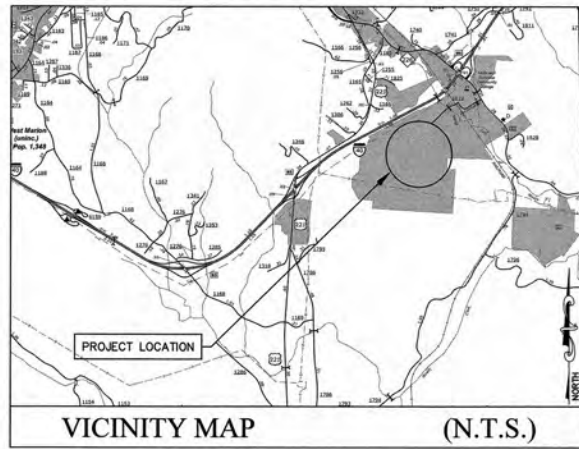


CONTRACT: DM00302 TIP PROJECT: R-5964

See Sheet 1A For Index of Sheets

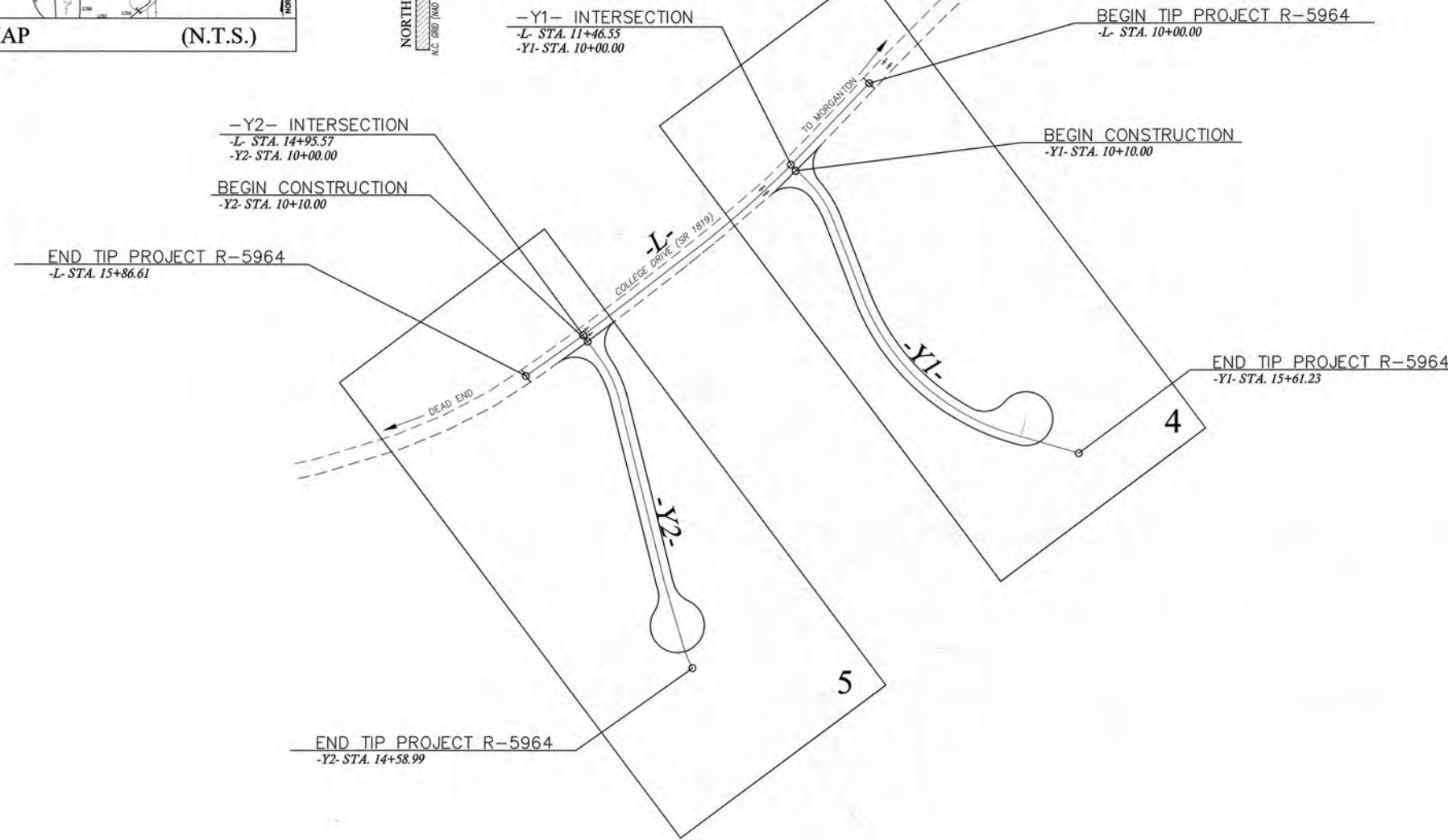


STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS

MCDOWELL COUNTY

LOCATION: **I-40 (EXIT 86) AT NC226 S (COLLEGE DRIVE)**

TYPE OF WORK: **GRADING AND PAVING**



NOT TO SCALE

STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	R-5964	1	
STATE PROJ. NO.	F. A. PROJ. NO.	DESCRIPTION	
48925.3.1	1819003		

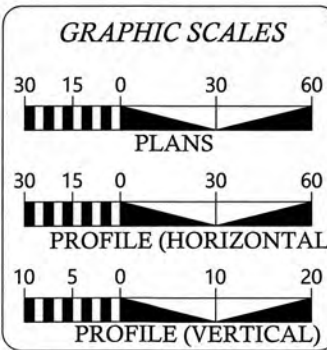
CONSULTING ENGINEER
NORTH CAROLINA FIRM NUMBER C-2849

A.C.E.

Advantage Civil Engineering, P.A.

MICHAEL LOVOY, P.E.
34 BIG BEAR TRAIL
ASHEVILLE, NC 28805
(828) 545-5393
mlovoy@acesville.com

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED



DESIGN DATA

2020 ADT =	N/A
2030 ADT =	N/A
K =	N/A
D =	N/A
T =	N/A
V =	25 MPH
TTST =	N/A
FUNC. CLASS =	
SUB REGIONAL TIER	

PROJECT LENGTH

LENGTH ROADWAY TIP PROJECT (-Y1-)=	0.1063 MILES
LENGTH ROADWAY TIP PROJECT (-Y2-)=	0.0869 MILES
TOTAL LENGTH TIP PROJECT =	0.1932 MILES

Prepared in the Office of:
ADVANTAGE CIVIL ENGINEERING P.A.
34 BIG BEAR TRAIL, ASHEVILLE NC 28805 PHONE (828) 545-5393

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE: _____

LETTING DATE: _____

<p style="text-align: center;">MICHAEL D. LOVOY PROJECT ENGINEER</p> <hr/> <p style="text-align: center;">ULRICK GARRISON PROJECT DESIGN ENGINEER</p> <hr/> <p style="text-align: center;">DIVISION PROJECT DEVELOPMENT ENGINEER</p>	<p style="text-align: center;">HYDRAULICS ENGINEER</p> <p style="text-align: center;">P.E.</p> <hr/> <p style="text-align: center;">ROADWAY DESIGN ENGINEER</p> <p style="text-align: center;">P.E.</p>
--	---

SIGNATURE: _____

SIGNATURE: _____



ROADWAY DESIGN
ENGINEER



**DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED**

GENERAL NOTES: 2018 SPECIFICATIONS
EFFECTIVE: 01-16-2018
REVISED:

GRADE LINE:
GRADING AND SURFACING:
THE GRADE LINES SHOWN DENOTE THE FINISHED ELEVATION OF THE PROPOSED SURFACING AT GRADE POINTS SHOWN ON THE TYPICAL SECTIONS. GRADE LINES MAY BE ADJUSTED AT THEIR BEGINNING AND ENDING AND AT STRUCTURES AS DIRECTED BY THE ENGINEER IN ORDER TO SECURE A PROPER TIE-IN.

CLEARING:
CLEARING ON THIS PROJECT SHALL BE PERFORMED TO THE LIMITS ESTABLISHED BY METHOD II.

SUPERELEVATION:
THIS PROJECT DOES NOT USE SUPERELEVATED ROADS.

SHOULDER CONSTRUCTION:
ASPHALT, EARTH, AND CONCRETE SHOULDER CONSTRUCTION ON THE HIGH SIDE OF SUPERELEVATED CURVES SHALL BE IN ACCORDANCE WITH STD. NO. 560.01 AND 560.02

SIDE ROADS:
THE CONTRACTOR WILL BE REQUIRED TO DO ALL NECESSARY WORK TO PROVIDE SUITABLE CONNECTIONS WITH ALL ROADS, STREETS, AND DRIVES ENTERING THIS PROJECT. THIS WORK WILL BE PAID FOR AT THE CONTRACT UNIT PRICE FOR THE PARTICULAR ITEMS INVOLVED.

SUBSURFACE DRAINS:
SUBSURFACE DRAINS SHALL BE CONSTRUCTED IN ACCORDANCE WITH STD. NO. 815.02 AT LOCATIONS DIRECTED BY THE ENGINEER.

GUARDRAIL:
THERE IS NO PROPOSED GUARDRAIL ON THIS PROJECT.

TEMPORARY SHORING:
SHORING REQUIRED FOR THE MAINTENANCE OF TRAFFIC NOT SHOWN ON THE PLANS WILL BE PAID FOR AT THE CONTRACT PRICE FOR "TEMPORARY SHORING".

SUBSURFACE PLANS:
NO SUBSURFACE PLANS ARE AVAILABLE ON THIS PROJECT. THE CONTRACTOR SHOULD MAKE HIS OWN INVESTIGATION AS TO THE SUBSURFACE CONDITIONS.

UTILITIES:
UTILITY OWNERS ON THIS PROJECT ARE
DUKE ENERGY & TOWN OF MARION PUBLIC WORKS

RIGHT-OF-WAY MARKERS:
ALL RIGHT-OF-WAY MARKERS ON THIS PROJECT SHALL BE PLACED BY CONTRACT.

2018 ROADWAY ENGLISH STANDARD DRAWINGS

THE FOLLOWING ROADWAY STANDARDS AS APPEAR IN "ROADWAY STANDARD DRAWINGS" HIGHWAY DESIGN BRANCH N.C. DEPARTMENT OF TRANSPORTATION - RALEIGH, N.C., DATED January, 2018 ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY ARE CONSIDERED A PART OF THESE PLANS:

STD. NO.	TITLE
DIVISION 2	- EARTHWORK
200.02	METHOD OF CLEARING - METHOD II
225.02	GUIDE FOR GRADING SUBGRADE - SECONDARY AND LOCAL
225.06	METHOD OF GRADING SIGHT DISTANCE AT INTERSECTIONS
DIVISION 3	- PIPE CULVERTS
300.01	METHOD OF PIPE INSTALLATION
310.05	CROSS PIPE END SECTION - PREFABRICATED STEEL SECTION 18" TO 30" PIPE
DIVISION 7	- CONCRETE PAVEMENTS AND SHOULDERS
700.05	TYING PROPOSED PAVEMENT TO EXISTING PAVEMENT
DIVISION 8	- INCIDENTALS
838.01	CONCRETE ENDWALL FOR SINGLE AND DOUBLE PIPE CULVERTS
838.80	PRECAST CONCRETE ENDWALL FOR SINGLE 12" THRU 72" PIPE 90 DEGREE SKEW
840.00	CONCRETE BASE PAD FOR DRAINAGE STRUCTURES
840.14	CONCRETE DROP INLET - 12" THRU 30" PIPE
840.16	DROP INLET FRAME AND GRATES - FOR USE WITH STD. DWG 840.14 AND 840.15
840.25	ANCHORAGE FOR FRAMES - BRICK OR CONCRETE OR PRECAST
840.27	BRICK GRATES DROP INLET TYPE 'B' - 12" THRU 36" PIPE
840.45	PRECAST DRAINAGE STRUCTURE
840.66	DRAINAGE STRUCTURE STEPS
904.50	MOUNTING OF TYPE 'D', 'E' AND 'F' SIGNS ON 'U' CHANNEL POSTS
DIVISION 9	- SIGNING
904.50	
DIVISION 16	- EROSION CONTROL AND ROADSIDE DEVELOPMENT
1605.01	TEMPORARY SILT FENCE
1606.01	SILT FENCE BREAKS
1607.01	GRAVEL CONSTRUCTION ENTRANCE
1630.05	TEMPORARY DIVERSION
1631.01	ROLLED EROSION CONTROL PRODUCTS (RECP)
1632.02	ROCK INLET SEDIMENT TRAP TYPE B
1633.01	TEMPORARY ROCK SILT CHECK TYPE A
1635.01	ROCK PIPE INLET SEDIMENT TRAP TYPE A

INDEX OF SHEETS	
SHEET NUMBER	SHEET
1	TITLE SHEET
1A	INDEX OF SHEETS, GENERAL NOTES, AND STANDARD DRAWINGS
1B	CONVENTIONAL SYMBOLS
1C-1	SURVEY CONTROL SHEETS
2A-1	PAVEMENT SCHEDULE AND TYPICAL SECTIONS
3B-1	ROADWAY SUMMARIES
3D-1	DRAINAGE SUMMARIES
3G-1	GEOTECHNICAL SUMMARIES
4 THRU 6	PLAN AND PROFILE SHEET
EC-1 THRU EC-7	EROSION CONTROL PLANS
UO-1 THRU UO-2	UTILITIES BY OTHERS
X-0	CROSS-SECTION SUMMARY SHEET
X-1 THRU X-8	CROSS-SECTIONS

STATE OF NORTH CAROLINA, DIVISION OF HIGHWAYS

PROJECT SPECIFIC SHEET SYMBOLS

BOUNDARIES AND PROPERTY:

State Line	
County Line	
Township Line	
City Line	
Reservation Line	
Property Line	
Existing Iron Pin	
Computed Property Corner	
Property Monument	
Parcel / Sequence Number	
Existing Fence Line	
Proposed Woven Wire Fence	
Proposed Chain Link Fence	
Proposed Barbed Wire Fence	
Existing Wetland Boundary	
Proposed Wetland Boundary	
Existing Endangered Animal Boundary	
Existing Endangered Plant Boundary	
Existing Historic Property Boundary	
Known Contamination Area: Soil	
Potential Contamination Area: Soil	
Known Contamination Area: Water	
Potential Contamination Area: Water	
Contaminated Site: Known or Potential	

BUILDINGS AND OTHER CULTURE:

Gas Pump Vent or U/G Tank Cap	
Sign	
Well	
Small Mine	
Foundation	
Area Outline	
Cemetery	
Building	
School	
Church	
Dam	

HYDROLOGY:

Stream or Body of Water	
Hydro, Pool or Reservoir	
Jurisdictional Stream	
Buffer Zone 1	
Buffer Zone 2	
Flow Arrow	
Disappearing Stream	
Spring	
Wetland	
Proposed Lateral, Tail, Head Ditch	
False Sump	

RAILROADS:

Standard Gauge	
RR Signal Milepost	
Switch	
RR Abandoned	
RR Dismantled	

Note: Not to Scale *S.U.E. = Subsurface Utility Engineering

RIGHT OF WAY & PROJECT CONTROL:

Secondary Horiz and Vert Control Point	
Primary Horiz Control Point	
Primary Horiz and Vert Control Point	
Exist Permanent Easement Pin and Cap	
New Permanent Easement Pin and Cap	
Vertical Benchmark	
Existing Right of Way Marker	
Existing Right of Way Line	
New Right of Way Line	
New Right of Way Line with Pin and Cap	
New Right of Way Line with Concrete or Granite R/W Marker	
New Control of Access Line with Concrete C/A Marker	
Existing Control of Access	
New Control of Access	
Existing Easement Line	
New Temporary Construction Easement	
New Temporary Drainage Easement	
New Permanent Drainage Easement	
New Permanent Drainage / Utility Easement	
New Permanent Utility Easement	
New Temporary Utility Easement	
New Aerial Utility Easement	

ROADS AND RELATED FEATURES:

Existing Edge of Pavement	
Existing Curb	
Proposed Slope Stakes Cut	
Proposed Slope Stakes Fill	
Proposed Curb Ramp	
Existing Metal Guardrail	
Proposed Guardrail	
Existing Cable Guiderail	
Proposed Cable Guiderail	
Equality Symbol	
Pavement Removal	

VEGETATION:

Single Tree	
Single Shrub	

Hedge	
Woods Line	
Orchard	
Vineyard	

EXISTING STRUCTURES:

MAJOR:	
Bridge, Tunnel or Box Culvert	
Bridge Wing Wall, Head Wall and End Wall	
MINOR:	
Head and End Wall	
Pipe Culvert	
Footbridge	
Drainage Box: Catch Basin, DI or JB	
Paved Ditch Gutter	
Storm Sewer Manhole	
Storm Sewer	

UTILITIES:

POWER:	
Existing Power Pole	
Proposed Power Pole	
Existing Joint Use Pole	
Proposed Joint Use Pole	
Power Manhole	
Power Line Tower	
Power Transformer	
U/G Power Cable Hand Hole	
H-Frame Pole	
U/G Power Line LOS B (S.U.E.*)	
U/G Power Line LOS C (S.U.E.*)	
U/G Power Line LOS D (S.U.E.*)	

TELEPHONE:

Existing Telephone Pole	
Proposed Telephone Pole	
Telephone Manhole	
Telephone Pedestal	
Telephone Cell Tower	
U/G Telephone Cable Hand Hole	
U/G Telephone Cable LOS B (S.U.E.*)	
U/G Telephone Cable LOS C (S.U.E.*)	
U/G Telephone Cable LOS D (S.U.E.*)	
U/G Telephone Conduit LOS B (S.U.E.*)	
U/G Telephone Conduit LOS C (S.U.E.*)	
U/G Telephone Conduit LOS D (S.U.E.*)	
U/G Fiber Optics Cable LOS B (S.U.E.*)	
U/G Fiber Optics Cable LOS C (S.U.E.*)	
U/G Fiber Optics Cable LOS D (S.U.E.*)	

WATER:

Water Manhole		4
Water Meter		a
Water Valve		I
Water Hydrant		H
U/G Water Line LOS B (S.U.E.*)		
U/G Water Line LOS C (S.U.E.*)		
U/G Water Line LOS D (S.U.E.*)		
Above Ground Water Line		

TV:

TV Pedestal		I
TV Tower		I
U/G TV Cable Hand Hole		I
U/G TV Cable LOS B (S.U.E.*)		
U/G TV Cable LOS C (S.U.E.*)		
U/G TV Cable LOS D (S.U.E.*)		
U/G Fiber Optic Cable LOS B (S.U.E.*)		
U/G Fiber Optic Cable LOS C (S.U.E.*)		
U/G Fiber Optic Cable LOS D (S.U.E.*)		

GAS:

Gas Valve		C
Gas Meter		n
U/G Gas Line LOS B (S.U.E.*)		
U/G Gas Line LOS C (S.U.E.*)		
U/G Gas Line LOS D (S.U.E.*)		
Above Ground Gas Line		

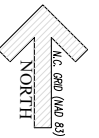
SANITARY SEWER:

Sanitary Sewer Manhole		d
Sanitary Sewer Cleanout		o
U/G Sanitary Sewer Line		
Above Ground Sanitary Sewer		
SS Forced Main Line LOS B (S.U.E.*)		
SS Forced Main Line LOS C (S.U.E.*)		
SS Forced Main Line LOS D (S.U.E.*)		

MISCELLANEOUS:

Utility Pole		O
Utility Pole with Base		F
Utility Located Object		S
Utility Traffic Signal Box		3
Utility Unknown U/G Line LOS B (S.U.E.*)		
U/G Tank; Water, Gas, Oil		
Underground Storage Tank, Approx. Loc.		
A/G Tank; Water, Gas, Oil		
Geoenvironmental Boring		
U/G Test Hole LOS A (S.U.E.*)		
Abandoned According to Utility Records		AATUR
End of Information		E.O.I.

SURVEY CONTROL SHEET R-5964

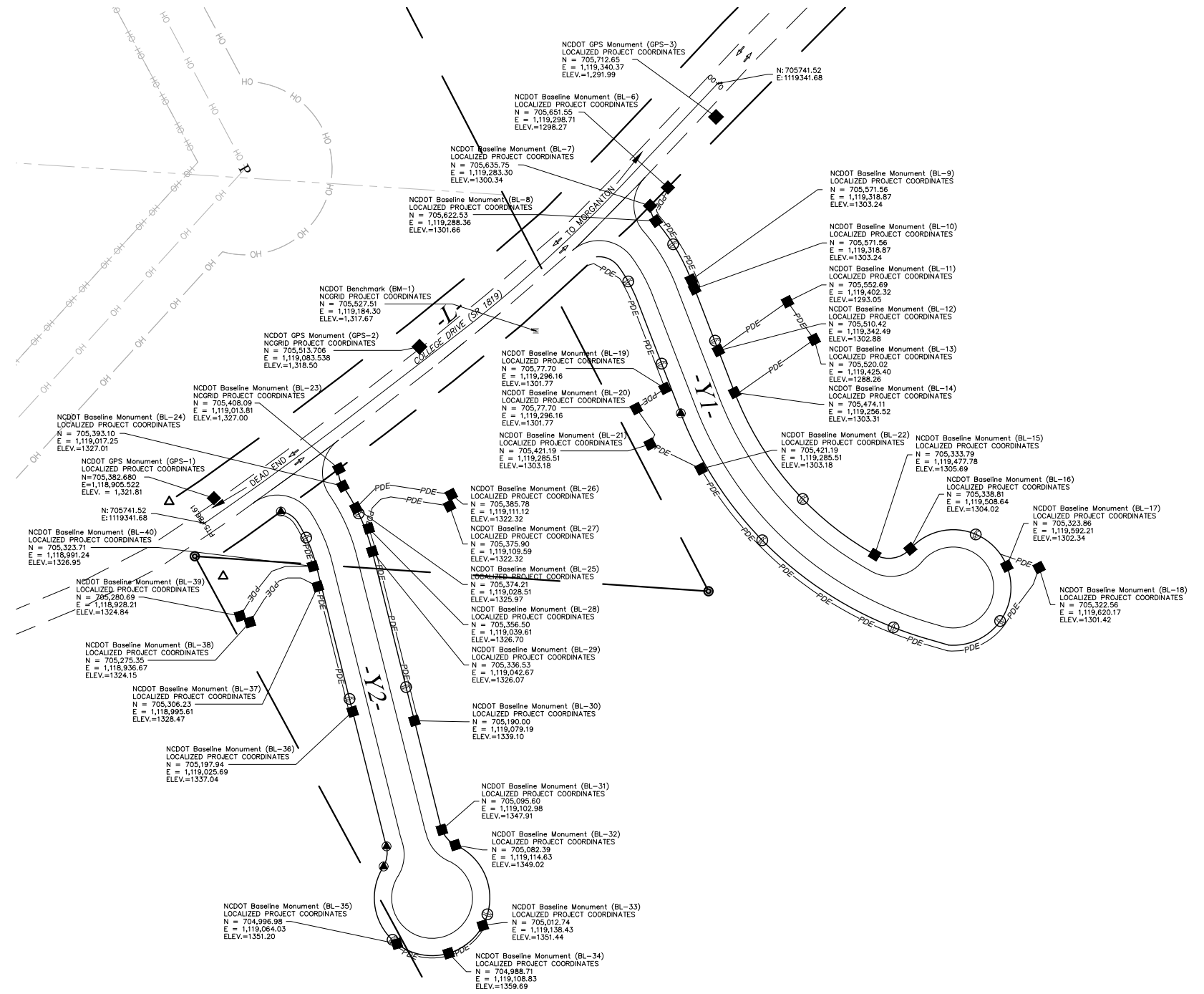


GPS					
Point	Northing	Easting	Elevation	Description	L - Station Offset
1	705382.67964	1118905.52215	1321.81	GPS-1	15+67.50 R13.17
2	705513.70567	1119083.53767	1318.50	GPS-2	13+45.82 R11.40
3	705712.64801	1119340.36556	1291.99	GPS-3	0+21.92 L18.84
4	706012.05202	1119614.07481	1257.57	GPS-4	Outside Limits
5	706225.10894	1119947.95597	1254.72	GPS-5	Outside Limits

BM					
Point	Northing	Easting	Elevation	Description	L - Station Offset
6	705527.51	1119184.30	1317.67	BM-1	12+59.85 L40.34

BL					
Point	Northing	Easting	Elevation	Description	-Y1- Station Offset
7	705651.55	1119298.71	1298.27	BL-7	10+29.72 L52.34
8	705635.75	1119283.30	1300.34	BL-8	10+29.95 L30.27
9	705622.53	1119288.36	1301.66	BL-9	10+41.05 L25.00
10	705571.56	1119318.87	1302.20	BL-10	10+92.21 L25.00
11	705563.80	1119321.86	1302.28	BL-11	11+00.53 L25.00
12	705552.69	1119402.32	1293.05	BL-12	11+39.90 L96.05
13	705510.42	1119342.49	1302.86	BL-13	11+57.76 L25.00
14	705520.02	1119425.40	1288.32	BL-14	11+78.69 L105.80
15	705474.11	1119356.52	1303.29	BL-15	11+96.68 L25.00
16	705333.79	1119477.78	1305.69	BL-16	14+03.04 L25.00
17	705338.81	1119508.64	1304.02	BL-17	14+31.61 L43.39
18	705323.86	1119592.21	1302.34	BL-18	15+22.12 L54.67
19	705322.56	1119620.17	1301.42	BL-19	15+49.34 L61.19
20	705477.70	1119296.16	1301.77	BL-20	11+71.59 R30.00
21	705460.21	1119271.42	1298.82	BL-21	11+78.97 R59.39
22	705429.40	1119283.35	1300.94	BL-22	12+09.48 R59.69
23	705408.01	1119327.37	1306.08	BL-23	12+43.37 R30.00

Y2- Station Offset					
Point	Northing	Easting	Elevation	Description	-Y2- Station Offset
24	705408.09	1119013.81	1327.00	BL-24	10+29.41 L30.94
25	705393.10	1119017.25	1327.00	BL-25	10+42.95 L25.00
26	705374.21	1119028.51	1325.97	BL-26	10+61.82 L25.00
27	705385.78	1119111.12	1322.32	BL-27	10+77.99 L105.25
28	705375.90	1119109.59	1322.32	BL-28	10+83.19 L100.43
29	705356.50	1119039.61	1326.70	BL-29	10+79.41 L28.00
30	705336.53	1119042.67	1326.07	BL-30	10+96.39 L25.00
31	705190.00	1119079.19	1339.10	BL-31	12+47.40 L25.00
32	705095.60	1119102.98	1347.91	BL-32	13+45.92 L25.00
33	705082.39	1119114.63	1349.02	BL-33	13+61.91 L32.39
34	705012.74	1119138.43	1351.44	BL-34	14+37.72 L35.01
35	704988.71	1119108.83	1351.19	BL-35	14+49.85 R1.59
36	704996.98	1119064.03	1351.20	BL-36	14+28.99 R40.56
37	705197.94	1119025.69	1337.04	BL-37	12+26.76 R25.00
38	705306.23	1118995.61	1328.47	BL-38	11+14.40 R28.00
39	705275.35	1118936.67	1324.15	BL-39	11+30.12 R92.66
40	705280.69	1118928.21	1324.84	BL-40	11+22.90 R99.58
41	705323.71	1118991.24	1326.95	BL-41	10+96.39 R28.00



NOTES:

- THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING PROJECT CONTROL DATA AT:

THE FILES TO BE FOUND ARE AS FOLLOWS:
R-5964_SURVEY_CONTROL.TXT

SITE CALIBRATION INFORMATION HAS NOT BEEN PROVIDED FOR THIS PROJECT. IF FURTHER INFORMATION IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.

INDICATES GEODETIC CONTROL MONUMENTS USED OR SET FOR HORIZONTAL PROJECT CONTROL BY THE NCDOT LOCATION AND SURVEYS UNIT. PROJECT CONTROL ESTABLISHED USING GLOBAL POSITIONING SYSTEM. NETWORK ESTABLISHED FROM NGS ONLINE POSITIONING SERVICE (OPUS)

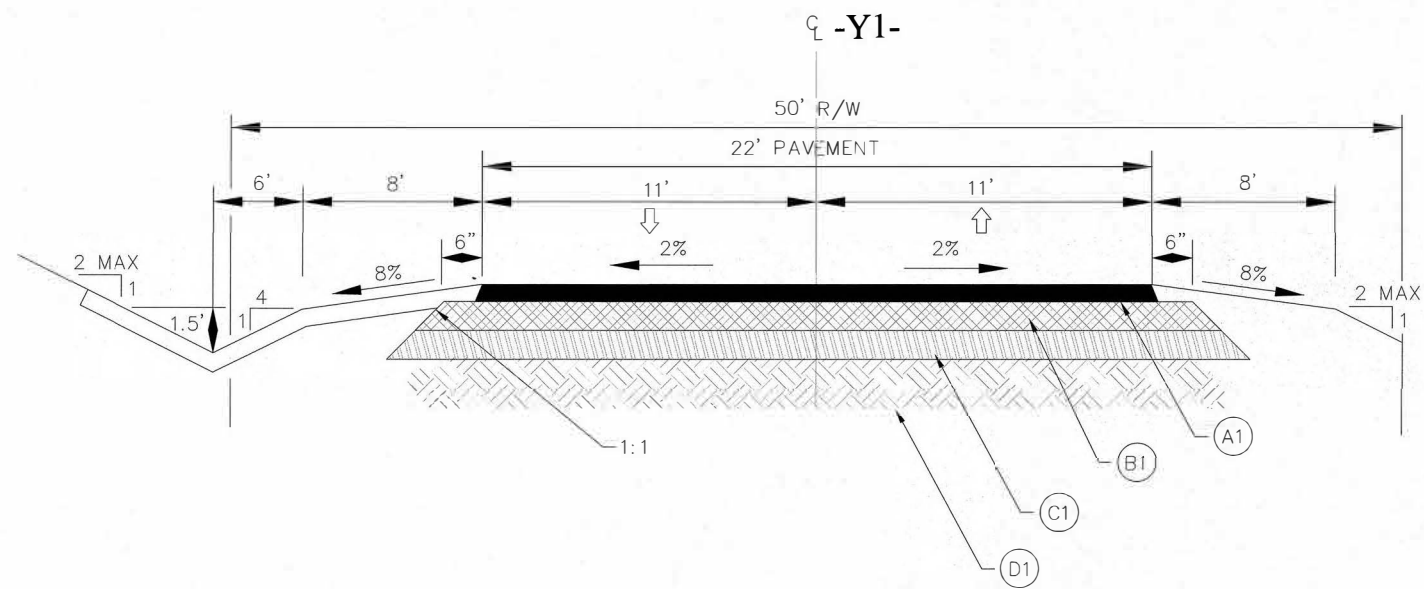
NOTE: DRAWING NOT TO SCALE

DATUM DESCRIPTION

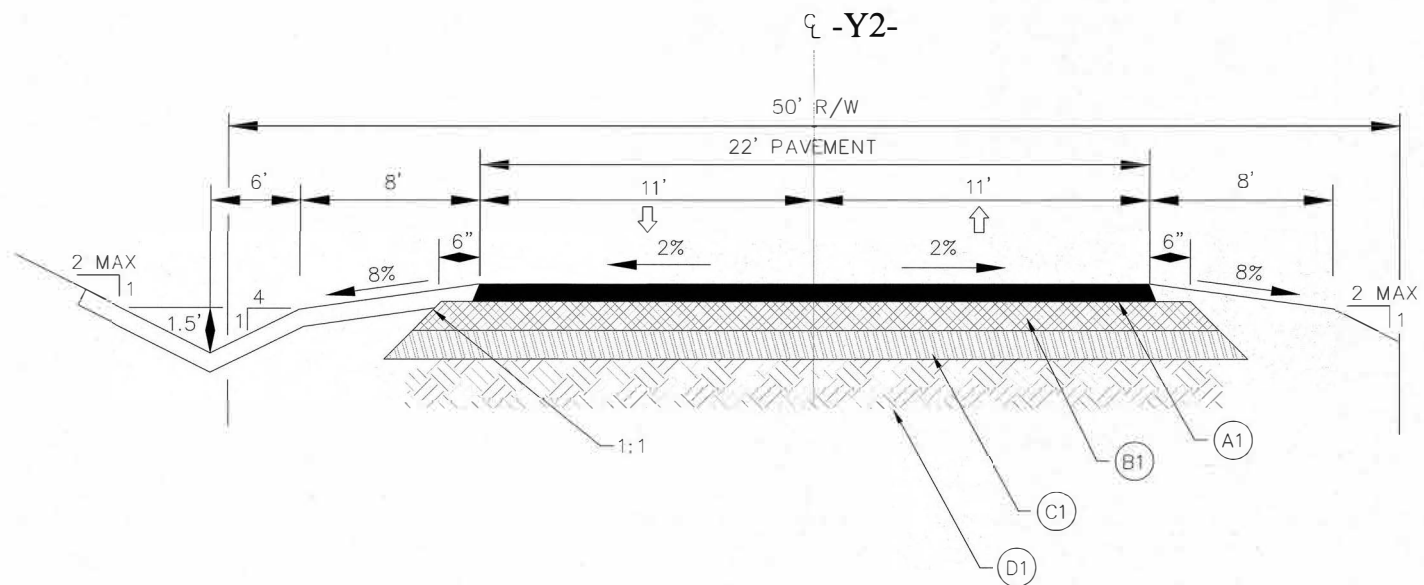
THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THE PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY SUTTLIES SURVEYING FOR MONUMENT "BL-2" WITH NAD 83/NSRS 2011 STATE PLANE GRID COORDINATES OF NORTHING: 705513.70567 (FT) EASTING: 1119083.53767 (FT)

THE AVERAGE COMBINED SCALE FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.99999705097608

ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES THE VERTICAL DATUM IS BASED ON SUTTLIES SURVEYING, PA MONUMENT BL-2 (ELEV. 1318.50 FT.) (NAD 1988)



TYPICAL SECTION NO. 1
-Y1- STA. 10+10.00 TO STA. 15+61.23



TYPICAL SECTION NO. 2
-Y2- STA. 10+10.00 TO STA. 14+58.99

PAVEMENT STRUCTURE	
A1	PROPOSED APPROXIMATE 2" ASPHALT CONCRETE SURFACE COURSE, TYPE S9.5C AT AN AVERAGE RATE OF 224 LBS. PER SQ. YD. IN ONE LAYER
B1	PROPOSED APPROXIMATE 4" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE I19.0C, AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD.
C1	PROPOSED APPROXIMATE 4" BASE COURSE, TYPE B25.0C AT AN AVERAGE RATE OF 456 LBS. PER SQ. YD. IN EACH OF TWO LAYERS
D1	COMPACTED SUBGRADE TO 100% STANDARD PROCTOR

STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS

SUMMARY OF EARTHWORK

LOCATION	UNCLASSIFIED EXCAVATION	UNDERCUT	EMBT+%	BORROW	WASTE
SUMMARY NO.1					
-Y1- STA. 10+10.00 TO 15+61.23					
10+00.00	0		0	0	0
10+10.00	18		8	0	10
10+50.00	737		5	0	732
11+00.00	284		106	0	178
11+50.00	11		1448	1437	0
12+00.00	0		2324	2324	0
12+50.00	190		975	785	0
13+00.00	1340		431	0	909
13+50.00	2519		372	0	2147
14+00.00	2655		149	0	2506
14+50.00	577		891	314	0
15+00.00	90		1000	910	0
15+50.00	126		4	0	122
SUBTOTAL SUMMARY NO.1	8547		7713	5770	6604
SUMMARY NO.2					
-Y2- STA. 10+10.00 TO 14+58.99					
10+00.00	0		0	0	0
10+10.00	301		5	0	296
10+50.00	2420		0	0	2420
11+00.00	1164		0	0	1164
11+50.00	426		0	0	426
12+00.00	130		5	0	125
12+50.00	4		84	80	0
13+00.00	0		382	382	0
13+50.00	0		1130	1130	0
14+00.00	0		1184	1184	0
14+50.00	65		49	0	16
SUBTOTAL SUMMARY NO.2	4510		2839	2776	4447
PROJECT SUBTOTAL	13057		10552	8546	11051
LOSS DUE TO CLEARING AND GRUBBING	-3149				-3149
ADDITIONAL UNDERCUT					
WASTE IN LIEU OF BORROW					
PROJECT TOTAL	13057		10552		2505
EST. 5% FOR REPLACING TOP SOIL ON BORROW PITS					
GRAND TOTAL	9908			644	
SAY	10403			676	

NOTE:

APPROXIMATE QUANTITIES ONLY. UNCLASSIFIED EXCAVATION, BORROW EXCAVATION, FINE GRADING, CLEARING AND GRUBBING, AND REMOVAL OF EXISTING PAVEMENT WILL BE PAID FOR AT THE CONTRACT LUMP SUM PRICE FOR GRADING.

STATE OF NORTH CAROLINA DIVISION OF HIGHWAYS

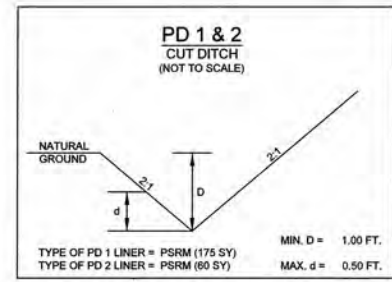
SUMMARY OF GEOTEXTILE FOR PAVEMENT STABILIZATION

LINE	STATION	STATION	SY
CONTINGENCY			
		TOTAL SY:	100

SUMMARY OF SUBSURFACE DRAINAGE

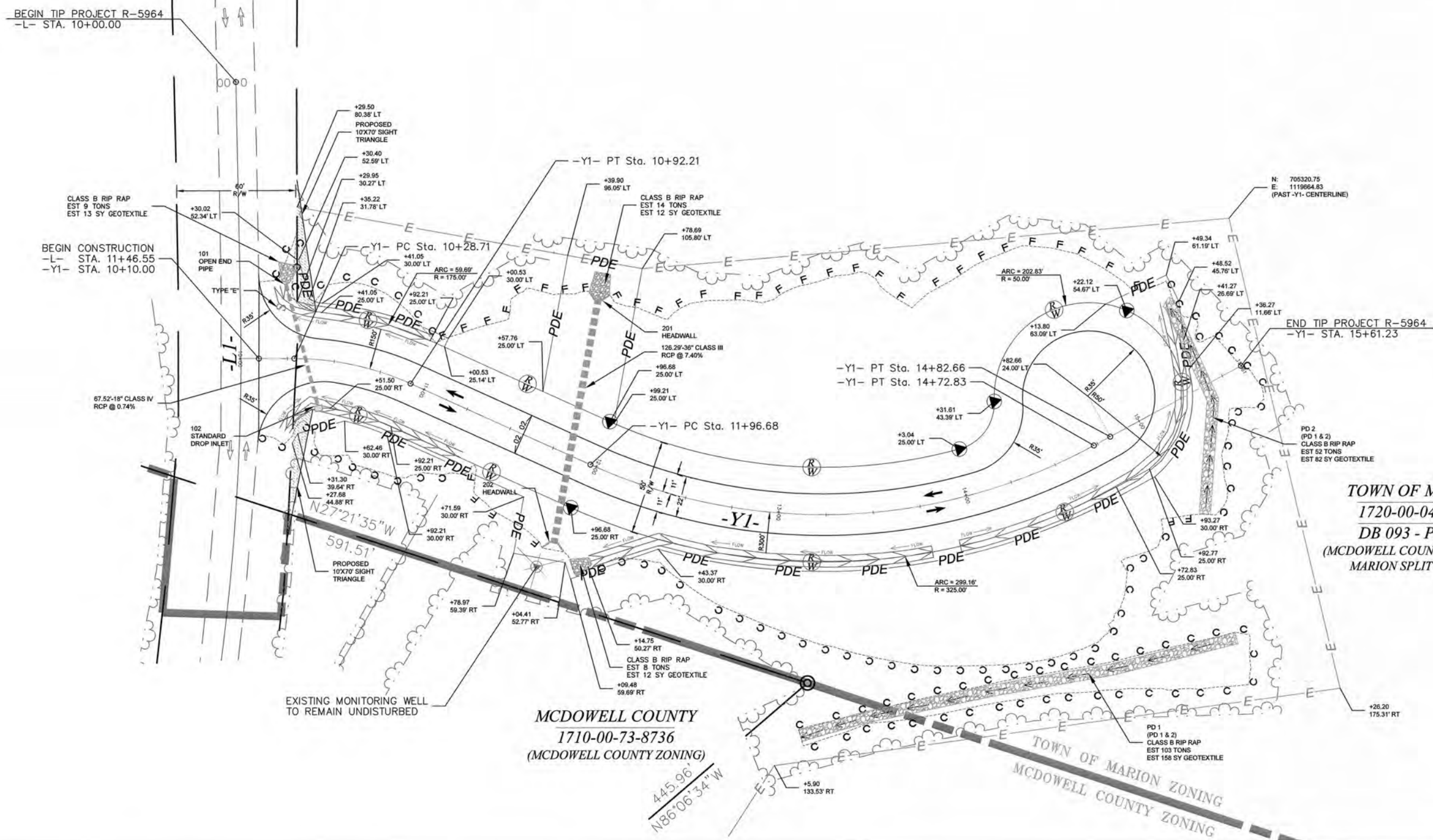
LINE	STATION	STATION	LOCATION LT/RT/CL	DRAIN TYPE* UD/BD/SD	LF
CONTINGENCY				SD	
				TOTAL LF:	200

*UD = UNDERDRAIN
*BD = BLIND DRAIN
*SD = SUBSURFACE DRAIN



-Y1-

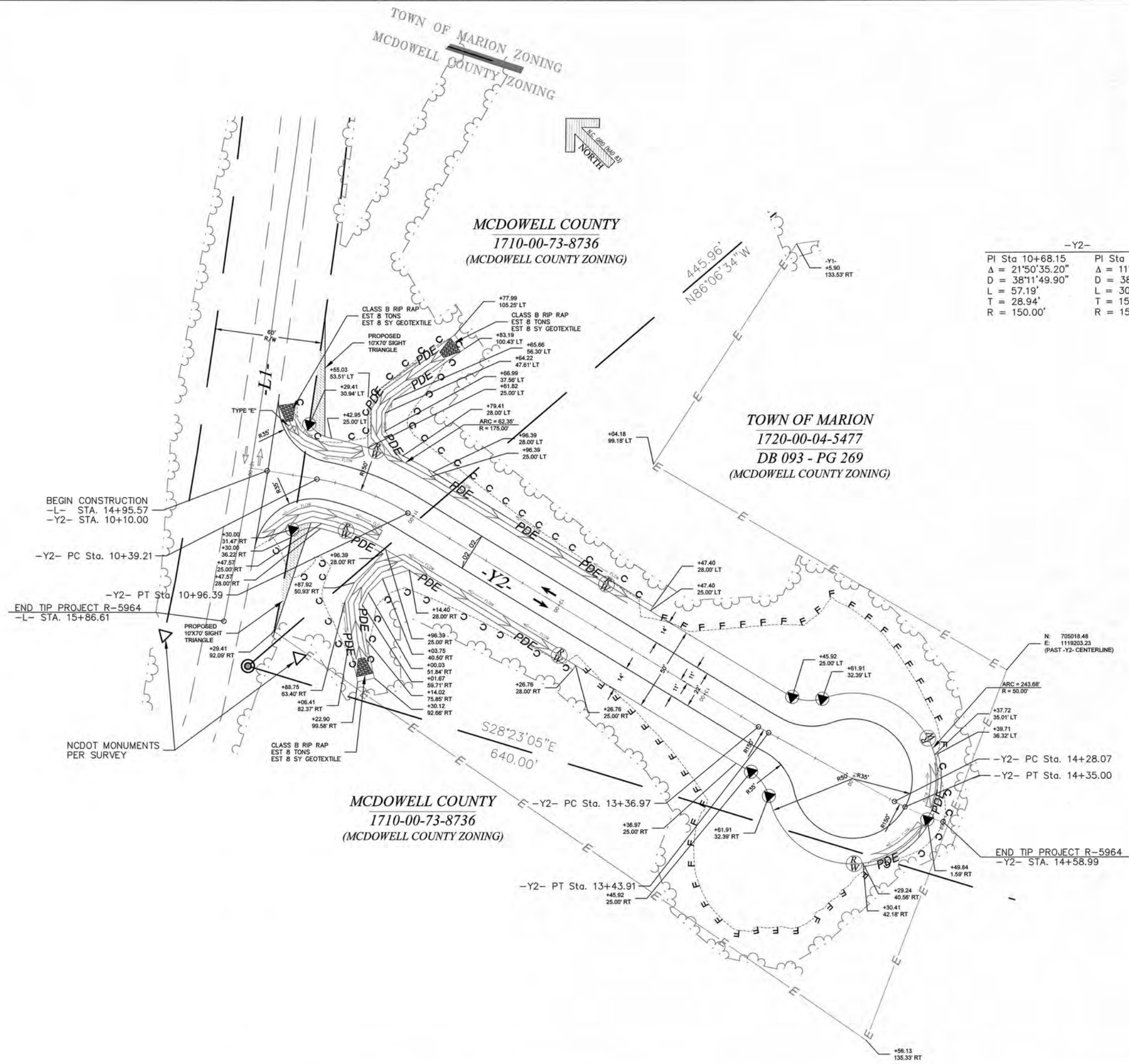
PI Sta 10+60.94	PI Sta 13+45.41
Δ = 24°15'22.90"	Δ = 52°44'27.40"
D = 38°11'49.90"	D = 19°05'54.90"
L = 63.50'	L = 276.15'
T = 32.23'	T = 148.73'
R = 150.00'	R = 300.00'



TOWN OF MARION
1720-00-04-5477
DB 093 - PG 269
(MCDOWELL COUNTY- TOWN OF MARION SPLIT ZONING)

MCDOWELL COUNTY
1710-00-73-8736
(MCDOWELL COUNTY ZONING)

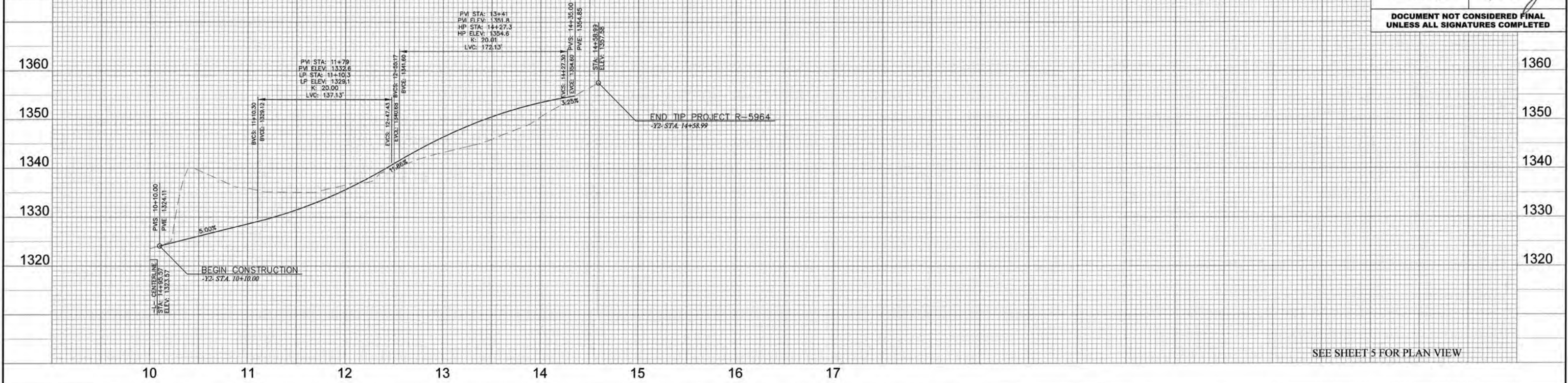
TOWN OF MARION ZONING
MCDOWELL COUNTY ZONING



-Y2-

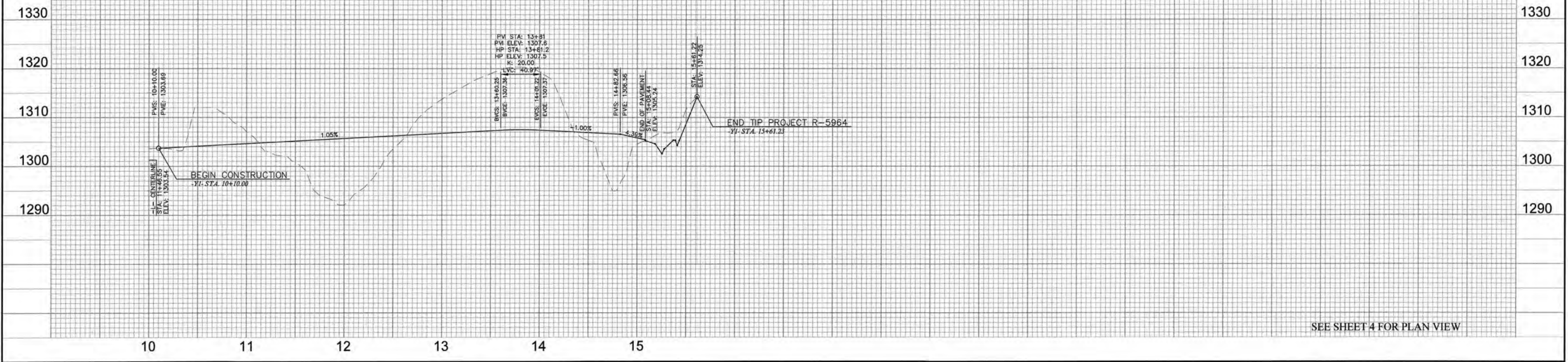
PI Sta 10+68.15	PI Sta 14+43.51
A = 21°50'35.20"	A = 11°45'15.40"
D = 38°11'49.90"	D = 38°11'56.30"
L = 57.19'	L = 30.77'
T = 28.94'	T = 15.44'
R = 150.00'	R = 150.00'

-Y2-



SEE SHEET 5 FOR PLAN VIEW

-Y1-



SEE SHEET 4 FOR PLAN VIEW

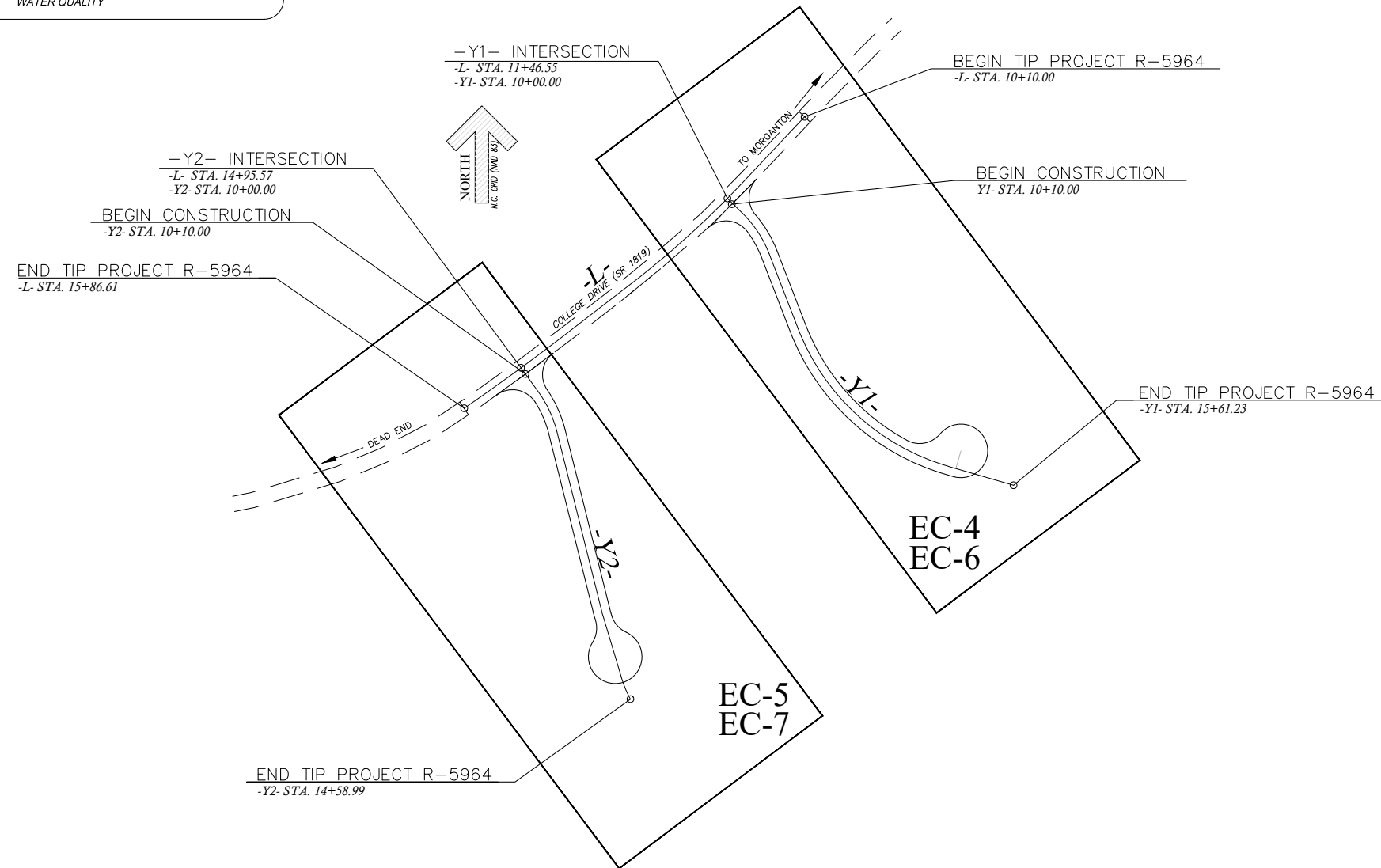
EROSION CONTROL PLAN

THESE EROSION AND SEDIMENT CONTROL PLANS COMPLY WITH THE REGULATIONS SET FORTH BY THE NCG-010000 GENERAL CONSTRUCTION PERMIT EFFECTIVE AUGUST 3, 2011 ISSUED BY THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENT AND NATURAL RESOURCES DIVISION OF WATER QUALITY

TYPE OF WORK: GRADING, DRAINAGE, AND PAVING

PROJECT REFERENCE NO. R-5964	SHEET NO. EC-1
CONSULTING ENGINEER NORTH CAROLINA FIRM NUMBER C-2849	
A.C.E. ASHEVILLE CONSULTING ENGINEERS, P.A.	
MICHAEL LOVOY, P.E. 34 BIG BEAR TRAIL ASHEVILLE, NC 28805	(828) 545-5393 mlovoy@aceasheville.com

PLACE MATTING FOR EROSION CONTROL ON SLOPE AS WORK ALLOWS.



Std. #	Description	Symbol
N/A	PROPOSED CUT LINE	---
N/A	PROPOSED FILL LINE	- - -
1605.01	TEMPORARY SILT FENCE	
1606.01	SPECIAL SEDIMENT CONTROL FENCE	▤▤▤▤▤▤▤▤▤▤
N/A	SILT FENCE BREAKS	▤▤▤▤▤▤▤▤▤▤
1630.05	TEMPORARY DIVERSION	→ TD → TD → TD → TD
1630.03	TEMPORARY SILT DITCH	→ TSD → TSD → TSD
N/A	CLEAN WATER DIVERSION	→ CWD → CWD → CWD
N/A	TEMPORARY EARTH BERM	→ → → → →
1631.01	ROLLED EROSION CONTROL PRODUCTS (RECP)	N/A
N/A	TEMPORARY ROCK SILT CHECK - TYPE A	▣
1633.02	TEMPORARY ROCK SILT CHECK - TYPE B	▣
1632.01 1632.02 1632.03	ROCK INLET SEDIMENT TRAP - TYPES A, B & C	▣
1635.01 1635.02	ROCK PIPE INLET SEDIMENT TRAP - TYPES A & B	▣
N/A	TEMPORARY CONSTRUCTION ENTRANCE	▣

NOTES: ANY DEVIATION FROM OPTIONS GIVEN WILL REQUIRE PRIOR APPROVAL BY ENGINEER.

ADDITIONAL EROSION CONTROL DEVICES MAY NEED TO BE INSTALLED AS DIRECTED BY THE ENGINEER.

**ROADSIDE ENVIRONMENTAL UNIT
DEPARTMENT OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.**

2018 STANDARDS AND SPECIFICATIONS

LEVEL 111-A DESIGNER OF EROSION AND SEDIMENT CONTROL PLANS

MICHAEL D. LOVOY, P.E.

DATE EXPIRES: DECEMBER 31, 2020
CERTIFICATION NUMBER: 29938

2018 STANDARD DRAWINGS

1605.01 TEMPORARY SILT FENCE
1606.01 SILT FENCE BREAKS
1607.01 GRAVEL CONSTRUCTION ENTRANCE
1631.01 ROLLED EROSION CONTROL PRODUCTS (RECP)
1633.01 TEMPORARY ROCK SILT CHECK - TYPE A
1632.02 ROCK INLET SEDIMENT TRAP - TYPE B
1635.01 ROCK PIPE INLET SEDIMENT TRAP - TYPE A

PROJECT NO. R-5964
COUNTY MCDOWELL

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH

I-40 (EXIT 86) AT NC226 S
(COLLEGE DRIVE)

REVISIONS						SHEET NO.
NO.	BY	DATE	NO.	BY	DATE	EC-1
						TOTAL SHEETS
						7

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

SOIL STABILIZATION TIMEFRAMES

SITE DESCRIPTION	STABILIZATION TIME	TIMEFRAME EXCEPTIONS
PERIMETER DIKES, SWALES, DITCHES, AND SLOPES	7 DAYS	NONE
HIGH QUALITY WATER (HQW) ZONES	7 DAYS	NONE
SLOPES STEEPER THAN 3:1	7 DAYS	IF SLOPES ARE 10' OR LESS IN LENGTH AND ARE NOT STEEPER THAN 2:1, 14 DAYS ARE ALLOWED
SLOPES 3:1 OR FLATTER	14 DAYS	7 DAYS FOR SLOPES GREATER THAN 50' IN LENGTH
ALL OTHER AREAS WITH SLOPES FLATTER THAN 4:1	14 DAYS	NONE, EXCEPT FOR PERIMETERS AND HQW ZONES

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

SOIL STABILIZATION SUMMARY SHEET

MATTING FOR EROSION CONTROL

PERMANENT SOIL REINFORCEMENT MAT

CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	ESTIMATE (SY)
4	Y1	13+80	15+43	RT	235
5	Y2	10+20	10+58	LT	55
5	Y2	14+32	14+59	LT	35
SUBTOTAL					325
MISCELLANEOUS MATTING TO BE INSTALLED AS DIRECTED BY THE ENGINEER					10,011
TOTAL					10,336
SAY					10,853
**EROSION CONTROL MATTING TO BE PLACED ON ALL DISTURBED CUT & FILL SLOPES					
4	-Y1- SEEDING_WEST ED	10+10	15+61	LT/RT	1.71 ACRES
5	-Y2- SEEDING_WEST ED	10+10	14+59	LT/RT	1.09 ACRES

CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	ESTIMATE (SY)
4	Y1	10+24	10+96	LT	100
4	Y1	13+00	13+80	RT	210
5	Y2	10+20	10+87	RT	70
5	Y2	14+41	14+59	RT	50
SUBTOTAL					430
ADDITIONAL PSRM TO BE INSTALLED					0
TOTAL					430
SAY					452
4	Y1	13+15	14+91	RT	68 TONS (RIPRAP)
4	Y1	15+06	15+44	RT	47 TONS (RIPRAP)
5	Y2	13+34	14+41	LT	57 TONS (RIPRAP)
5	Y2	13+81	14+32	RT	42 TONS (RIPRAP)
SUBTOTAL					214 TONS
ADDITIONAL RIPRAP TO BE INSTALLED					515 TONS
TOTAL					729 TONS
SAY					765 TONS

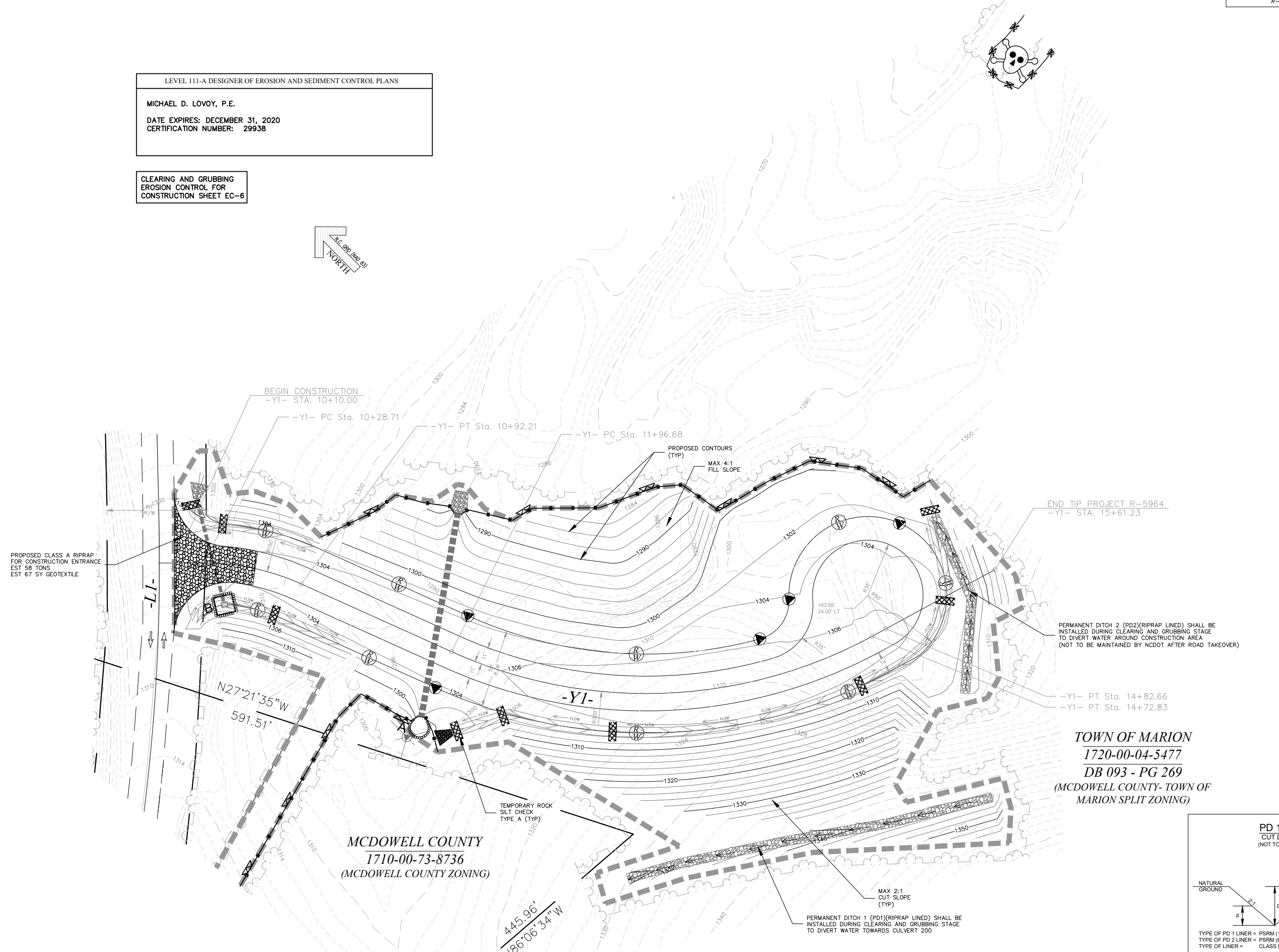
LEVEL 111-A DESIGNER OF EROSION AND SEDIMENT CONTROL PLANS

MICHAEL D. LOVOY, P.E.

DATE EXPIRES: DECEMBER 31, 2020

CERTIFICATION NUMBER: 29938

CLEARING AND GRUBBING
EROSION CONTROL FOR
CONSTRUCTION SHEET EC-6



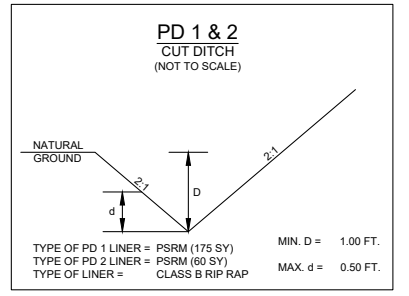
END TIP PROJECT R-5964
-Y1- STA. 15+61.23

PERMANENT DITCH 2 (PD2)(RIPRAP LINED) SHALL BE
INSTALLED DURING CLEARING AND GRUBBING STAGE
TO DIVERT WATER AROUND CONSTRUCTION AREA
(NOT TO BE MAINTAINED BY NCDOT AFTER ROAD TAKEOVER)

-Y1- PT Sta. 14+82.66
-Y1- PT Sta. 14+72.83

TOWN OF MARION
1720-00-04-5477
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(MCDOWELL COUNTY ZONING)



PERMANENT DITCH 1 (PD1)(RIPRAP LINED) SHALL BE
INSTALLED DURING CLEARING AND GRUBBING STAGE
TO DIVERT WATER TOWARDS CULVERT 200

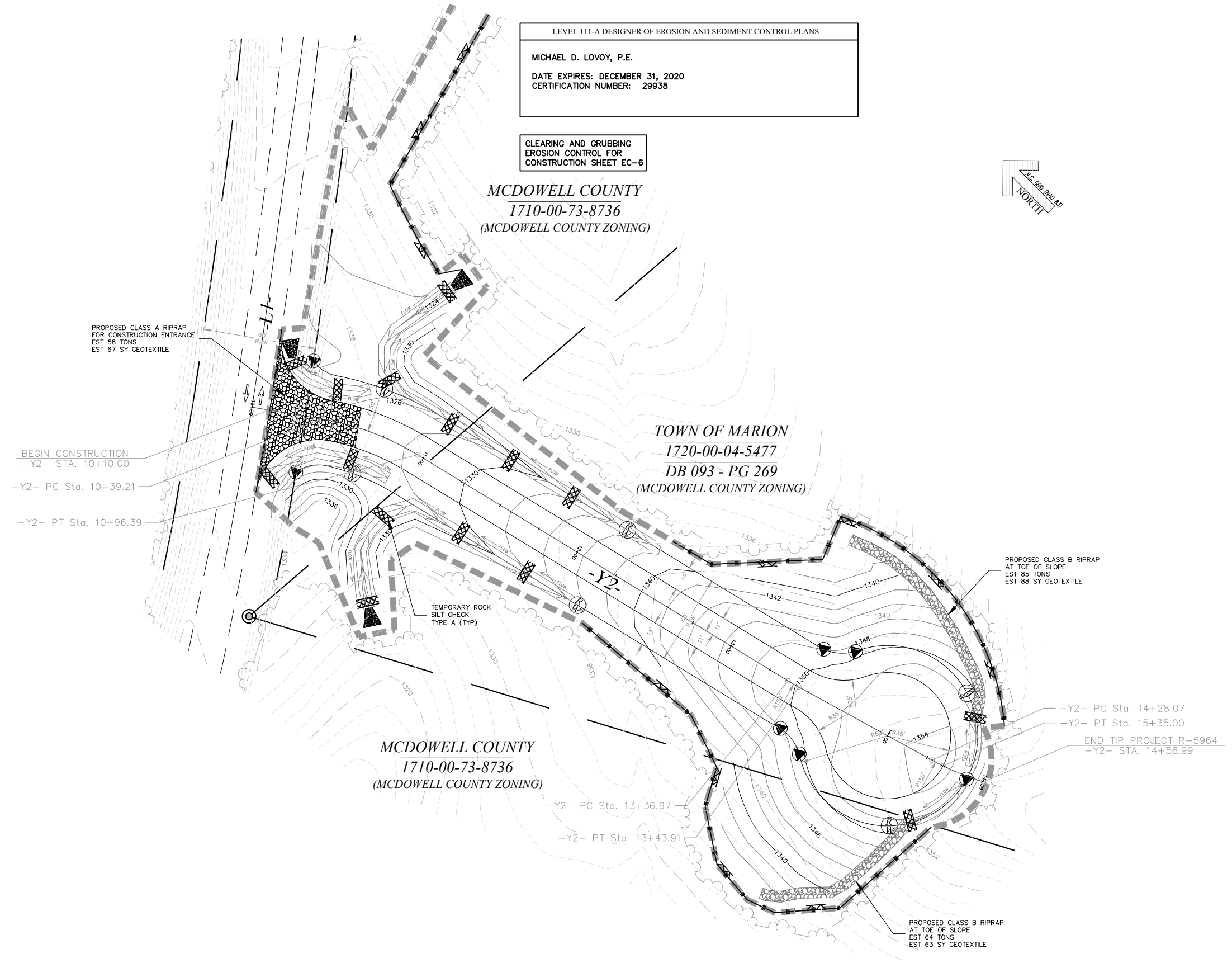
MAX 2:1
CUT SLOPE
(TYP)

445.96'
N86°06'34\"/>

LEVEL 111-A DESIGNER OF EROSION AND SEDIMENT CONTROL PLANS

MICHAEL D. LOVOY, P.E.
 DATE EXPIRES: DECEMBER 31, 2020
 CERTIFICATION NUMBER: 29938

CLEARING AND GRUBBING
 EROSION CONTROL FOR
 CONSTRUCTION SHEET EC-6

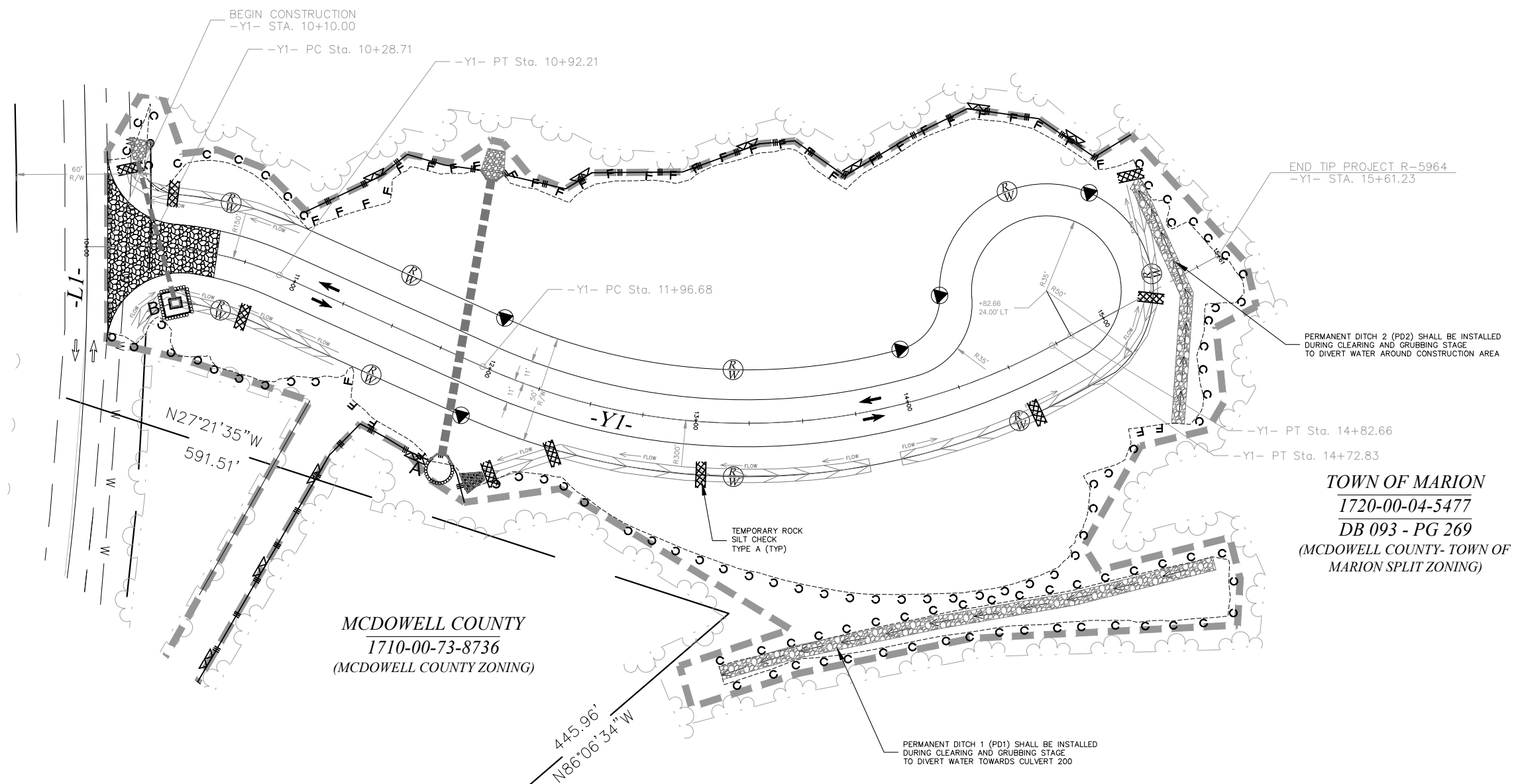




LEVEL 111-A DESIGNER OF EROSION AND SEDIMENT CONTROL PLANS

MICHAEL D. LOVOY, P.E.

DATE EXPIRES: DECEMBER 31, 2020
 CERTIFICATION NUMBER: 29938



END TIP PROJECT R-5964
 -Y1- STA. 15+61.23

PERMANENT DITCH 2 (PD2) SHALL BE INSTALLED DURING CLEARING AND GRUBBING STAGE TO DIVERT WATER AROUND CONSTRUCTION AREA

-Y1- PT Sta. 14+82.66
 -Y1- PT Sta. 14+72.83

TOWN OF MARION
 1720-00-04-5477
 DB 093 - PG 269
 (MCDOWELL COUNTY- TOWN OF MARION SPLIT ZONING)

MCDOWELL COUNTY
 1710-00-73-8736
 (MCDOWELL COUNTY ZONING)

PERMANENT DITCH 1 (PD1) SHALL BE INSTALLED DURING CLEARING AND GRUBBING STAGE TO DIVERT WATER TOWARDS CULVERT 200

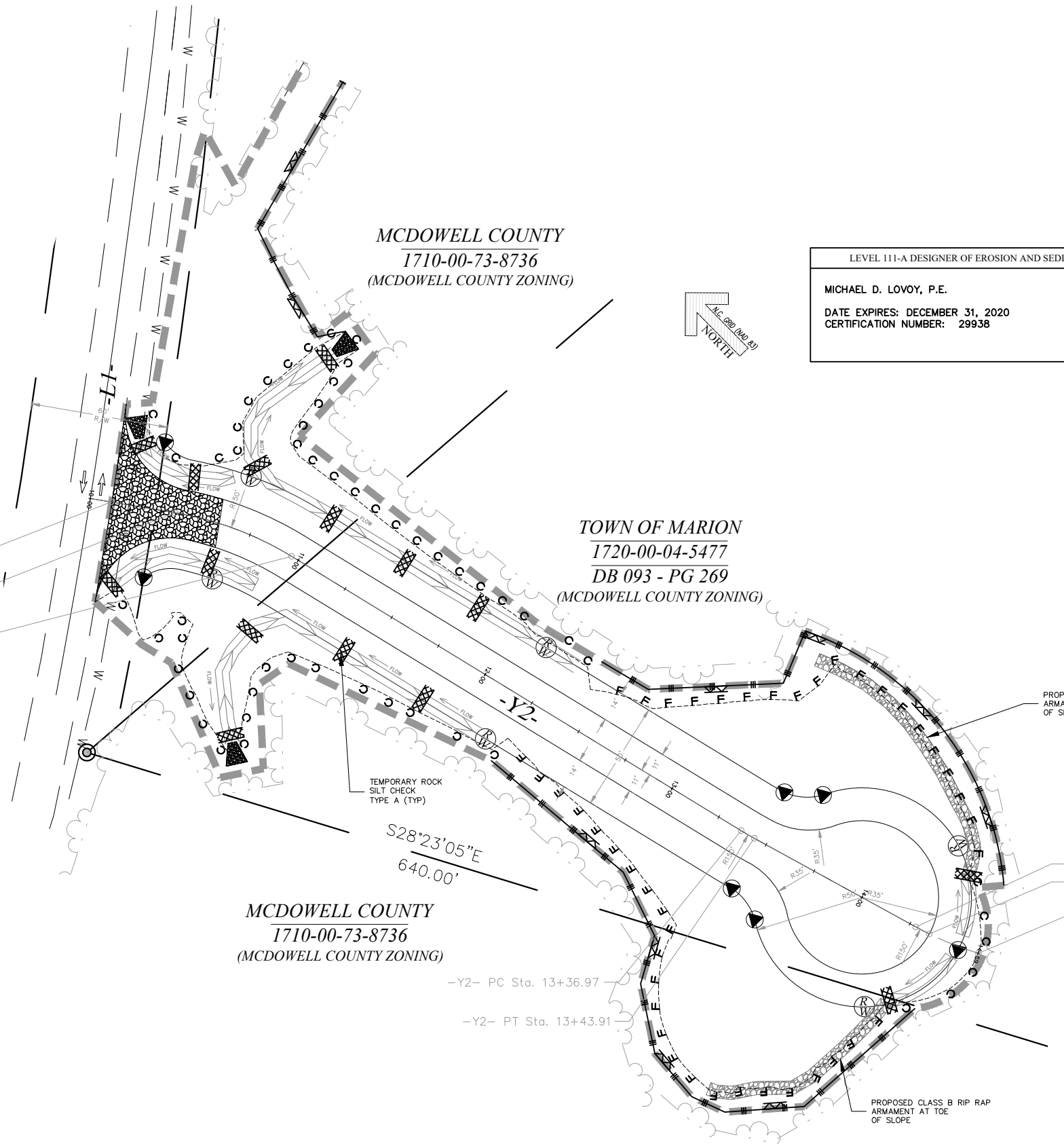
MCDOWELL COUNTY
 1710-00-73-8736
 (MCDOWELL COUNTY ZONING)



LEVEL 111-A DESIGNER OF EROSION AND SEDIMENT CONTROL PLANS
MICHAEL D. LOVOY, P.E.
DATE EXPIRES: DECEMBER 31, 2020
CERTIFICATION NUMBER: 29938

TOWN OF MARION
 1720-00-04-5477
 DB 093 - PG 269
 (MCDOWELL COUNTY ZONING)

BEGIN CONSTRUCTION
 -Y2- STA. 10+10.00
 -Y2- PC Sta. 10+39.21
 -Y2- PT Sta. 10+96.39



MCDOWELL COUNTY
 1710-00-73-8736
 (MCDOWELL COUNTY ZONING)

-Y2- PC Sta. 13+36.97
 -Y2- PT Sta. 13+43.91

PROPOSED CLASS B RIP RAP
 ARMAMENT AT TOE
 OF SLOPE

-Y2- PC Sta. 14+28.07
 -Y2- PT Sta. 15+35.00

END TIP PROJECT R-5964
 -Y2- STA. 14+58.99

PROPOSED CLASS B RIP RAP
 ARMAMENT AT TOE
 OF SLOPE

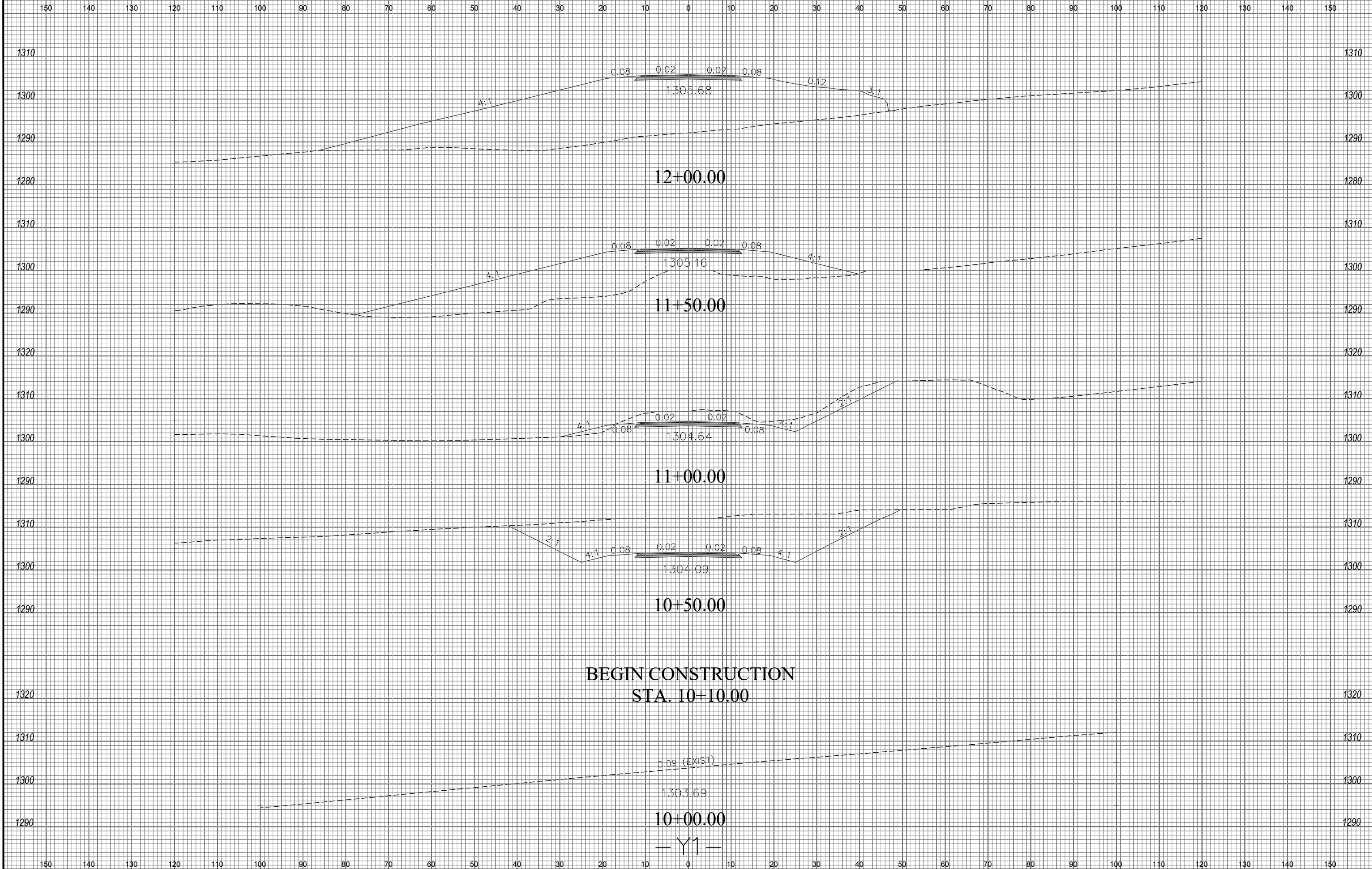
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS
CROSS SECTION - INDEX OF SHEETS

INDEX OF SHEETS	X-0
CROSS SECTION SUMMARY SHEET	X-1
-Y1-	X-2 THRU X-5
-Y2-	X-6 THRU X-8

7/27/20



PROJECT REFERENCE NO.	SHEET NO.
R-5964	X-2



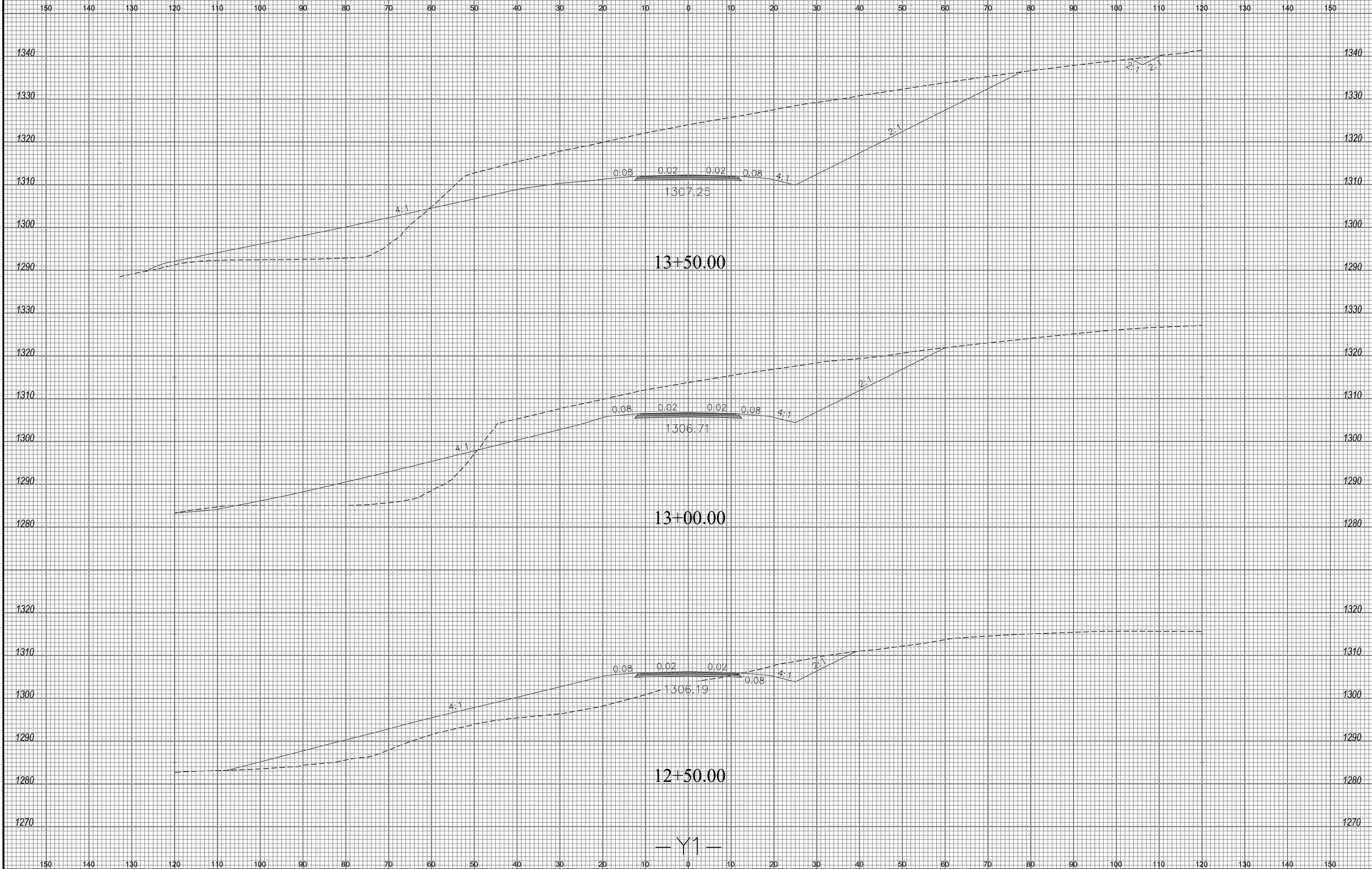
**BEGIN CONSTRUCTION
STA. 10+10.00**

— Y1 —

7/27/20



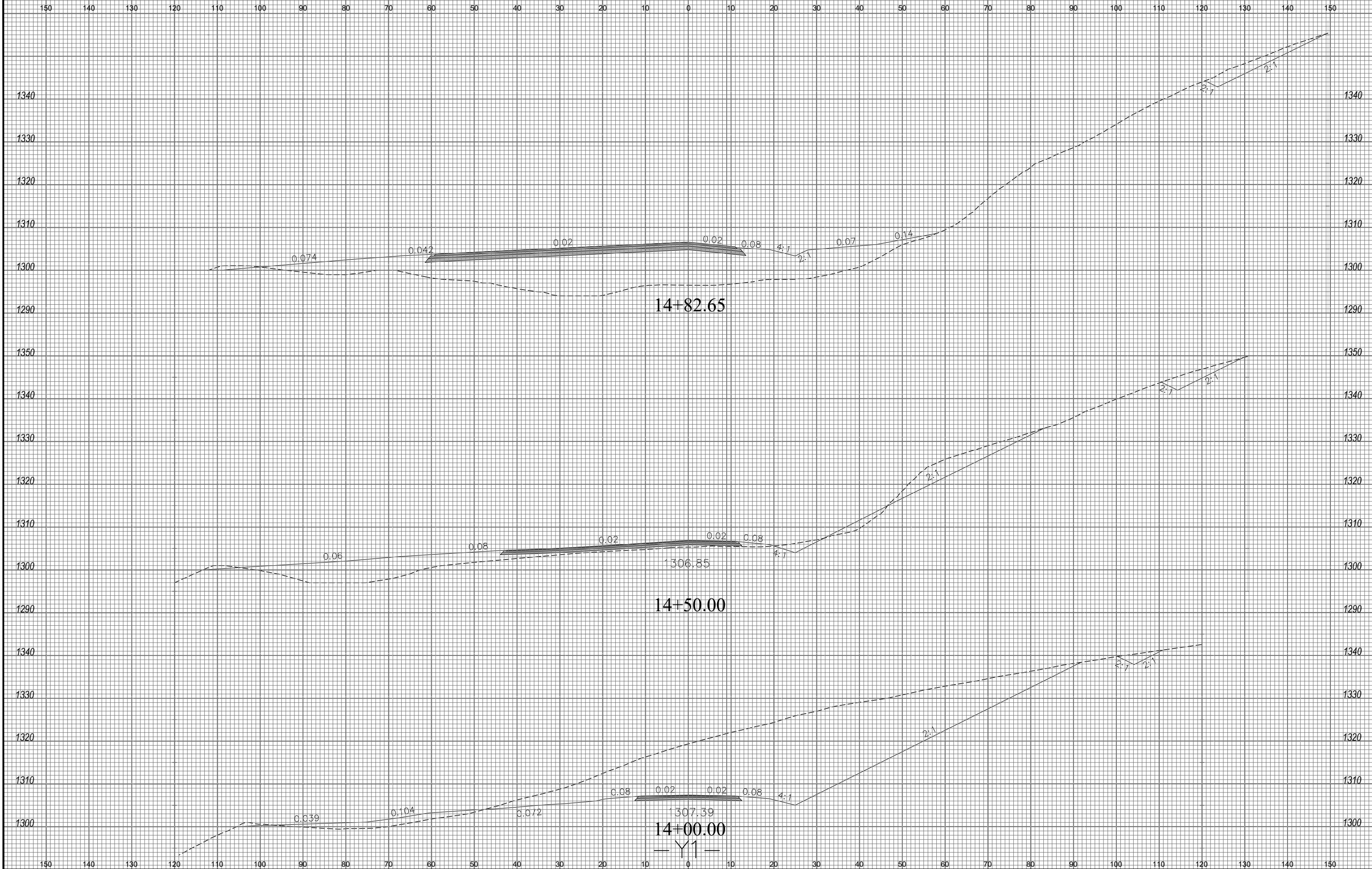
PROJECT REFERENCE NO.	SHEET NO.
R-5964	X-3



7/27/20



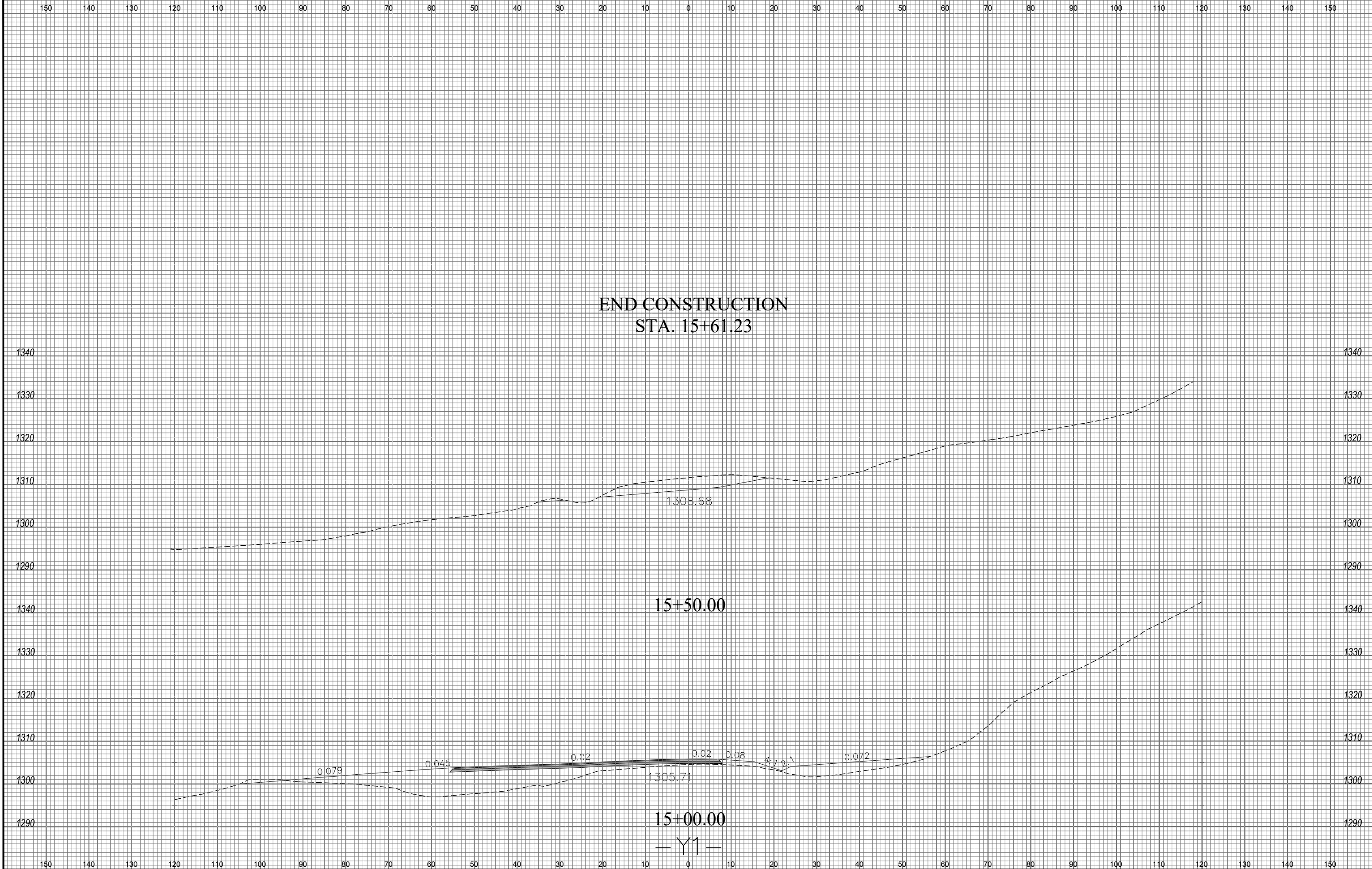
PROJECT REFERENCE NO.	SHEET NO.
R-5964	X-4



7/27/20



PROJECT REFERENCE NO. R-5964	SHEET NO. X-5
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END CONSTRUCTION
STA. 15+61.23

15+50.00

15+00.00

—Y1—

1308.68

1305.71

0.079

0.045

0.02

0.02

0.08

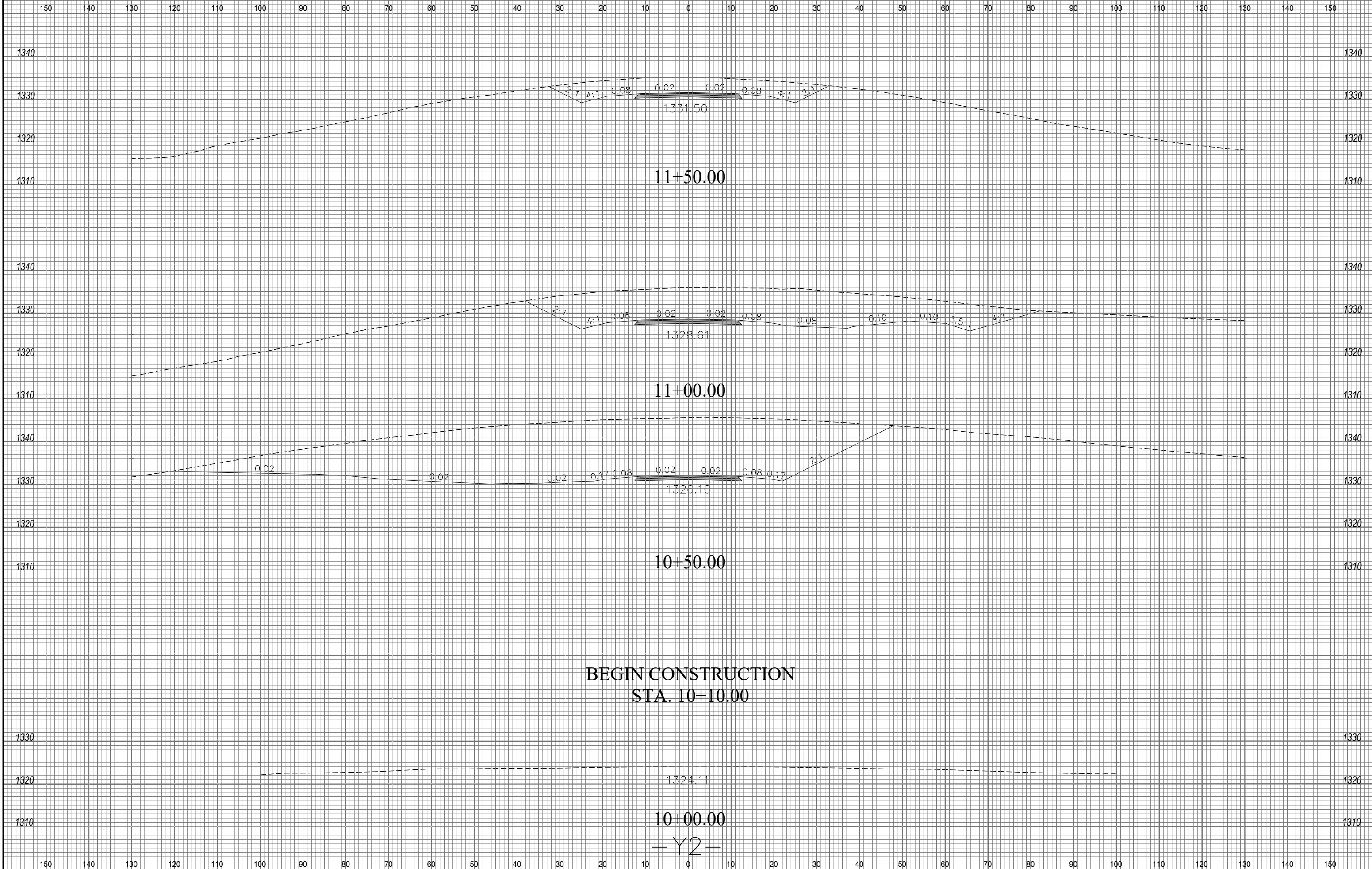
4:1 2:1

0.072

7/27/20



PROJECT REFERENCE NO.	SHEET NO.
R-5964	X-6



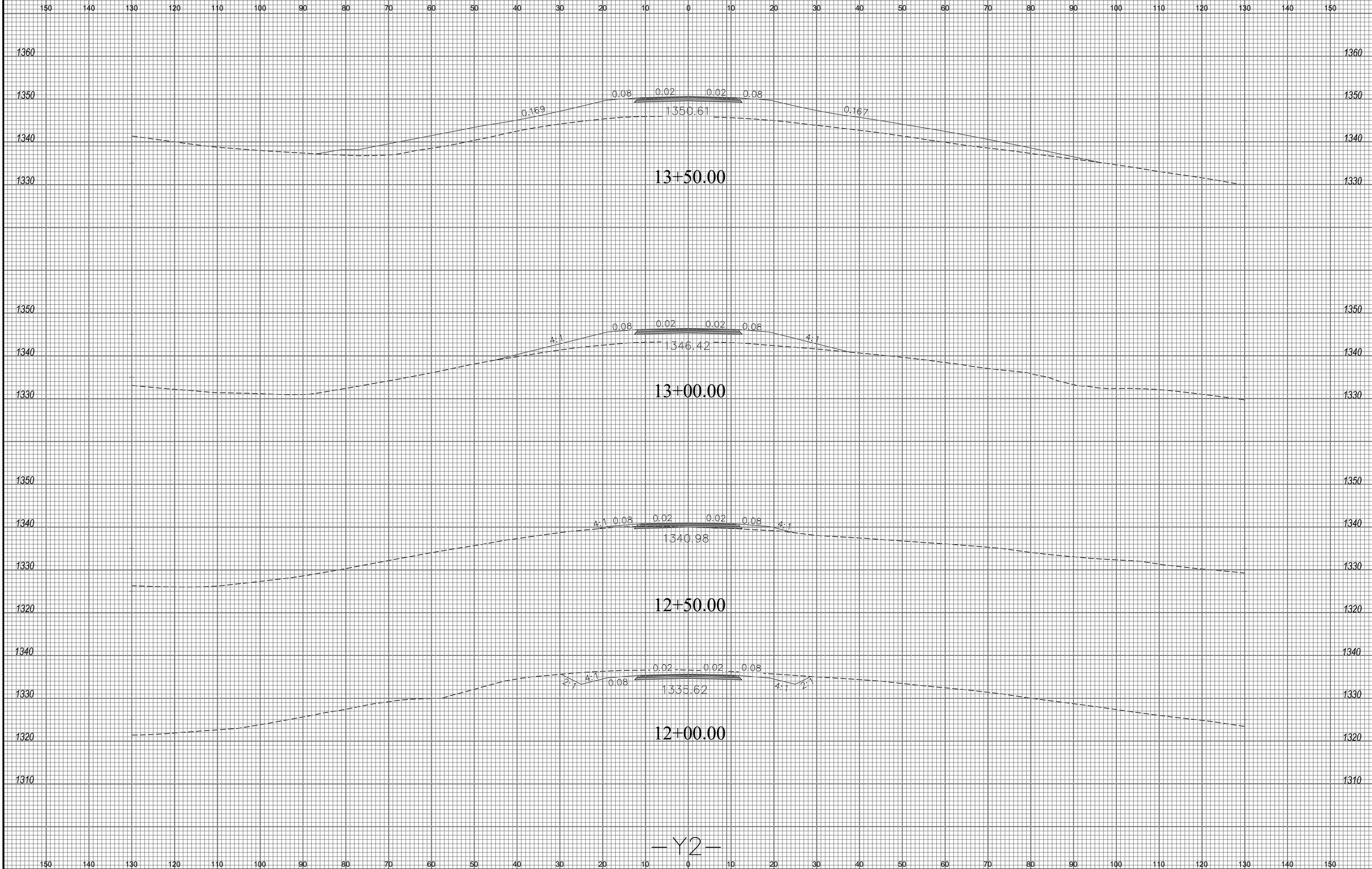
**BEGIN CONSTRUCTION
STA. 10+10.00**

-Y2-

7/27/20



PROJECT REFERENCE NO.	SHEET NO.
R-5964	X-7

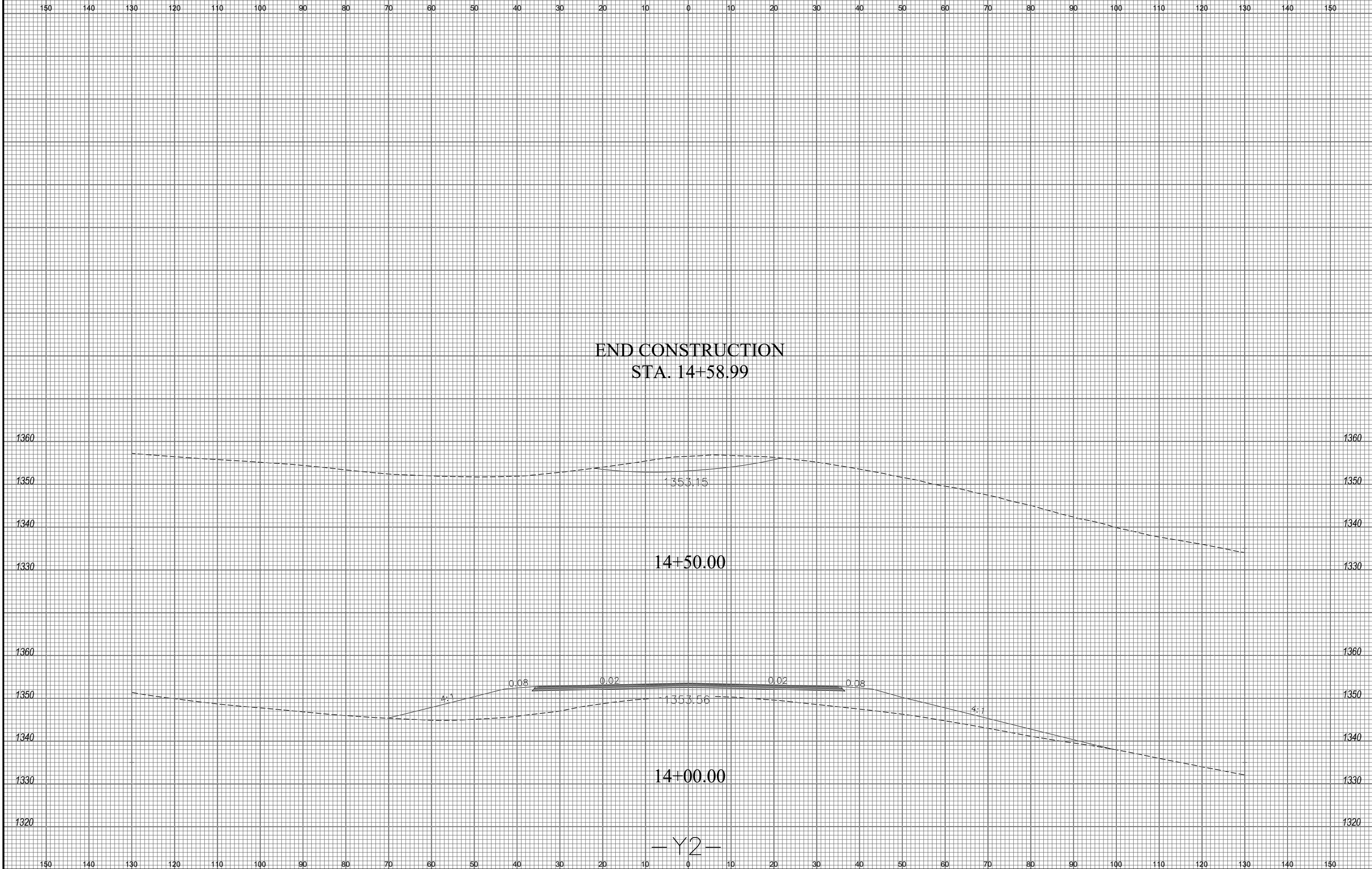


-Y2-

7/27/20



PROJECT REFERENCE NO. <i>R-5964</i>	SHEET NO. <i>X-8</i>
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END CONSTRUCTION
STA. 14+58.99

14+50.00

14+00.00

-Y2-

1353.15

1353.56

4:1

4:1

0.08

0.02

0.02

0.08