

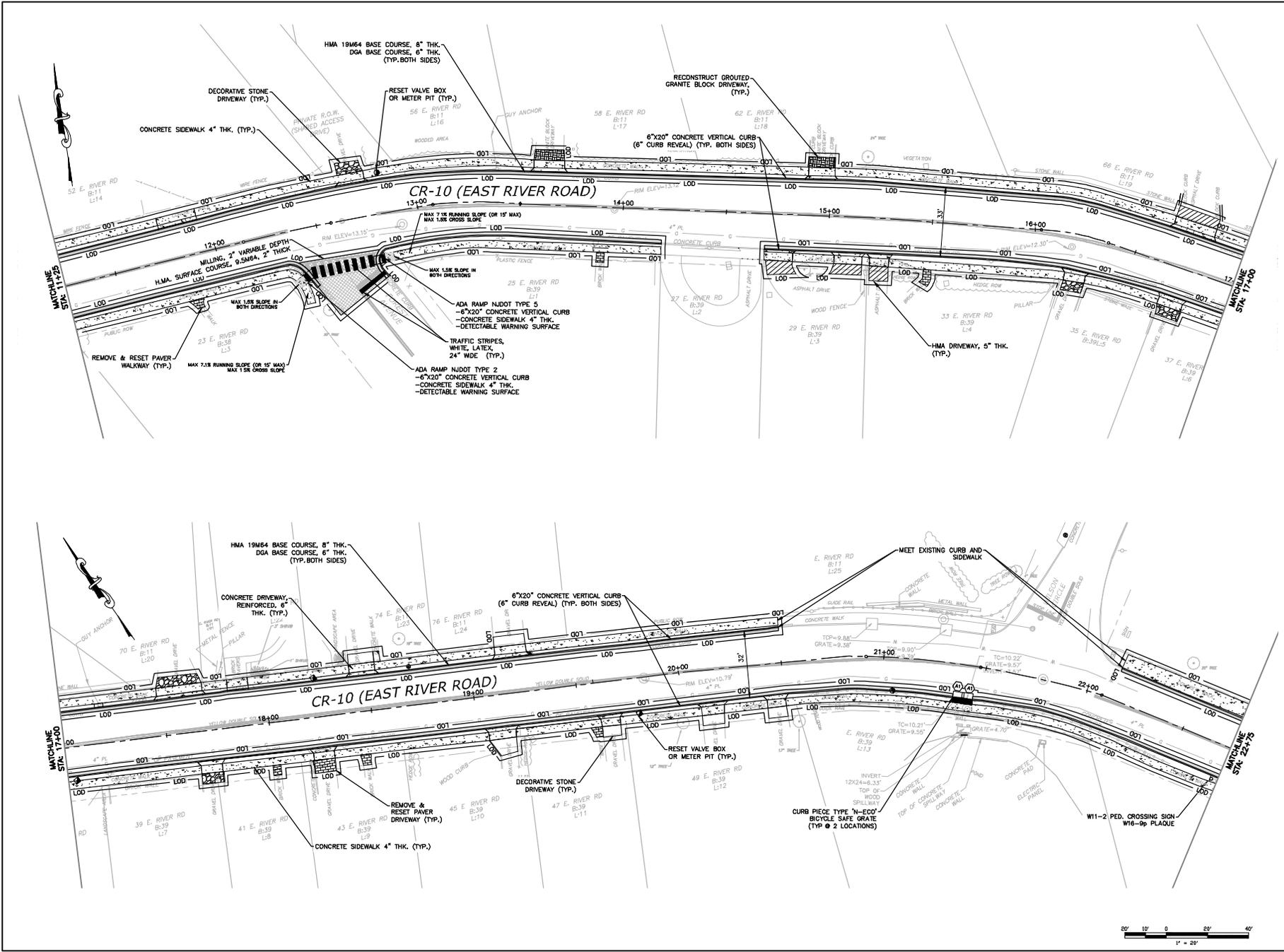






PROJECT INFORMATION: DRAWN BY: T.M. WALKER  
 FILE NAME: CR-10 (EAST RIVER ROAD) - IMPROVEMENTS - PHASE II  
 DATE: 02/24/2020  
 LAST SAVE BY: T.M. WALKER

CONSENT TO PRINT: THIS DOCUMENT IS THE PROPERTY OF THE ORIGINAL DESIGNER AND SHOULD NOT BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, WITHOUT THE WRITTEN PERMISSION OF THE ORIGINAL DESIGNER.



NO.	DATE	BY	CHKD.

THOMAS P. NEFF, P.E., P.P., C.M.E.  
 CONSULTING ENGINEER

*Thomas P. Neff*

THOMAS P. NEFF & ASSOCIATES  
 1000 W. WASHINGTON ST., SUITE 200  
 PHILADELPHIA, PA 19102

JANUARY 24, 2020

BOROUGH OF RUMSON  
**EAST RIVER ROAD (CR-10) CURB & SIDEWALK IMPROVEMENTS - PHASE II**  
 BOROUGH OF RUMSON, MONMOUTH COUNTY, NEW JERSEY  
**EAST RIVER ROAD (CR-10) CONSTRUCTION PLAN & SOIL EROSION & SEDIMENT CONTROL PLAN**



DRAWN BY	T.M. WALKER	DRAWING	CSP-2
CHECKED BY	T.M. WALKER	SHEET	4
DATE	02/24/2020	OF	23
SCALE	AS SHOWN		
PROJ. NO.	190621771		

























**CURB RAMP TYPE 1**

0.0 % GUTTER LINE PROFILE

H	W	X <sub>10</sub>	X <sub>11</sub>	L <sub>1</sub>
INCHES	FEET	FEET	FEET	FEET
3	3	2.50	2.50	9.00
4	4	3.33	3.33	10.67
5	5	4.17	4.17	12.33
6	6	5.00	5.00	14.00
7	7	5.83	5.83	15.67
8	8	6.67	6.67	17.33
9	9	7.50	7.50	19.00

1.6 % GUTTER LINE PROFILE

H	W	X <sub>10</sub>	X <sub>11</sub>	L <sub>1</sub>
INCHES	FEET	FEET	FEET	FEET
3	3	2.78	2.77	9.05
4	4	3.70	3.63	10.73
5	5	4.63	4.57	12.42
6	6	5.56	5.50	14.10
7	7	6.48	6.43	15.78
8	8	7.41	7.36	17.47
9	9	8.33	8.28	19.15

2.0 % GUTTER LINE PROFILE

H	W	X <sub>10</sub>	X <sub>11</sub>	L <sub>1</sub>
INCHES	FEET	FEET	FEET	FEET
3	3	3.23	3.20	9.21
4	4	4.17	4.13	10.88
5	5	5.21	5.17	12.56
6	6	6.25	6.21	14.24
7	7	7.29	7.25	15.92
8	8	8.33	8.29	17.60
9	9	9.38	9.33	19.28

3.0 % GUTTER LINE PROFILE

H	W	X <sub>10</sub>	X <sub>11</sub>	L <sub>1</sub>
INCHES	FEET	FEET	FEET	FEET
3	3	3.57	3.52	9.43
4	4	4.76	4.70	11.10
5	5	5.95	5.87	12.76
6	6	7.14	7.05	14.43
7	7	8.33	8.23	16.10
8	8	9.52	9.41	17.76
9	9	10.71	10.59	19.43

4.0 % GUTTER LINE PROFILE

H	W	X <sub>10</sub>	X <sub>11</sub>	L <sub>1</sub>
INCHES	FEET	FEET	FEET	FEET
3	3	4.17	4.10	9.95
4	4	5.56	5.48	11.94
5	5	6.94	6.86	13.92
6	6	8.33	8.23	15.90
7	7	9.72	9.58	17.89
8	8	11.11	10.97	19.87
9	9	12.50	12.36	21.86

5.0 % GUTTER LINE PROFILE

H	W	X <sub>10</sub>	X <sub>11</sub>	L <sub>1</sub>
INCHES	FEET	FEET	FEET	FEET
3	3	5.00	4.92	10.67
4	4	6.67	6.58	12.89
5	5	8.33	8.23	15.11
6	6	10.00	9.88	17.33
7	7	11.67	11.53	19.55
8	8	13.33	13.18	21.77
9	9	15.00	14.83	24.00

6.0 % GUTTER LINE PROFILE

H	W	X <sub>10</sub>	X <sub>11</sub>	L <sub>1</sub>
INCHES	FEET	FEET	FEET	FEET
3	3	6.25	6.15	11.81
4	4	8.33	8.23	14.42
5	5	10.42	10.30	17.03
6	6	12.50	12.36	19.63
7	7	14.58	14.43	22.24
8	8	16.67	16.53	24.84
9	9	18.75	18.60	27.45

7.0 % GUTTER LINE PROFILE

H	W	X <sub>10</sub>	X <sub>11</sub>	L <sub>1</sub>
INCHES	FEET	FEET	FEET	FEET
3	3	8.33	8.23	13.00
4	4	11.11	11.00	15.67
5	5	13.89	13.78	18.33
6	6	16.67	16.53	21.00
7	7	19.44	19.29	23.67
8	8	22.22	22.07	26.33
9	9	25.00	24.83	29.00

**CURB RAMP TYPE 3**

0.0 % GUTTER LINE PROFILE

H	W	X <sub>10</sub>	X <sub>11</sub>	L <sub>1</sub>	Y	X <sub>10</sub>	X <sub>11</sub>	L <sub>1</sub>
INCHES	FEET	FEET	FEET	FEET	INCHES	FEET	FEET	FEET
3	3	2.50	2.50	9.00		0.91	0.91	3.02
4	4	3.33	3.33	10.67		1.21	1.21	3.62
5	5	4.17	4.17	12.33		1.51	1.51	4.22
6	6	5.00	5.00	14.00	2.75	1.81	1.81	4.82
7	7	5.83	5.83	15.67		2.11	2.11	5.42
8	8	6.67	6.67	17.33		2.41	2.41	6.02
9	9	7.50	7.50	19.00		2.71	2.71	6.62

1.6 % GUTTER LINE PROFILE

H	W	X <sub>10</sub>	X <sub>11</sub>	L <sub>1</sub>	Y	X <sub>10</sub>	X <sub>11</sub>	L <sub>1</sub>
INCHES	FEET	FEET	FEET	FEET	INCHES	FEET	FEET	FEET
3	3	3.33	3.33	10.67		1.22	1.22	3.63
4	4	4.17	4.17	12.33		1.62	1.62	4.83
5	5	5.00	5.00	14.00		2.02	2.02	6.03
6	6	5.83	5.83	15.67	2.75	2.42	2.42	7.23
7	7	6.67	6.67	17.33		2.82	2.82	8.43
8	8	7.50	7.50	19.00		3.22	3.22	9.63
9	9	8.33	8.33	20.67		3.62	3.62	10.83

2.0 % GUTTER LINE PROFILE

H	W	X <sub>10</sub>	X <sub>11</sub>	L <sub>1</sub>	Y	X <sub>10</sub>	X <sub>11</sub>	L <sub>1</sub>
INCHES	FEET	FEET	FEET	FEET	INCHES	FEET	FEET	FEET
3	3	3.23	3.20	9.21		1.09	1.09	3.63
4	4	4.17	4.13	10.88		1.49	1.49	4.83
5	5	5.21	5.17	12.56		1.89	1.89	6.03
6	6	6.25	6.21	14.24	2.75	2.29	2.29	7.23
7	7	7.29	7.25	15.92		2.69	2.69	8.43
8	8	8.33	8.29	17.60		3.09	3.09	9.63
9	9	9.38	9.33	19.28		3.49	3.49	10.83

3.0 % GUTTER LINE PROFILE

H	W	X <sub>10</sub>	X <sub>11</sub>	L <sub>1</sub>	Y	X <sub>10</sub>	X <sub>11</sub>	L <sub>1</sub>
INCHES	FEET	FEET	FEET	FEET	INCHES	FEET	FEET	FEET
3	3	3.57	3.52	9.43		1.20	1.20	3.63
4	4	4.76	4.70	11.10		1.60	1.60	4.83
5	5	5.95	5.87	12.76		2.00	2.00	6.03
6	6	7.14	7.05	14.43	2.75	2.40	2.40	7.23
7	7	8.33	8.23	16.10		2.80	2.80	8.43
8	8	9.52	9.41	17.76		3.20	3.20	9.63
9	9	10.71	10.59	19.43		3.60	3.60	10.83

4.0 % GUTTER LINE PROFILE

H	W	X <sub>10</sub>	X <sub>11</sub>	L <sub>1</sub>	Y	X <sub>10</sub>	X <sub>11</sub>	L <sub>1</sub>
INCHES	FEET	FEET	FEET	FEET	INCHES	FEET	FEET	FEET
3	3	4.17	4.10	9.95		1.31	1.31	3.63
4	4	5.56	5.48	11.94		1.71	1.71	4.83
5	5	6.94	6.86	13.92		2.11	2.11	6.03
6	6	8.33	8.23	15.90	2.75	2.51	2.51	7.23
7	7	9.72	9.58	17.89		2.91	2.91	8.43
8	8	11.11	10.97	19.87		3.31	3.31	9.63
9	9	12.50	12.36	21.86		3.71	3.71	10.83

5.0 % GUTTER LINE PROFILE

H	W	X <sub>10</sub>	X <sub>11</sub>	L <sub>1</sub>	Y	X <sub>10</sub>	X <sub>11</sub>	L <sub>1</sub>
INCHES	FEET	FEET	FEET	FEET	INCHES	FEET	FEET	FEET
3	3	5.00	4.92	10.67		1.42	1.42	3.63
4	4	6.67	6.58	12.89		1.82	1.82	4.83
5	5	8.33	8.23	15.11		2.22	2.22	6.03
6	6	10.00	9.88	17.33	2.75	2.62	2.62	7.23
7	7	11.67	11.53	19.55		2.82	2.82	8.43
8	8	13.33	13.18	21.77		3.22	3.22	9.63
9	9	15.00	14.83	24.00		3.62	3.62	10.83

6.0 % GUTTER LINE PROFILE

H	W	X <sub>10</sub>	X <sub>11</sub>	L <sub>1</sub>	Y	X <sub>10</sub>	X <sub>11</sub>	L <sub>1</sub>
INCHES	FEET	FEET	FEET	FEET	INCHES	FEET	FEET	FEET
3	3	6.25	6.15	11.81		1.53	1.53	3.63
4	4	8.33	8.23	14.42		1.93	1.93	4.83
5	5	10.42	10.30	17.03		2.33	2.33	6.03
6	6	12.50	12.36	19.63	2.75	2.73	2.73	7.23
7	7	14.58	14.43	22.24		2.93	2.93	8.43
8	8	16.67	16.53	24.84		3.33	3.33	9.63
9	9	18.75	18.60	27.45		3.73	3.73	10.83

7.0 % GUTTER LINE PROFILE

H	W	X <sub>10</sub>	X <sub>11</sub>	L <sub>1</sub>	Y	X <sub>10</sub>	X <sub>11</sub>	L <sub>1</sub>
INCHES	FEET	FEET	FEET	FEET	INCHES	FEET	FEET	FEET
3	3	8.33	8.23	13.00		1.64	1.64	3.63
4	4	11.11	11.00	15.67		2.04	2.04	4.83
5	5	13.89	13.78	18.33		2.44	2.44	6.03
6	6	16.67	16.53	21.00	2.75	2.84	2.84	7.23
7	7	19.44	19.29	23.67		3.04	3.04	8.43
8	8	22.22	22.07	26.33		3.44	3.44	9.63
9	9	25.00	24.83	29.00		3.84	3.84	10.83

1.0 % GUTTER LINE PROFILE

H	W	X <sub>10</sub>	X <sub>11</sub>	L <sub>1</sub>	Y	X <sub>10</sub>	X <sub>11</sub>	L <sub>1</sub>
INCHES	FEET	FEET	FEET	FEET	INCHES	FEET	FEET	FEET
3	3	2.78	2.77	9.05		1.04	1.04	3.05
4	4	3.70	3.63	10.73		1.34	1.34	3.65
5	5	4.63	4.57	12.42		1.64	1.64	4.25
6	6	5.56	5.50	14.10	2.75	1.94	1.94	4.85
7	7	6.48	6.43	15.78		2.24	2.24	5.45
8	8	7.41	7.36	17.47		2.54	2.54	6.05
9	9	8.33	8.28	19.15		2.84	2.84	6.65

3.0 % GUTTER LINE PROFILE

H	W	X <sub>10</sub>	X <sub>11</sub>	L <sub>1</sub>	Y	X <sub>10</sub>	X <sub>11</sub>	L <sub>1</sub>
INCHES	FEET	FEET	FEET	FEET	INCHES	FEET	FEET	FEET
3	3	3.23	3.20	9.21		1.15	1.15	3.05
4	4	4.17	4.13	10.88		1.55	1.55	3.65
5	5	5.21	5.17	12.56		1.95	1.95	4.25
6	6	6.25	6.21	14.24	2.75	2.35	2.35	4.85
7	7	7.29	7.25	15.92		2.75	2.75	5.45
8	8	8.33	8.29	17.60		3.15	3.15	6.05
9	9	9.38	9.33	19.28		3.55	3.55	6.65

5.0 % GUTTER LINE PROFILE

H	W	X <sub>10</sub>	X <sub>11</sub>	L <sub>1</sub>	Y	X <sub>10</sub>	X <sub>11</sub>	L <sub>1</sub>
INCHES	FEET	FEET	FEET	FEET	INCHES	FEET	FEET	FEET
3	3	3.57	3.52	9.43		1.26	1.26	3.05
4	4	4.76	4.70	11.10		1.66	1.66	3.

**CURB RAMP TYPE 4**

0.0 % GUTTER LINE PROFILE					
H INCHES	W FEET	Y INCHES	X <sub>10</sub> FEET	X <sub>0</sub> FEET	L <sub>1</sub> FEET
3			0.91	0.91	5.82
4			1.04	1.04	7.82
5			2.91	2.91	9.82
6	2.75	2.75	3.91	3.91	11.82
7			4.91	4.91	13.83
8			5.91	5.91	15.83
9			6.91	6.91	17.83
3			**	**	**
4			1.72	1.72	7.44
5			2.72	2.72	9.44
6	3.0	3.0	3.72	3.72	11.45
7			4.72	4.72	13.45
8			5.72	5.72	15.45
9			6.72	6.72	17.45
3			**	**	**
4			1.34	1.34	6.68
5			2.34	2.34	8.68
6	3.5	3.5	3.34	3.34	10.69
7			4.34	4.34	12.69
8			5.34	5.34	14.69
9			6.34	6.34	16.69
3			**	**	**
4			**	**	**
5			1.96	1.96	7.92
6	4.0	4.0	2.96	2.96	9.93
7			3.96	3.96	11.93
8			4.96	4.96	13.93
9			5.96	5.96	15.93

1.0 % GUTTER LINE PROFILE					
H INCHES	W FEET	Y INCHES	X <sub>10</sub> FEET	X <sub>0</sub> FEET	L <sub>1</sub> FEET
3			1.04	0.81	5.85
4			2.17	1.71	7.88
5			3.31	2.60	9.91
6	2.75	2.75	4.45	3.49	11.94
7			5.58	4.39	13.97
8			6.72	5.28	16.00
9			7.86	6.17	18.03
3			0.82	0.64	5.46
4			1.96	1.54	7.49
5			3.09	2.43	9.52
6	3.0	3.0	4.23	3.32	11.55
7			5.37	4.22	13.58
8			6.50	5.11	15.61
9			7.64	6.00	17.64
3			0.30	0.30	4.60
4			1.53	1.20	6.72
5			2.66	2.09	8.75
6	3.5	3.5	3.80	2.98	10.78
7			4.94	3.88	12.81
8			6.07	4.77	14.84
9			7.21	5.66	16.87
3			**	**	**
4			1.09	0.86	5.95
5			2.23	1.75	7.98
6	4.0	4.0	3.37	2.65	10.01
7			4.50	3.54	12.04
8			5.64	4.43	14.07
9			6.78	5.32	16.10

2.0 % GUTTER LINE PROFILE					
H INCHES	W FEET	Y INCHES	X <sub>10</sub> FEET	X <sub>0</sub> FEET	L <sub>1</sub> FEET
3			1.20	0.73	5.93
4			2.52	1.54	8.06
5			3.83	2.35	10.18
6	2.75	2.75	5.15	3.16	12.30
7			6.47	3.96	14.43
8			7.78	4.77	16.55
9			9.10	5.58	18.67
3			0.95	0.58	5.53
4			2.27	1.39	7.65
5			3.58	2.20	9.78
6	3.0	3.0	4.90	3.00	11.90
7			6.22	3.81	14.02
8			7.53	4.62	16.15
9			8.85	5.42	18.27
3			0.46	0.28	4.73
4			1.77	1.08	6.85
5			3.08	1.89	8.97
6	3.5	3.5	4.40	2.70	11.09
7			5.72	3.50	13.22
8			7.03	4.31	15.34
9			8.35	5.12	17.46
3			**	**	**
4			1.27	0.78	6.04
5			2.58	1.58	8.16
6	4.0	4.0	3.90	2.39	10.29
7			5.22	3.20	12.41
8			6.53	4.00	14.53
9			7.85	4.81	16.66

3.0 % GUTTER LINE PROFILE					
H INCHES	W FEET	Y INCHES	X <sub>10</sub> FEET	X <sub>0</sub> FEET	L <sub>1</sub> FEET
3			1.42	0.67	6.09
4			3.09	1.41	8.39
5			4.55	2.14	10.69
6	2.75	2.75	6.11	2.88	12.99
7			7.68	3.61	15.29
8			9.24	4.35	17.59
9			10.81	5.08	19.89
3			1.13	0.53	5.66
4			2.69	1.27	7.96
5			4.25	2.00	10.26
6	3.0	3.0	5.82	2.74	12.59
7			7.38	3.47	14.85
8			8.94	4.21	17.13
9			10.51	4.94	19.45
3			0.64	0.36	4.78
4			2.10	0.99	7.08
5			3.66	1.72	9.38
6	3.5	3.5	5.22	2.46	11.68
7			6.79	3.19	13.98
8			8.35	3.93	16.28
9			9.91	4.66	18.58
3			**	**	**
4			1.50	0.71	6.21
5			3.07	1.44	8.51
6	4.0	4.0	4.63	2.18	10.81
7			6.19	2.91	13.11
8			7.76	3.65	15.41
9			9.32	4.38	17.71

**CURB RAMP TYPE 7**

0.0 % GUTTER LINE PROFILE					
H INCHES	W FEET	Y INCHES	X <sub>10</sub> FEET	X <sub>0</sub> FEET	L <sub>1</sub> FEET
3			3.00	3.00	10.00
4			4.00	4.00	13.00
5			5.00	5.00	16.00
6	4" MIN.	7" MAX.	6.00	6.00	19.00
7			7.00	7.00	22.00
8			8.00	8.00	25.00
9			9.00	9.00	28.00

4.0 % GUTTER LINE PROFILE					
H INCHES	W FEET	Y INCHES	X <sub>10</sub> FEET	X <sub>0</sub> FEET	L <sub>1</sub> FEET
3			5.77	2.03	13.80
4			7.70	3.70	14.40
5			9.62	3.38	17.00
6	4" MIN.	7" MAX.	11.55	4.06	19.60
7			13.47	4.73	22.20
8			15.40	5.41	24.80
9			17.32	6.08	27.40

1.0 % GUTTER LINE PROFILE					
H INCHES	W FEET	Y INCHES	X <sub>10</sub> FEET	X <sub>0</sub> FEET	L <sub>1</sub> FEET
3			3.41	2.68	10.09
4			4.55	3.57	12.12
5			5.68	4.47	14.15
6	4" MIN.	7" MAX.	6.82	5.36	16.18
7			7.96	6.25	18.21
8			9.10	7.15	20.24
9			10.23	8.04	22.27

5.0 % GUTTER LINE PROFILE					
H INCHES	W FEET	Y INCHES	X <sub>10</sub> FEET	X <sub>0</sub> FEET	L <sub>1</sub> FEET
3			7.51	1.88	13.38
4			10.01	2.50	16.51
5			12.51	3.13	19.64
6	4" MIN.	7" MAX.	15.00	3.75	22.75
7			17.50	4.38	25.88
8			20.00	5.00	29.00
9			22.50	5.63	32.13

2.0 % GUTTER LINE PROFILE					
H INCHES	W FEET	Y INCHES	X <sub>10</sub> FEET	X <sub>0</sub> FEET	L <sub>1</sub> FEET
3			3.95	3.23	10.37
4			5.27	3.23	12.49
5			6.58	4.03	14.62
6	4" MIN.	7" MAX.	7.90	4.84	16.74
7			9.22	5.65	18.86
8			10.53	6.45	20.99
9			11.85	7.26	23.11

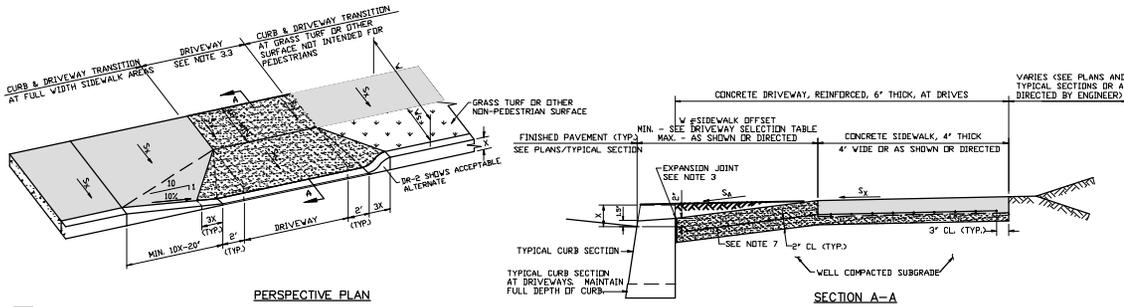
6.0 % GUTTER LINE PROFILE					
H INCHES	W FEET	Y INCHES	X <sub>10</sub> FEET	X <sub>0</sub> FEET	L <sub>1</sub> FEET
3			10.73	1.74	16.43
4			14.31	2.33	20.63
5			17.89	2.91	24.83
6	4" MIN.	7" MAX.	21.47	3.49	29.03
7			25.05	4.07	33.23
8			28.63	4.65	37.43
9			32.21	5.23	41.63

3.0 % GUTTER LINE PROFILE					
H INCHES	W FEET	Y INCHES	X <sub>10</sub> FEET	X <sub>0</sub> FEET	L <sub>1</sub> FEET
3			4.69	2.71	10.90
4			6.25	2.94	13.20
5			7.82	3.68	15.49
6	4" MIN.	7" MAX.	9.38	4.41	17.79
7			10.94	5.15	20.08
8			12.51	5.88	22.39
9			14.07	6.62	24.69

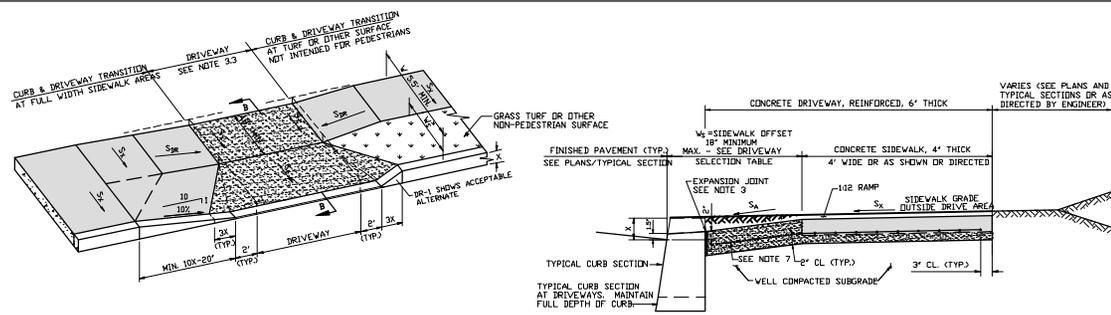
7.0 % GUTTER LINE PROFILE					
H INCHES	W FEET	Y INCHES	X <sub>10</sub> FEET	X <sub>0</sub> FEET	L <sub>1</sub> FEET
3			15.00	1.63	20.63
4			20.73	2.17	25.17
5			26.46	2.72	29.72
6	4" MIN.	7" MAX.	32.19	3.26	34.26
7			37.92	3.81	38.81
8			43.65	4.35	43.35
9			49.38	4.89	47.89

4.0 % GUTTER LINE PROFILE					
H INCHES	W FEET	Y INCHES	X <sub>10</sub> FEET	X <sub>0</sub> FEET	L <sub>1</sub> FEET
3			1.75	0.62	6.37
4			3.68	1.39	8.97
5			5.60	1.97	11.57
6	2.75	2.75	7.53	2.64	14.17
7			9.45	3.32	16.77
8			11.38	4.00	19.37
9			13.30	4.67	21.97
3			1.39	0.49	5.88
4			3.51	1.16	8.48
5			5.24	1.84	11.08
6	3.0	3.0	7.16	2.52	13.68
7			9.09	3.19	16.28
8			11.01	3.87	18.88
9			12.94	4.54	21.48
3			0.66	0.23	4.89
4			2.58	0.91	7.49
5			4.51	1.58	10.09
6	3.5	3.5	6.43	2.26	12.69
7			8.36	2.93	15.29
8			10.28	3.61	17.89
9			12.20	4.29	20.49
3			**	**	**
4			1.85	0.65	6.50
5			3.78	1.33	9.10
6	4.0	4.0	5.70	2.00	11.70
7			7.62	2.68	14.30
8			9.55	3.35	16.90
9			11.47	4.03	19.50

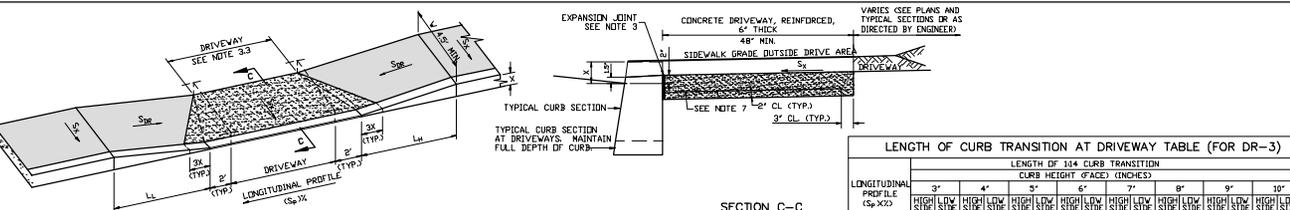
5.0 % GUTTER LINE PROFILE					
H INCHES	W FEET	Y INCHES	X <sub>10</sub> FEET	X <sub>0</sub> FEET	L <sub>1</sub> FEET
3			4.78	1.19	9.98
4			7.29	1.82	13.10
5			9.79	2.45	16.23
6	2.75	2.75	12.29	3.07	19.36
7			14.79	3.70	22.49
8			17.29	4.32	25.62
9			19.79	4.95	28.75
3			1.80	0.45	6.26
4			4.31	1.08	8.86
5			6.81	1.70	12.51
6	3.0	3.0	9.31	2.33	16.16
7			11.81	2.95	19.77
8			14.32	3.58	23.38
9			16.82	4.20	27.00
3			0.85		



**DETAIL DR-1**  
**CONCRETE DRIVEWAY TYPE 1 - LARGE SIDEWALK OFFSET**  
 NOT TO SCALE



**DETAIL DR-2**  
**CONCRETE DRIVEWAY TYPE 2 - INTERMEDIATE SIDEWALK OFFSET**  
 NOT TO SCALE



**DETAIL DR-3**  
**CONCRETE DRIVEWAY TYPE 3 - MINIMUM SIDEWALK OFFSET**  
 NOT TO SCALE

**LENGTH OF CURB TRANSITION AT DRIVEWAY TABLE (FOR DR-3)**

LONGITUDINAL PROFILE (S <sub>1</sub> X <sub>2</sub> )	LENGTH OF 184 CURB TRANSITION (CURB HEIGHT 6" FACE) (INCHES)									
	3"	4"	5"	6"	7"	8"	9"	10"	11"	12"
SEE NOTE 2	15'	12'	10'	8'	7'	6'	5'	4'	3'	2'
0.5	15'	12'	10'	8'	7'	6'	5'	4'	3'	2'
0.3	15'	12'	10'	8'	7'	6'	5'	4'	3'	2'
0.4	15'	12'	10'	8'	7'	6'	5'	4'	3'	2'
0.5	15'	12'	10'	8'	7'	6'	5'	4'	3'	2'
0.75	15'	12'	10'	8'	7'	6'	5'	4'	3'	2'
1.00	15'	12'	10'	8'	7'	6'	5'	4'	3'	2'
1.50	15'	12'	10'	8'	7'	6'	5'	4'	3'	2'
2.00	15'	12'	10'	8'	7'	6'	5'	4'	3'	2'
2.50	15'	12'	10'	8'	7'	6'	5'	4'	3'	2'
3.00	15'	12'	10'	8'	7'	6'	5'	4'	3'	2'
3.50	15'	12'	10'	8'	7'	6'	5'	4'	3'	2'
4.00	15'	12'	10'	8'	7'	6'	5'	4'	3'	2'
4.50	15'	12'	10'	8'	7'	6'	5'	4'	3'	2'
5.00	15'	12'	10'	8'	7'	6'	5'	4'	3'	2'
5.50	15'	12'	10'	8'	7'	6'	5'	4'	3'	2'

NOTES:  
 1. INTERPOLATE BETWEEN SLOPES SHOWN AS REQUIRED.  
 2. NO ADJUSTMENT FOR PROFILE SLOPES LESS THAN 0.2%.

**GENERAL NOTES:**

- CONCRETE FOR CURBS, DRIVEWAYS AND SIDEWALKS SHALL BE MIDD CLASS B DRIVEWAY CONCRETE SHALL ATTAIN A STRENGTH OF NOT LESS THAN 3000 PSI WITHIN 3 DAYS OF PLACEMENT.
- CURB, DRIVEWAYS AND SIDEWALKS SHALL BE CAST IN SEPARATE OPERATIONS UNLESS OTHERWISE PERMITTED BY THE ENGINEER.
- EXPANSION JOINTS WITH PREFORMED EXPANSION JOINT FILLER CONFORMING TO AASHTO M33, PREFORMED EXPANSION JOINT FILLER FOR CONCRETE (BITUMINOUS TYPE), SHALL BE PROVIDED AS FOLLOWS:
  - 1/2" THICK AT LONGITUDINAL INTERVALS OF APPROXIMATELY TWENTY FEET (20')
  - 1/4" THICK BETWEEN CURB AND SIDEWALK OR DRIVEWAYS, AROUND ALL STRUCTURES OR APPURTENANCES, SUCH AS MANHOLES, JUNCTION BOXES AND UTILITY POLES, AND ADJACENT TO ANY FIXED STRUCTURE
  - AT LONGITUDINAL CENTERLINE OF ANY DRIVE WHICH EXCEEDS TWELVE FEET (12') IN WIDTH OR AS DIRECTED BY ENGINEER.
- EXPANSION JOINT MATERIAL SHALL BE TRIMMED AS TO BE SLIGHTLY BELOW THE SURFACE OF THE CONCRETE.
- TOLDED JOINTS SHALL BE PROVIDED WITH A GROOVING TOOL SO AS TO DIVIDE THE CONCRETE SURFACE INTO BLOCKS AS CLOSELY APPROACHING A SQUARE AS PRACTICABLE. GROOVES SHALL BE CUT TO A DEPTH OF AT LEAST 1/2 INCH AND SHALL BE FINISHED WITH AN EDGING TOOL, HAVING A RADIUS OF 1/4 INCH.
- UNLESS OTHERWISE DIRECTED BY THE ENGINEER, EXPANSION AND TOLDED JOINTS IN CONCRETE SURFACES SHALL BE ALIGNED WITH JOINTS IN CURBS.
- WELDED WIRE FABRIC IN DRIVEWAYS SHALL BE 6X6-6X6 (OLD DESIGNATION), 6X6-W2.9XW2.9 (NEW DESIGNATION) IN ACCORDANCE WITH ASTM A-185.

**DRIVEWAY DESIGN SLOPE AND TOLERANCES TABLE**

SYMBOL	DESCRIPTION	DESIGN NOMINAL	SLOPES (NOTE 1)	
			MINIMUM	MAXIMUM
S <sub>x</sub>	CROSS SLOPE OF PUBLIC SIDEWALK	1/60 1/57X 3/4" PER 4'	1/72 1/42 5/8" PER 4'	1/50 2X 3/16" PER 1'
S <sub>DR</sub>	LONGITUDINAL (RUNNING) SLOPE OF DRIVEWAY TRANSITION RAMP	NORMAL RANGE MINIMUM 2/36 1 1/4" PER 4'	1/50	1/12
			MAXIMUM 7/12 3/4" PER 4'	1/8
S <sub>y</sub>	LONGITUDINAL (RUNNING) SLOPE OF DRIVEWAY	1/10 1/10X 1 1/4" PER 1'	1/50 2X	1/8 12.5X 1 1/2" PER 1'

- NOTES:
- UNLESS OTHERWISE DIRECTED BY THE ENGINEER, CONSTRUCTION WHICH DOES NOT CONFORM TO THE TOLERANCES SPECIFIED (OR WHICH EXCEEDS THE MAXIMUM OR IS LESS THAN THE MINIMUM) WILL BE REMOVED AND REPLACED WITHOUT COST TO THE OWNER.
  - IF S<sub>DR</sub> EXCEEDS 1/20 (5%), THE MAXIMUM VERTICAL RISE PERMITTED IS 6". WHEN THIS CANNOT BE ACHIEVED IN THE ALTERATION OF EXISTING FACILITIES, CONSULT THE ENGINEER.

**DRIVEWAY SELECTION TABLE**

CURB FACE (X) (INCHES)	W (INCHES)	LESS THAN S.S.	W <sub>s</sub> (FEET)											
			10	20	30	40	50	60	70	80	90	100		
3			1'8"											
4			2'8"											
5	DETAIL DR-1 APPLIES		3'8"											
6	DETAIL DR-3 APPLIES		4'8"											
7			5'8"											
8	DETAIL DR-2 APPLIES		6'8"											
9			7'8"											
10			8'8"											

AT DESIGN (NOMINAL) APRON SLOPE (S<sub>DR</sub>)

DATE	
BY	
REVISIONS	
NO.	

THOMAS P. NEFF, P.E., P.P., C.M.E.  
 CONSULTING ENGINEER

THOMAS P. NEFF, P.E., P.P., C.M.E.  
 CONSULTING ENGINEER

BOROUGH OF RAMSBO  
**EAST ROAD CURB & SIDEWALK IMPROVEMENTS - PHASE II**  
 BOROUGH OF RAMSBO, NEW JERSEY

ADA DRIVEWAY CONSTRUCTION DETAILS



1. BRIDGEMAN ROAD  
 MIDDLETOWN, NEW JERSEY  
 TEL: 732-477-4400  
 FAX: 732-477-4400

DESIGNED BY: TIL  
 CHECKED BY: TPN  
 DRAWN BY: TIL  
 DATE: 02/24/20  
 SCALE: AS SHOWN  
 PROJ. NO.: 190241771

DRAWING: CSD-6  
 SHEET: 19  
 OF 23

PROJECT INFORMATION: DRAWN BY TPN (TIL) ON 02/24/20. THE ORIGINAL CONTENT OF THIS DOCUMENT IS UNLESS OTHERWISE INDICATED. THE ORIGINAL CONTENT OF THIS DOCUMENT IS UNLESS OTHERWISE INDICATED. THE ORIGINAL CONTENT OF THIS DOCUMENT IS UNLESS OTHERWISE INDICATED.







STANDARD FOR TEMPORARY VEGETATIVE COVER FOR SOIL STABILIZATION

**Definition**  
Establishment of temporary vegetative cover on soils exposed for periods of two to six months which are not being graded, not under active construction or not scheduled for permanent seeding at the close of the season.

**Purpose**  
To temporarily stabilize the soil and reduce damage from wind and water erosion until permanent stabilization is accomplished.

**Water Quality Enhancement**  
Prevents temporary erosion and runoff of silt and rock, slows the combined movement of stormwater runoff, increases infiltration of rainwater and the benefits of soil, protecting streams or other stormwater conveyances.

**Where Applicable**  
On exposed soils that have the potential for causing off-site environmental damage.

**Methods and Materials**

**1. Site Preparation**

A. Grade as needed and feasible to permit the use of conventional equipment for seeded preparation, seeding, much application, and mowing. All grading shall be done in accordance with Standards for Land Grading, P. 18-1, Standards for Soil Erosion and Sediment Control in New Jersey (S.E.S.S.C.), and Standards for Stormwater Management in New Jersey (S.W.M.S.C.).

B. Install needed erosion control practices or facilities such as diversion, grade stabilization structures, channel stabilization structures, sediment basins, and waterways. See Standard 11 through 42 (S.E.S.S.C.).

C. Immediately prior to seeding, the surface should be scarified 6" to 12" where there has been soil compaction. This practice is permissible only where there is no danger to underground utilities (cables, irrigation systems, etc.).

**2. Seeded Preparation**

A. Apply grade limestone and fertilizer according to soil test recommendations such as those offered by Rutgers Cooperative Extension. Soil samples must be available from the soil. Rutgers Cooperative Extension offers fertilizer analysis and application at the rate of 500 pounds per acre or 11 pounds per 1,000 square feet of 10-20-10 or equivalent with 60% water-soluble nitrogen unless a soil test indicates otherwise. Apply limestone at the rate of 100 lbs/acre (2.2 lbs/1,000 sq ft) unless a soil test indicates otherwise. Calcium carbonate is the equivalent of standard grades and lime. The table below is a general guideline for limestone application.

**Table: Limestone Application Rates by Soil Texture**

SOIL TEXTURE	TONS/ACRE	LEBS/1,000 SQ. FT.
Clay, clay loam, and high organic soil	3	135
Sandy loam, loam, silt loam	2	90
Loamy sand, sand	1	45

\* - Fluorinated dolomitic limestone is preferred for most soils south of the New Brunswick-Trenton line.

B. Work fine and fertilizer into the soil as nearly as practical to a depth of 4 inches with a disc, springtong harrow, or other suitable implement. The first harrowing or disking operation should be on the general contour. Subsequent operations should be in the general contour. Continue tillage until a reasonably uniform seedbed is prepared.

C. Insect seedbed just before seeding. If traffic has left the soil compacted, the area must be refilled as above.

D. Seeding high on a structure or hoisting a pile of 4 or less feet for Standard for Management of High Acid Producing Soils, P. 18-1 of the Standards for Soil Erosion and Sediment Control in New Jersey.

**3. A. Select seed from recommendations in Table.**

**Table: Temporary Vegetative Stabilization Grasses, Seeding Rates, Dates and Depth**

SEED TYPES	Per 1,000 Sq. Ft.	SEEDING RATES (1)		OPTIMUM SEEDING DATE (2)				OPTIMUM DEPTH (4) (inches)
		Per 1,000 Sq. Ft.	Per 1,000 Sq. Ft.	ZONE 5a & 6a	ZONE 6b	ZONE 7a & 7b	ZONE 8	
<b>SOIL SEASON</b>								
Perennial ryegrass	100	1.0	3/15-4/7	4/15-5/15	2/15-4/7	2/15-4/7	0.5	
Spring mix	88	2.0	4/15-5/15	5/15-6/15	2/15-4/7	2/15-4/7	1.0	
Winter Barley	96	3.2	8/1-9/15	8/15-10/15	8/15-10/15	8/15-10/15	1.0	
Winter Cereal Rye	112	2.8	8/1-11/1	8/1-11/15	8/1-12/15	8/1-12/15	1.0	
<b>WARM SEASON</b>								
SPRINGS	20	0.5	6/1-8/1	5/15-8/15	5/1-8/1	5/1-8/1	1.0	
Heat Mix (German or Hungarian)	30	0.7	6/1-8/1	5/15-8/15	5/1-8/1	5/1-8/1	1.0	
Weeping ryegrass	5	5	6/1-8/1	5/15-8/15	5/1-8/1	5/1-8/1	0.25	

(1) - Seeding rate for warm season grass, which is adjusted to reflect the amount of Pure Live Seed (PLS) as determined by a germination test result. No adjustment is required for cool season grasses.

(2) - May be planted throughout summer if soil moisture is adequate or can be irrigated.

(3) - Plant hardiness Zone (see below).

Zone 5a (-10 to -15) Portions of Sussex and Warren Counties.

Zone 6a (-5 to -10) Portions of Sussex, Warren, Passaic, Morris, Somerset and Hunterdon counties.

Zone 6b (0 to -5) Portions of Bergen, Camden, Essex and Gloucester, Hunterdon, Mercer, Middlesex, Hudson, Monmouth, Ocean, Burlington, Morris, Passaic, Union, Atlantic, Cumberland, Cape May, Atlantic, Burlington, Ocean, and Monmouth counties.

Zone 7a (5 to 0) Portions of Camden, Gloucester, Salem, Cumberland, Cape May, Atlantic, Burlington, Ocean, and Monmouth counties.

Zone 7b (10 to 5) Portions of Cape May, Atlantic, Ocean and Monmouth counties.

(4) - Twice the depth for erodible soils.

B. Conventional Seeding - Apply seed uniformly by hand, options (centrifugal) seed, drop seeder, or catbox seeder. Discs for drilled, hydroseeded or catbox seeded seed shall be incorporated into the soil to a depth of 1/4 to 1/2 inch, by rolling or dragging. Depth of seed placement may be 1/4 inch deeper on coarse textured soils.

C. Hydroseeding is a broadcast seeding method usually involving a truck or trailer-mounted tank, with an application system and hydraulic pump for mixing seed, water and fertilizer and spraying the mix onto the prepared seedbed. Mixture shall not be included in the tank with seed. Hydroseeding may be applied with a hydroseeder following seeding. Hydroseeding is not a preferred seeding method because seed and fertilizer are applied to the surface and not incorporated into the soil. Prior seed to soil contact reducing seed germination and growth. Hydroseeding may be used for areas too steep or for areas too steep for conventional equipment to access or too obstructed with rocks, stumps, etc.

D. After seeding, firming the soil with a compacted roller will ensure good seed-to-soil contact, restore topography, and improve seeding emergence. This is the preferred method. When performing on the contour, restore erosion control. When performed on the contour, seed erosion will be minimized and water conservation on site will be maximized.

**IV. Mulching**

Mulching is required on all seeding. Much will insure against erosion before grass is established and will promote earlier and earlier establishment. The use of vegetation mulch to control soil erosion shall be deemed in compliance with the following methods:

A. Straw or Hay - Unrotted animal grain straw, hay free of seeds, or soil free to be applied at the rate of 1-1/2 to 2 tons per acre (70 to 80 pounds per 1,000 square feet), except that where a crop is used instead of straw or hay, the rate of application shall be 3 tons per acre. Much is not recommended for establishing fine turf or lawns due to the presence of weed seed.

Application: Spread uniformly by hand mechanically so that approximately 85% of the soil surface will be covered. For uniform distribution of hand-applied much, divide area into approximately 1,000 square foot sections and distribute 70 to 80 pounds within each.

Application should be accomplished immediately after placement to minimize loss by wind or water. This may be done by hand or by machine.

1. **Drag and Tine** - Drive 8 to 10 inch wooden peg to within 2 to 3 inches of the soil surface every 4 feet in all directions. Stakes may be driven before or after applying much. Secure tines around each peg with two or more round turn.

2. **Much Netting** - Staple paper, jute, cotton, or plastic netting to the soil surface. Use a degradable netting when the soil is to be mowed.

3. **Crimper (much anchoring tool)** - A tractor-drawn implement, somewhat like a disc-harrow, especially designed to push or cut some of the broadest long fiber mulch 2 to 4 inches into the soil so to anchor it and leave part standing upright. This technique is limited to areas traversed by a tractor, which must operate on the contour of slopes. Straw much rate must be a tone per acre. No tacking or adhesive agent is required.

4. **Liquid Mulch-Binders** - May be used to anchor soil hay or straw mulches.

a. Application should be heavier at edges where wind catches the much, in valleys, and at crests of banks. Remainder of area should be uniform application.

b. Use one of the following:

(1) Emulsified asphalt - (SS-1, CSS-1, CMS-2, MS-2, RS-1, RS-2, CRS-1, and CRS-2) Apply 0.04 gal/acre, gal, or 184 gal/acre on flat slopes less than 8 feet high. On slopes 8 feet or more high, use 0.075 gal/acre, gal, or 369 gal/acre. These binders may be difficult to apply uniformly and will discolor surfaces.

(2) Organic and Vegetable Based Binders - Naturally occurring, powder based, hydrophilic materials when mixed with water formulates a gel and when applied to much under satisfactory curing conditions will form membrane networks. The vegetable based binders will be physiologically harmless and not result in a phytotoxic effect or impede growth of turfgrass. Use of rates and conditions on these binders are recommended by the manufacturer to distribute uniformly. Many new products are available, some of which may need further evaluation for use in this state.

(3) Synthetic binders - High polymer synthetic emulsion, miscible with water when diluted and following application to much, drying and curing shall no longer be soluble or dispersible in water. It may be applied at rates recommended by the manufacturer and remain tacky until germination of grass.

B. Wood-fiber or paper-fiber much shall be made from wood, plant fibers or paper containing no growth or germinating inhibitors, used, at the rate of 2 to 4 tons per acre, as recommended by the manufacturer. It is limited to flatter slopes and during optimum seeding periods in spring and fall.

C. Pelleted much - Compressed and extruded paper and/or wood fiber product, which may contain co-polymers, fertilizers and coloring agents. The dry pellets, when applied to a seeded area and watered, form a much mat. Pelleted much shall be applied in accordance with the manufacturer's recommendations. Much may be applied by hand or mechanical spreader at the rate of 60-75 lbs/1,000 square feet and applied with 0.2 to 0.4 inches of water. This material has been found to be beneficial for use on small lawns or renovation areas, except where seed erosion from much is desired or on other where straw much and tacking agent are not practical or desirable. Applying the full 0.2 to 0.4 inches of water after spreading pelleted much on the seed bed is extremely important for sufficient activation and expansion of the much to provide soil coverage.

STANDARD FOR STABILIZATION WITH MULCH ONLY

Stabilizing exposed soils with non-vegetative material.

**Definition**  
To protect exposed soil surfaces from erosion damage and to reduce off-site environmental damage.

**Water Quality Enhancement**  
Provides temporary mechanical protection against wind or rainfall induced soil erosion until permanent vegetative cover may be established.

**Where Applicable**  
This practice is appropriate in areas subject to erosion, where the season and other conditions may not be suitable for growing an erodible material cover or where stabilization is needed for a short period until more suitable protection can be applied.

**Purpose**  
To protect exposed soil surfaces from erosion damage and to reduce off-site environmental damage.

**Water Quality Enhancement**  
Provides temporary mechanical protection against wind or rainfall induced soil erosion until permanent vegetative cover may be established.

**Methods and Materials**

**1. Site Preparation**

A. Grade as needed and feasible to permit the use of conventional equipment for seeded preparation, seeding, much application, and mowing. All grading shall be done in accordance with Standards for Land Grading, P. 18-1, Standards for Soil Erosion and Sediment Control in New Jersey (S.E.S.S.C.), and Standards for Stormwater Management in New Jersey (S.W.M.S.C.).

B. Install needed erosion control practices or facilities such as diversion, grade stabilization structures, channel stabilization structures, sediment basins, and waterways. See Standard 11 through 42 (S.E.S.S.C.).

C. Immediately prior to seeding, the surface should be scarified 6" to 12" where there has been soil compaction. This practice is permissible only where there is no danger to underground utilities (cables, irrigation systems, etc.).

**2. Protective Materials**

A. Unrotted animal-grain straw, or soil free to 2 to 5 tons per acre is spread uniformly at 80 to 115 pounds per 1,000 square feet and anchored with a catbox seeder. Discs for drilled, hydroseeded or catbox seeded seed shall be incorporated into the soil to a depth of 1/4 to 1/2 inch, by rolling or dragging. Depth of seed placement may be 1/4 inch deeper on coarse textured soils.

B. Asphalt emulsion recommended at the rate of 800 to 1,200 gallons per acre. This is suitable for a limited period of time where travel by people, animals, or machinery is anticipated.

C. Synthetic or organic soil stabilizers may be used under suitable conditions and in quantities as recommended by the manufacturer.

D. Wood-fiber or paper-fiber much at the rate of 1,000 pounds per acre (or according to the manufacturer's requirements) may be applied by a hydroseeder.

E. Much netting, such as paper, jute, exender, cotton, or plastic, may be used.

F. Weddings applied uniformly to a minimum depth of 2 inches may be used. Weddings will not be used on areas where flowing water could wash them into an inlet and plug it.

G. Drains, ornamental, or atop of the rate of 3 cubic yards per 1,000 sq ft spotted uniformly to a minimum depth of 3 inches may be used. Size 2 or 3 ( ASTM C-33 ) is recommended.

3. Much anchoring should be accomplished immediately after placement of hay or straw much to minimize loss by wind or water. This may be done by one of the following methods, depending upon the size of the area and steepness of slope.

A. Peg and Drive - Drive 8 to 10 inch peg to within 2 to 3 inches of the soil surface every 4 feet in all directions. Stakes may be driven before or after applying much. Secure much to soil surface by stretching lath between pegs in a cross-circle and square pattern. Secure lath around each peg with two or more round turn.

B. Much Nettings - Staple paper, cotton, mud plastic nettings over much. Use a degradable netting when the soil is to be mowed. Netting should be applied at rates recommended by the manufacturer.

C. Crimper (much anchoring tool) - A tractor-drawn implement, somewhat like a disc-harrow, especially designed to push or cut some of the broadest long fiber mulch 2 to 4 inches into the soil so to anchor it and leave part standing upright. This technique is limited to areas traversed by a tractor, which must operate on the contour of slopes. Straw much rate must be a tone per acre. No tacking or adhesive agent is required.

D. Liquid Mulch - Binders - May be used to anchor soil hay or straw mulches.

a. Application should be heavier at edges where wind catches the much, in valleys, and at crests of banks. Remainder of area should be uniform application.

b. Use one of the following:

(1) Emulsified asphalt - (SS-1, CSS-1, CMS-2, MS-2, RS-1, RS-2, CRS-1, and CRS-2) Apply 0.04 gal/acre, gal, or 184 gal/acre on flat areas and on slopes 8 feet or more high, use 0.075 gal/acre, gal, or 369 gal/acre. These binders may be difficult to apply uniformly and will discolor surfaces.

(2) Organic and Vegetable Based Binders - Naturally occurring, powder based, hydrophilic materials when mixed with water formulates a gel and when applied to much under satisfactory curing conditions will form membrane networks. The vegetable based binders will be physiologically harmless and not result in a phytotoxic effect of impede growth of turfgrass. Use of rates and conditions on these binders are recommended by the manufacturer to distribute uniformly. Many new products are available, some of which may need further evaluation for use in this state.

(3) Synthetic binders - High polymer synthetic emulsion, miscible with water when diluted and following application to much, drying and curing shall no longer be soluble or dispersible in water. It shall be applied at rates recommended by the manufacturer and remain tacky until germination of grass.

STANDARD FOR PERMANENT VEGETATIVE COVER FOR SOIL STABILIZATION

**Definition**  
Establishment of permanent vegetative cover on exposed soils where perennial vegetation is needed for long term stabilization and erosion control.

**Purpose**  
To permanently stabilize the soil, ensuring conservation of soil and water, and to enhance the environment.

**Water Quality Enhancement**  
Slows the rate of application of stormwater runoff, increases infiltration and retains soil and nutrients on site, preventing streams or other stormwater conveyances.

**Where Applicable**  
On exposed soils that have a potential for causing off-site environmental damage.

**Methods and Materials**

**1. Site Preparation**

A. Grade as needed and feasible to permit the use of conventional equipment for seeded preparation, seeding, much application, and mowing. All grading shall be done in accordance with Standards for Land Grading, P. 18-1, Standards for Soil Erosion and Sediment Control in New Jersey (S.E.S.S.C.), and Standards for Stormwater Management in New Jersey (S.W.M.S.C.).

B. Install needed erosion control practices or facilities such as diversion, grade stabilization structures, channel stabilization structures, sediment basins, and waterways. See Standard 11 through 42 (S.E.S.S.C.).

C. Immediately prior to seeding, the surface should be scarified 6" to 12" where there has been soil compaction. This practice is permissible only where there is no danger to underground utilities (cables, irrigation systems, etc.).

**2. Seeded Preparation**

A. Apply grade limestone and fertilizer according to soil test recommendations such as those offered by Rutgers Cooperative Extension. Soil samples must be available from the soil. Rutgers Cooperative Extension offers fertilizer analysis and application at the rate of 500 pounds per acre or 11 pounds per 1,000 square feet of 10-20-10 or equivalent with 60% water-soluble nitrogen unless a soil test indicates otherwise. Apply limestone at the rate of 100 lbs/acre (2.2 lbs/1,000 sq ft) unless a soil test indicates otherwise. Calcium carbonate is the equivalent of standard grades and lime. The table below is a general guideline for limestone application.

**Table: Limestone Application Rates by Soil Texture**

SOIL TEXTURE	TONS/ACRE	LEBS/1,000 SQ. FT.
Clay, clay loam, and high organic soil	3	135
Sandy loam, loam, silt loam	2	90
Loamy sand, sand	1	45

\* - Fluorinated dolomitic limestone is preferred for most soils south of the New Brunswick-Trenton line.

B. Work fine and fertilizer into the soil as nearly as practical to a depth of 4 inches with a disc, springtong harrow, or other suitable implement. The first harrowing or disking operation should be on the general contour. Subsequent operations should be in the general contour. Continue tillage until a reasonably uniform seedbed is prepared.

C. Insect seedbed just before seeding. If traffic has left the soil compacted, the area must be refilled as above.

D. Seeding high on a structure or hoisting a pile of 4 or less feet for Standard for Management of High Acid Producing Soils, P. 18-1 of the Standards for Soil Erosion and Sediment Control in New Jersey.

**3. A. Select seed from recommendations in Table.**

**Table: Permanent Vegetative Stabilization Grasses, Seeding Rates, Dates and Depth**

SEED TYPES	Per 1,000 Sq. Ft.	SEEDING RATES (1)		OPTIMUM SEEDING DATE (2)				OPTIMUM DEPTH (4) (inches)
		Per 1,000 Sq. Ft.	Per 1,000 Sq. Ft.	ZONE 5a & 6a	ZONE 6b	ZONE 7a & 7b	ZONE 8	
<b>SOIL SEASON</b>								
Perennial ryegrass	100	1.0	3/15-4/7	4/15-5/15	2/15-4/7	2/15-4/7	0.5	
Spring mix	88	2.0	4/15-5/15	5/15-6/15	2/15-4/7	2/15-4/7	1.0	
Winter Barley	96	3.2	8/1-9/15	8/15-10/15	8/15-10/15	8/15-10/15	1.0	
Winter Cereal Rye	112	2.8	8/1-11/1	8/1-11/15	8/1-12/15	8/1-12/15	1.0	
<b>WARM SEASON</b>								
SPRINGS	20	0.5	6/1-8/1	5/15-8/15	5/1-8/1	5/1-8/1	1.0	
Heat Mix (German or Hungarian)	30	0.7	6/1-8/1	5/15-8/15	5/1-8/1	5/1-8/1	1.0	
Weeping ryegrass	5	5	6/1-8/1	5/15-8/15	5/1-8/1	5/1-8/1	0.25	

(1) - Seeding rate for warm season grass, which is adjusted to reflect the amount of Pure Live Seed (PLS) as determined by a germination test result. No adjustment is required for cool season grasses.

(2) - May be planted throughout summer if soil moisture is adequate or can be irrigated.

(3) - Plant hardiness Zone (see below).

Zone 5a (-10 to -15) Portions of Sussex and Warren Counties.

Zone 6a (-5 to -10) Portions of Sussex, Warren, Passaic, Morris, Somerset and Hunterdon counties.

Zone 6b (0 to -5) Portions of Bergen, Camden, Essex and Gloucester, Hunterdon, Mercer, Middlesex, Hudson, Monmouth, Ocean, Burlington, Morris, Passaic, Union, Atlantic, Cumberland, Cape May, Atlantic, Burlington, Ocean, and Monmouth counties.

Zone 7a (5 to 0) Portions of Camden, Gloucester, Salem, Cumberland, Cape May, Atlantic, Burlington, Ocean, and Monmouth counties.

Zone 7b (10 to 5) Portions of Cape May, Atlantic, Ocean and Monmouth counties.

(4) - Twice the depth for erodible soils.

B. Conventional Seeding - Apply seed uniformly by hand, options (centrifugal) seed, drop seeder, drill or catbox seeder. Discs for drilled, hydroseeded or catbox seeded seed shall be incorporated into the soil to a depth of 1/4 to 1/2 inch, by rolling or dragging. Depth of seed placement may be 1/4 inch deeper on coarse textured soils.

C. Hydroseeding is a broadcast seeding method usually involving a truck or trailer-mounted tank, with an application system and hydraulic pump for mixing seed, water and fertilizer and spraying the mix onto the prepared seedbed. Mixture shall not be included in the tank with seed. Hydroseeding may be applied with a hydroseeder following seeding. Hydroseeding is not a preferred seeding method because seed and fertilizer are applied to the surface and not incorporated into the soil. Prior seed to soil contact reducing seed germination and growth. Hydroseeding may be used for areas too steep or for areas too steep for conventional equipment to access or too obstructed with rocks, stumps, etc.

D. After seeding, firming the soil with a compacted roller will ensure good seed-to-soil contact, restore topography, and improve seeding emergence. This is the preferred method. When performed on the contour, restore erosion control. When performed on the contour, seed erosion will be minimized and water conservation on the site will be maximized.

**II. Seeding**

A. Seed mix shall be as follows:

**Table: Seed Mix**

Kind of Seed	Minimum PLS (%)	Minimum Germination (%)	% of Total Seed Mix	Application Rate (lbs/acre)
And 3" Tall Fescue	85	85	20	50
Brookings Kentucky Bluegrass	95	85	20	50
Manhattan 4 Perennial Rye	95	85	30	50

Optimal Seeding Dates - March 1 to May 15 and August 15 to October 15

B. Conventional Seeding - Apply seed uniformly by hand, options (centrifugal) seed, drop seeder, drill or catbox seeder. Discs for drilled, hydroseeded or catbox seeded seed shall be incorporated into the soil to a depth of 1/4 to 1/2 inch, by rolling or dragging. Depth of seed placement may be 1/4 inch deeper on coarse textured soils.

C. Hydroseeding is a broadcast seeding method usually involving a truck or trailer-mounted tank, with an application system and hydraulic pump for mixing seed, water and fertilizer and spraying the mix onto the prepared seedbed. Mixture shall not be included in the tank with seed. Hydroseeding may be applied with a hydroseeder following seeding. Hydroseeding is not a preferred seeding method because seed and fertilizer are applied to the surface and not incorporated into the soil. Prior seed to soil contact reducing seed germination and growth. Hydroseeding may be used for areas too steep or for areas too steep for conventional equipment to access or too obstructed with rocks, stumps, etc.

D. After seeding, firming the soil with a compacted roller will ensure good seed-to-soil contact, restore topography, and improve seeding emergence. This is the preferred method. When performed on the contour, restore erosion control. When performed on the contour, seed erosion will be minimized and water conservation on the site will be maximized.

**III. Irrigation (where feasible)**

A. If soil moisture is deficient, and much is not used, supply new seedlings with adequate water. It is especially true when seedlings are made in anomalously dry or hot weather or on