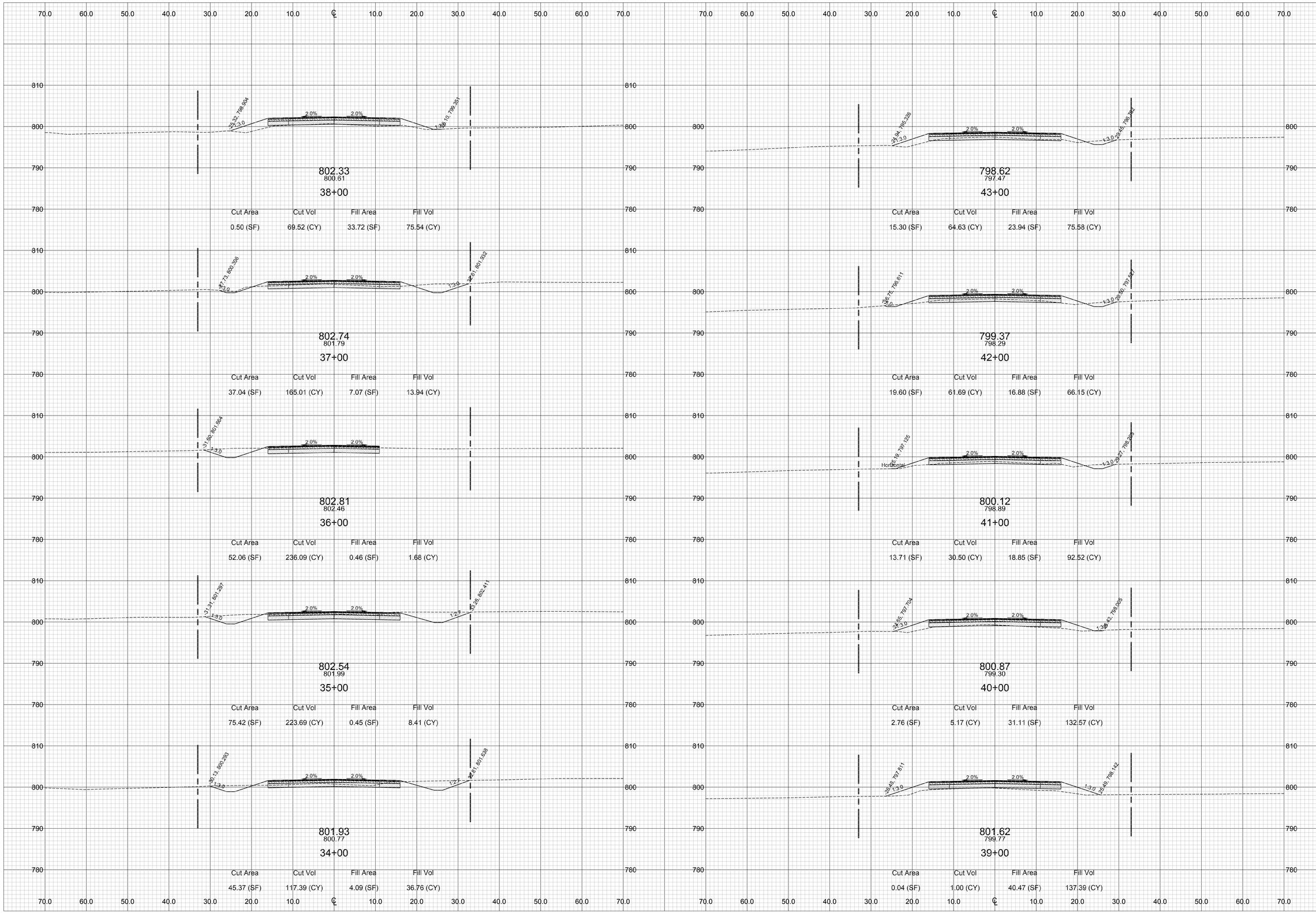

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CROSS SECTION - STA 35+00 TO STA 44+00

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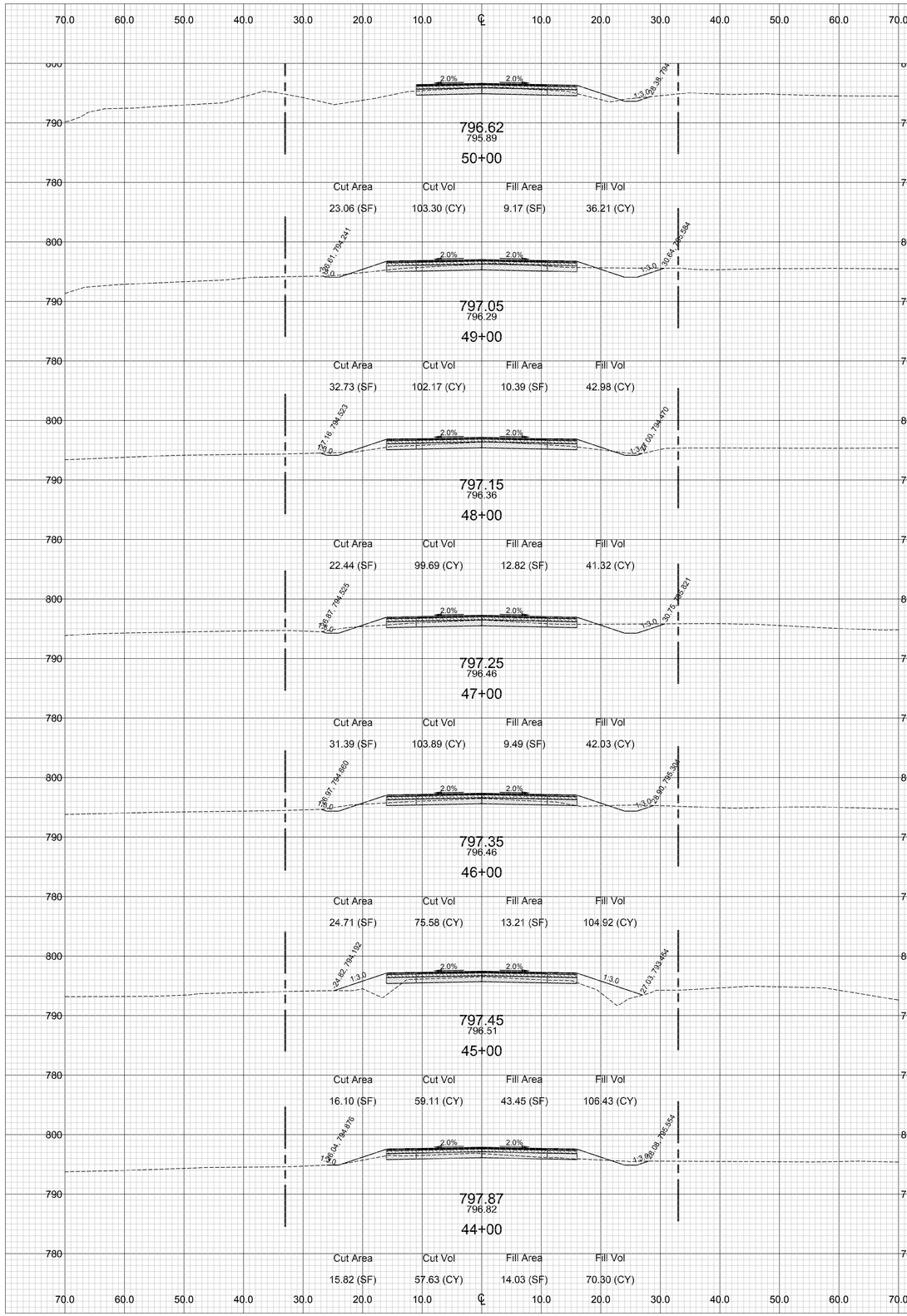

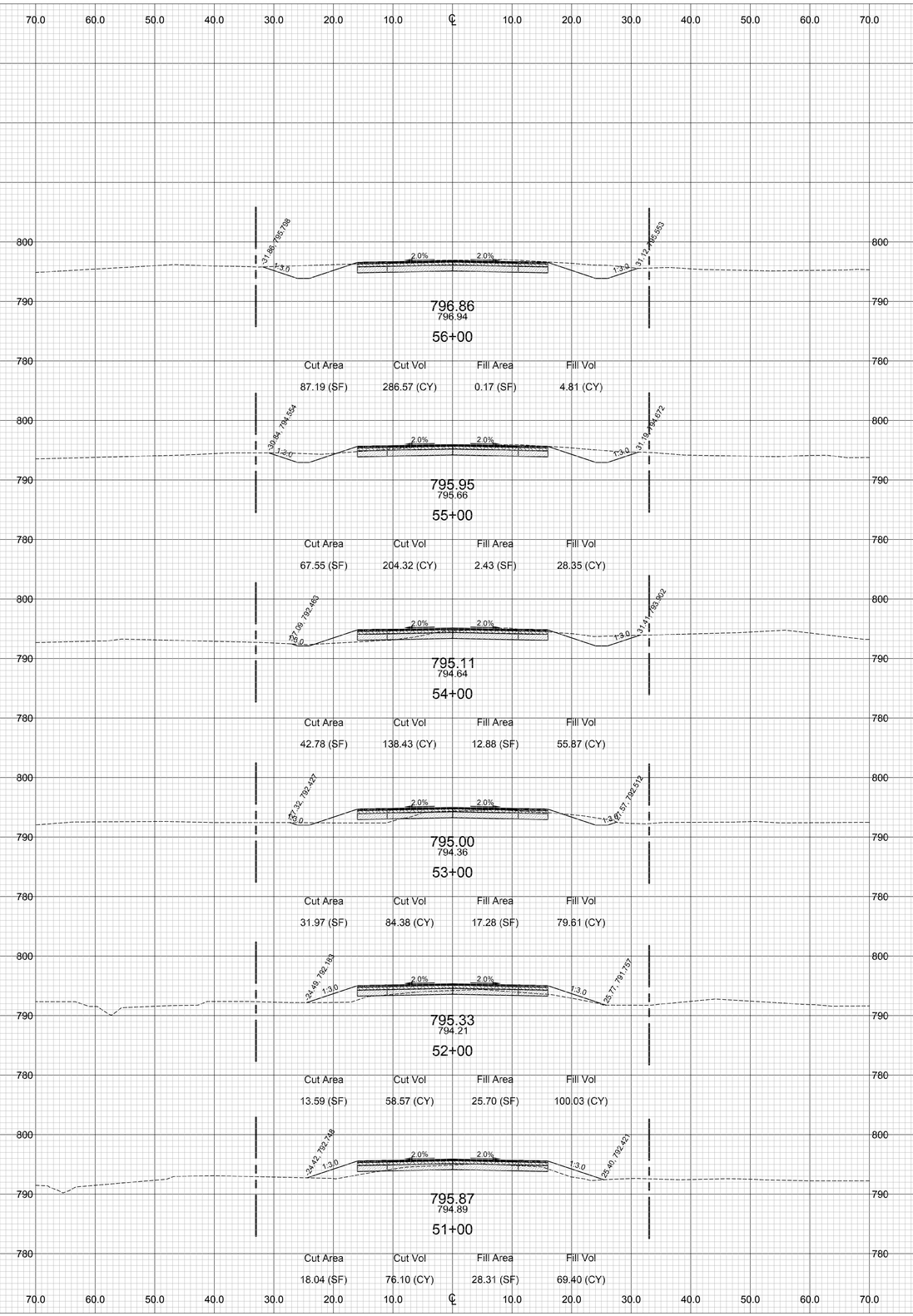

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CROSS SECTION - STA 45+00 TO STA 56+00

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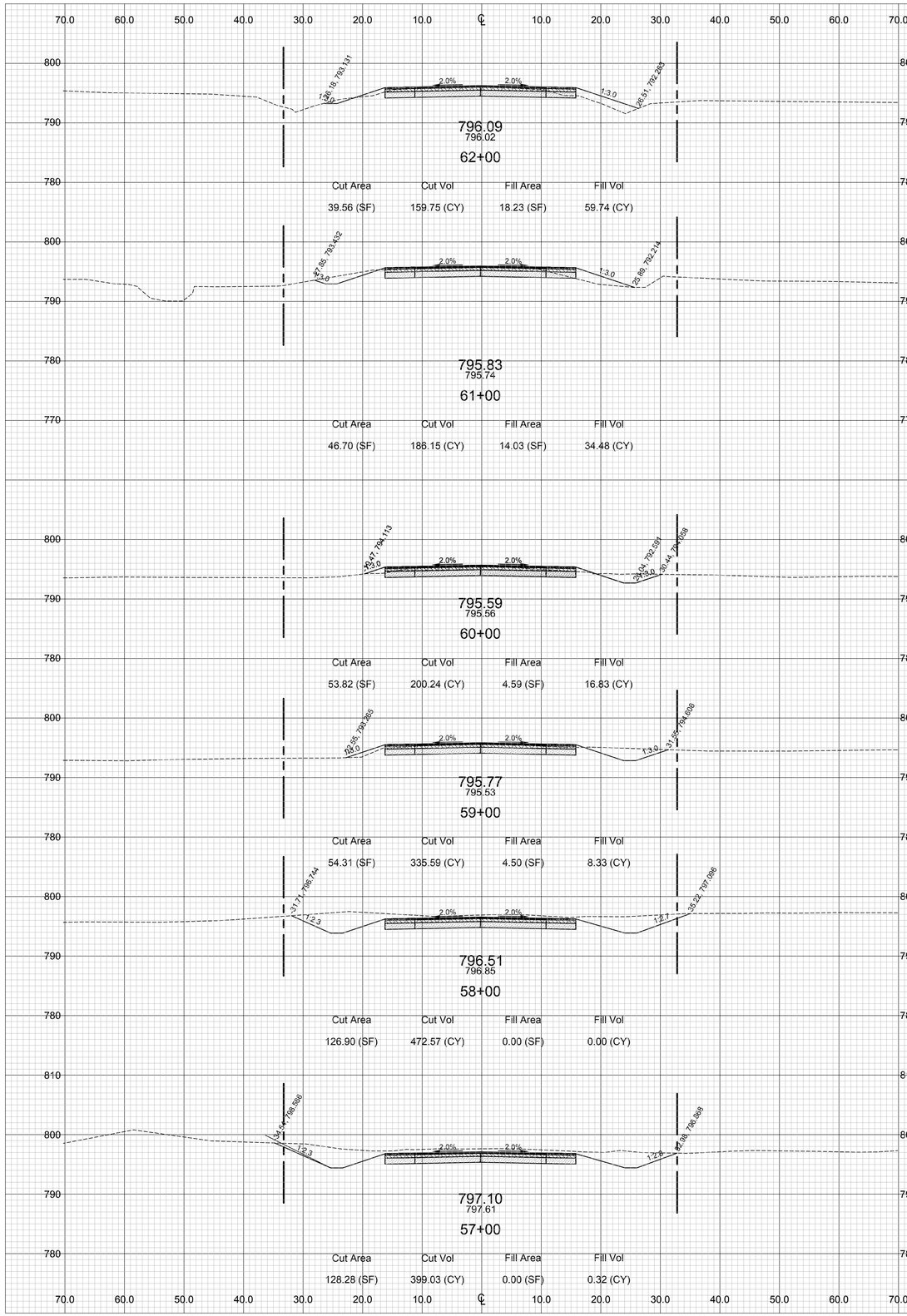

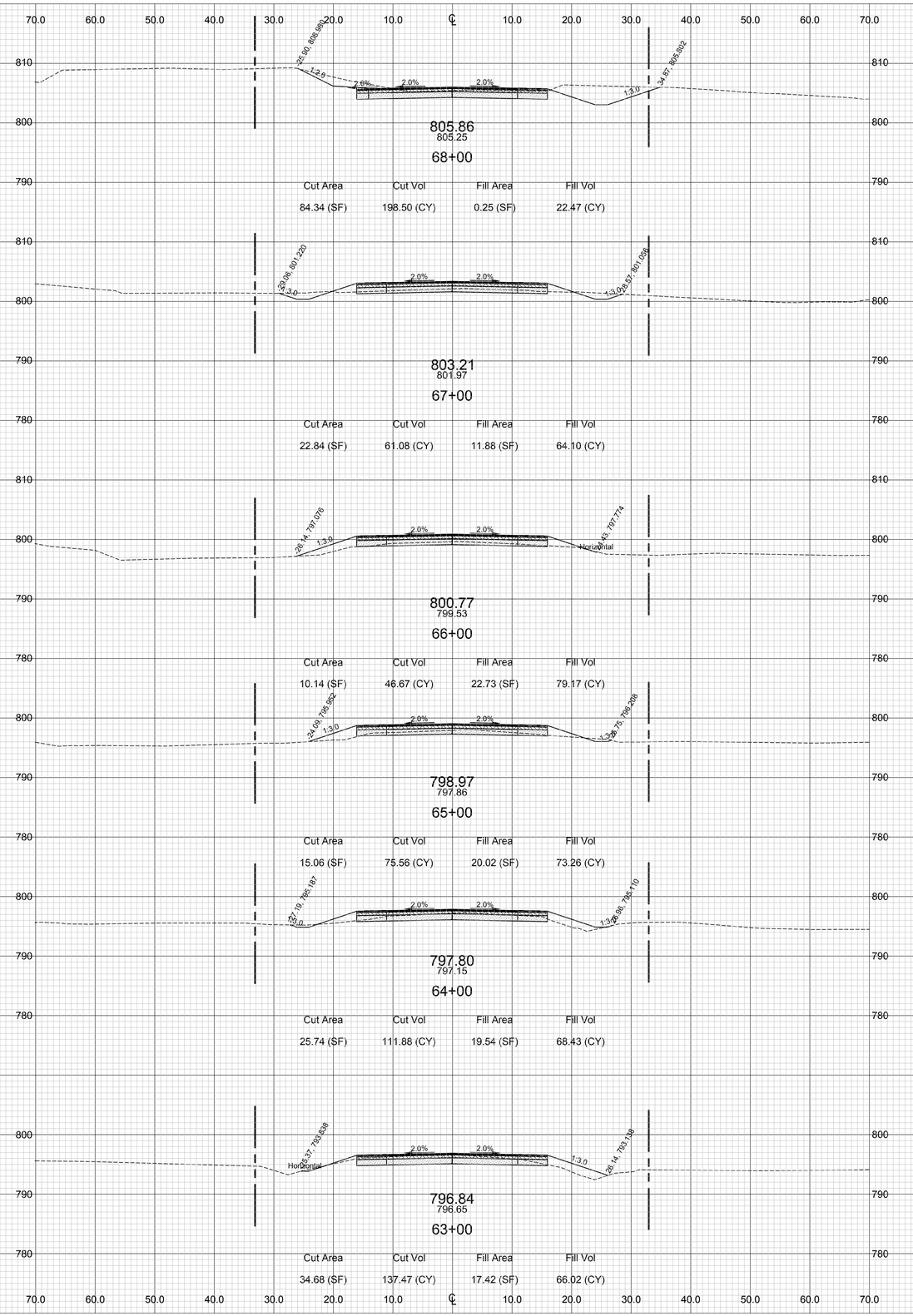

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CROSS SECTION - STA 57+00 TO STA 68+00

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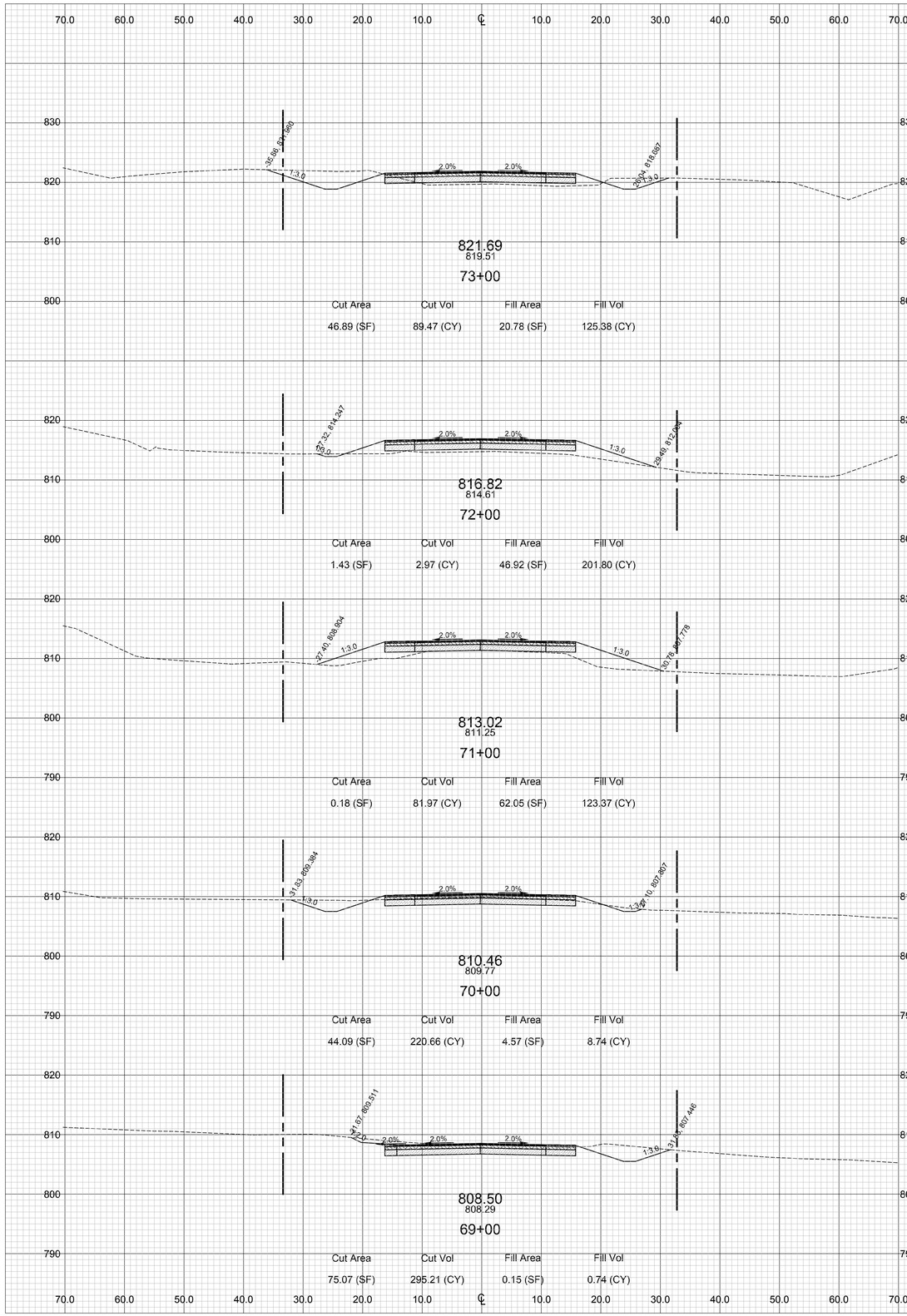

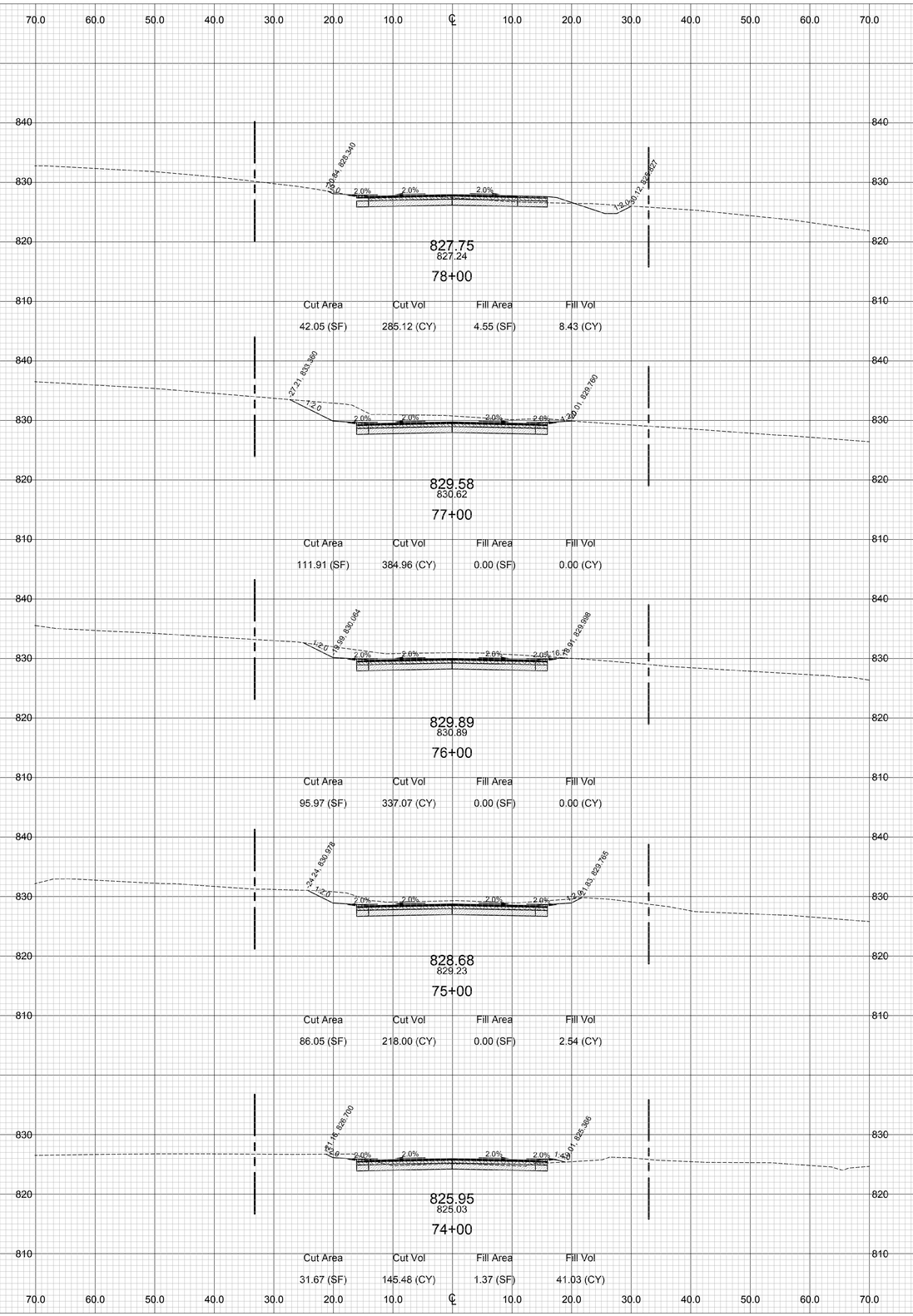

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CROSS SECTION - STA 69+00 TO STA 78+00

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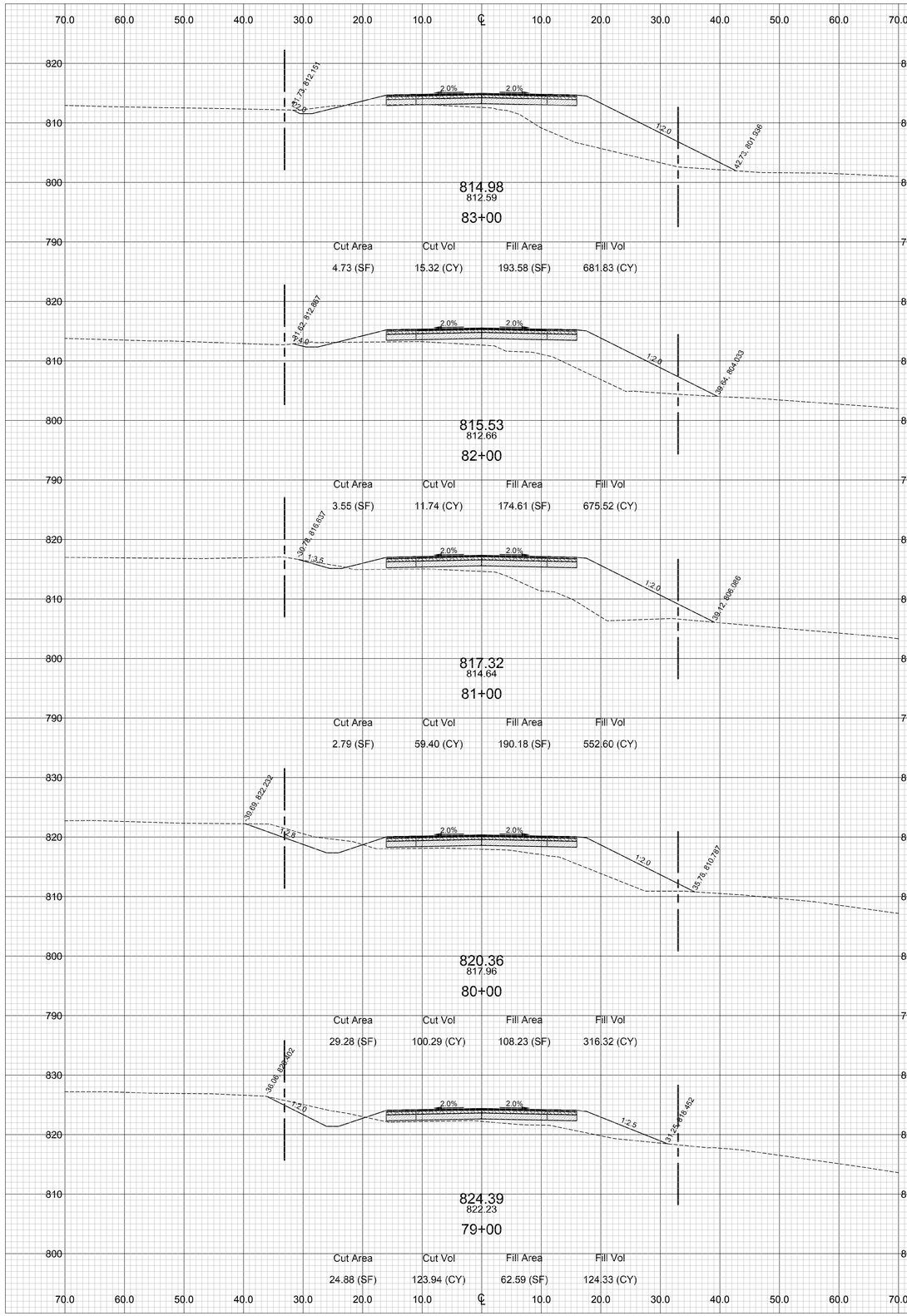
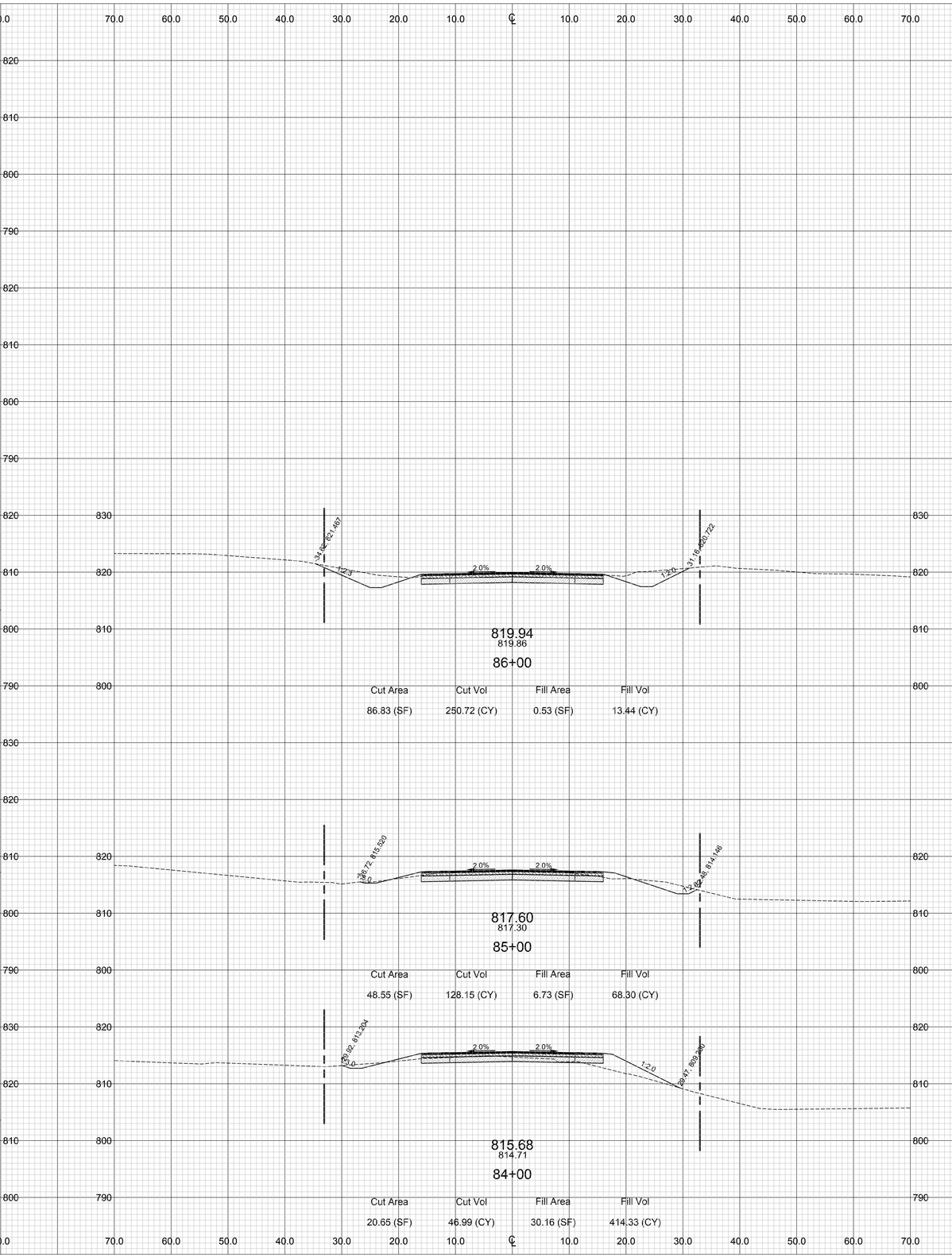


	Cut Area	Cut Vol	Fill Area	Fill Vol
83+00	4.73 (SF)	15.32 (CY)	193.58 (SF)	681.83 (CY)
82+00	3.55 (SF)	11.74 (CY)	174.61 (SF)	675.52 (CY)
81+00	2.79 (SF)	59.40 (CY)	190.18 (SF)	552.60 (CY)
80+00	29.28 (SF)	100.29 (CY)	108.23 (SF)	316.32 (CY)
79+00	24.88 (SF)	123.94 (CY)	62.59 (SF)	124.33 (CY)



	Cut Area	Cut Vol	Fill Area	Fill Vol
86+00	86.83 (SF)	250.72 (CY)	0.53 (SF)	13.44 (CY)
85+00	48.55 (SF)	128.15 (CY)	6.73 (SF)	68.30 (CY)
84+00	20.65 (SF)	46.99 (CY)	30.16 (SF)	414.33 (CY)

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