HORIZONTAL / VERTICAL CONTROL DATA

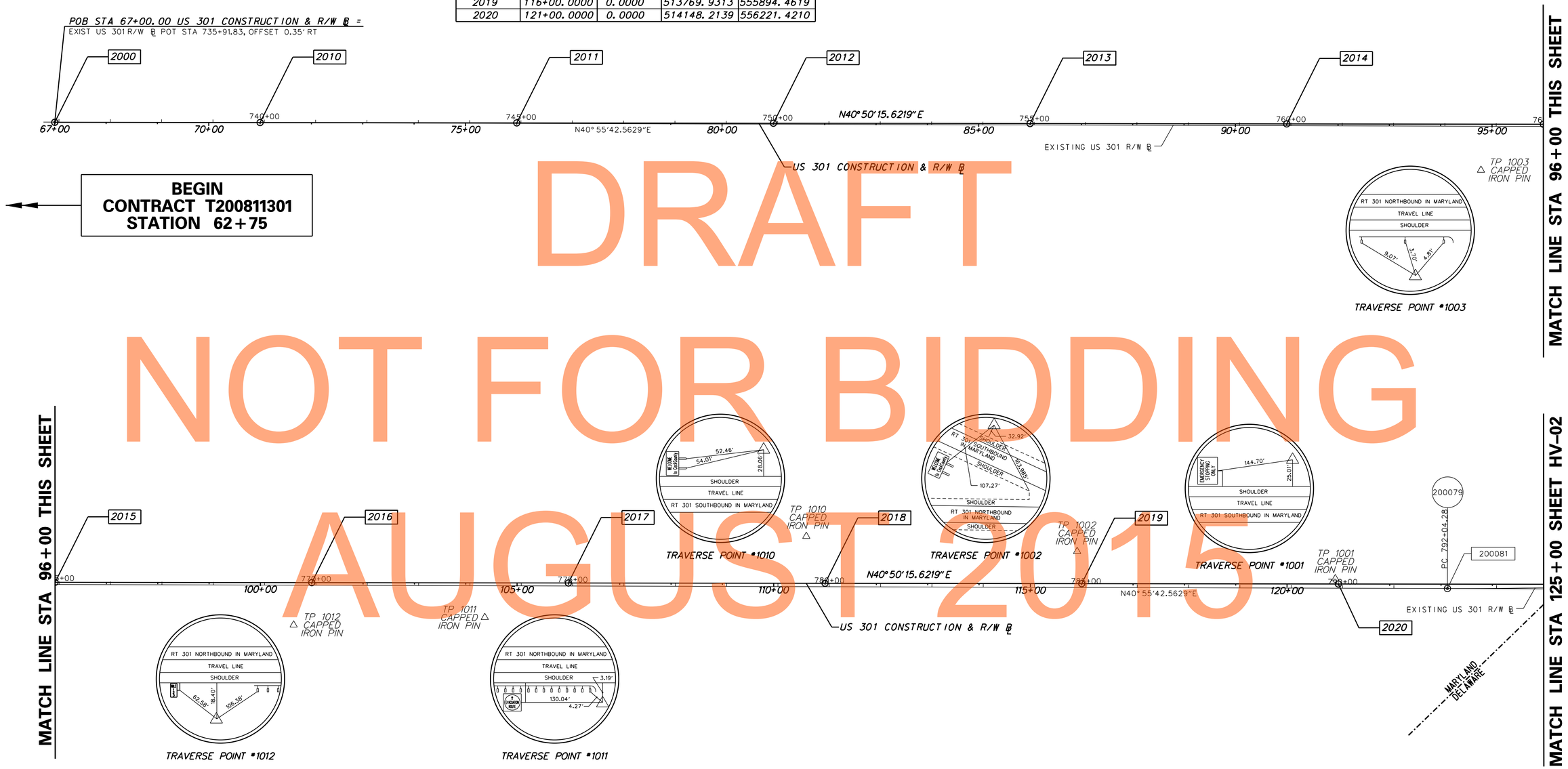
POINT	STATION	OFFSET	NORTHING	EASTING	ELEVATION
TP 1001	120+94.0234	-10.4380	514150.5179	556209.6157	66.00
TP 1002	115+91.0183	-62.8536	513804.2372	555841.0358	67.40
TP 1003	94+60.8317	69.1870	512106.2682	554547.9653	59.68
TP 1010	110+63.3601	-91.5201	513423.7749	555474.3023	63.36
TP 1011	104+37.1883	67.3428	512846.1517	555185.0274	63.98
TP 1012	100+64.8183	82.4977	512554.5194	554952.9935	59.71

CONSTRUCTION ALIGNMENT CONTROL

POINT	STATION	OFFSET	NORTHING	EASTING
2000	67+00.0000	0.0000	510062.7615	552690.2627
2010	71+00.0000	0.0000	510365.3876	552951.8300
2011	76+00.0000	0.0000	510743.6703	553278.7891
2012	81+00.0000	0.0000	511121.9529	553605.7482
2013	86+00.0000	0.0000	511500.2355	553932.7073
2014	91+00.0000	0.0000	511878.5181	554259.6664
2015	96+00.0000	0.0000	512256.8008	554586.6255
2016	101+00.0000	0.0000	512635.0834	554913.5846
2017	106+00.0000	0.0000	513013.3660	555240.5437
2018	111+00.0000	0.0000	513391.6487	555567.5028
2019	116+00.0000	0.0000	513769.9313	555894.4619
2020	121+00.0000	0.0000	514148.2139	556221.4210

EXISTING ALIGNMENT CONTROL

POINT	STATION	OFFSET	NORTHING	EASTING
200081	792+04.2800	0.0000	514311.9822	556373.4304



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AUGUST 2015

DATUM REFERENCES:

HORIZONTAL - PROJECT IS BASED ON THE DELAWARE STATE PLANE COORDINATE SYSTEM (NAD 83).

VERTICAL - PLAN ELEVATIONS ARE BASED ON N.G.S. SURVEY DATUM (NAVD 88).

HV-01

DELAWARE DEPARTMENT OF TRANSPORTATION

ADDENDUMS / REVISIONS

SCALE 0 100 200 300 FEET

US 301
MARYLAND STATE LINE
TO LEVELS ROAD

CONTRACT	BRIDGE NO.
T200811301	DESIGNED BY: MFM
COUNTY	
NEW CASTLE	CHECKED BY: SKH

HORIZONTAL AND VERTICAL CONTROL

SHEET NO. 48
TOTAL SHTS. 850

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CIRCULAR CURVE NO. 1

	STATION	NORTHING	EASTING
ELEMENT: CIRCULAR			
PC (2001)	125+47.9830	514487.1423	556514.3652
PI (2002)	138+86.7846	515500.0331	557389.8319
CC (2003)		518410.6515	551974.9737
PT (2004)	151+82.4302	516789.0092	557751.6748
Radius:			6000.0000
Delta:			25° 09′ 25.6219″ Left
Degree of Curvature(Arc):			0° 57′ 17.7468″
Length:			2634.4472
Tangent:			1338.8016
Chord:			2613.3362
Middle Ordinate:			144.0100
External:			147.5515
Tangent Direction:			N 40° 50′ 15.6219″ E
Radial Direction:			S 49° 09′ 44.3781″ E
Chord Direction:			N 28° 15′ 32.8109″ E
Radial Direction:			S 74° 19′ 10.0000″ E
Tangent Direction:			N 15° 40′ 50.0000″ E

CONSTRUCTION ALIGNMENT CONTROL

POINT	STATION	OFFSET	NORTHING	EASTING
2200	1100+00.0000	0.0000	515471.5813	557542.8570

HORIZONTAL / VERTICAL CONTROL DATA

POINT	STATION	OFFSET	NORTHING	EASTING	ELEVATION
TP 204	1012+49.8140	-23.3176	515554.2524	557377.2473	68.30
TP 210	149+54.0717	45.1995	516556.5136	557728.8080	72.74
TP 1000	131+46.3549	75.7474	514915.0140	556944.4027	67.58

EXISTING ALIGNMENT CONTROL

POINT	STATION	OFFSET	NORTHING	EASTING
500	807+53.9138	155.5846	515483.6635	557387.5940
300093	19+15.3516	0.0000	515570.3663	557257.8566
300285	0+00.0000	0.0000	515574.2751	557260.0512
200082	822+62.0589	0.0000	516957.9125	557865.0399

CIRCULAR CURVE NO. 17

	STATION	NORTHING	EASTING
ELEMENT: CIRCULAR			
PC (2400)	500+00.0000	515974.7562	557509.6483
PI (2401)	503+18.6251	516266.3862	557637.9991
CC (2402)		511134.3862	568507.6060
PT (2403)	506+37.1010	516550.8042	557781.6249
Radius:			12016.0000
Delta:			3° 02′ 16.3774″ Right
Degree of Curvature(Arc):			0° 28′ 36.5846″
Length:			637.1010
Tangent:			318.6251
Chord:			637.0264
Middle Ordinate:			4.2222
External:			4.2237
Tangent Direction:			N 23° 45′ 18.1132″ E
Radial Direction:			S 66° 14′ 41.8868″ E
Chord Direction:			N 25° 16′ 26.3019″ E
Radial Direction:			S 63° 12′ 25.5094″ E
Tangent Direction:			N 26° 47′ 34.4906″ E

CIRCULAR CURVE NO. 200079

	STATION	NORTHING	EASTING
ELEMENT CIRCULAR			
PC (200081)	792+04.2800	514311.9822	556373.4304
PI (500)	807+53.9138	515483.6635	557387.5940
CC (200079)		519311.6422	550597.2341
PT (200082)	822+62.0589	516957.9125	557865.0399
Radius:			7639.4400
Delta:			22° 56′00.0000″ Left
Degree of Curvature(Arc):			0° 44′59.9990″
Length:			3057.7789
Tangent:			1549.6338
Chord:			3037.4078
Middle Ordinate:			152.4792
External:			155.5846
Tangent Direction:			N 40° 52′41.6703″ E
Radial Direction:			S 49° 07′18.3297″ E
Chord Direction:			N 29° 24′41.6703″ E
Radial Direction:			S 72° 03′18.3297″ E
Tangent Direction:			N 17° 56′41.6703″ E

DATUM REFERENCES:

HORIZONTAL - PROJECT IS BASED ON THE DELAWARE STATE PLANE COORDINATE SYSTEM (NAD 83).

VERTICAL - PLAN ELEVATIONS ARE BASED ON N.G.S. SURVEY DATUM (NAVD 88).

CIRCULAR CURVE NO. 5

	STATION	NORTHING	EASTING
ELEMENT: CIRCULAR			
PC (2201)	1100+52.1433	515520.7969	557560.0834
PI (2202)	1101+23.1113	515587.7804	557583.5288
CC (2203)		515752.0527	556899.3862
PT (2204)	1101+93.5961	515658.1063	557593.0533
Radius:			700.0000
Delta:			11° 34′ 41.0378″ Left
Degree of Curvature(Arc):			8° 11′ 06.4009″
Length:			141.4528
Tangent:			70.9680
Chord:			141.2122
Middle Ordinate:			3.5700
External:			3.5883
Tangent Direction:			N 19° 17′ 27.4330″ E
Radial Direction:			S 70° 42′ 32.5670″ E
Chord Direction:			N 13° 30′ 06.9141″ E
Radial Direction:			S 82° 17′ 13.6048″ E
Tangent Direction:			N 7° 42′ 46.3952″ E

CIRCULAR CURVE NO. 6

	STATION	NORTHING	EASTING
ELEMENT: CIRCULAR			
PC (2205)	1105+34.7842	515996.2077	557638.8439
PI (2206)	1108+60.9516	516319.4244	557682.6185
CC (2207)		515861.9987	558629.7969
PT (2208)	1111+65.3590	516554.6728	557908.5463
Radius:			1000.0000
Delta:			36° 07′ 45.4059″ Right
Degree of Curvature(Arc):			5° 43′ 46.4806″
Length:			630.5749
Tangent:			326.1674
Chord:			620.1795
Middle Ordinate:			49.2927
External:			51.8485
Tangent Direction:			N 7° 42′ 46.3952″ E
Radial Direction:			S 82° 17′ 13.6048″ E
Chord Direction:			N 25° 46′ 39.0982″ E
Radial Direction:			S 46° 09′ 28.1989″ E
Tangent Direction:			N 43° 50′ 31.8011″ E

CIRCULAR CURVE NO. 7

	STATION	NORTHING	EASTING
ELEMENT: CIRCULAR			
PC (2209)	1113+50.4644	516688.1802	558036.7639
PI (2210)	1114+88.4139	516787.6763	558132.3180
CC (2211)		517380.8543	557315.5133
PCC (2212)	1116+24.6330	516909.3273	558197.3649
Radius:			1000.0000
Delta:			15° 42′ 31.3382″ Left
Degree of Curvature(Arc):			5° 43′ 46.4806″
Length:			274.1686
Tangent:			137.9495
Chord:			273.3107
Middle Ordinate:			9.3813
External:			9.4702
Tangent Direction:			N 43° 50′ 31.8011″ E
Radial Direction:			S 46° 09′ 28.1989″ E
Chord Direction:			N 35° 59′ 16.1320″ E
Radial Direction:			S 61° 51′ 59.5371″ E
Tangent Direction:			N 28° 08′ 00.4629″ E

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AUGUST 2015

HV-02

DELAWARE
DEPARTMENT OF TRANSPORTATION

ADDENDUMS / REVISIONS

SCALE
0 100 200 300
FEET

US 301
MARYLAND STATE LINE
TO LEVELS ROAD

CONTRACT	BRIDGE NO.	
T200811301	DESIGNED BY: MFM	
COUNTY		
NEW CASTLE	CHECKED BY: SKH	

HORIZONTAL AND VERTICAL CONTROL

SHEET NO. 49
TOTAL SHTS 850

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CIRCULAR CURVE NO. 8

	STATION	NORTHING	EASTING
ELEMENT: CIRCULAR			
PCC (2212)	1116+24.6330	516909.3273	558197.3649
PI (2213)	1117+89.0158	517054.2886	558274.8759
CC (2214)		517852.3813	556433.6616
PCC (2215)	1119+52.6613	517209.9604	558327.6773

Radius: 2000.0000
Delta: 9° 23' 50.3499" Left
Degree of Curvature(Arc): 2° 51' 53.2403"
Length: 328.0283
Tangent: 164.3828
Chord: 327.6608
Middle Ordinate: 6.7214
External: 6.7441
Tangent Direction: N 28° 08' 00.4629" E
Radial Direction: S 61° 51' 59.5371" E
Chord Direction: N 23° 26' 05.2879" E
Radial Direction: S 71° 15' 49.8871" E
Tangent Direction: N 18° 44' 10.1129" E

CIRCULAR CURVE NO. 9

	STATION	NORTHING	EASTING
ELEMENT: CIRCULAR			
PCC (2215)	1119+52.6613	517209.9604	558327.6773
PI (2216)	1120+98.6886	517348.2494	558374.5828
CC (2217)		517370.5657	557854.1734
PT (2218)	1122+36.8129	517490.0462	558339.6880

Radius: 500.0000
Delta: 32° 33' 40.9246" Left
Degree of Curvature(Arc): 11° 27' 32.9612"
Length: 284.1515
Tangent: 146.0273
Chord: 280.3431
Middle Ordinate: 20.0501
External: 20.8877
Tangent Direction: N 18° 44' 10.1129" E
Radial Direction: S 71° 15' 49.8871" E
Chord Direction: N 2° 27' 19.6506" E
Radial Direction: N 76° 10' 29.1883" E
Tangent Direction: N 13° 49' 30.8117" W

CIRCULAR CURVE NO. 10

	STATION	NORTHING	EASTING
ELEMENT: CIRCULAR			
PC (2219)	1125+43.6244	517787.9691	558266.3720
PI (2220)	1127+15.0234	517954.4025	558225.4143
CC (2221)		517931.3457	558848.9895
PT (2222)	1128+77.5292	518117.3567	558278.5512

Radius: 600.0000
Delta: 31° 53' 08.0400" Right
Degree of Curvature(Arc): 9° 32' 57.4677"
Length: 333.9049
Tangent: 171.3990
Chord: 329.6127
Middle Ordinate: 23.0781
External: 24.0013
Tangent Direction: N 13° 49' 30.8117" W
Radial Direction: N 76° 10' 29.1883" E
Chord Direction: N 2° 07' 03.2084" E
Radial Direction: S 71° 56' 22.7716" E
Tangent Direction: N 18° 03' 37.2284" E

CIRCULAR CURVE NO. 18

	STATION	NORTHING	EASTING
ELEMENT: CIRCULAR			
PC (2404)	511+31.4544	516992.0847	558004.4632
PI (2405)	512+00.7764	517053.9643	558035.7112
CC (2406)		517435.6396	557126.1039
PT (2407)	512+69.8696	517119.6138	558057.9750

Radius: 984.0000
Delta: 8° 03' 34.4096" Left
Degree of Curvature(Arc): 5° 49' 21.8706"
Length: 138.4152
Tangent: 69.3219
Chord: 138.3011
Middle Ordinate: 2.4328
External: 2.4388
Tangent Direction: N 26° 47' 34.4906" E
Radial Direction: S 63° 12' 25.5094" E
Chord Direction: N 22° 45' 47.2858" E
Radial Direction: S 71° 15' 59.9190" E
Tangent Direction: N 18° 44' 00.0810" E

EXISTING ALIGNMENT CONTROL

POINT	STATION	OFFSET	NORTHING	EASTING
200137	21+22.9052	0.0000	519103.8096	558032.6596
503	28+94.9135	150.1308	519465.9576	558714.4555

HORIZONTAL / VERTICAL CONTROL DATA

POINT	STATION	OFFSET	NORTHING	EASTING	ELEVATION
TP 211	164+34.5054	112.1868	517964.1654	558198.0895	75.57
TP 212	176+91.9203	229.6820	519143.0279	558651.0581	72.92

DATUM REFERENCES:

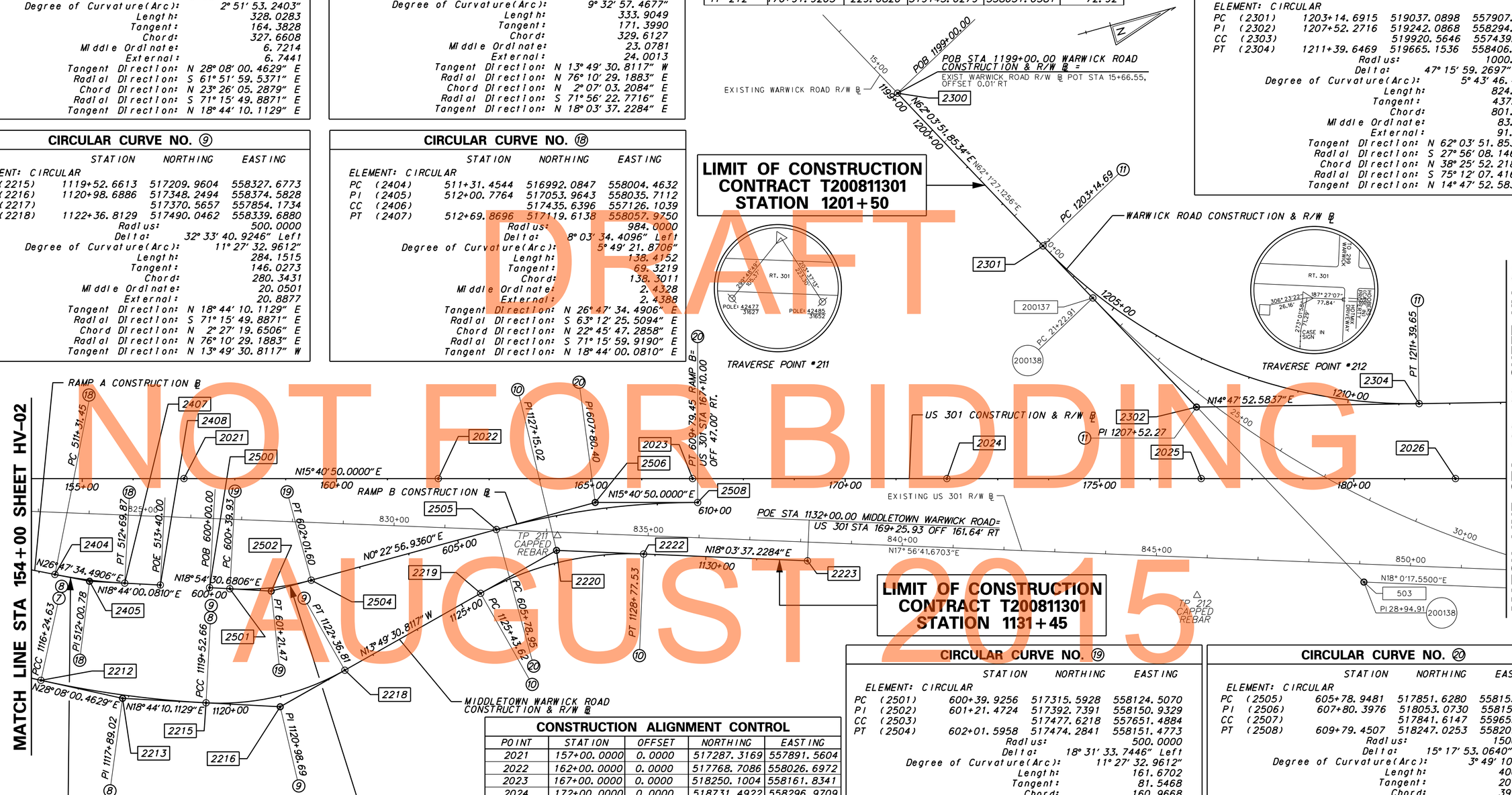
HORIZONTAL - PROJECT IS BASED ON THE DELAWARE STATE PLANE COORDINATE SYSTEM (NAD 83).

VERTICAL - PLAN ELEVATIONS ARE BASED ON N.G.S. SURVEY DATUM (NAVD 88).

CIRCULAR CURVE NO. 11

	STATION	NORTHING	EASTING
ELEMENT: CIRCULAR			
PC (2301)	1203+14.6915	519037.0898	557907.6949
PI (2302)	1207+52.2716	519242.0868	558294.2859
CC (2303)		519920.5646	557439.2161
PT (2304)	1211+39.6469	519665.1536	558406.0487

Radius: 1000.0000
Delta: 47° 15' 59.2697" Left
Degree of Curvature(Arc): 5° 43' 46.4806"
Length: 824.9554
Tangent: 437.5801
Chord: 801.7609
Middle Ordinate: 83.8696
External: 91.5477
Tangent Direction: N 62° 03' 51.8534" E
Radial Direction: S 27° 56' 08.1466" E
Chord Direction: N 38° 25' 52.2186" E
Radial Direction: S 75° 12' 07.4163" E
Tangent Direction: N 14° 47' 52.5837" E



CIRCULAR CURVE NO. 19

	STATION	NORTHING	EASTING
ELEMENT: CIRCULAR			
PC (2501)	600+39.9256	517315.5928	558124.5070
PI (2502)	601+21.4724	517392.7391	558150.9329
CC (2503)		517477.6218	557651.4884
PT (2504)	602+01.5958	517474.2841	558151.4773

Radius: 500.0000
Delta: 18° 31' 33.7446" Left
Degree of Curvature(Arc): 11° 27' 32.9612"
Length: 161.6702
Tangent: 81.5468
Chord: 160.9668
Middle Ordinate: 6.5201
External: 6.6062
Tangent Direction: N 18° 54' 30.6806" E
Radial Direction: S 71° 05' 29.3194" E
Chord Direction: N 9° 38' 43.8083" E
Radial Direction: S 89° 37' 03.0640" E
Tangent Direction: N 0° 22' 56.9360" E

CIRCULAR CURVE NO. 20

	STATION	NORTHING	EASTING
ELEMENT: CIRCULAR			
PC (2505)	605+78.9481	517851.6280	558153.9963
PI (2506)	607+80.3976	518053.0730	558155.3411
CC (2507)		517841.6147	559653.9629
PT (2508)	609+79.4507	518247.0253	558209.7876

Radius: 1500.0000
Delta: 15° 17' 53.0640" Right
Degree of Curvature(Arc): 3° 49' 10.9871"
Length: 400.5026
Tangent: 201.4495
Chord: 399.3140
Middle Ordinate: 13.3470
External: 13.4669
Tangent Direction: N 0° 22' 56.9360" E
Radial Direction: S 89° 37' 03.0640" E
Chord Direction: N 8° 01' 53.4680" E
Radial Direction: S 74° 19' 10.0000" E
Tangent Direction: N 15° 40' 50.0000" E

CONSTRUCTION ALIGNMENT CONTROL

POINT	STATION	OFFSET	NORTHING	EASTING
2021	157+00.0000	0.0000	517287.3169	557891.5604
2022	162+00.0000	0.0000	517768.7086	558026.6972
2023	167+00.0000	0.0000	518250.1004	558161.8341
2024	172+00.0000	0.0000	518731.4922	558296.9709
2025	177+00.0000	0.0000	519212.8839	558432.1078
2026	182+00.0000	0.0000	519694.2757	558567.2447
2223	1132+00.0000	0.0000	518423.9396	558378.5231
2300	1199+00.0000	0.0000	518842.8156	557541.3255
2408	513+40.0000	0.0000	517186.0289	558080.4983
2500	600+00.0000	0.0000	517277.8217	558111.5688

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AUGUST 2015

HV-03

DELAWARE DEPARTMENT OF TRANSPORTATION

ADDENDUMS / REVISIONS

SCALE 0 100 200 300 FEET

US 301 MARYLAND STATE LINE TO LEVELS ROAD

CONTRACT	BRIDGE NO.
T200811301	DESIGNED BY: MFM
COUNTY	CHECKED BY: SKH
NEW CASTLE	

HORIZONTAL AND VERTICAL CONTROL

SHEET NO. 50
TOTAL SHTS. 850

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HORIZONTAL / VERTICAL CONTROL DATA

POINT	STATION	OFFSET	NORTHING	EASTING	ELEVATION
TP 215	188+96.8499	270.9542	520291.9595	559016.4551	69.01
TP 216	202+30.0224	263.0342	521577.6566	559369.1514	65.54

CONSTRUCTION ALIGNMENT CONTROL

POINT	STATION	OFFSET	NORTHING	EASTING
2027	187+00.0000	0.0000	520175.6674	558702.3815
2028	192+00.0000	0.0000	520657.0592	558837.5184
2029	197+00.0000	0.0000	521138.4510	558972.6552
2030	202+00.0000	0.0000	521619.8427	559107.7921
2031	207+00.0000	0.0000	522101.2345	559242.9290
2322	1214+00.0000	0.0000	519916.8714	558472.5457
2323	1219+00.0000	0.0000	520400.2877	558600.2512
2324	1224+00.0000	0.0000	520883.7040	558727.9567
2325	1229+00.0000	0.0000	521367.1203	558855.6622
2326	1234+00.0000	0.0000	521850.5366	558983.3677
2327	1239+00.0000	0.0000	522333.9529	559111.0732

CIRCULAR CURVE NO. 200138

	STATION	NORTHING	EASTING
ELEMENT CIRCULAR			
PC (200137)	21+22.9052	519103.8096	558032.6596
PI (503)	28+94.9135	519465.9576	558714.4555
CC (200138)		520790.4945	557136.7470
PT (200139)	35+90.2166	520200.1608	558953.0816

Radius:	1909.8600
Delta:	44° 01'09.5756" Left
Degree of Curvature(Arc):	2° 59'59.9961"
Length:	1467.3114
Tangent:	772.0082
Chord:	1431.4896
Middle Ordinate:	139.1893
External:	150.1308
Tangent Direction:	N 62° 01'27.1256" E
Radial Direction:	S 27° 58'32.8744" E
Chord Direction:	N 40° 00'52.3378" E
Radial Direction:	S 71° 59'42.4500" E
Tangent Direction:	N 18° 00'17.5500" E

CIRCULAR CURVE NO. 200161

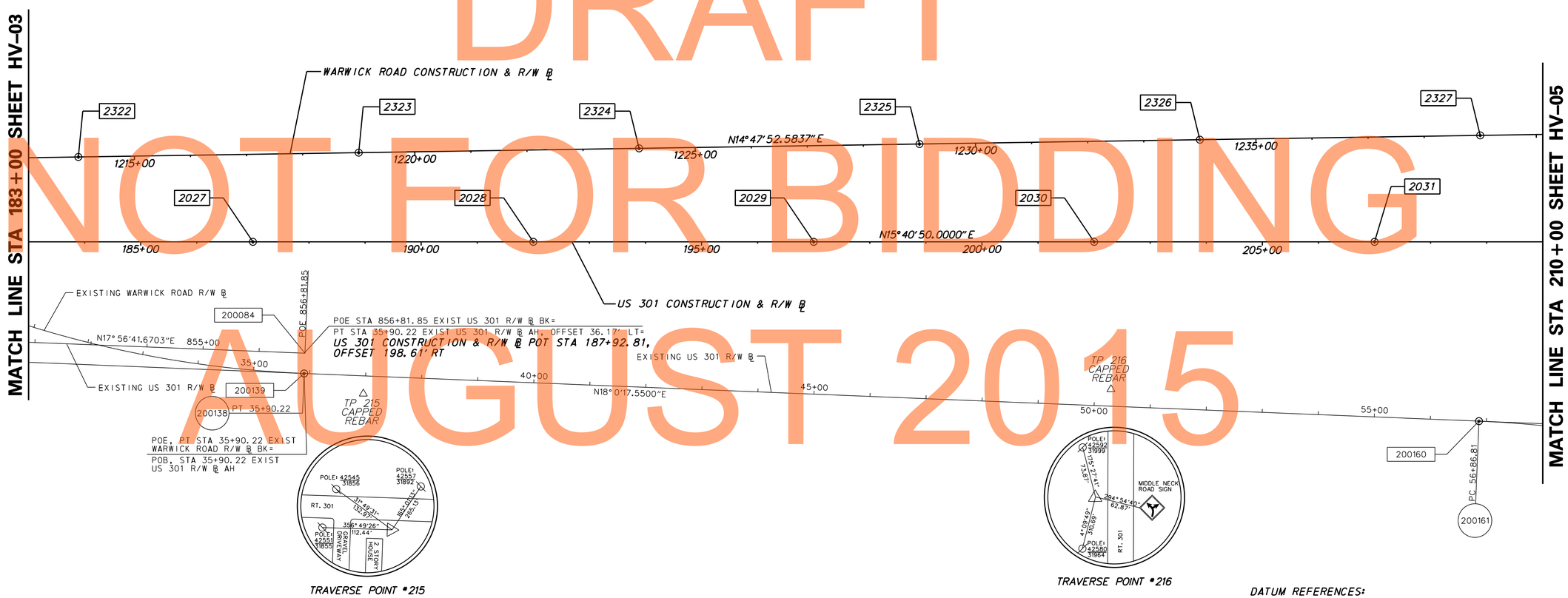
	STATION	NORTHING	EASTING
ELEMENT CIRCULAR			
PC (200160)	56+86.8132	522194.0875	559601.1352
PI (504)	63+56.5721	522831.0484	559808.1563
CC (200161)		521603.7539	561417.4691
PT (200162)	69+75.1465	523199.2021	560367.6559

Radius:	1909.8593
Delta:	38° 39'00.0000" Right
Degree of Curvature(Arc):	3° 00'00.0001"
Length:	1288.3333
Tangent:	669.7589
Chord:	1264.0449
Middle Ordinate:	107.6079
External:	114.0329
Tangent Direction:	N 18° 00'17.5500" E
Radial Direction:	S 71° 59'42.4500" E
Chord Direction:	N 37° 19'47.5500" E
Radial Direction:	S 33° 20'42.4500" E
Tangent Direction:	N 56° 39'17.5500" E

EXISTING ALIGNMENT CONTROL

POINT	STATION	OFFSET	NORTHING	EASTING
200084	856+81.8482	0.0000	520211.3401	558918.6851
200139	35+90.2166	0.0000	520200.1608	558953.0816
200160	56+86.8132	0.0000	522194.0875	559601.1352

DRAFT
NOT FOR BIDDING
AUGUST 2015



TRAVERSE POINT #215

TRAVERSE POINT #216

DATUM REFERENCES:

HORIZONTAL - PROJECT IS BASED ON THE DELAWARE STATE PLANE COORDINATE SYSTEM (NAD 83).

VERTICAL - PLAN ELEVATIONS ARE BASED ON N.G.S. SURVEY DATUM (NAVD 88).

HV-04

DELAWARE DEPARTMENT OF TRANSPORTATION	ADDENDUMS / REVISIONS	SCALE 0 100 200 300 FEET	US 301 MARYLAND STATE LINE TO LEVELS ROAD	CONTRACT T200811301	BRIDGE NO.	HORIZONTAL AND VERTICAL CONTROL	SHEET NO. 51
				COUNTY NEW CASTLE	DESIGNED BY: MFM		TOTAL SHTS. 850
					CHECKED BY: SKH		

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HORIZONTAL / VERTICAL CONTROL DATA

POINT	STATION	OFFSET	NORTHING	EASTING	ELEVATION
TP 217	215+56.7920	418.9513	522812.9082	559877.8567	73.54
TP 218	1248+59.7499	-113.9587	523328.6955	559188.1895	70.36
TP 221	224+53.9280	1078.0360	523395.2064	560744.0483	75.24

CONSTRUCTION ALIGNMENT CONTROL

POINT	STATION	OFFSET	NORTHING	EASTING
2032	212+00.0000	0.0000	522582.6263	559378.0658
2033	216+00.0000	0.0000	522967.7397	559486.1753
2328	1244+00.0000	0.0000	522817.3691	559238.7787
3200	30+00.0000	0.0000	523215.3722	559345.9426
3201	33+08.8295	0.0000	523415.5725	559110.7926

CIRCULAR CURVE NO. 13

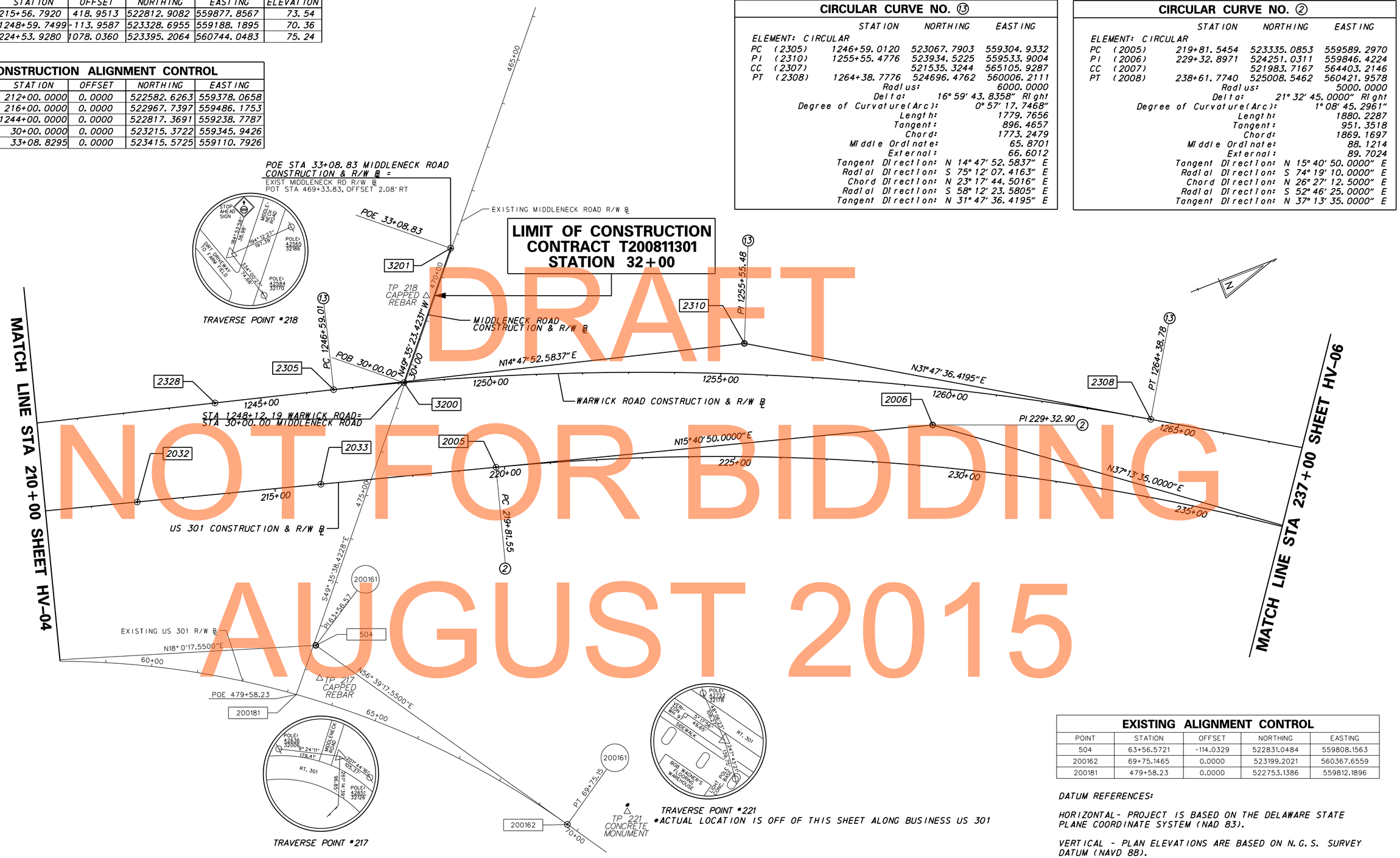
	STATION	NORTHING	EASTING
ELEMENT: CIRCULAR			
PC (2305)	1246+59.0120	523067.7903	559304.9332
PI (2310)	1255+55.4776	523934.5225	559533.9004
CC (2307)		521535.3244	565105.9287
PT (2308)	1264+38.7776	524696.4762	560006.2111

Radius: 6000.0000
Delta: 16° 59′ 43.8358″ Right
Degree of Curvature(Arc): 0° 57′ 17.7468″
Length: 1779.7656
Tangent: 896.4657
Chord: 1773.2479
Middle Ordinate: 65.8701
External: 66.6012
Tangent Direction: N 14° 47′ 52.5837″ E
Radial Direction: S 75° 12′ 07.4163″ E
Chord Direction: N 23° 17′ 44.5016″ E
Radial Direction: S 58° 12′ 23.5805″ E
Tangent Direction: N 31° 47′ 36.4195″ E

CIRCULAR CURVE NO. 2

	STATION	NORTHING	EASTING
ELEMENT: CIRCULAR			
PC (2005)	219+81.5454	523335.0853	559589.2970
PI (2006)	229+32.8971	524251.0311	559846.4224
CC (2007)		521983.7167	564403.2146
PT (2008)	238+61.7740	525008.5462	560421.9578

Radius: 5000.0000
Delta: 21° 32′ 45.0000″ Right
Degree of Curvature(Arc): 1° 08′ 45.2961″
Length: 1880.2287
Tangent: 951.3518
Chord: 1869.1697
Middle Ordinate: 88.1214
External: 89.7024
Tangent Direction: N 15° 40′ 50.0000″ E
Radial Direction: S 74° 19′ 10.0000″ E
Chord Direction: N 26° 27′ 12.5000″ E
Radial Direction: S 52° 46′ 25.0000″ E
Tangent Direction: N 37° 13′ 35.0000″ E



EXISTING ALIGNMENT CONTROL

POINT	STATION	OFFSET	NORTHING	EASTING
504	63+56.5721	-114.0329	522831.0484	559808.1563
200162	69+75.1465	0.0000	523199.2021	560367.6559
200181	479+58.23	0.0000	522753.1386	559812.1896

DATUM REFERENCES:

HORIZONTAL - PROJECT IS BASED ON THE DELAWARE STATE PLANE COORDINATE SYSTEM (NAD 83).

VERTICAL - PLAN ELEVATIONS ARE BASED ON N.G.S. SURVEY DATUM (NAVD 88).

HV-05

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DELAWARE DEPARTMENT OF TRANSPORTATION

ADDENDUMS / REVISIONS

SCALE 0 100 200 300 FEET

US 301 MARYLAND STATE LINE TO LEVELS ROAD

CONTRACT	BRIDGE NO.	
T200811301	DESIGNED BY: MFM	
COUNTY		
NEW CASTLE	CHECKED BY: SKH	

HORIZONTAL AND VERTICAL CONTROL

SHEET NO. 52
TOTAL SHTS. 850

CIRCULAR CURVE NO. 14

	STATION	NORTHING	EASTING
ELEMENT: CIRCULAR			
PC (2309)	1269+05.6584	525093.3028	560252.1913
PI (2314)	1274+53.9732	525559.3446	560541.0757
CC (2311)		526041.6484	558722.2760
PT (2312)	1279+70.1399	526107.2947	560521.0785

Radius: 1800.0000
Delta: 33° 53' 00.6005" Left
Degree of Curvature(Arc): 3° 10' 59.1559"
Length: 1064.4816
Tangent: 548.3148
Chord: 1049.0376
Middle Ordinate: 78.1173
External: 81.6613
Tangent Direction: N 31° 47' 36.4195" E
Radial Direction: S 58° 12' 23.5805" E
Chord Direction: N 14° 51' 06.1192" E
Radial Direction: N 87° 54' 35.8189" E
Tangent Direction: N 2° 05' 24.1811" W

CIRCULAR CURVE NO. 15

	STATION	NORTHING	EASTING
ELEMENT: CIRCULAR			
PC (2313)	1283+32.9216	526469.8351	560507.8478
PI (2318)	1290+71.9571	527208.3788	560480.8951
CC (2315)		526482.5996	560857.6150
PT (2316)	1291+22.8708	526761.2876	561069.3530

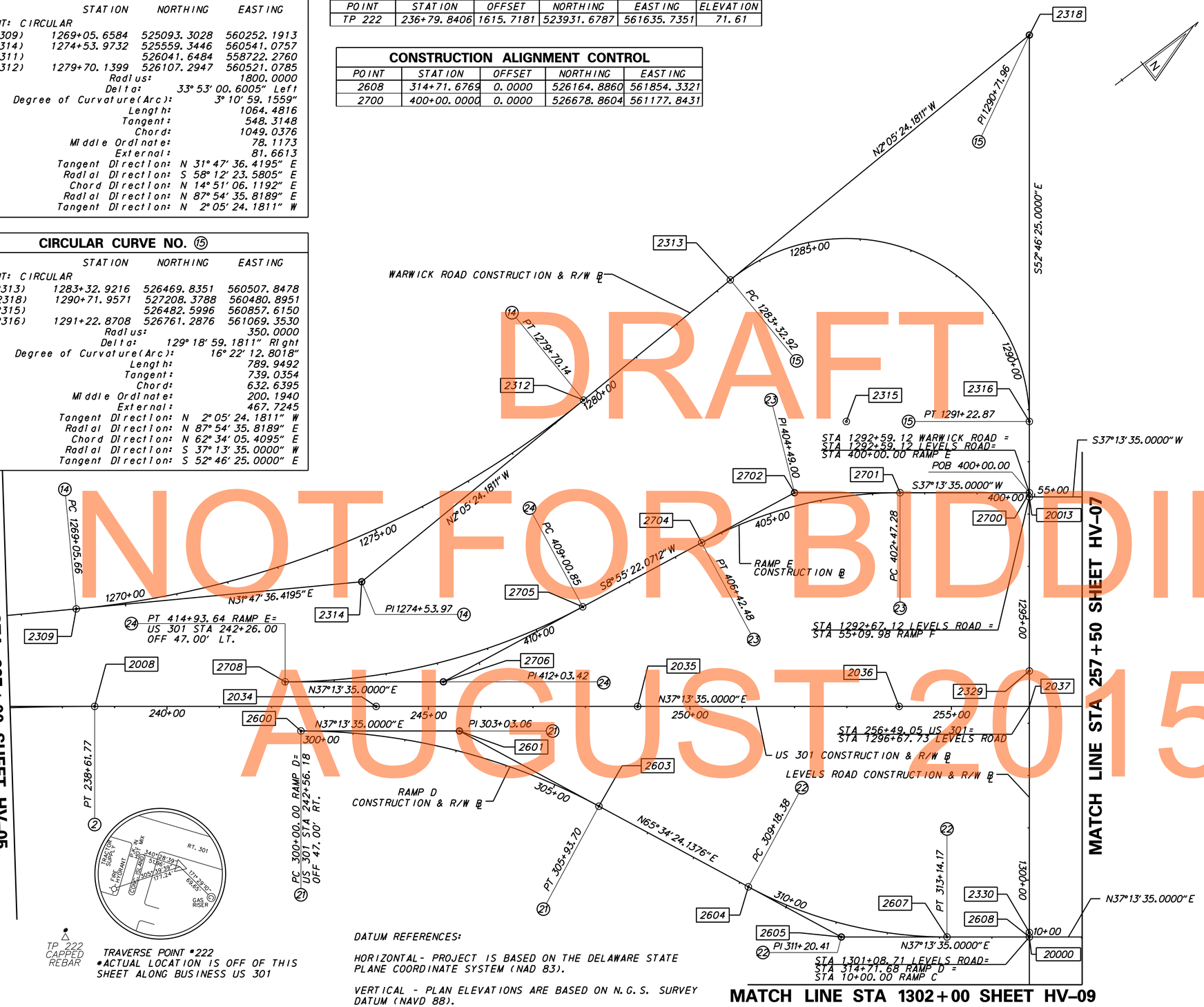
Radius: 350.0000
Delta: 129° 18' 59.1811" Right
Degree of Curvature(Arc): 16° 22' 12.8018"
Length: 789.9492
Tangent: 739.0354
Chord: 632.6395
Middle Ordinate: 200.1940
External: 467.7245
Tangent Direction: N 2° 05' 24.1811" W
Radial Direction: N 87° 54' 35.8189" E
Chord Direction: N 62° 34' 05.4095" E
Radial Direction: S 37° 13' 35.0000" W
Tangent Direction: S 52° 46' 25.0000" E

HORIZONTAL / VERTICAL CONTROL DATA

POINT	STATION	OFFSET	NORTHING	EASTING	ELEVATION
TP 222	236+79.8406	1615.7181	523931.6787	561635.7351	71.61

CONSTRUCTION ALIGNMENT CONTROL

POINT	STATION	OFFSET	NORTHING	EASTING
2608	314+71.6769	0.0000	526164.8860	561854.3321
2700	400+00.0000	0.0000	526678.8604	561177.8431



CIRCULAR CURVE NO. 21

	STATION	NORTHING	EASTING
ELEMENT: CIRCULAR			
PC (2600)	300+00.0000	525294.1598	560697.9843
PI (2601)	303+03.0560	525535.4686	560881.3228
CC (2602)		524568.2007	561653.4859
PT (2603)	305+93.6978	525660.7906	561157.2528

Radius: 1200.0000
Delta: 28° 20' 49.1376" Right
Degree of Curvature(Arc): 4° 46' 28.7339"
Length: 593.6978
Tangent: 303.0560
Chord: 587.6612
Middle Ordinate: 36.5295
External: 37.6764
Tangent Direction: N 37° 13' 35.0000" E
Radial Direction: S 52° 46' 25.0000" E
Chord Direction: N 51° 23' 59.5688" E
Radial Direction: S 24° 25' 35.8624" E
Tangent Direction: N 65° 34' 24.1376" E

CIRCULAR CURVE NO. 22

	STATION	NORTHING	EASTING
ELEMENT: CIRCULAR			
PC (2604)	309+18.3761	525795.0541	561452.8696
PI (2605)	311+20.4134	525878.6021	561636.8229
CC (2606)		526523.4473	561122.0475
PT (2607)	313+14.1746	526039.4746	561759.0486

Radius: 800.0000
Delta: 28° 20' 49.1376" Left
Degree of Curvature(Arc): 7° 09' 43.1008"
Length: 395.7985
Tangent: 202.0373
Chord: 391.7741
Middle Ordinate: 24.3530
External: 25.1176
Tangent Direction: N 65° 34' 24.1376" E
Radial Direction: S 24° 25' 35.8624" E
Chord Direction: N 51° 23' 59.5688" E
Radial Direction: S 52° 46' 25.0000" E
Tangent Direction: N 37° 13' 35.0000" E

CIRCULAR CURVE NO. 23

	STATION	NORTHING	EASTING
ELEMENT: CIRCULAR			
PC (2701)	402+47.2849	526481.9595	561028.2441
PI (2702)	404+49.0000	526321.3435	560906.2134
CC (2703)		525997.9868	561665.2452
PT (2704)	406+42.4776	526122.0695	560874.9266

Radius: 800.0000
Delta: 28° 18' 12.9288" Left
Degree of Curvature(Arc): 7° 09' 43.1008"
Length: 395.1927
Tangent: 201.7151
Chord: 391.1867
Middle Ordinate: 24.2789
External: 25.0388
Tangent Direction: S 37° 13' 35.0000" W
Radial Direction: N 52° 46' 25.0000" W
Chord Direction: S 23° 04' 28.5356" W
Radial Direction: N 81° 04' 37.9288" W
Tangent Direction: S 8° 55' 22.0712" W

CIRCULAR CURVE NO. 24

	STATION	NORTHING	EASTING
ELEMENT: CIRCULAR			
PC (2705)	409+00.8461	525866.8277	560834.8528
PI (2706)	412+03.4188	525567.9167	560787.9227
CC (2707)		526052.9519	559649.3749
PT (2708)	414+93.6351	525326.9928	560604.8766

Radius: 1200.0000
Delta: 28° 18' 12.9288" Right
Degree of Curvature(Arc): 4° 46' 28.7339"
Length: 592.7890
Tangent: 302.5727
Chord: 586.7800
Middle Ordinate: 36.4183
External: 37.5582
Tangent Direction: S 8° 55' 22.0712" W
Radial Direction: N 81° 04' 37.9288" W
Chord Direction: S 23° 04' 28.5356" W
Radial Direction: N 52° 46' 25.0000" W
Tangent Direction: S 37° 13' 35.0000" W

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AUGUST 2015

HV-06

DELAWARE DEPARTMENT OF TRANSPORTATION

ADDENDUMS / REVISIONS

SCALE 0 100 200 300 FEET

US 301 MARYLAND STATE LINE TO LEVELS ROAD

CONTRACT	BRIDGE NO.	
T200811301	DESIGNED BY: MFM	
COUNTY		
NEW CASTLE	CHECKED BY: SKH	

HORIZONTAL AND VERTICAL CONTROL

SHEET NO.
53
TOTAL SHTS.
850

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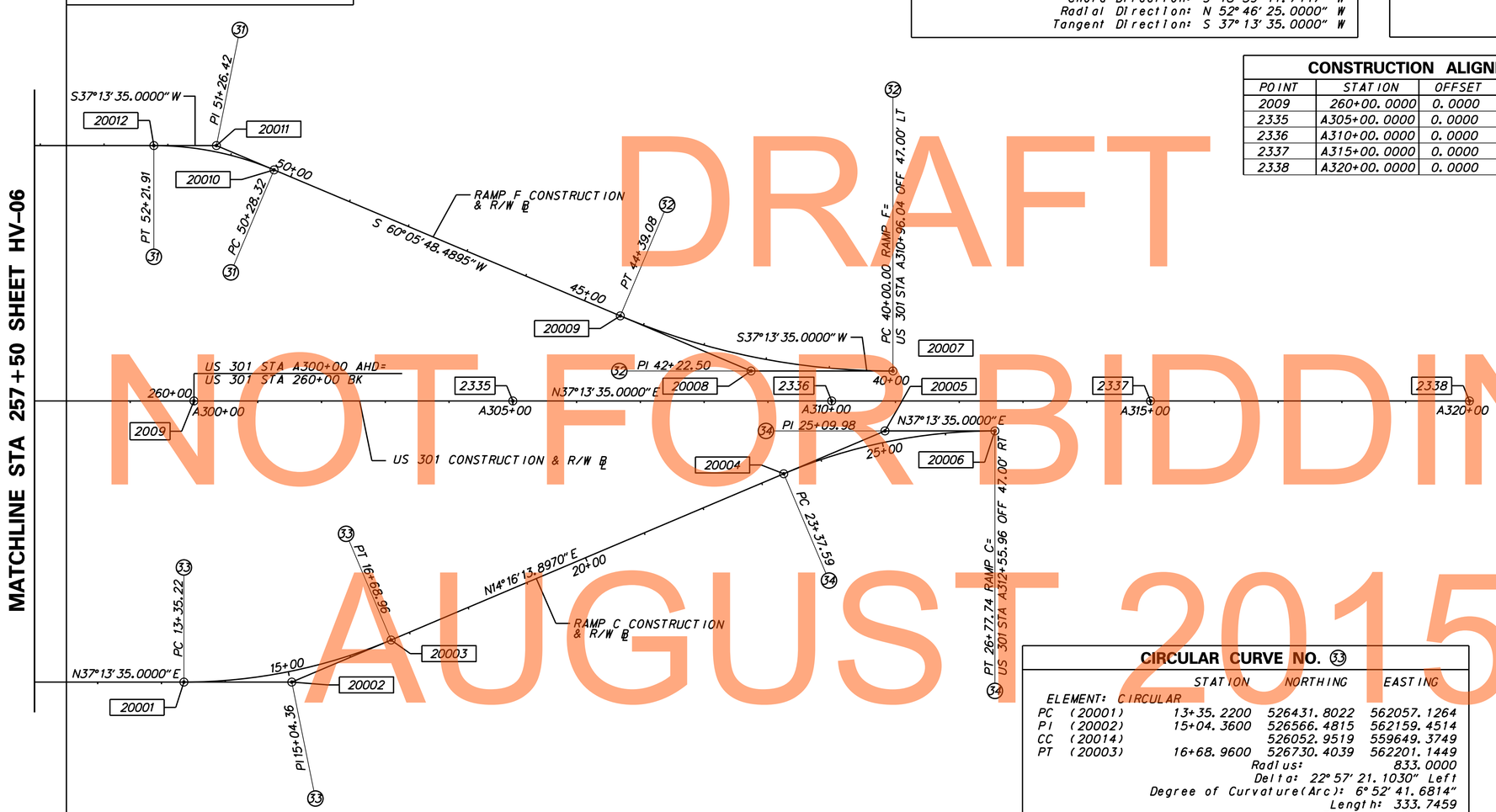
END
CONTRACT T200811301
STATION 258+00



BEGIN
CONTRACT T200911303
STATION 258+00 AHEAD

DATUM REFERENCES:

HORIZONTAL- PROJECT IS BASED ON THE DELAWARE STATE PLANE COORDINATE SYSTEM (NAD 83).

VERTICAL - PLAN ELEVATIONS ARE BASED ON N.G.S. SURVEY DATUM (NAVD 88).

CIRCULAR CURVE NO. 31

ELEMENT: CIRCULAR	STATION	NORTHING	EASTING
PC (20010)	50+28.3200	527030.4191	561502.8770
PI (20011)	51+26.4200	526981.5111	561417.8343
CC (20017)		526609.9877	561744.6670
PT (20012)	52+21.9100	526903.3962	561358.4851

Radius: 485.0000
Delta: 22° 52' 13.4895" Left
Degree of Curvature(Arc): 11° 48' 48.8260"
Length: 193.5946
Tangent: 98.10337
Chord: 192.3119
Middle Ordinate: 9.6275
External: 9.8225
Tangent Direction: S 60° 05' 48.4895" W
Radial Direction: N 29° 54' 11.5105" W
Chord Direction: S 48° 39' 41.7447" W
Radial Direction: N 52° 46' 25.0000" W
Tangent Direction: S 37° 13' 35.0000" W

CIRCULAR CURVE NO. 32

ELEMENT: CIRCULAR	STATION	NORTHING	EASTING
PC (20007)	40+00.0000	527612.2680	562341.1543
PI (20008)	42+22.5000	527435.1001	562206.5480
CC (20016)		528277.7305	561465.2778
PT (20009)	44+39.0800	527324.1747	562013.6676

Radius: 1100.0000
Delta: 22° 57' 13.4895" Right
Degree of Curvature(Arc): 5° 12' 31.3460"
Length: 439.0804
Tangent: 222.5024
Chord: 436.1712
Middle Ordinate: 21.8355
External: 22.2777
Tangent Direction: S 37° 13' 35.0000" W
Radial Direction: N 52° 46' 25.0000" W
Chord Direction: S 48° 39' 41.7447" W
Radial Direction: N 29° 54' 11.5105" W
Tangent Direction: S 60° 05' 48.4895" W

CONSTRUCTION ALIGNMENT CONTROL

POINT	STATION	OFFSET	NORTHING	EASTING
2009	260+00.0000	0.0000	526711.1116	561715.5116
2335	A305+00.0000	0.0000	527109.2373	562017.9945
2336	A310+00.0000	0.0000	527507.3629	562320.4775
2337	A315+00.0000	0.0000	527905.4886	562622.9604
2338	A320+00.0000	0.0000	528303.6143	562925.4434

CIRCULAR CURVE NO. 33

ELEMENT: CIRCULAR	STATION	NORTHING	EASTING
PC (20001)	13+35.2200	526431.8022	562057.1264
PI (20002)	15+04.3600	526566.4815	562159.4514
CC (20014)		526052.9519	559649.3749
PT (20003)	16+68.9600	526730.4039	562201.1449

Radius: 833.0000
Delta: 22° 57' 21.1030" Left
Degree of Curvature(Arc): 6° 52' 41.6814"
Length: 333.7459
Tangent: 169.1417
Chord: 331.5181
Middle Ordinate: 16.6588
External: 16.9988
Tangent Direction: N 37° 13' 35.0000" E
Radial Direction: S 52° 46' 25.0000" E
Chord Direction: N 25° 44' 54.4485" E
Radial Direction: S 75° 43' 46.1030" E
Tangent Direction: N 14° 16' 13.8970" E

CIRCULAR CURVE NO. 34

ELEMENT: CIRCULAR	STATION	NORTHING	EASTING
PC (20004)	23+37.5900	527378.3982	562365.9616
PI (20005)	25+09.9800	527545.4691	562408.4559
CC (20015)		527169.1192	563188.7637
PT (20006)	26+77.7400	527682.7353	562512.7463

Radius: 849.0000
Delta: 22° 57' 21.1030" Right
Degree of Curvature(Arc): 6° 44' 55.0302"
Length: 340.1564
Tangent: 172.3905
Chord: 337.8858
Middle Ordinate: 16.9788
External: 17.3253
Tangent Direction: N 14° 16' 13.8970" E
Radial Direction: S 75° 43' 46.1030" E
Chord Direction: N 25° 44' 54.4485" E
Radial Direction: S 52° 46' 25.0000" E
Tangent Direction: N 37° 13' 35.0000" E

HV-07

DELAWARE DEPARTMENT OF TRANSPORTATION	ADDENDUMS / REVISIONS	SCALE 0 100 200 300 FEET	US 301 MARYLAND STATE LINE TO LEVELS ROAD	CONTRACT T200811301	BRIDGE NO.	HORIZONTAL AND VERTICAL CONTROL	SHEET NO. 54
				COUNTY NEW CASTLE	DESIGNED BY: MFM		TOTAL SHTS. 850
					CHECKED BY: SKH		

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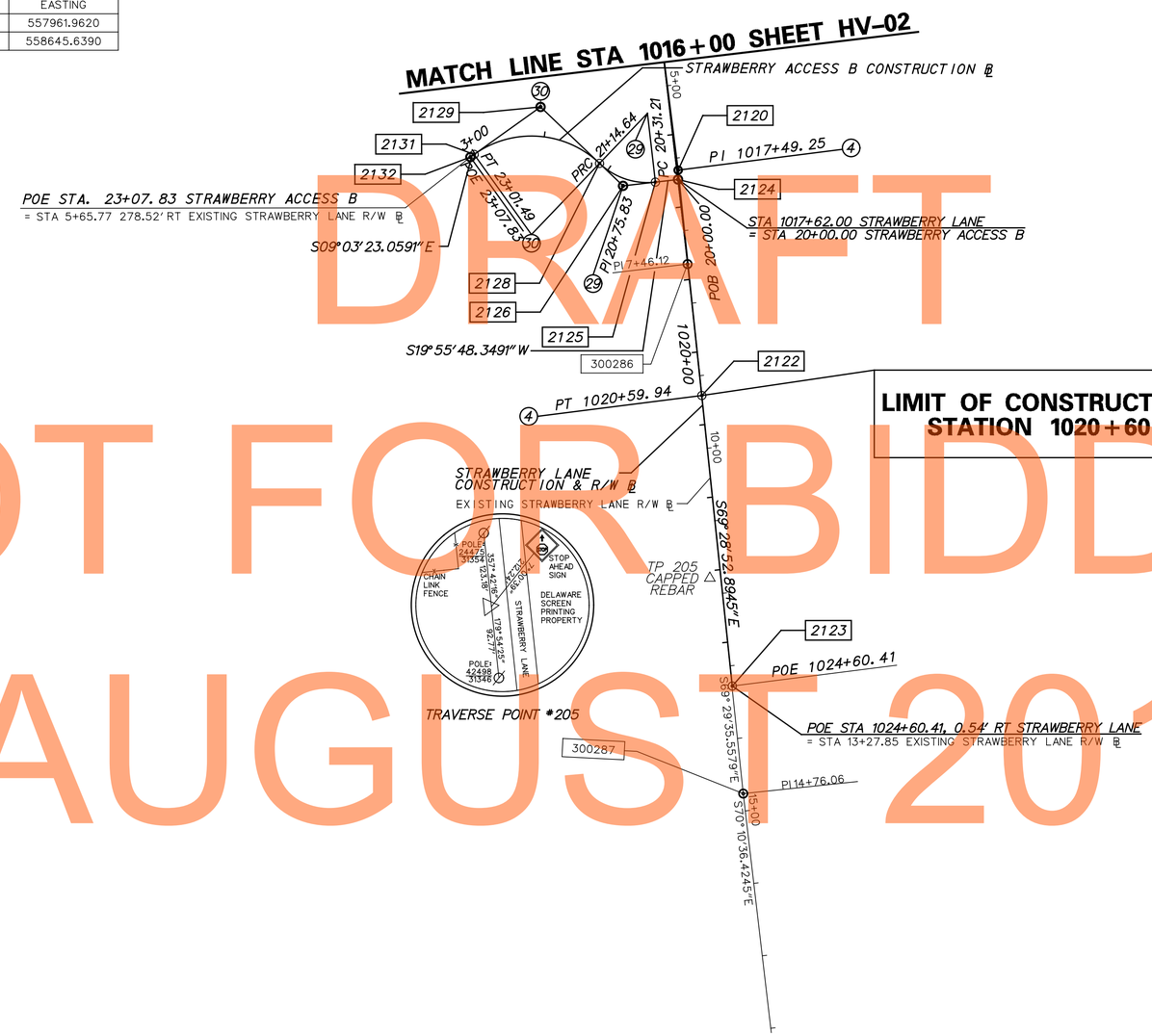
HORIZONTAL / VERTICAL CONTROL DATA					
POINT NO.	STATION	OFFSET	NORTHING	EASTING	ELEVATION
TP #205	1023+10.1125	15.2160'	515156.3996	558360.9074	67.06

CONSTRUCTION ALIGNMENT CONTROL				
POINT	STATION	OFFSET	NORTHING	EASTING
2123	1024+60.4100	0.0000	515117.9692	558507.0032
2124	20+00.0000	0.0000	515361.3352	557852.3700
2132	23+07.8334	0.0000	515120.3936	557697.8429

EXISTING ALIGNMENT CONTROL				
POINT	STATION	OFFSET	NORTHING	EASTING
300286	7+46.1235	0.0000	515321.2503	557961.9620
300287	14+76.0558	0.0000	515065.5416	558645.6390



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CIRCULAR CURVE NO. 4

	STATION	NORTHING	EASTING
ELEMENT: CIRCULAR			
PC (2119)	1014+38.5471	515469.8931	557547.6802
PI (2120)	1017+49.2530	515367.2467	557840.9410
CC (2121)		488098.1525	547967.0844
PT (2122)	1020+59.9352	515258.3405	558131.9352

Radius: 29000.0000
Delta: 1° 13' 39.6724" Right
Degree of Curvature (Arc): 0° 11' 51.2580"
Length: 621.3881
Tangent: 310.7059
Chord: 621.3762
Middle Ordinate: 1.6643
External: 1.6644
Tangent Direction: S 70° 42' 32.5670" E
Radial Direction: S 19° 17' 27.4330" W
Chord Direction: S 70° 05' 42.7308" E
Radial Direction: S 20° 31' 07.1055" W
Tangent Direction: S 69° 28' 52.8945" E

CIRCULAR CURVE NO. 29

	STATION	NORTHING	EASTING
ELEMENT: CIRCULAR			
PC (2125)	20+31.2131	515331.9915	557841.7303
PI (2126)	20+75.8302	515290.0465	557826.5215
CC (2127)		515364.3745	557752.4200
PRC (2128)	21+14.6378	515274.9657	557784.5304

Radius: 95.0000
Delta: 50° 18' 52.4723" Right
Degree of Curvature (Arc): 60° 18' 40.8487"
Length: 83.4247
Tangent: 44.6171
Chord: 80.7699
Middle Ordinate: 9.0113
External: 9.9557
Tangent Direction: S 19° 55' 48.3491" W
Radial Direction: N 70° 04' 11.6509" W
Chord Direction: S 45° 05' 14.5852" W
Radial Direction: N 19° 45' 19.1787" W
Tangent Direction: S 70° 14' 40.8213" W

CIRCULAR CURVE NO. 30

	STATION	NORTHING	EASTING
ELEMENT: CIRCULAR			
PRC (2128)	21+14.6378	515274.9657	557784.5304
PI (2129)	22+26.5202	515237.1490	557679.2328
CC (2130)		515147.9112	557830.1609
PT (2131)	23+01.4865	515126.6613	557696.8439

Radius: 135.0000
Delta: 79° 18' 03.8804" Left
Degree of Curvature (Arc): 42° 26' 28.7454"
Length: 186.8488
Tangent: 111.8824
Chord: 172.2879
Middle Ordinate: 31.0567
External: 40.3359
Tangent Direction: S 70° 14' 40.8213" W
Radial Direction: N 19° 45' 19.1787" W
Chord Direction: S 30° 35' 38.8811" W
Radial Direction: S 80° 56' 36.9409" W
Tangent Direction: S 9° 03' 23.0591" E

HV-08

DELAWARE DEPARTMENT OF TRANSPORTATION

ADDENDUMS / REVISIONS

SCALE 0 100 200 300 FEET

US 301 MARYLAND STATE LINE TO LEVELS ROAD

CONTRACT	BRIDGE NO.	
T200811301	DESIGNED BY: MAG/TAM	
COUNTY	CHECKED BY: PAH	
NEW CASTLE		

HORIZONTAL AND VERTICAL CONTROL

SHEET NO.
55
TOTAL SHTS.
850

HORIZONTAL / VERTICAL CONTROL DATA

POINT NO.	STATION	OFFSET	NORTHING	EASTING	ELEVATION
TP #G45	661+72.2599	-855.1918'	525106.1837	563694.9137	61.21
TP #224	666+68.6510	49.0121	524229.9041	563104.3485	72.08

CONSTRUCTION ALIGNMENT CONTROL

POINT	STATION	OFFSET	NORTHING	EASTING
2331	1316+00.0000	0.0000	525030.0141	562786.0715
2321	1317+94.2510	0.0000	524859.2675	562878.6945
2800	731+85.6719	0.0000	524490.2125	562289.9601
2805	748+50.0000	0.0000	525270.1751	563756.1105
2900	660+00.0000	0.0000	524849.8264	562861.0628
2905	668+45.4367	0.0000	524082.7677	563213.9216

EXISTING ALIGNMENT CONTROL

POINT	STATION	OFFSET	NORTHING	EASTING
507	736+74.0406	26.5868	524780.9664	562683.6885
80010	731+58.9686	0.0000	524475.4642	562268.7789
80020	741+85.4568	0.0000	524995.0514	563152.1614

CIRCULAR CURVE NO. 16

	STATION	NORTHING	EASTING
ELEMENT: CIRCULAR			
PC (2317)	1304+39.6547	525964.6782	562117.8440
PI (2324)	1307+84.0615	525756.3239	562392.0784
CC (2319)		524690.6760	561149.8986
PT (2320)	1311+18.1160	525453.5902	562556.2989

Radius: 1600.0000
Delta: 24° 17' 44.1758" Right
Degree of Curvature (Arc): 3° 34' 51.5504"
Length: 678.4613
Tangent: 344.4068
Chord: 673.3896
Middle Ordinate: 35.8272
External: 36.6478
Tangent Direction: S 52° 46' 25.0000" E
Radial Direction: S 37° 13' 35.0000" W
Chord Direction: S 40° 37' 32.9121" E
Radial Direction: S 61° 31' 19.1758" W
Tangent Direction: S 28° 28' 40.8242" E

CIRCULAR CURVE NO. 25

	STATION	NORTHING	EASTING
ELEMENT: CIRCULAR			
PC (2801)	733+58.5375	524588.1550	562432.4024
PI (2802)	737+59.7961	524815.5008	562763.0417
CC (2803)		520775.0695	565054.2597
PT (2804)	741+59.0525	524982.5407	563127.8789

Radius: 4627.5000
Delta: 9° 54' 41.9164" Right
Degree of Curvature (Arc): 1° 14' 17.3702"
Length: 800.5150
Tangent: 401.2587
Chord: 799.5172
Middle Ordinate: 17.2994
External: 17.3643
Tangent Direction: N 55° 29' 16.0549" E
Radial Direction: S 34° 30' 43.9451" E
Chord Direction: N 60° 26' 37.0131" E
Radial Direction: S 24° 36' 02.0287" E
Tangent Direction: N 65° 23' 57.9713" E

CIRCULAR CURVE NO. 80011

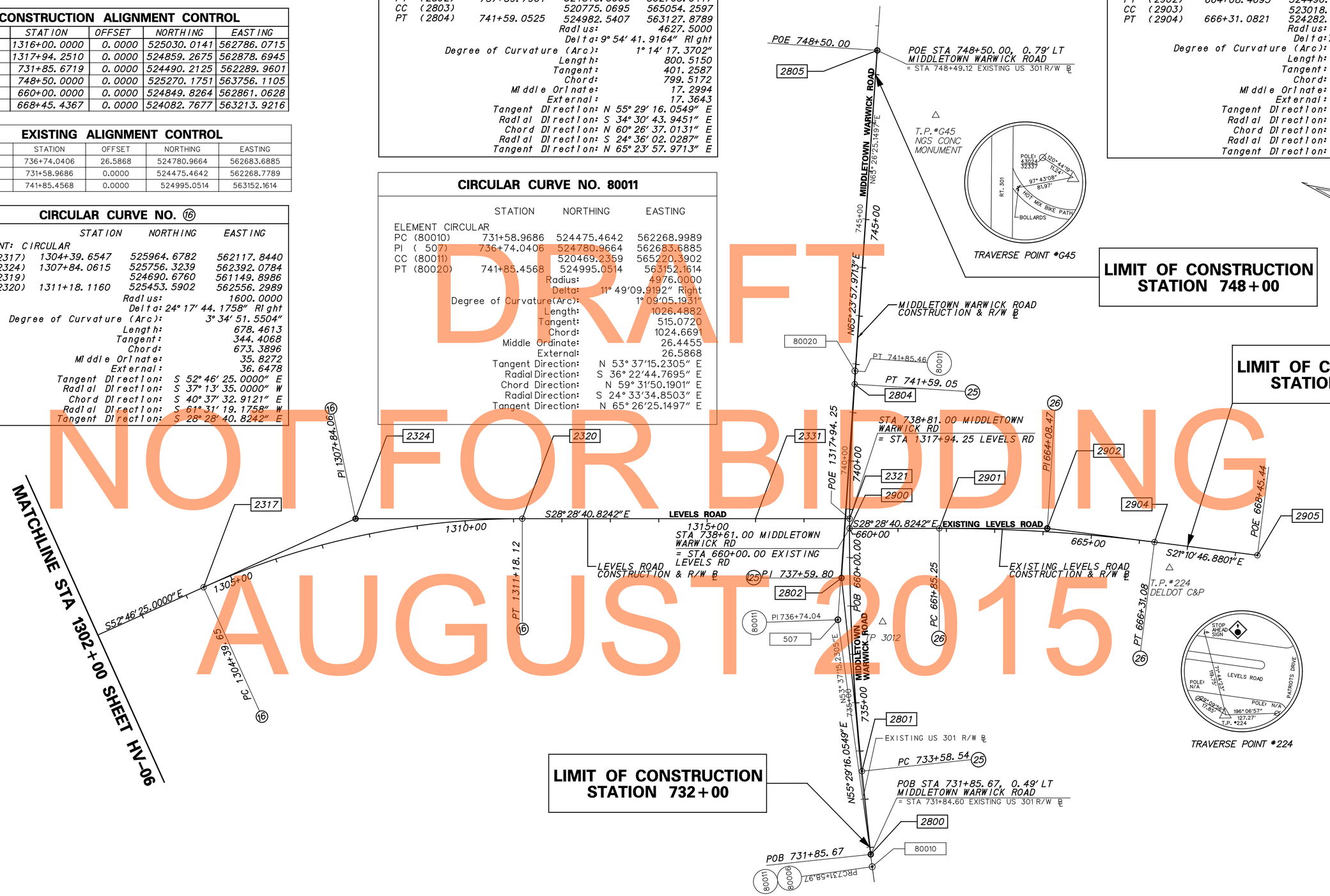
	STATION	NORTHING	EASTING
ELEMENT CIRCULAR			
PC (80010)	731+58.9686	524475.4642	562268.9989
PI (507)	736+74.0406	524780.9664	562683.6885
CC (80011)		520469.2359	565220.3902
PT (80020)	741+85.4568	524995.0514	563152.1614

Radius: 4976.0000
Delta: 11° 49'09.9192" Right
Degree of Curvature(Arc): 1° 09'05.1931"
Length: 1026.4882
Tangent: 515.0720
Chord: 1024.6691
Middle Ordinate: 26.4455
External: 26.5868
Tangent Direction: N 53° 37'15.2305" E
Radial Direction: S 36° 22'44.7695" E
Chord Direction: N 59° 31'50.1901" E
Radial Direction: S 24° 33'34.8503" E
Tangent Direction: N 65° 26'25.1497" E

CIRCULAR CURVE NO. 26

	STATION	NORTHING	EASTING
ELEMENT: CIRCULAR			
PC (2901)	661+85.2532	524686.9888	562949.3955
PI (2902)	664+08.4695	524490.7816	563055.8298
CC (2903)		523018.1140	559872.8947
PT (2904)	666+31.0821	524282.6431	563136.4765

Radius: 3500.0000
Delta: 7° 17' 53.9441" Right
Degree of Curvature (Arc): 1° 38' 13.2802"
Length: 445.8289
Tangent: 223.2163
Chord: 445.5275
Middle Ordinate: 7.0963
External: 7.1107
Tangent Direction: S 28° 28' 40.8242" E
Radial Direction: S 61° 31' 19.1758" W
Chord Direction: S 24° 49' 43.8521" E
Radial Direction: S 68° 49' 13.1199" W
Tangent Direction: S 21° 10' 46.8801" E



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AUGUST 2015

HV-09

DELAWARE DEPARTMENT OF TRANSPORTATION

ADDENDUMS / REVISIONS

SCALE 0 100 200 300 FEET

US 301
MARYLAND STATE LINE
TO LEVELS ROAD

CONTRACT	BRIDGE NO.
T200811301	DESIGNED BY: MAG/TAM
COUNTY	
NEW CASTLE	CHECKED BY: PAH

HORIZONTAL AND VERTICAL CONTROL

SHEET NO.
56
TOTAL SHTS.
850

CONSTRUCTION ALIGNMENT CONTROL

POINT	STATION	OFFSET	NORTHING	EASTING
3100	0+00.0000	0.0000	515858.5962	556425.8222
3101	0+31.0468	0.0000	515829.5338	556436.7438
3102	0+56.2822	0.0000	515804.3440	556438.2616
3103	1+00.5147	0.0000	515760.1257	556439.3785
3104	1+51.4659	0.0000	515709.3849	556444.0045
3105	1+75.1216	0.0000	515685.7573	556445.1556
3106	2+01.2802	0.0000	515659.6814	556447.2345
3107	2+24.5315	0.0000	515636.5737	556449.8147
3108	2+52.2456	0.0000	515608.8890	556451.0895
3109	2+64.1931	0.0000	515596.9456	556451.4050
3110	2+66.1561	0.0000	515594.9833	556451.4568

CONSTRUCTION ALIGNMENT CONTROL

POINT	STATION	OFFSET	NORTHING	EASTING
2100	1000+00.0000	0.0000	516081.6237	556268.2915
2105	1010+00.0000	0.0000	515614.7739	557133.7562
2106	10+00.0000	0.0000	515858.0259	556514.6515

EXISTING ALIGNMENT CONTROL

POINT	STATION	OFFSET	NORTHING	EASTING
501	11+69.1222	16.2551	515816.8482	556548.6687
300089	10+00.0000	0.0000	515932.9411	556425.6860
300090	10+15.6517	0.0000	515922.1971	556437.0676
300092	13+18.0220	0.0000	515766.4650	556693.6333

CIRCULAR CURVE NO. 300091

	STATION	NORTHING	EASTING
ELEMENT CIRCULAR			
PC (300090)	10+15.6517	515922.1971	556437.0676
PI (501)	11+69.1222	515816.8482	556548.6687
CC (300091)		516443.1216	556928.8087
PT (300092)	13+18.0220	515766.4650	556693.6333

Radius:	716.3600
Delta:	24° 11′02.8796″ Left
Degree of Curvature(Arc):	7° 59′53.4567″
Length:	302.3704
Tangent:	153.4705
Chord:	300.1307
Middle Ordinate:	15.8944
External:	16.2551
Tangent Direction:	S 46° 39′02.5680″ E
Radial Direction:	S 43° 20′57.4320″ W
Chord Direction:	S 58° 44′34.0078″ E
Radial Direction:	S 19° 09′54.5524″ W
Tangent Direction:	S 70° 50′05.4476″ E

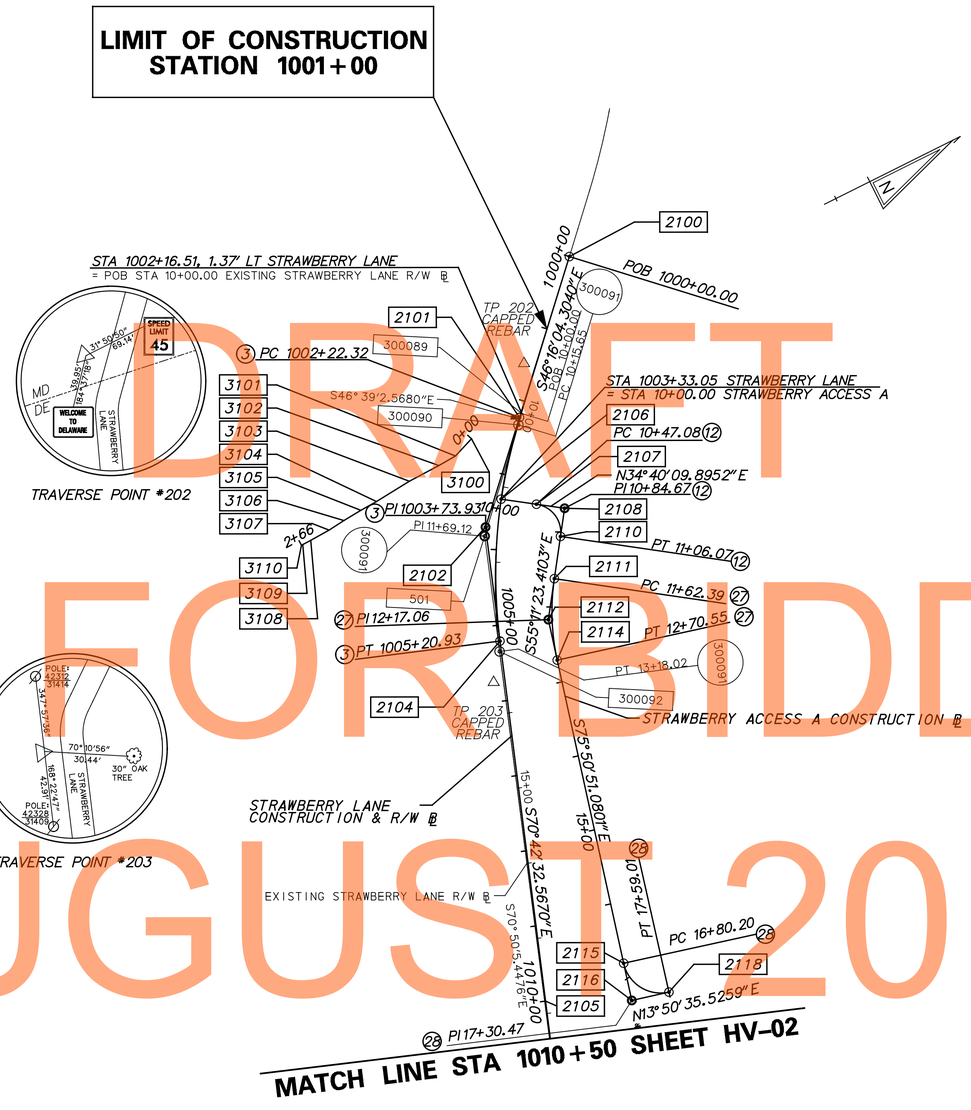
CIRCULAR CURVE NO. 3

	STATION	NORTHING	EASTING
ELEMENT: CIRCULAR			
PC (2101)	1002+22.3242	515927.9337	556428.9384
PI (2102)	1003+73.9329	515823.1285	556538.4877
CC (2103)		516433.7394	556912.8399
PT (2104)	1005+20.9296	515773.0422	556681.5841

Radius:	700.0000
Delta:	24° 26′28.2630″ Left
Degree of Curvature (Arc):	8° 11′06.4009″
Length:	298.6054
Tangent:	151.6087
Chord:	296.3465
Middle Ordinate:	15.8621
External:	16.2299
Tangent Direction:	S 46° 16′04.3040″ E
Radial Direction:	S 43° 43′55.6960″ W
Chord Direction:	S 58° 29′18.4355″ E
Radial Direction:	S 19° 17′27.4330″ W
Tangent Direction:	S 70° 42′32.5670″ E

HORIZONTAL / VERTICAL CONTROL DATA

POINT	STATION	OFFSET	NORTHING	EASTING	ELEVATION
TP 202	1001+52.5161	15.4455	515965.0306	556367.8192	67.38
TP 203	1005+73.9336	15.0909	515741.2879	556726.6266	67.97



CIRCULAR CURVE NO. 12

	STATION	NORTHING	EASTING
ELEMENT: CIRCULAR			
PC (2107)	10+47.0759	515896.7433	556541.4301
PI (2108)	10+84.6681	515927.6610	556562.8141
CC (2109)		515875.4118	556572.2719
PT (2110)	11+06.0728	515906.2011	556593.6791

Radius:	37.5000
Delta:	90° 08′26.6945″ RIGHT
Degree of Curvature (Arc):	152° 47′19.4833″
Length:	58.9970
Tangent:	37.5922
Chord:	53.0981
Middle Ordinate:	11.0161
External:	15.5983
Tangent Direction:	N 34° 40′09.8952″ E
Radial Direction:	S 55° 19′50.1048″ E
Chord Direction:	N 79° 44′23.2424″ E
Radial Direction:	S 34° 48′36.5897″ W
Tangent Direction:	S 55° 11′23.4103″ E

CIRCULAR CURVE NO. 27

	STATION	NORTHING	EASTING
ELEMENT: CIRCULAR			
PC (2111)	11+62.3891	515874.0525	556639.9174
PI (2112)	12+17.0643	515842.8406	556684.8085
CC (2113)		516120.3669	556811.1752
PT (2114)	12+70.5524	515829.4723	556737.8242

Radius:	300.000
Delta:	20° 39′27.6698″ LEFT
Degree of Curvature (Arc):	19° 05′54.9354″
Length:	108.1634
Tangent:	54.6753
Chord:	107.5785
Middle Ordinate:	4.8615
External:	4.9416
Tangent Direction:	S 55° 11′23.4103″ E
Radial Direction:	S 34° 48′36.5897″ W
Chord Direction:	S 65° 31′07.2452″ E
Radial Direction:	S 14° 09′08.9199″ W
Tangent Direction:	S 75° 50′51.0801″ E

CIRCULAR CURVE NO. 28

	STATION	NORTHING	EASTING
ELEMENT: CIRCULAR			
PC (2115)	16+80.1979	515729.3127	557135.0363
PI (2116)	17+30.4685	515717.0214	557183.7811
CC (2117)		515777.7951	557147.2615
PT (2118)	17+59.0076	515765.8318	557195.8092

Radius:	50.0000
Delta:	90° 18′33.3940″ LEFT
Degree of Curvature (Arc):	114° 35′29.6125″
Length:	78.8097
Tangent:	50.2706
Chord:	70.9013
Middle Ordinate:	14.7402
External:	20.9023
Tangent Direction:	S 75° 50′51.0801″ E
Radial Direction:	S 14° 09′08.9199″ W
Chord Direction:	N 58° 59′52.2229″ E
Radial Direction:	S 76° 09′24.4741″ E
Tangent Direction:	N 13° 50′35.5259″ E

DATUM REFERENCES:

HORIZONTAL - PROJECT IS BASED ON THE DELAWARE STATE PLANE COORDINATE SYSTEM (NAD 83).

VERTICAL - PLAN ELEVATIONS ARE BASED ON N.G.S. SURVEY DATUM (NAVD 88).

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AUGUST 2015

HV-10

DELAWARE DEPARTMENT OF TRANSPORTATION

ADDENDUMS / REVISIONS

SCALE 0 100 200 300 FEET

US 301 MARYLAND STATE LINE TO LEVELS ROAD

CONTRACT	BRIDGE NO.	
T200811301	DESIGNED BY: MAG/TAM	
COUNTY		
NEW CASTLE	CHECKED BY: PAH	

HORIZONTAL AND VERTICAL CONTROL

SHEET NO. 57

TOTAL SHTS. 850