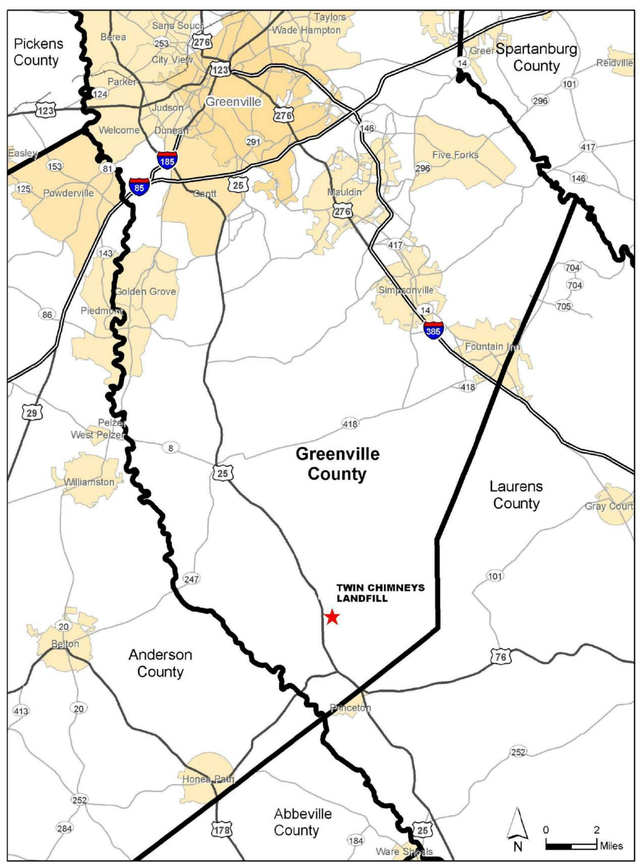
Greenville County

TWIN CHIMNEYS
GREENVILLE COUNTY LANDFILL

HDR Engineering, Inc.
of the Carolinas
440 S. Church St., Suite 1000
Charlotte, NC 28202-2075
704.338.6700



Issued for Proposal For

Rough Grading U4C1

Project No.
06985.243581.018

11075 Augusta Road
Greenville County, South Carolina
June 2016

SOUTH CAROLINA CERTIFICATE OF AUTHORIZATION HDR ENGINEERING, INC. OF THE CAROLINAS NO. C0318

SOUTH CAROLINA REGISTERED PROFESSIONAL ENGINEER No. 18072 ERIC ALAN WRIGHT 6/3/16

SOUTH CAROLINA REGISTERED PROFESSIONAL ENGINEER No. 27529 ROBERT M. BAYSDEN 6/3/16

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07C-14	DROP INLET DETAILS

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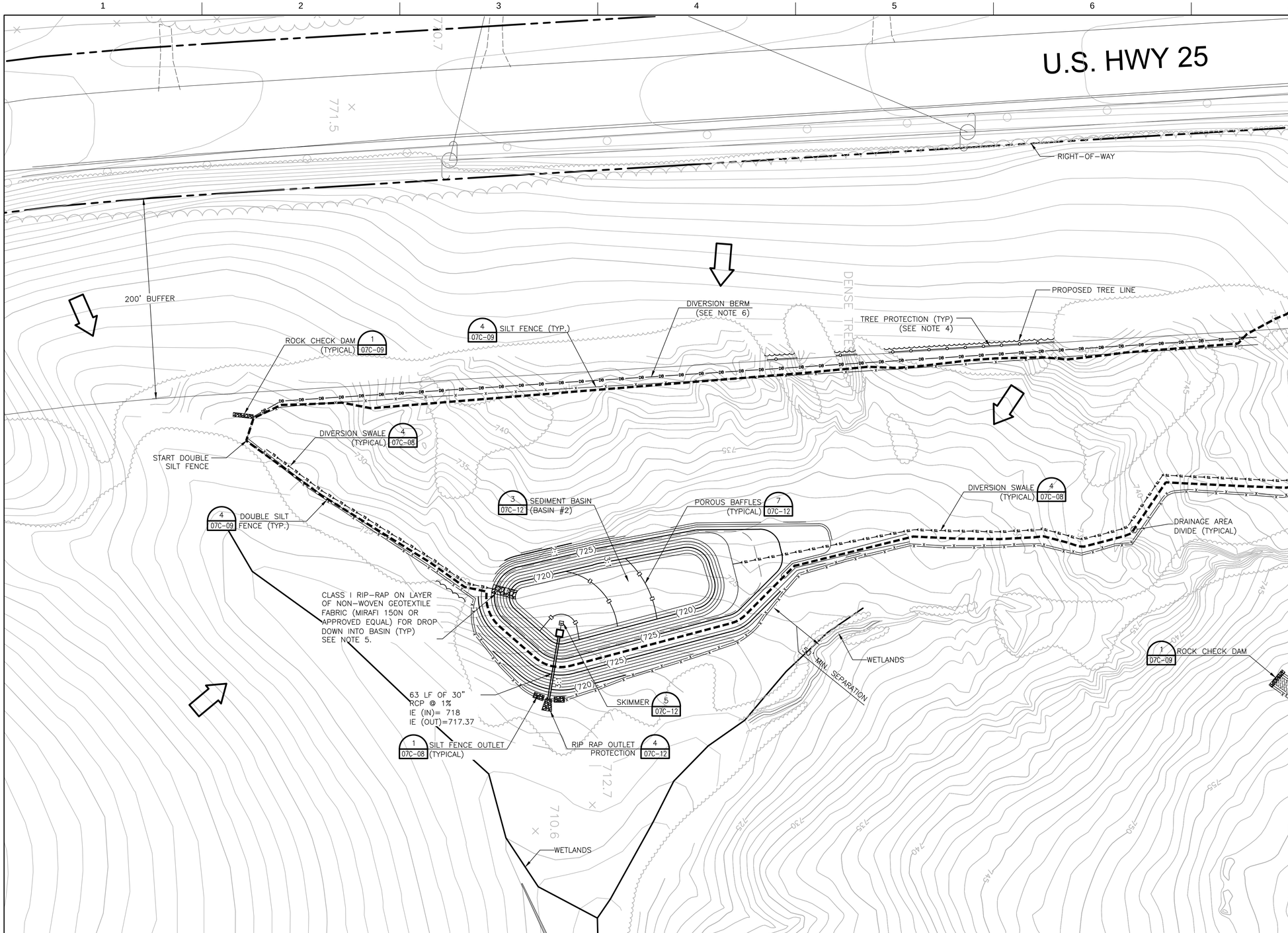
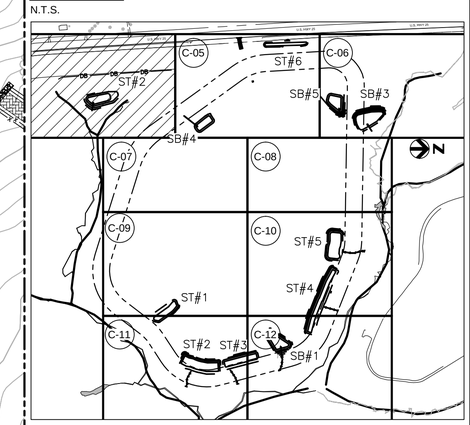


NOTES:

1. SEE SHEET 07C-08 FOR CONSTRUCTION SEQUENCE AND EROSION CONTROL NOTES.
2. SEE SHEET 07C-07 FOR LEGEND.
3. BASIN DESIGN INFORMATION CAN BE FOUND ON SHEET 07C-13.
4. TREE PROTECTION IS TO BE A 3' ORANGE CONSTRUCTION SAFETY FENCE.
5. CUT SWALE TO PROVIDE DRAINAGE FROM THE DIVERSION SWALE INTO THE BASIN. SWALE IS TO BE LINED WITH RIP-RAP ON GEOTEXTILE FABRIC. AVOID INSTALLING RIP-RAP ON THE TOP OF GRADE THAT WOULD ENCOURAGE STORMWATER TO BYPASS AROUND THE EDGES.
6. CONSTRUCT DIVERSION BERM FOR CLEAN WATER WEST OF STOCKPILE AREA #2. THIS BERM SHALL BE FIELD LOCATED BY THE CONTRACTOR. THE CLEAN WATER SIDE TO BE MATTED WITH EROSION CONTROL MATTING (SEE DETAIL 1/07C-11). SEDIMENT TUBES TO BE PLACED AT EQUAL INTERVALS ALONG THE LENGTH OF THE CLEAN WATER SWALE CREATED BY THE BERM (SEE DETAIL 1/07C-10). CONTRACTOR NOT TO CUT TREES WITHIN THE 200' BUFFER FROM THE U.S. HWY 25 RIGHT-OF-WAY.

KEY MAP

N.T.S.



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PROJECT ENGINEER	R. BAYSDEN, P.E.
DRAWN BY	C. TYNES, EIT
PROJECT NUMBER	06985.243581.018

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SOUTH CAROLINA PROFESSIONAL ENGINEER NO. 27529 6/3/16 ROBERT M. BAYSDEN

TWIN CHIMNEYS
GREENVILLE COUNTY LANDFILL

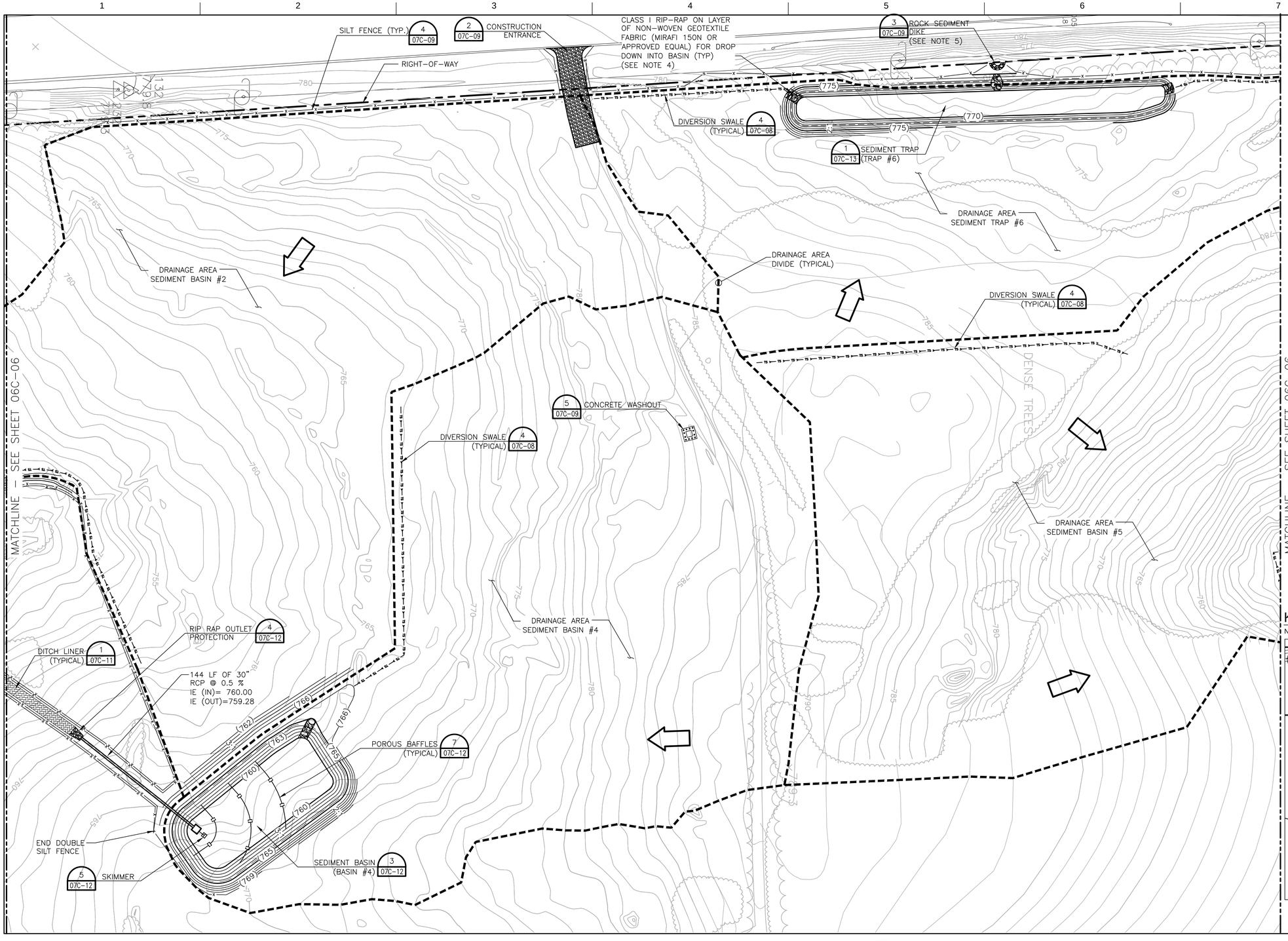
Unit 4 Clearing and Grubbing
Greenville County South Carolina

EROSION CONTROL ENLARGED PLAN 1

0 1" 2"

FILENAME 06C-04.dwg
SCALE 1"=50'

SHEET
06C-04

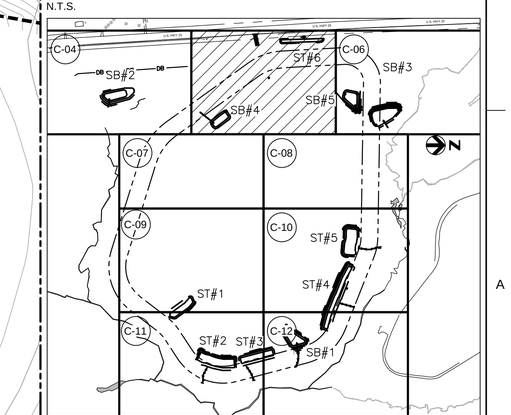


NOTES:

1. SEE SHEET 07C-08 FOR CONSTRUCTION SEQUENCE AND EROSION CONTROL NOTES.
2. SEE SHEET 07C-07 FOR LEGEND.
3. TRAP AND BASIN DESIGN INFORMATION CAN BE FOUND ON SHEET 07C-12 AND 07C-13.
4. CUT SWALE TO PROVIDE DRAINAGE FROM THE DIVERSION SWALE INTO THE BASIN. SWALE IS TO BE LINED WITH RIP-RAP ON GEOTEXTILE FABRIC. AVOID INSTALLING RIP-RAP ON THE TOP OF GRADE THAT WOULD ENCOURAGE STORMWATER TO BYPASS AROUND THE EDGES.
5. ROCK SEDIMENT DIKE TO REMAIN IN PLACE AFTER SEDIMENT TRAP #6 IS REMOVED BY STOCKPILE CONSTRUCTION.

KEY MAP

N.T.S.



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TWIN CHIMNEYS
GREENVILLE COUNTY LANDFILL

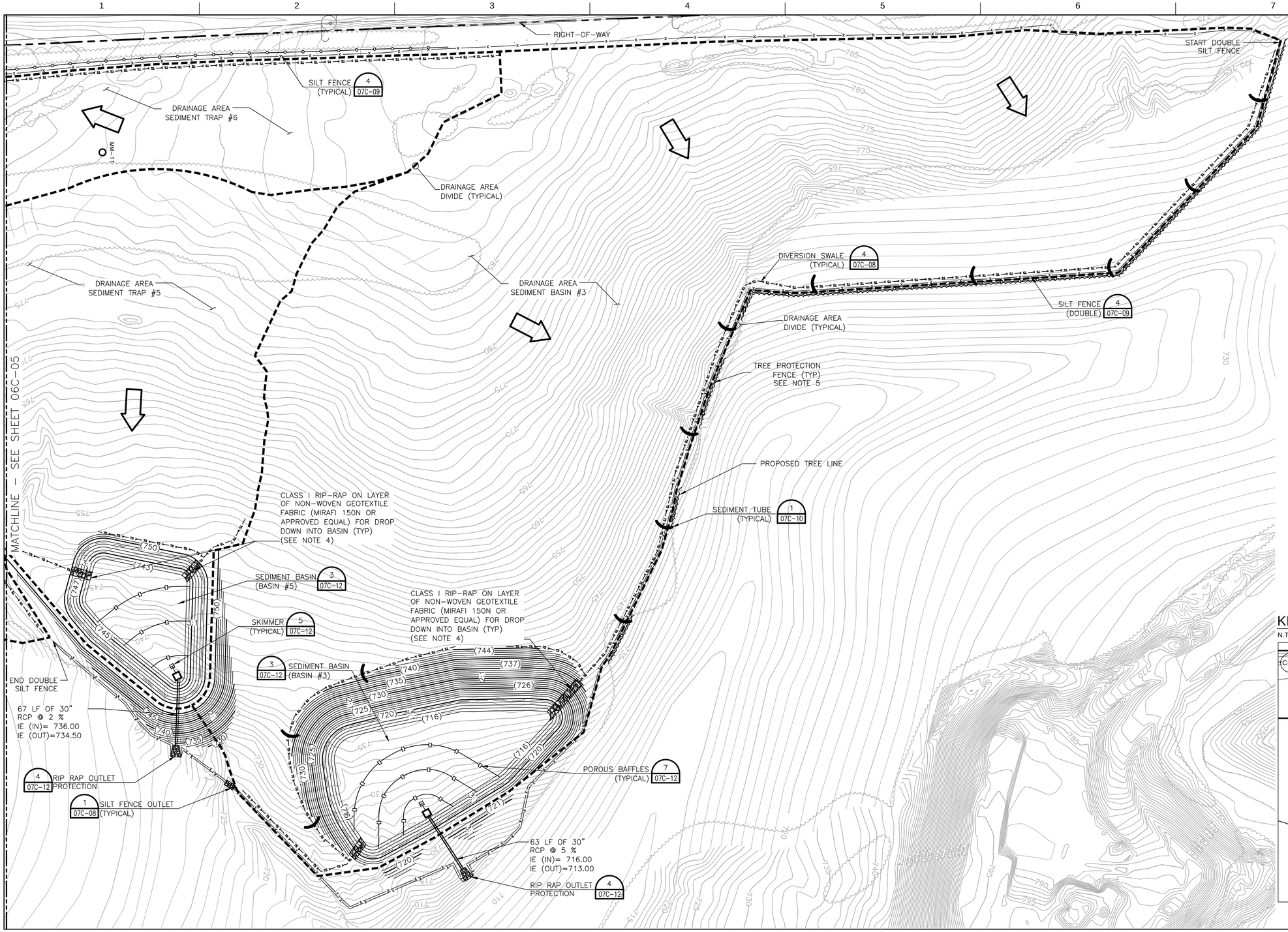
Unit 4 Clearing and Grubbing
Greenville County South Carolina

EROSION CONTROL ENLARGED PLAN 2

0 1" 2"

FILENAME 06C-05.dwg
SCALE 1"=50'

SHEET
06C-05



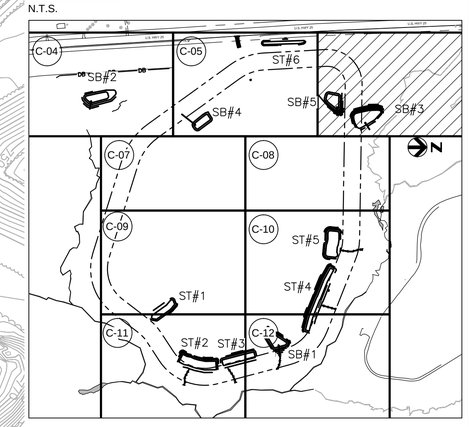
N

NOTES:

1. SEE SHEET 07C-08 FOR CONSTRUCTION SEQUENCE AND EROSION CONTROL NOTES.
2. SEE SHEET 07C-07 FOR LEGEND.
3. BASIN DESIGN INFORMATION CAN BE FOUND ON SHEET 07C-13.
4. CUT SWALE TO PROVIDE DRAINAGE FROM THE DIVERSION SWALE INTO THE BASIN. SWALE IS TO BE LINED WITH RIP-RAP ON GEOTEXTILE FABRIC. AVOID INSTALLING RIP-RAP ON THE TOP OF GRADE THAT WOULD ENCOURAGE STORMWATER TO BYPASS AROUND THE EDGES.

KEY MAP

N.T.S.



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PROJECT MANAGER	E.A.WRIGHT, P.E.
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DRAWN BY	C. TYNES, EIT
PROJECT NUMBER	06985.243581.018

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SOUTH CAROLINA PROFESSIONAL ENGINEER NO. 27529 ROBERT M. BAYSDEN 6/3/16

TWIN CHIMNEYS
GREENVILLE COUNTY LANDFILL

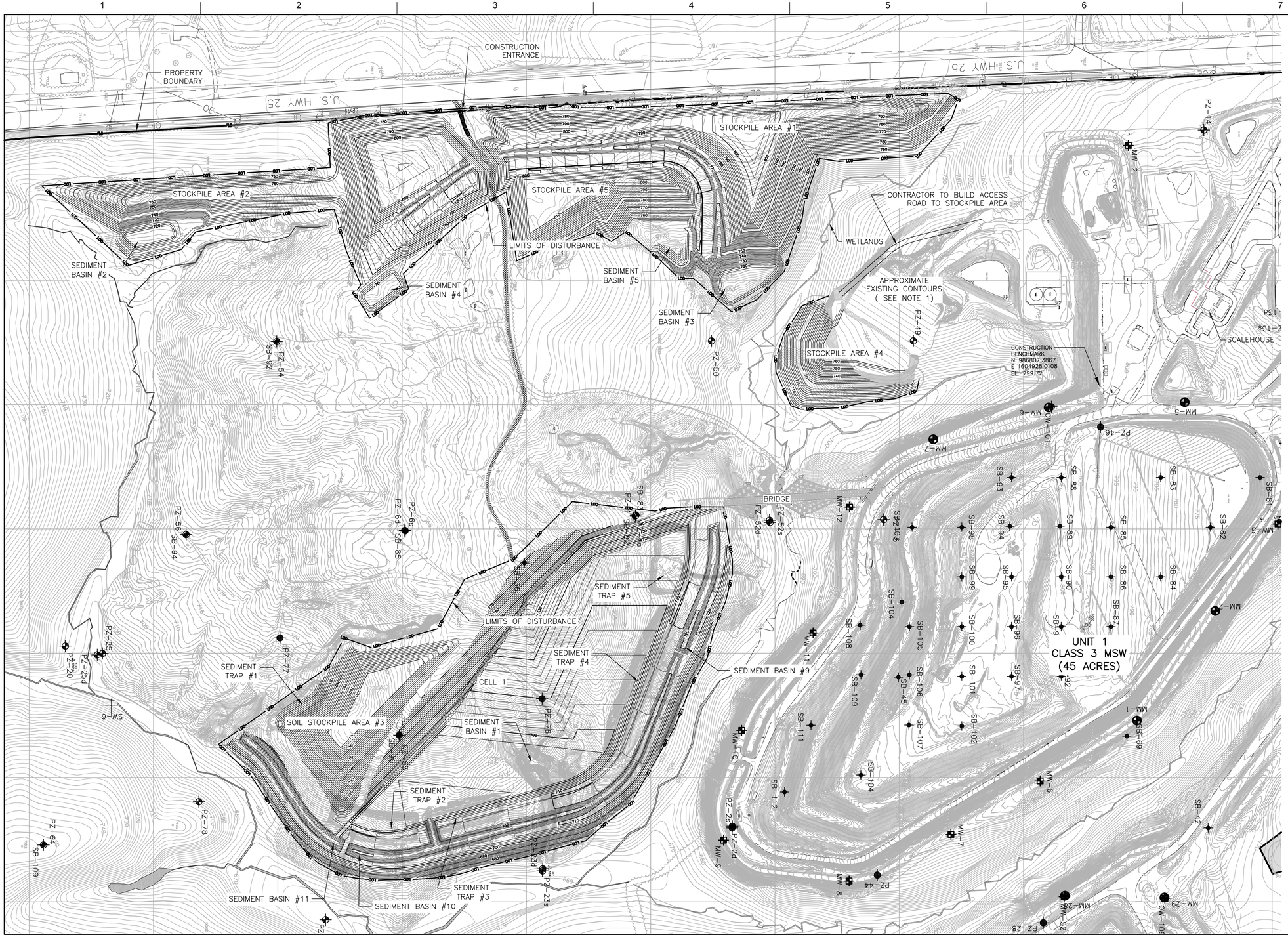
Unit 4 Clearing and Grubbing
Greenville County South Carolina

EROSION CONTROL ENLARGED PLAN 3

0 1" 2"

FILENAME 06C-06.dwg
SCALE 1"=50'

SHEET
06C-06



WELL LEGEND

EXISTING ABANDONED

- MONITORING WELLS (MW & OW)
- GROUNDWATER WELLS (PZ)
- BORINGS (SB & B)
- METHANE PROBES (MM)

GENERAL NOTES:

1. EXISTING TOPOGRAPHY COMPILED FROM THREE SEPARATE FREELAND AND ASSOCIATES SURVEYS: 1) TOPOGRAPHY SHOWN IN TWO FOOT (2') INCREMENTS FROM AERIAL PHOTOGRAPHY BY LANDAIR SURVEYING DATED APRIL 7, 2000; 2) TOPOGRAPHY IN THE AREA OF EXCAVATION SHOWN IN ONE FOOT (1') INCREMENTS FROM AERIAL PHOTOGRAPHY DATED 7–1–2014; 3) TOPOGRAPHY AROUND THE ACCESS ROAD TO UNIT 1 SHOWN IN ONE FOOT (1') INCREMENTS DATED 2–13–2015, TOPOGRAPHY IN STOCKPILE 4 SHOWN IN TWO FOOT (2') INCREMENTS DATED 5–19–2016. THE TOPO ADJACENT TO STOCKPILE #4 WAS REGRADED AND IS NOT CURRENT.
2. THE AREAS SURVEYED IN 2000 WERE OBSCURED BY VEGETATION AND SHOULD NOT BE RELIED UPON. SUBSEQUENT SURVEYS WERE CONDUCTED AFTER LOGGING AND INCLUDED SOME FIELD VERIFICATION 2014 AND 2015 TOPOGRAPHIC SURVEYS ARE GENERALLY MORE RELIABLE. CONTRACTOR TO CONFIRM ELEVATIONS OF ALL CRITICAL LOCATIONS, ALONG SURVEY INTERFACES AND AREAS OF 2000 SURVEY.
3. THIS WORK SHALL COMMENCE FOLLOWING THE COMPLETION OF A CONTRACT FOR CLEARING AND GRUBBING WORK IN THE AREA. THAT CONTRACT WILL INCLUDE CONSTRUCTION OF EROSION CONTROL FEATURES INCLUDING 5 SEDIMENT TRAPS (#1–#5) AND SEDIMENT BASIN #1 INTENDED TO CONTROL THE AREA UNTIL PERMANENT FEATURES ARE CONSTRUCTED. FOR THE PURPOSES OF THIS WORK THE PROPOSED FEATURES ARE ILLUSTRATED AS EXISTING. THE CONTRACTOR SHALL ADJUST TO ACTUAL CONDITIONS AS NECESSARY AT NO ADDITIONAL CHARGE TO THE OWNER.
4. THIS WORK INCLUDES GRADING FOR THE PERIMETER BERMS, ROADS AND DRAINAGE FEATURES FOR THE NEXT MSW LANDFILL UNIT AND PRELIMINARY EXCAVATION OF THE FIRST CELL. THE WORK ALSO INCLUDES CONSTRUCTION AND MAINTENANCE OF EROSION CONTROL FEATURES TO PROTECT THE GRADING. CONSTRUCT PERMANENT FEATURES INCLUDING NEW BASINS (#9, #10 AND #11) ALONG THE PERIMETER OF THE PROPOSED UNIT. THE EXISTING SEDIMENT TRAPS, BASIN AND OTHER FEATURES SHALL REMAIN IN PLACE AND MAINTAINED IN GOOD WORKING UNTIL THE PERMANENT FEATURES ARE OPERATIONAL.
5. THE WORK INCLUDES EROSION CONTROL FEATURES FOR ALL STOCKPILES.
6. SEE SHEET 07C–08 FOR EROSION CONTROL NOTES AND CONSTRUCTION SEQUENCE. PROVIDE EROSION CONTROL AS DETAILED AND IS NECESSARY TO PERFORM WORK WHERE SUPPLEMENTAL INFORMATION NEEDED, REFER TO GREENVILLE COUNTY STORMWATER STANDARDS. REPAIR ALL AREAS OF EROSION WITHIN LIMITS OF DISTURBANCE OR CAUSED BY WORK.
7. ACCESS FROM UNIT 4 TO UNIT 1 VIA THE NEW BRIDGE ROAD IS RESTRICTED EXCEPT FOR PLACEMENT OF MATERIALS IN STOCKPILE #4. CONTRACTOR TO SECURE BOTH ACCESS POINTS TO THE WORK SITE AS NECESSARY. CONTRACTOR RESPONSIBLE FOR SECURITY OF ALL TOOLS, MATERIALS AND EQUIPMENT LEFT ON SITE.
8. CONTRACTOR'S PRIMARY ACCESS TO THE SITE SHALL BE FROM THE EXISTING ENTRANCE OFF AUGUSTA ROAD (HIGHWAY 25). MAINTAIN CONSTRUCTION ENTRANCE AND CONNECTING ROADS IN GOOD CONDITION AND IMPROVE AS NECESSARY TO COMPLETE THE WORK.
9. THE CONTRACTOR SHALL PROTECT ALL EXISTING WELLS, STRUCTURES AND UTILITIES. ANY WELLS, STRUCTURES AND UTILITIES THAT ARE DAMAGED SHALL BE REPLACED OR REPAIRED (AS DIRECTED BY OWNER).
10. STOCKPILE ALL EXCAVATED SOIL MATERIALS NOT USED IN THE WORK IN THE DESIGNATED AREA INDICATED ON THE PLAN.
11. REMOVE ALL UNSUITABLE MATERIALS FROM ALL AREAS TO RECEIVE STRUCTURAL FILL. SEGREGATE UNSUITABLE MATERIAL FROM SUITABLE MATERIALS IN STOCKPILE #3.
12. SEE CONSTRUCTION SEQUENCE ON SHEET 07–C08.

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SOUTH CAROLINA PROFESSIONAL ENGINEER No. 18072 EDWARD ALLAN WRIGHT 6/16

TWIN CHIMNEYS
GREENVILLE COUNTY LANDFILL

Rough Grading U4C1
Greenville County South Carolina

OVERALL SITE PLAN

0 1" 2"

FILENAME	07C-01.dwg
SCALE	1"=200'

SHEET 07C-01

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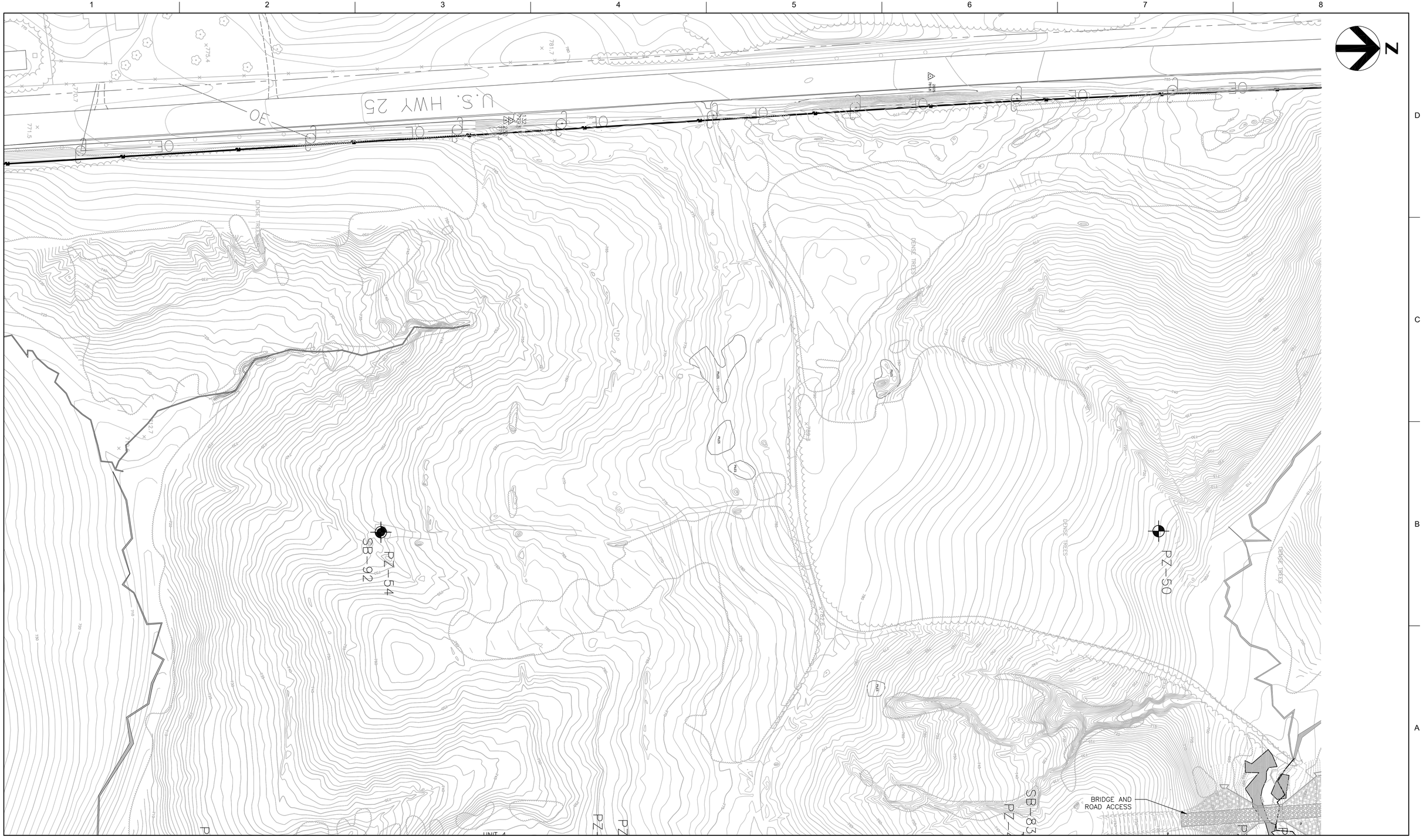

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TWIN CHIMNEYS
GREENVILLE COUNTY LANDFILL

Rough Grading U4C1
Greenville County South Carolina

EXISTING CONDITIONS (WEST)

0 1" 2"

FILENAME 07C-02.dwg
SCALE 1"=100'

SHEET
07C-02

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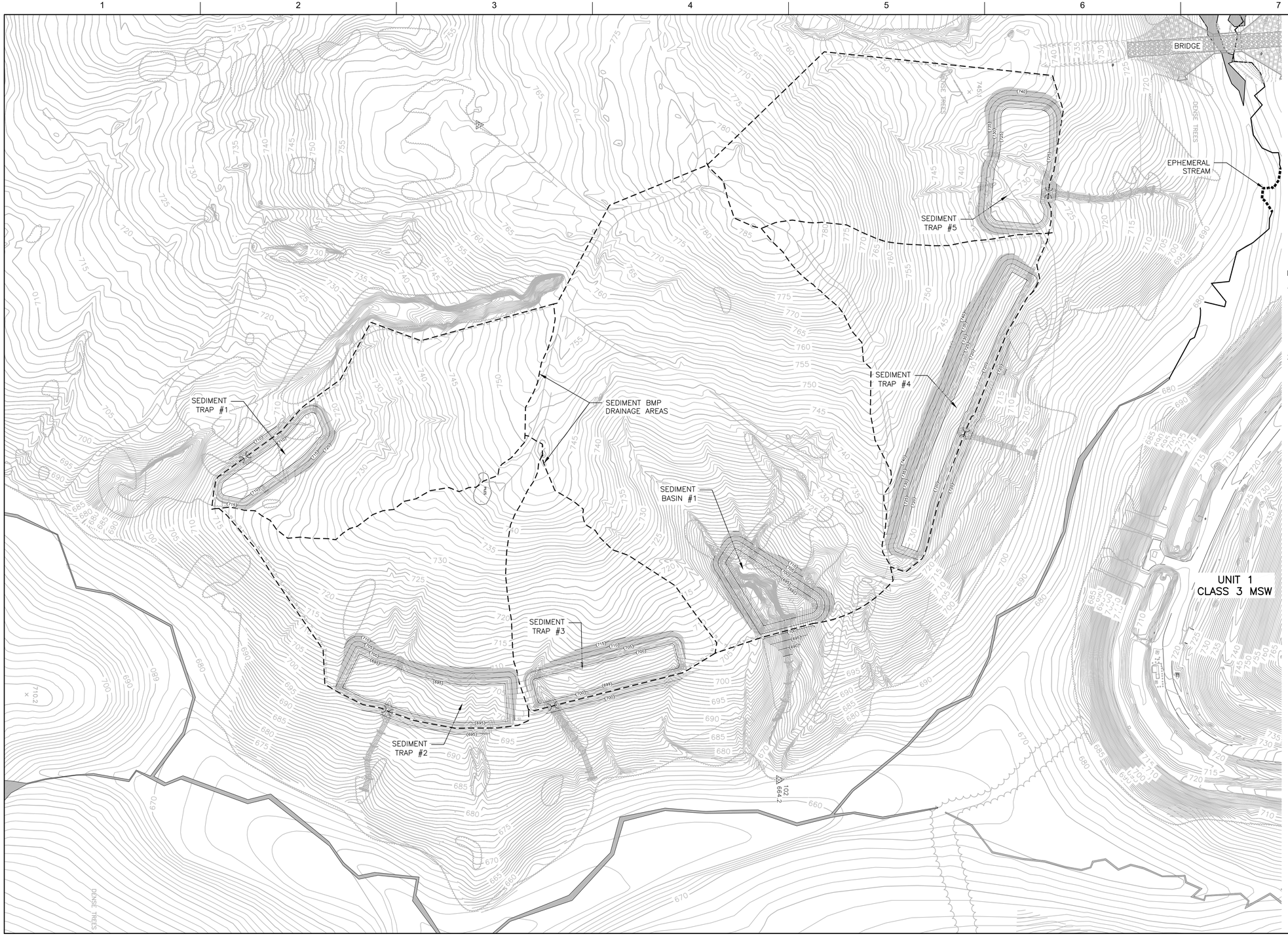

NOTES:

1. EXISTING TOPOGRAPHY COMPILED FROM THREE SEPARATE FREELAND AND ASSOCIATES SURVEYS. TOPOGRAPHY SHOWN IN 2 FOOT INCREMENTS FROM AERIAL PHOTOGRAPHY BY LANDAIR SURVEYING DATED, APRIL 7, 2000. TOPOGRAPHY SHOWN IN 1 FOOT INCREMENTS FROM AERIAL PHOTOGRAPHY DATED 7-1-2014. TOPOGRAPHY SHOWN IN DASHED 1 FOOT AROUND WORK DATED 2-13-2015.
2. THE LOCATION AND GRADING OF EXISTING SEDIMENT TRAPS (1-5) AND SEDIMENT BASIN #1 OBTAINED FROM ADVERTISEMENT DRAWINGS FOR "UNIT 4 CLEARING AND GRADING" DATED OCTOBER, 2015. THE CONSTRUCTED LOCATIONS AND GRADING MAY VARY FROM THOSE SHOWN IN THIS DRAWING.

LEGEND

- EXISTING SILT FENCE
- EXISTING BAFFLES
- EXISTING RIP-RAP DROP DOWN INTO BASINS (CLASS 1) ON LAYER OF NON-WOVEN GEOTEXTILE FABRIC
- EXISTING SILT FENCE STONE OUTLET
- EXISTING CHANNEL MATTING (NORTH AMERICAN GREEN C350)
- RIP-RAP OUTLET PROTECTION
- 725 EXISTING CONTOUR MAJOR
- EXISTING CONTOUR MINOR
- DRAINAGE AREAS

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TWIN CHIMNEYS
GREENVILLE COUNTY LANDFILL

Rough Grading U4C1
Greenville County South Carolina

EXISTING CONDITIONS (EAST)

0 1" 2"

FILENAME 07C-03.dwg
SCALE 1"=100'

SHEET 07C-03

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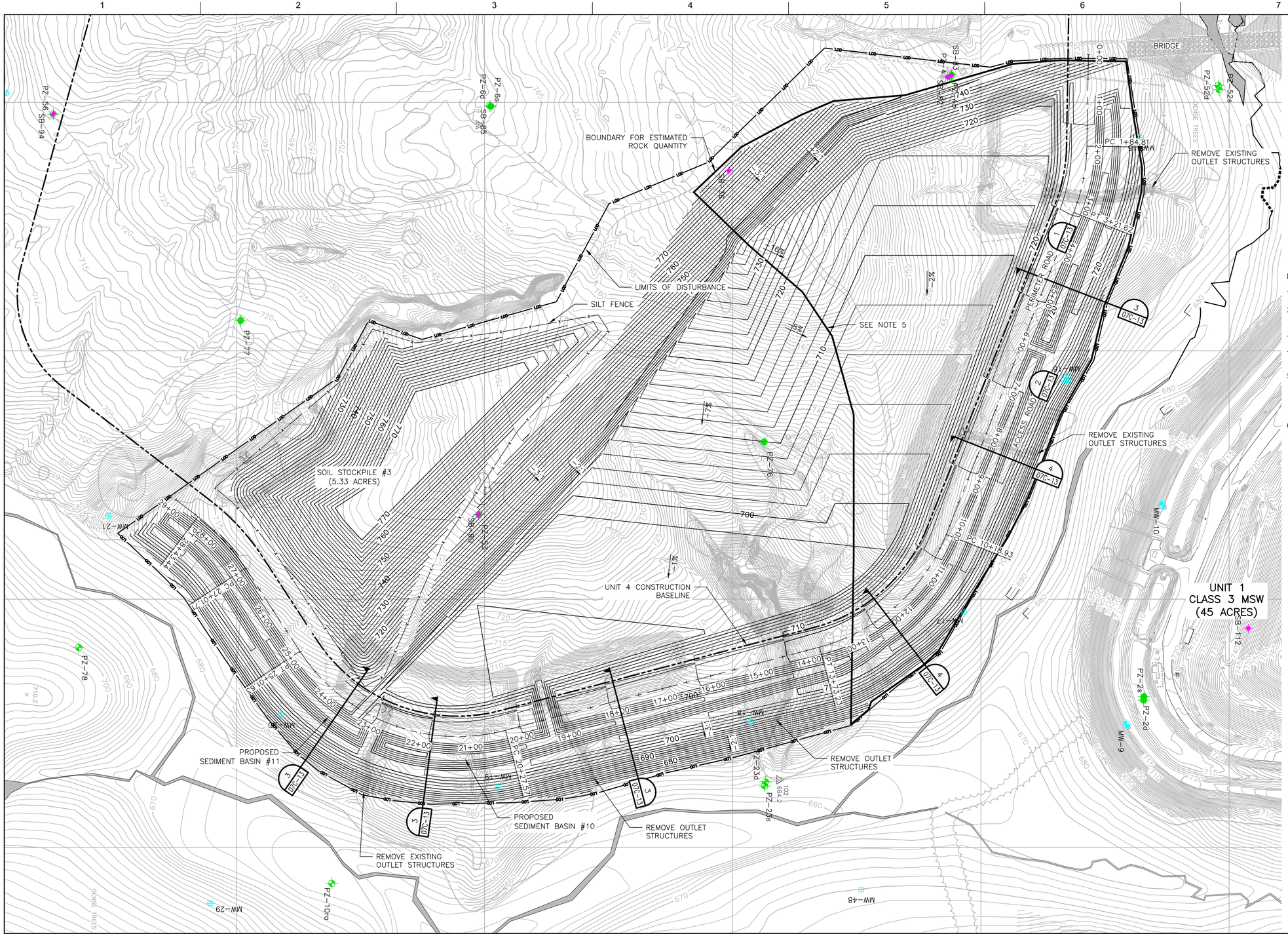

N

WELL LEGEND

EXISTING	ABANDONED	
		MONITORING WELLS (MW & OW)
		GROUNDWATER WELLS (PZ)
		BORINGS (SB & B)
		METHANE PROBES (MM)

NOTES:

1. SEE SHEET 07C–01 FOR PROJECT GENERAL NOTES.
2. SEE SHEETS 07C–08 AND 07C–14 FOR CONSTRUCTION SEQUENCE AND EROSION CONTROL NOTES.
3. PROVIDE SEDIMENT TUBES PER DETAIL 1 OF SHEET 07C–10.
4. SURFACE OF ACCESS ROAD SHALL BE CROWNED PER DETAIL 5 OF SHEET 07C–13.
5. BOUNDARY SHOWN ON PLAN USED FOR ESTIMATING ROCK VOLUME. NOT ALL MATERIALS IN THIS AREA ARE EXPECTED TO BE CLASSIFIED AS ROCK. NEITHER IS ROCK EXPECTED ONLY IN THIS AREA. MATERIALS FROM THIS AREA SHALL BE EXCAVATED BEFORE EXCAVATING FROM THE REMAINING AREAS.
6. SLOPING ROCK SURFACES SHALL BE LEVELED AND BENCHED BEFORE FILL PLACEMENT MAY PROCEED.

LEGEND

- LIMITS OF DISTURBANCE
- EXISTING SILT FENCE
- EXISTING BAFFLES
- EXISTING RIP–RAP DROP DOWN INTO BASINS (CLASS 1) ON LAYER OF NON–WOVEN GEOTEXTILE FABRIC
- EXISTING SILT FENCE STONE OUTLET
- EXISTING CHANNEL MATTING (NORTH AMERICAN GREEN C350)
- 725 EXISTING CONTOUR MAJOR
- EXISTING CONTOUR MINOR
- 740 PROPOSED CONTOUR MAJOR
- PROPOSED CONTOUR MINOR

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CELL 1 GRADING PLAN

0 1" 2"

FILENAME	07C-04.dwg
SCALE	1"=100'

SHEET 07C-04

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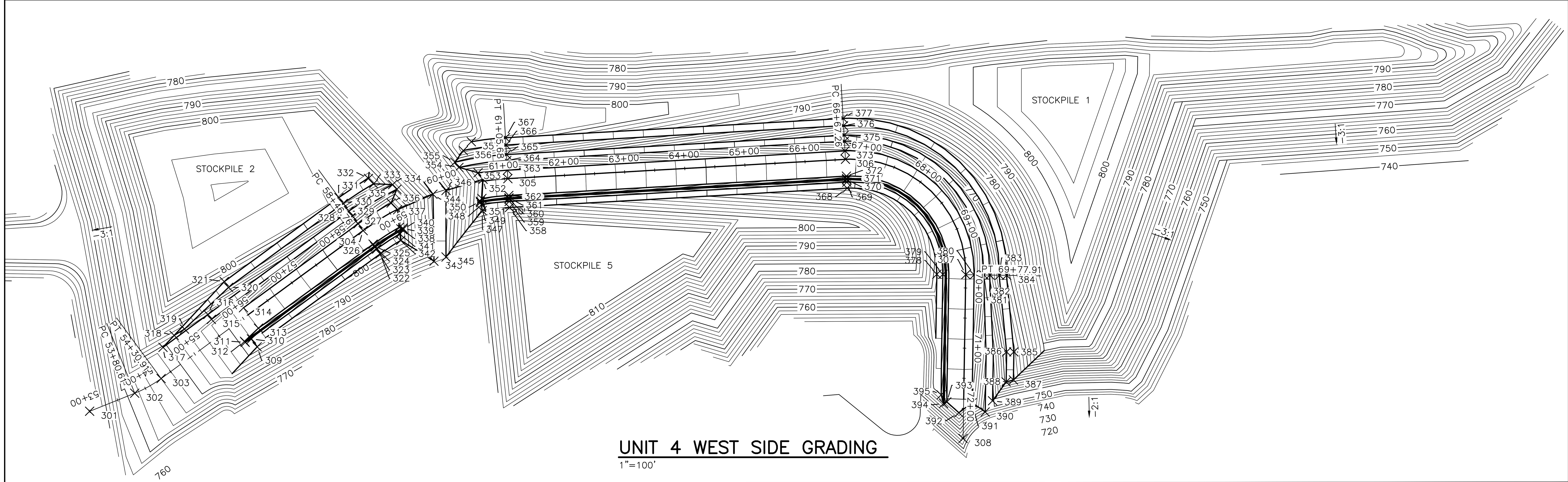
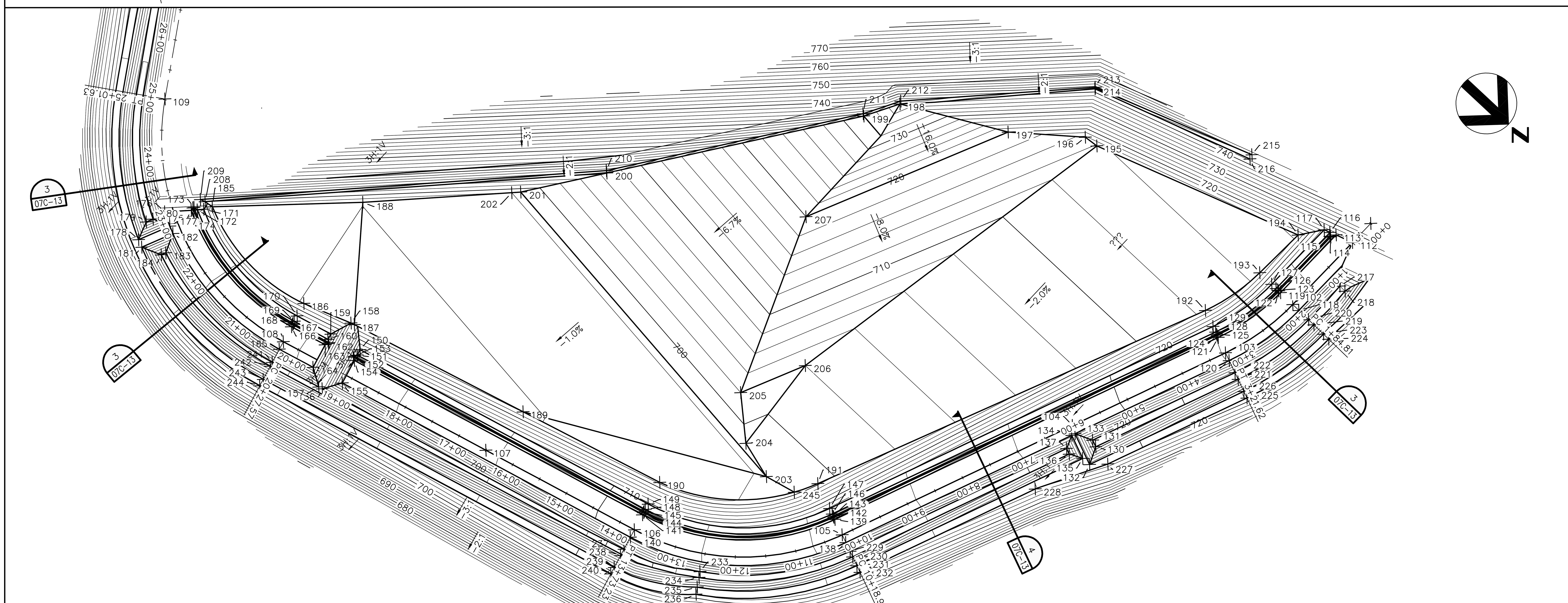


UNIT 4 WEST SIDE GRADING

1"=100'



UNIT 4 EAST SIDE GRADING

1"=100'

NOTES:

1. CONSTRUCT THE CELL FLOOR, PERIMETER BERM, ROAD AND DITCHES TO THE GRADES SHOWN ON THESE DRAWINGS. UTILIZE LASER OR SUB-METER GPS EQUIPMENT FOR FINE GRADING SUBGRADE.

2. CONTOURS INSIDE THE CONSTRUCTION BASELINE REPRESENT PROPOSED SUBGRADE AS SHOWN ON SHEET 07C-04.

3. THE GRADES SHOWN FOR THE ACCESS ROAD REPRESENT TOP OF ABC STONE.

4. EACH PANEL (PLANE) DEPICTS AN AREA OF CONSTANT GRADE.

5. THE CONTROL POINTS DEFINE THE LOCATION OF THE CONSTRUCTION BASELINE AND THE PANELS THAT MAKEUP THE CELL.

6. IF THERE ARE ANY CONFLICTS BETWEEN INFORMATION ON THIS SHEET AND OTHER REPRESENTATIONS OF THE WORK, NOTIFY THE ENGINEER. THE ENGINEER WILL DETERMINE PRECEDENCE OF CONFLICTS.

7. PLACE STRUCTURAL FILL IN STOCKPILES 1 & 2 LOCATED EAST OF THE LINES AND ARCS DEFINED BY POINTS 317, 318, 319, 321, 331, 332, 357, 367, 377, 384, 385 AND 387. PLACE STRUCTURAL FILL IN STOCKPILE #5 WEST OF LINES AND ARCS DEFINED BY POINTS 347, 358, 368 AND 378.

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TWIN CHIMNEYS GREENVILLE COUNTY LANDFILL

Rough Grading U4C1
Greenville County South Carolina

CELL 1 SUBGRADE CONTROL

0 1" 2"

FILENAME	07C-05.dwg
SCALE	1"=100'

SHEET **07C-05**

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EAST GRADING CONTROL (CELL 1)

POINT TABLE

POINT NO.	NORTHING	EASTING	ELEVATION
101	985216.61	1605403.22	
165	984045.83	1606777.51	703.65
109	983627.98	1606604.90	703.36
102	985213.61	1605588.01	723.55
103	985187.01	1605721.45	722.07
104	985084.48	1605980.26	719.07
105	984930.18	1606369.74	714.55
106	984674.80	1606596.53	710.73
107	984407.25	1606667.35	707.75
108	984042.25	1606763.97	703.68
110	983518.54	1606437.40	705.15
111	983422.69	1606333.91	706.00
112	985215.90	1605446.69	724.98
113	985187.75	1605455.83	724.91
114	985183.61	1605464.51	722.84
115	985181.61	1605464.47	722.84
116	985177.69	1605459.69	724.88
117	985167.63	1605462.96	724.68
118	985227.60	1605588.24	723.52
119	985185.61	1605587.56	723.52
120	985200.03	1605726.61	722.04
121	985160.98	1605711.14	722.04
122	985181.61	1605587.49	721.52
123	985179.61	1605587.46	721.52
124	985157.26	1605709.66	720.04
125	985155.40	1605708.93	720.04
126	985175.61	1605587.40	723.52
127	985165.61	1605587.23	723.50
128	985151.68	1605707.45	722.04
129	985142.39	1605703.77	722.03
130	985136.28	1605979.82	708.25
131	985125.13	1605975.40	708.25
132	985148.80	1606007.94	719.02
133	985096.74	1605987.32	719.02
134	985094.51	1605992.94	718.95
135	985133.56	1606008.41	718.95
136	985112.46	1606018.24	710.77
137	985103.16	1606014.56	710.77
138	984943.19	1606374.90	714.52
139	984904.14	1606359.43	714.52
140	984678.39	1606610.06	710.70
141	984667.64	1606569.46	710.70
142	984900.42	1606357.96	712.52
143	984898.57	1606357.22	712.52
144	984666.62	1606565.60	708.70
145	984666.10	1606563.66	708.70
146	984894.85	1606355.75	714.52
147	984885.55	1606352.06	714.50
148	984665.08	1606559.80	710.70
149	984662.52	1606550.13	710.69

POINT TABLE

POINT NO.	NORTHING	EASTING	ELEVATION
150	984143.38	1606687.55	704.87
151	984145.98	1606697.21	704.91
152	984143.05	1606702.12	702.87
153	984143.56	1606704.05	702.87
154	984148.54	1606706.87	704.91
155	984159.28	1606747.47	704.91
156	984141.71	1606776.95	692.65
157	984135.47	1606778.61	692.58
158	984102.63	1606665.66	694.00
159	984090.76	1606701.54	704.33
160	984093.31	1606711.15	704.33
161	984098.12	1606714.01	702.37
162	984098.63	1606715.95	702.37
163	984095.87	1606720.81	704.33
164	984106.61	1606761.42	704.33
166	984035.08	1606736.91	703.65
167	984034.06	1606733.04	701.65
168	984033.54	1606731.11	701.65
169	984032.52	1606727.24	703.65
170	984029.94	1606717.50	703.60
171	983798.06	1606694.07	701.99
172	983791.27	1606701.96	702.04
173	983784.52	1606702.66	700.09
174	983783.58	1606704.42	700.09
175	983784.30	1606709.35	702.07
176	983754.26	1606740.86	702.16
177	983776.45	1606752.32	702.02
178	983753.90	1606803.55	701.96
179	983743.35	1606773.57	691.11
180	983748.18	1606762.55	691.12
181	983766.05	1606809.08	701.87
182	983788.44	1606757.77	701.89
183	983801.39	1606788.97	689.71
184	983798.18	1606796.33	689.71
185	983805.79	1606681.37	697.00
186	984024.00	1606695.05	695.87
187	984108.38	1606663.93	694.00
188	983981.61	1606507.46	696.06
189	984408.97	1606579.47	695.79
190	984652.22	1606511.21	697.26
191	984843.55	1606335.42	699.45
192	985115.25	1605693.02	712.29
193	985138.38	1605586.79	714.42
194	985142.25	1605498.50	716.18
195	984800.49	1605616.99	713.81
196	984776.86	1605619.49	715.46
197	984678.33	1605699.84	720.00
198	984516.88	1605787.30	736.29
199	984486.93	1605842.39	732.00
200	984241.90	1606198.82	706.62

POINT TABLE

POINT NO.	NORTHING	EASTING	ELEVATION
201	984159.86	1606318.15	698.12
202	984149.75	1606328.89	698.00
203	984773.85	1606384.70	698.12
204	984711.84	1606367.67	698.80
205	984648.94	1606312.58	702.00
206	984696.21	1606207.70	702.00
207	984530.34	1606028.15	720.00
208	983791.28	1606683.26	700.00
209	983783.20	1606686.07	697.92
210	984238.77	1606196.31	704.63
211	984483.51	1605840.29	730.00
212	984514.75	1605782.86	734.04
213	984732.85	1605548.38	739.20
214	984734.32	1605550.54	741.70
215	984996.75	1605453.82	742.00
216	984999.13	1605461.15	742.76
217	985249.49	1605513.20	714.00
218	985261.49	1605513.40	714.00
219	985261.60	1605588.79	712.52
220	985249.60	1605588.60	712.52
221	985231.64	1605739.13	711.04
222	985220.48	1605734.71	711.04
223	985283.60	1605589.15	723.52
224	985295.60	1605589.35	723.52
225	985263.25	1605751.65	722.04
226	985252.09	1605747.23	722.04
227	985170.06	1605986.88	719.32
228	985110.86	1606098.28	717.96
229	984958.07	1606380.79	706.52
230	984967.36	1606384.48	706.52
231	984982.24	1606390.37	714.52
232	984993.39	1606394.79	714.52
233	984800.46	1606573.12	704.00
234	984805.98	1606581.47	704.00
235	984814.62	1606594.93	712.00
236	984821.15	1606604.99	712.00
237	984684.02	1606631.33	699.70
238	984687.09	1606642.93	699.70
239	984692.72	1606664.20	710.70
240	984695.79	1606675.80	710.70
241	984052.04	1606801.03	691.45
242	984053.88	1606807.98	691.48
243	984060.16	1606831.64	703.65
244	984063.23	1606843.24	703.65
245	984824.80	1606372.14	698.43

WEST GRADING CONTROL

POINT TABLE

POINT NO.	NORTHING	EASTING	ELEVATION
301	983781.65	1604411.09	0.00
365	984473.76	1603984.62	795.16
309	984059.82	1604303.99	792.00
302	983856.48	1604381.11	771.29
303	983900.34	1604356.76	776.01
304	984235.72	1604110.89	802.71
305	984476.05	1604024.56	803.18
306	985036.71	1603992.45	780.72
307	985236.42	1604184.14	768.30
308	985232.00	1604456.20	743.82
310	984050.21	1604290.87	792.00
311	984039.95	1604296.56	790.83
312	984038.78	1604294.95	790.83
313	984061.92	1604273.02	794.00
314	984037.09	1604239.15	794.00
315	983983.80	1604258.37	784.00
316	983977.89	1604250.31	784.00
317	983903.39	1604304.92	780.60
318	983921.96	1604284.98	782.00
319	983939.12	1604274.57	784.00
320	984012.26	1604205.27	794.00
321	984005.17	1604195.59	794.00
322	984264.10	1604149.61	801.08
323	984258.19	1604141.54	802.69
324	984255.82	1604138.31	800.69
325	984254.64	1604136.70	800.69
326	984252.27	1604133.48	802.69
327	984227.44	1604099.60	802.69
328	984217.98	1604086.70	794.69
329	984212.07	1604078.63	794.69
330	984202.61	1604065.73	802.69
331	984195.52	1604056.05	802.69
332	984244.60	1604024.19	804.55
333	984253.02	1604033.19	804.64
334	984284.75	1604034.50	797.34
335	984291.81	1604042.26	797.39
336	984282.33	1604065.19	804.91
337	984293.03	1604076.24	805.03
338	984295.87	1604105.52	804.69
339	984301.65	1604106.98	802.82
340	984301.44	1604109.36	802.78
341	984296.93	1604116.37	804.54
342	984298.18	1604127.20	804.35
343	984353.38	1604161.71	786.68
344	984351.67	1604050.41	785.00
345	984373.41	1604154.70	786.54
346	984373.41	1604044.25	784.29
347	984433.50	1604077.75	804.99
348	984432.21	1604067.84	805.00
349	984430.60	1604064.04	803.03

POINT TABLE

POINT NO.	NORTHING	EASTING	ELEVATION
350	984430.29	1604062.07	803.03
351	984432.95	1604057.61	804.91
352	984434.91	1604025.69	804.37
353	984426.68	1604014.81	804.31
354	984394.82	1604006.01	797.58
355	984388.13	1603997.21	797.67
356	984402.10	1603977.90	805.32
357	984415.46	1603963.21	804.96
358	984478.79	1604072.48	804.25
359	984478.22	1604062.49	803.16
360	984477.99	1604058.50	801.16
361	984477.88	1604056.50	801.16
362	984477.65	1604052.51	803.16
363	984475.25	1604010.58	803.16
364	984474.33	1603994.60	795.16
366	984472.85	1603968.65	803.16
367	984472.16	1603956.67	803.16
368	985039.45	1604040.37	781.81
369	985053.41	1604045.32	778.00
370	985038.65	1604026.39	778.70
371	985038.54	1604024.40	778.70
372	985038.31	1604020.40	780.70
373	985035.91	1603978.47	780.70
374	985034.99	1603962.50	772.70
375	985034.42	1603952.51	772.70
376	985033.51	1603936.54	780.70
377	985032.82	1603924.56	780.70
378	985188.42	1604183.36	769.39
379	985198.42	1604183.52	768.27
380	985250.41	1604184.37	768.27
381	985266.41	1604184.63	760.26
382	985276.41	1604184.79	760.26
383	985292.41	1604185.05	768.25
384	985304.53	1604185.25	768.25
385	985316.34	1604312.42	763.19
386	985304.28	1604312.35	763.16
387	985315.58	1604359.11	761.33
388	985303.53	1604362.29	761.19
389	985281.02	1604393.65	748.86
390	985268.71	1604412.25	747.96
391	985246.96	1604397.07	759.69
392	985225.02	1604413.50	759.74
393	985204.98	1604395.61	759.72
394	985199.59	1604398.27	757.30
395	985195.67	1604383.93	760.00

HDR Engineering Inc.
of the Carolinas

440 S. Church St. Suite 1000
Charlotte, NC 28202-2075
704.338.6700

ISSUE	DATE	DESCRIPTION
A	06/2016	ISSUED FOR PROPOSAL

PROJECT MANAGER	E.A.WRIGHT, P.E.
PROJECT ENGINEER	
DRAWN BY	J. GAUL
PROJECT NUMBER	06985.243581.018

SOUTH CAROLINA HDR ENGINEERING, INC. OF THE CAROLINAS NO. C0318 CERTIFICATE OF AUTHORIZATION

SOUTH CAROLINA PROFESSIONAL ENGINEER No. 18072 EDWARD ALAN WRIGHT

TWIN CHIMNEYS
GREENVILLE COUNTY LANDFILL

Rough Grading U4C1
Greenville County **South Carolina**

CELL 1 SUBGRADE CONTROL POINT TABLES

0 1" 2"

FILENAME 07C-05A.dwg
SCALE 1"=100'

SHEET
07C-05A

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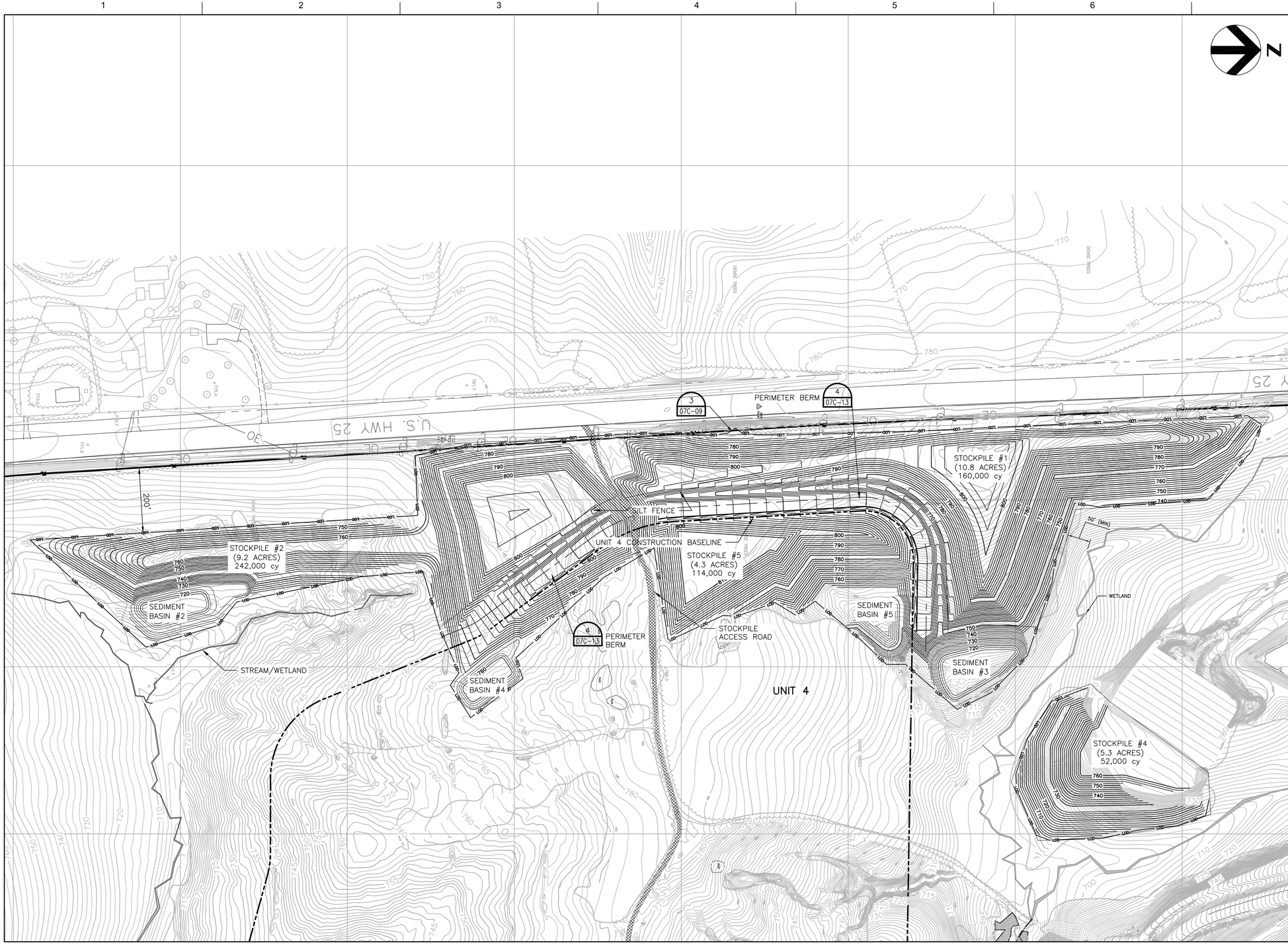

NOTES:

1. SEE SHEET 07C–01 FOR PROJECT GENERAL NOTES.
2. SEE SHEET 07C–08 FOR CONSTRUCTION SEQUENCE AND EROSION CONTROL NOTES.
3. CONTRACTOR MAY IMPROVE EXISTING ACCESS ROADS TO HAUL SOIL TO PROPOSED STOCKPILE LOCATIONS AS PART OF THIS GRADING CONTRACT.
4. CONTRACTOR IS RESPONSIBLE FOR INSTALLING ALL NECESSARY EROSION CONTROL FEATURES FOR STOCKPILES.
5. CONTRACTOR TO CLEAR FOR THE STOCKPILES. CLEAR ONLY THE AREAS NECESSARY TO INSTALL THE EROSION SEDIMENT CONTROL (ESC) FEATURES, BEFORE INSTALLING ESC FEATURES. CLEAR THE REMAINING AREA WITHIN STOCKPILE LIMITS AFTER INSTALLATION OF ESC FEATURES AND BEFORE PLACEMENT OF ANY STOCKPILE MATERIALS.
6. CLEAR AND GRUB AREA UNDER PERIMETER BERM.
7. PROVIDE SEDIMENT TUBES PER DETAIL 1 OF SHEET 07C–10.
8. MAINTAIN EROSION AND SEDIMENT CONTROL FEATURES, FOR THE DURATION OF THE CONTRACT.
9. THE EXISTING 200' TREE BUFFER ADJACENT TO US HWY 25 SHALL NOT BE DISTURBED.
10. USE STOCKPILE #4 FOR ROCKY MATERIAL ONLY AFTER STOCKPILES #1 AND #2 ARE FULL. OWNER MAY ELECT TO LEAVE ROCKY MATERIAL THAT DOESN'T FIT IN STOCKPILES #1,2 OR 4 UNEXCAVATED.
11. ALL WETLAND CROSSINGS MUST OCCUR ON EXISTING ROADS, NO NEW WETLAND CROSSINGS MAY BE CONSTRUCTED FOR ACCESS TO STOCKPILES OR OTHER WORK.
12. USE OF STOCKPILE #5 IS AT OWNERS DISCRETION.

POINT TABLE

POINT NUMBER	NORTHING	EASTING
101	982550.51	1604120.36
109	983169.36	1604305.80
102	983711.08	1604046.90
103	983704.02	1603866.79
104	984165.93	1603832.19
105	984304.85	1603990.78
106	983776.22	1604383.90
107	983726.45	1604214.55
108	983542.53	1604230.20
110	983112.27	1604376.00
111	982897.60	1604441.29
112	984329.18	1603812.11
113	985381.63	1603790.30
114	985402.77	1603772.72
115	986016.53	1603768.63
116	986039.38	1603801.27
117	985680.99	1604029.46
118	985593.36	1604319.62
119	985567.20	1604380.94
120	985401.76	1604373.19
121	985298.70	1604397.77
122	985050.64	1603933.22
123	984693.97	1603954.53
124	984446.68	1603970.13
125	984330.90	1603994.75
126	984289.51	1603932.40
127	984354.31	1603912.73
128	985725.66	1604551.12
129	985614.89	1604591.73
130	985531.24	1604720.11
131	985488.25	1604843.77
132	985568.40	1605020.32
133	985762.65	1605013.17
134	985993.53	1604975.34
135	986085.58	1604941.36
136	986078.33	1604815.37
137	985786.92	1604607.33

HDR Engineering Inc.
of the Carolinas

440 S. Church St. Suite 1000
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ISSUE	DATE	DESCRIPTION
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PROJECT MANAGER	E.A.WRIGHT, P.E.
PROJECT ENGINEER	
DRAWN BY	J. GAUL
PROJECT NUMBER	06985.243581.018

SOUTH CAROLINA CERTIFICATE OF AUTHORIZATION — HDR ENGINEERING, INC. OF THE CAROLINAS NO. C0318

SOUTH CAROLINA PROFESSIONAL ENGINEER No. 18072 ERIC ALAN WRIGHT

TWIN CHIMNEYS
GREENVILLE COUNTY LANDFILL

Rough Grading U4C1
Greenville County South Carolina

STOCKPILE AREA PLAN #1, #2, #4 AND #5

0 1" 2"

FILENAME 07C-06.dwg
SCALE 1"=150'

SHEET 07C-06

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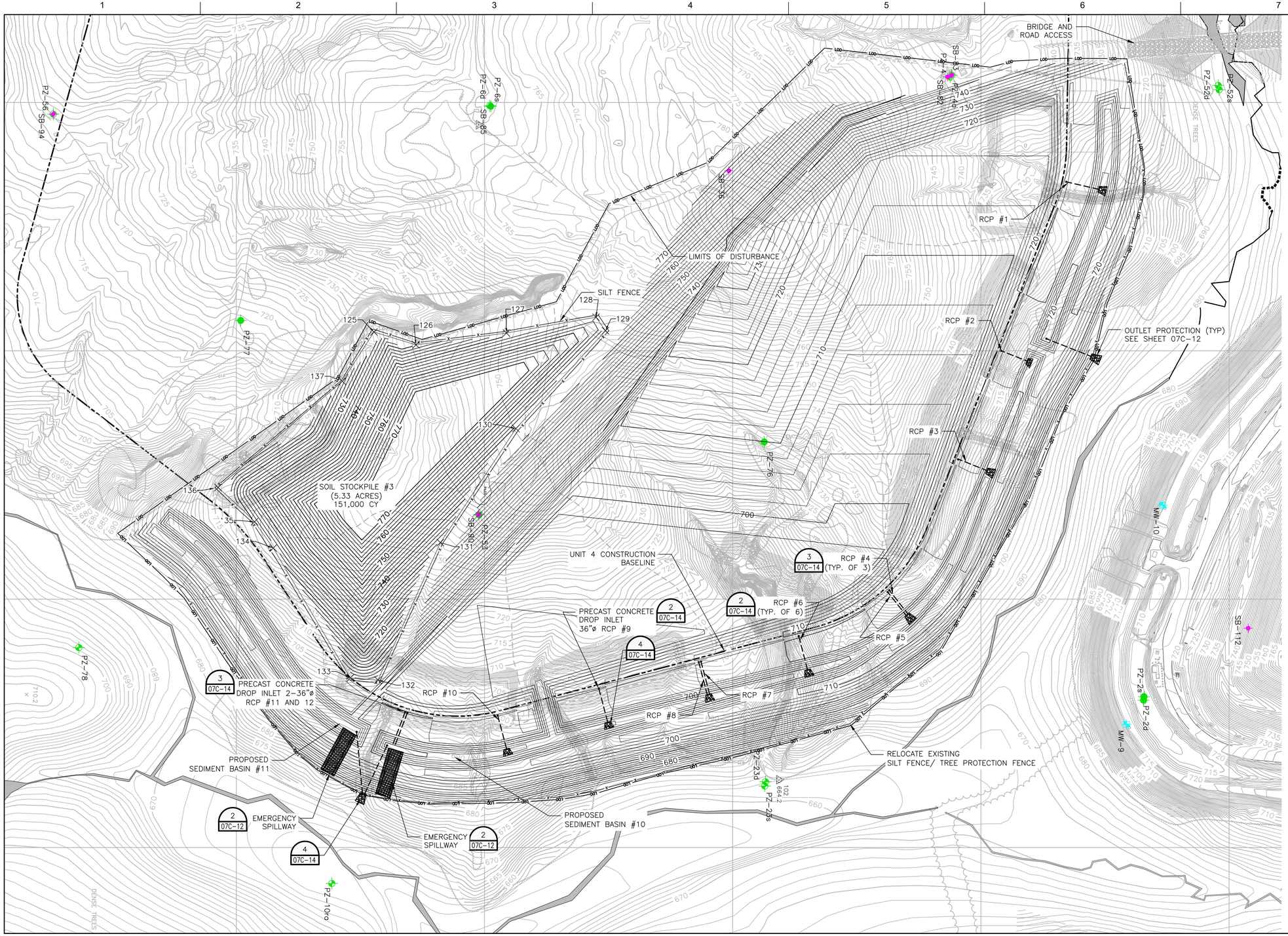

NOTES:

1. SEE SHEET 07C-01 FOR PROJECT GENERAL NOTES.
2. SEE SHEET 07C-08 FOR CONSTRUCTION SEQUENCE AND EROSION CONTROL NOTES.
3. PROVIDE SEDIMENT TUBES PER DETAIL 1 OF SHEET 07C-10.
4. ADDITIONAL CLEARING AND GRUBBING IS REQUIRED IN LIMITED AREAS AROUND THE PERIMETER.

POINT TABLE

NUMBER	NORTHING	EASTING
125	983777.25	1605962.09
126	983861.91	1605988.05
127	984044.13	1605964.19
128	984224.60	1605932.34
129	984243.60	1605959.55
130	984063.19	1606156.50
131	983911.08	1606386.14
132	983785.27	1606662.81
133	983729.72	1606658.66
134	983574.20	1606397.10
135	983536.72	1606344.20
136	983463.13	1606275.09
137	983713.54	1606061.34

LEGEND

- LIMITS OF DISTURBANCE
- PROPOSED SILT FENCE
- EXISTING SILT FENCE
- EXISTING TREE PROTECTION FENCE
- EXISTING BAFFLES
- PROPOSED RIP-RAP DROP DOWN INTO BASINS (CLASS 1) ON LAYER OF NON-WOVEN GEOTEXTILE FABRIC
- EXISTING RIP-RAP DROP DOWN INTO BASINS (CLASS 1) ON LAYER OF NON-WOVEN GEOTEXTILE FABRIC
- DIVERSION SWALE. SEE NOTE 3
- PROPOSED SILT FENCE STONE OUTLET
- EXISTING SILT FENCE STONE OUTLET
- EXISTING CHANNEL MATTING (NORTH AMERICAN GREEN C350)
- RIP-RAP OUTLET PROTECTION
- STORM DRAINAGE
- SEDIMENT TUBES (WATTLES)
- CONCRETE WASH-OUT
- 725 EXISTING CONTOUR MAJOR
- EXISTING CONTOUR MINOR
- 740 PROPOSED CONTOUR MAJOR
- PROPOSED CONTOUR MINOR

HDR Engineering Inc.
of the Carolinas

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ISSUE	DATE	DESCRIPTION
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PROJECT MANAGER	E.A.WRIGHT, P.E.
PROJECT ENGINEER	
DRAWN BY	J. GAUL
PROJECT NUMBER	06985.243581.018

SOUTH CAROLINA HDR ENGINEERING, INC. OF THE CAROLINAS NO. C0318 CERTIFICATE OF AUTHORIZATION

SOUTH CAROLINA REGISTERED PROFESSIONAL ENGINEER No. 18072 ERIC ALAN WRIGHT 6/3/16

TWIN CHIMNEYS
GREENVILLE COUNTY LANDFILL

Rough Grading U4C1
Greenville County South Carolina

STOCKPILE #3 AND EROSION AND SEDIMENT CONTROL PLAN

0 1" 2"

FILENAME 07C-07.dwg
SCALE 1"=100'

SHEET 07C-07

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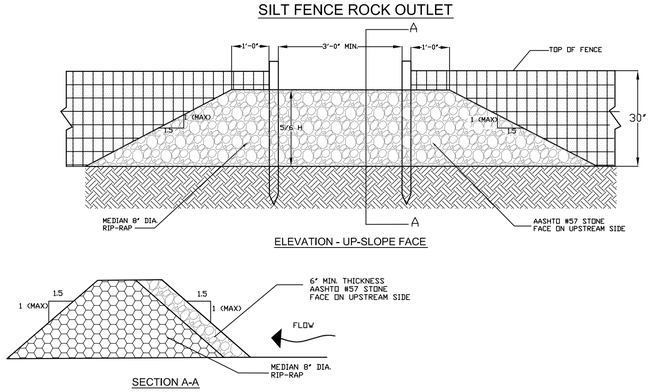
SILT FENCE ROCK OUTLET



NOTES:

1. WASHED STONE (#57) TO BE REMOVED AND REPLACED ONCE IT BECOMES CLOGGED WITH SEDIMENT.
2. SEDIMENT TO BE REMOVED WHEN ACCUMULATIONS REACH 1/3 HEIGHT OF SILT FENCE
3. THE KEY TO FUNCTIONAL ROCK OUTLETS IS WEEKLY INSPECTIONS, ROUTINE MAINTENANCE, AND REGULAR SEDIMENT REMOVAL.

South Carolina Department of Health and Environmental Control

SILT FENCE ROCK OUTLET

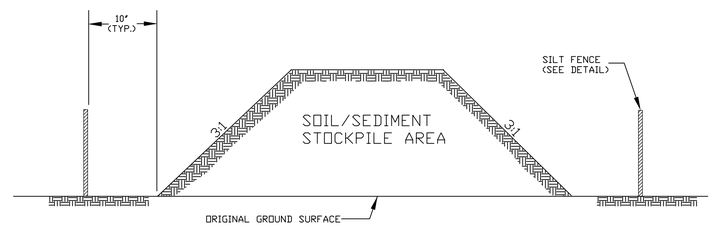
STANDARD DRAWING NO. SC–14 PAGE 1 of 1

NOT TO SCALE FEBRUARY 2014 DATE

SILT FENCE ROCK OUTLET 1

NTS

TEMPORARY STOCKPILE AREA



NOTES:

1. SILT FENCE TO EXTEND AROUND ENTIRE PERIMETER OF STOCKPILE, OR IF STOCKPILE AREA IS LOCATED ON/NEAR A SLOPE THE SILT FENCE IS TO EXTEND ALONG CONTOURS OF THE DOWN–GRADIENT AREA.
2. IF STOCKPILE IS TO REMAIN FOR MORE THAN 14 DAYS, TEMPORARY STABILIZATION MEASURES MUST BE IMPLEMENTED.
3. SILT FENCE SHALL BE MAINTAINED UNTIL STOCKPILE AREA HAS EITHER BEEN REMOVED OR PERMANENTLY STABILIZED.
4. THE KEY TO FUNCTIONAL TEMPORARY STOCKPILE AREAS IS WEEKLY INSPECTIONS, ROUTINE MAINTENANCE, AND REGULAR SEDIMENT REMOVAL.

South Carolina Department of Health and Environmental Control

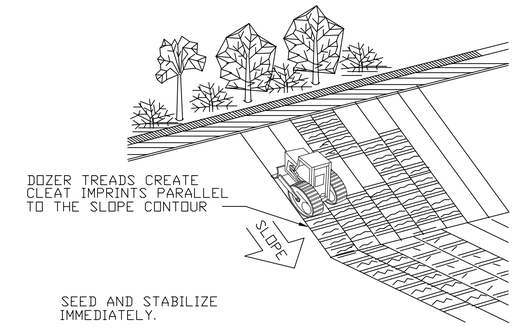
TEMPORARY STOCKPILE

STANDARD DRAWING NO. SC–15 PAGE 1 of 1

NOT TO SCALE FEBRUARY 2014 DATE

STOCKPILE 2

NTS



TRACKING

Greenville County Storm Water Management

Tracking

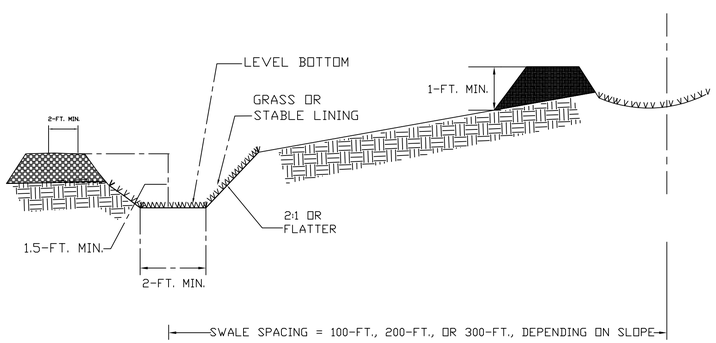
STANDARD DRAWING NO. EC–01A

APPROVED BY: GREENVILLE COUNTY STORM WATER MANAGEMENT — January 2013 DATE

TRACKING 3

NTS

DIVERSION SWALE



Greenville County Storm Water Management

DIVERSION SWALE

STANDARD DRAWING NO. RC–03B

APPROVED BY: GREENVILLE COUNTY STORM WATER MANAGEMENT — January, 2013 DATE

DIVERSION SWALE 4

NTS

CONSTRUCTION SEQUENCE:

1. RELOCATE EXISTING FENCES AND INSTALL NEW SILT FENCE AS SHOWN ON THE PLANS, PRIOR TO ANY SITE DISTURBANCE ACTIVITIES (CLEARING, GRUBBING, GRADING, OR EXCAVATION). INSTALL SILT FENCE STONE OUTLETS AT LOW POINTS BASED ON FIELD CONDITIONS. INSPECT AND MAINTAIN THE NEW AND EXISTING FENCES (TREE PROTECTION, SILT FENCE AND DOUBLE SILT FENCE) AS NEEDED DURING THE ENTIRE DURATION OF THE CONTRACT.
2. IMPROVE AND MAINTAIN THE EXISTING STABILIZED CONSTRUCTION ENTRANCE AND OTHER INDICATED BEST MANAGEMENT PRACTICES (BMPs) FOR EXCAVATION, FILLING, COMPACTION, STOCKPILING AND GRADING.
5. MAINTAIN EXISTING SEDIMENT TRAPS, BASINS DIVERSIONS AND OUTFALLS UNTIL STORMWATER IS CONVEYED TO PERMANENT BASINS 9, 10 AND 11.
6. INSPECT AND MAINTAIN EXISTING TEMPORARY DIVERSION SWALES TO THE TRAPS AND BASIN, INCLUDING SEDIMENT TUBES AND STABILIZED DROP DOWNS FOR AS LONG AS THEY CAN BE EFFECTIVELY UTILIZED BASED ON CONTRACTORS SEQUENCE OF OPERATION. DO NOT ALLOW ACTUAL DRAINAGE AREAS TO INDIVIDUAL TRAPS AND BASINS TO EXCEED THE DESIGN DRAINAGE AREA.

TRAP NO.	DESIGN DRAINAGE AREA (ACRES)
1	4.10
2	4.40
3	2.70
4	3.80
5	4.90
6	4.71

SEDIMENT BASIN NO.	DESIGN DRAINAGE AREA (ACRES)
1	10.97
2	11.44
3	11.40
4	7.40
5	9.58
9	17.00
10	32.00
11	32.00

7. CONSTRUCT SEDIMENT BASINS AND TRAP FOR STOCKPILES #1 AND #2. CLEAR FOR STOCKPILES #1 AND #2. GRUB THE AREA UNDER THE PERIMETER BERM.
8. REMOVE ALL LOOSE, WET AND UNSUITABLE SOILS FROM AREAS TO RECEIVE FILL.
9. BEGIN CONSTRUCTION OF STOCKPILE #1 WITH ROCKY MATERIAL FROM EXCAVATION.
10. BEGIN CONSTRUCTION OF STOCKPILE #3 WITH CLAYEY SOILS FROM EXCAVATION. ROCKY MATERIAL SHALL NOT BE PLACED IN STOCKPILE #3.
11. BEGIN CONSTRUCTING BASINS 9, 10, 11 AND ASSOCIATED BERMS. ABANDON EXISTING SEDIMENT TRAPS AND BASINS ONLY AFTER SUFFICIENT WORK IS COMPLETED TO ALLOW DIVERSION TO BASINS 9, 10 or 11. DO NOT ABANDONED SEDIMENT TRAP #1.
12. AFTER STOCKPILE #1 IS ABOUT 90% FULL CONSTRUCTION MAY BEGIN ON STOCKPILE # 2 WITH ROCKY MATERIAL FROM EXCAVATION.
13. INSPECT ALL EROSION CONTROL DEVICES AT WEEKLY INTERVALS AND AFTER EVERY RAINFALL EXCEEDING 1/2" TO VERIFY THAT THEY ARE FUNCTIONING PROPERLY. ANY ACCUMULATED SEDIMENT SHALL BE REMOVED AND PLACED IN A DESIGNATED SPOIL DISPOSAL AREA APPROVED BY THE INSPECTOR. CONDUCT PERIODIC INSPECTIONS OF ALL EROSION AND SEDIMENTATION CONTROLS AND MAKE ANY REPAIRS OR MODIFICATIONS NECESSARY TO ASSURE CONTINUED EFFECTIVE OPERATION OF EACH DEVICE.
14. STABILIZE SITE AS AREAS ARE BROUGHT TO ROUGH GRADES.
15. EROSION AND SEDIMENT CONTROL MEASURES ARE TO REMAIN IN PLACE AFTER GRADING OPERATIONS.

GENERAL NOTES

1. ALL EROSION CONTROL MEASURES SHALL BE IN STRICT ACCORDANCE WITH LOCAL AND STATE STANDARDS – SPECIFICALLY THE GREENVILLE COUNTY STORMWATER DESIGN MANUAL CHAPTER 8.
2. THE CONTRACTOR SHALL DILIGENTLY AND CONTINUOUSLY MAINTAIN ALL EROSION CONTROL BMPs AND STRUCTURES TO ENSURE DEVICES ARE FUNCTIONING PROPERLY TO MINIMIZE EROSION AND SEDIMENT TRANSFER. ALL EROSION AND SEDIMENT CONTROLS BE INSPECTED AT LEAST ONCE EVERY SEVEN CALENDAR DAYS, OR AFTER ANY STORM EVENT THE PRODUCES GREATER THAN ½–INCHES OF RAINFALL DURING ANY 24–HOUR PERIOD.
3. THE TOTAL DENUDED AREA (LIMITS OF DISTURBANCE) IS APPROXIMATELY 82 ACRES.
4. THE TOTAL SITE ACREAGE IS 1140.92 ACRES. THIS WORK OCCURS IN PARCELS (PID #0580010100500 AND 0590010101300)
5. THE SOIL CLASSIFICATION IS PREDOMINANTLY: PACOLET (PdD2, PcE) AND CECIL (CeD, CIB2)
6. THE LOCATION OF EXISTING TREE PROTECTION FENCE, SILT FENCE, DIVERSION DITCHES, ETC. MAY HAVE BEEN ADJUSTED FROM LOCATIONS SHOWN IN THE DESIGN PLANS. FIELD VERIFY AND ACCOMMODATE EXISTING LOCATIONS ACCORDINGLY.
7. ADDITIONAL EROSION CONTROL DEVICES MAY BE REQUIRED DUE TO: FIELD CONDITIONS, AS DIRECTED BY THE INSPECTOR, AND BASED ON CONTRACTOR SEQUENCE OF OPERATIONS.
8. ENCOMPASS STAGING AREAS AND MATERIAL STOCKPILES WITH SILT FENCE EXCEPT FOR THE POINTS OF ACCESS.
9. MAINTAIN SITE GRADING DURING CONSTRUCTION TO CONTROL RUNOFF WITH STORMWATER AND SEDIMENT CONTROL FEATURES.
10. STABILIZATION IS THE BEST FORM OF EROSION CONTROL. PROVIDE TEMPORARY SEEDING AS NECESSARY TO ENSURE DENUDED AREAS ARE INDIVIDUALLY LESS THAN 10 ACRES AND LESS THAN 20 ACRES IN TOTAL AT ANY ONE TIME.
11. ALL PERIMETER DIKES, SWALES, DITCHES, PERIMETER SLOPES AND ALL SLOPES STEEPER THAN 3:1 SHALL BE PROVIDED TEMPORARY OR PERMANENT STABILIZATION WITH GROUND COVER AS SOON AS PRACTICABLE BUT IN ANY EVENT WITHIN 7 CALENDAR DAYS FROM THE LAST LAND–DISTURBING ACTIVITY. ALL OTHER DISTURBED AREAS SHALL BE PROVIDED TEMPORARY OR PERMANENT STABILIZATION WITH GROUND COVER AS SOON AS PRACTICABLE BUT IN ANY EVENT WITHIN 14 CALENDAR DAYS FROM THE LAST LAND–DISTURBING ACTIVITY.
12. TEMPORARY STABILIZATION MEASURES. WHERE CONSTRUCTION OR LAND DISTURBANCE ACTIVITY WILL OR HAS TEMPORARILY CEASED ON ANY PORTION OF A SITE, TEMPORARY SITE STABILIZATION MEASURES SHALL BE REQUIRED AS SOON AS PRACTICABLE, BUT NO LATER THAN 14 CALENDAR DAYS AFTER THE ACTIVITY HAS CEASED.
13. IN ANY EVENT, SLOPES LEFT EXPOSED WILL, WITHIN 21 CALENDAR DAYS OF ANY PHASE OF GRADING, BE PLANTED OR OTHERWISE PROVIDED WITH TEMPORARY OR PERMANENT GROUND COVER, DEVICES, OR STRUCTURES SUFFICIENT TO RESTRAIN EROSION.
14. ALL MATERIALS REQUIRED FOR CONSTRUCTION OF SEDIMENTATION AND EROSION CONTROL MEASURES SHALL BE AVAILABLE ON SITE BEFORE ANY LAND DISTURBING ACTIVITY IS BEGUN.
15. SEDIMENT TRACKING CONTROL. STABILIZED CONSTRUCTION ENTRANCES SHALL BE LOCATED AND UTILIZED AT ALL POINTS OF INGRESS/EGRESS ON A CONSTRUCTION SITE. PREVENT THE TRANSFER OF SOIL, MUD AND DUST ONTO PUBLIC RIGHTS–OF–WAYS. REMOVE ALL MATERIALS TRACKED OR OTHERWSIE DEPOSITED ON THE PUBLIC RIGHT OF WAY.
16. CROSSINGS OF WATERWAYS DURING CONSTRUCTION IS NOT ALLOWED. DO NOT ENCROACH INTO STREAM BUFFERS, RIPARIAN AREAS AND WETLANDS.
17. EXCAVATED SOIL SHALL BE STOCKPILED AND PRESERVED FROM EROSION OR DISPERSAL BOTH DURING AND AFTER SITE GRADING OPERATIONS.
18. FINAL STABILIZATION OF THE SITE IS REQUIRED WITHIN 14 CALENDAR DAYS OF CONSTRUCTION COMPLETION.
19. TEMPORARY STRUCTURAL CONTROLS INSTALLED DURING CONSTRUCTION SHALL BE DESIGNED TO ACCOMPLISH MAXIMUM STABILIZATION AND CONTROL OF EROSION AND SEDIMENTATION, AND SHALL BE INSTALLED, MAINTAINED, AND REMOVED ACCORDING TO THE SPECIFICATIONS SET FORTH IN THE DESIGN MANUAL, STANDARD SPECIFICATIONS AND STANDARD DRAWINGS. ALL TEMPORARY STRUCTURAL CONTROLS SHALL BE DESIGNED TO CONTROL THE PEAK RUNOFF RESULTING FROM THE STORM EVENT IDENTIFIED IN THE DESIGN MANUAL, STANDARD SPECIFICATIONS AND STANDARD DRAWINGS.

HDR Engineering Inc. of the Carolinas

440 S. Church St. Suite 1000
Charlotte, NC 28202-2075
704.338.6700

ISSUE	DATE	DESCRIPTION
A	06/2016	ISSUED FOR PROPOSAL

PROJECT MANAGER	E.A.WRIGHT, P.E.
PROJECT ENGINEER	
DRAWN BY	J. GAUL
PROJECT NUMBER	06985.243581.018

SOUTH CAROLINA CERTIFICATE OF AUTHORIZATION — HDR ENGINEERING, INC. OF THE CAROLINAS NO. C0318

SOUTH CAROLINA PROFESSIONAL ENGINEER No. 18072 EDWARD ALAN WRIGHT 6/3/16

TWIN CHIMNEYS — GREENVILLE COUNTY LANDFILL

Rough Grading U4C1

Greenville County — South Carolina

EROSION AND SEDIMENT CONTROL DETAILS SHEET 1 OF 2

0 1" 2"

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SCALE AS SHOWN

SHEET 07C-08

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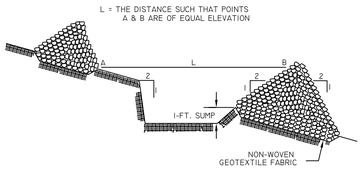
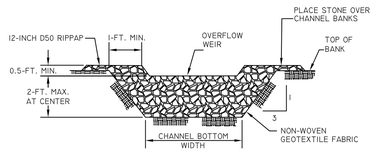
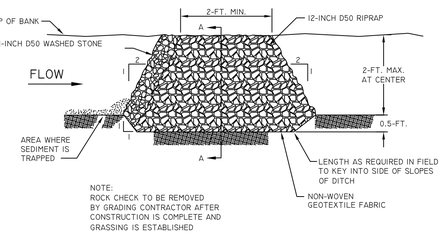


SPACING BETWEEN DITCH CHECK



CROSS SECTION A-A THRU STONE DITCH CHECK



TYPICAL DITCH CHECK SECTION

Greenville County
Storm Water Management

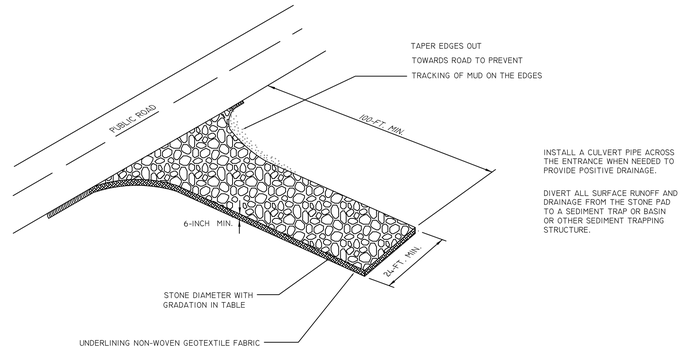
ROCK DITCH CHECK

STANDARD DRAWING NO. SC-04

APPROVED BY: GREENVILLE COUNTY STORM WATER MANAGEMENT — DATE: January, 2013

ROCK DITCH CHECK (1)

NTS



Nominal Size (sieves with square openings)	Percent Passing
3 in.	100
1-½ in.	35 to 100
¾ in.	0 to 15

Greenville County
Storm Water Management

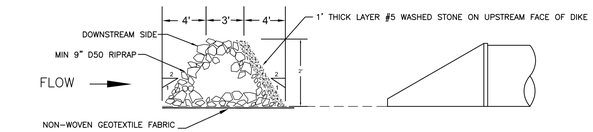
CONSTRUCTION ENTRANCE

STANDARD DRAWING NO. SC-06

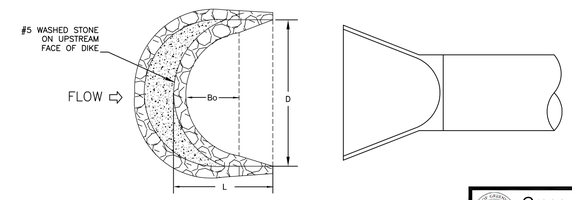
APPROVED BY: GREENVILLE COUNTY STORM WATER MANAGEMENT — DATE: January, 2013

CONSTRUCTION ENTRANCE (2)

NTS



MAXIMUM 2-ACRE DRAINAGE AREA TO DIKE



TYPICAL ROCK DIKE DIMENSIONS

D	L	Bo	PEAK FLOW (CFS)	TOTAL STORAGE VOL. (CU. FT.)	SEDIMENT STORAGE VOLUME (CU. FT.)
15'	17.5'	3.5'	24.1	838	250
20'	20.0'	6.0'	32.1	1263	406
25'	22.5'	8.5'	40.1	1766	601
30'	25.0'	11.0'	48.2	2348	836

Greenville County
Storm Water Management

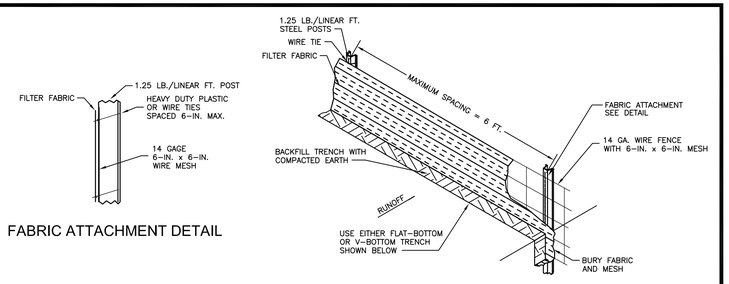
ROCK SEDIMENT DIKE

STANDARD DRAWING NO. SC-08

APPROVED BY: GREENVILLE COUNTY STORM WATER MANAGEMENT — DATE: January, 2013

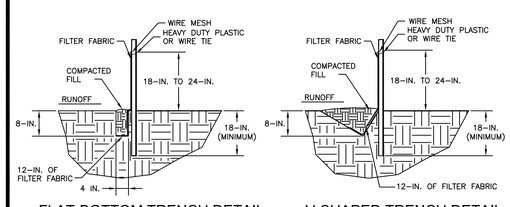
ROCK SEDIMENT DIKE (3)

NTS



FABRIC ATTACHMENT DETAIL

SILT FENCE INSTALLATION



FLAT-BOTTOM TRENCH DETAIL

V-SHAPED TRENCH DETAIL

Greenville County
Storm Water Management

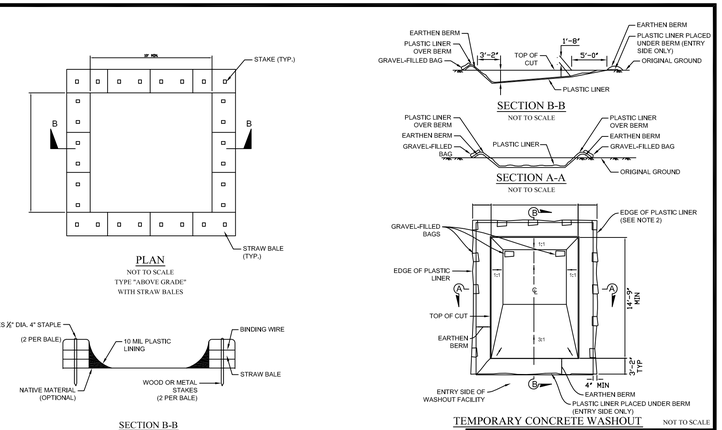
REINFORCED SILT FENCE

STANDARD DRAWING NO. SC-03B

APPROVED BY: GREENVILLE COUNTY STORM WATER MANAGEMENT — DATE: January, 2013

SILT FENCE (4)

NTS



NOTES:

1. ACTUAL LAYOUT DETERMINED IN FIELD.
2. INSTALL CONCRETE WASHOUT SIGN (24"X24", MINIMUM) WITHIN 30' OF THE TEMPORARY CONCRETE WASHOUT FACILITY.
3. TEMPORARY WASHOUT AREA MUST BE AT LEAST 50' FROM A STORM DRAIN, CREEK BANK OR PERIMETER CONTROL.
4. CLEAN OUT CONCRETE WASHOUT AREA WHEN 50% FULL.

Greenville County
Storm Water Management

CONCRETE WASHOUT DETAIL

STANDARD DRAWING NO. SC-14

APPROVED BY: GREENVILLE COUNTY STORM WATER MANAGEMENT — DATE: January, 2013

CONCRETE WASHOUT (5)

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HDR Engineering Inc.
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Charlotte, NC 28202-2075
704.338.6700

ISSUE	DATE	DESCRIPTION
A	06/2016	ISSUED FOR PROPOSAL

PROJECT MANAGER	E.A.WRIGHT, P.E.
PROJECT ENGINEER	
DRAWN BY	J. GAUL
PROJECT NUMBER	06985.243581.018

SOUTH CAROLINA — HDR ENGINEERING, INC. OF THE CAROLINAS NO. C0318 — CERTIFICATE OF AUTHORIZATION

SOUTH CAROLINA — No. 18072 — REGISTERED PROFESSIONAL ENGINEER — EDWARD ALAN WRIGHT — 6/3/16

TWIN CHIMNEYS
GREENVILLE COUNTY LANDFILL

Rough Grading U4C1
Greenville County — South Carolina

EROSION AND SEDIMENT CONTROL DETAILS SHEET 2 OF 2

0 — 1" — 2"

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SCALE	AS SHOWN

SHEET 07C-09

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Greenville County EC-03 SEEDING/STABILIZATON NOTES

Amendments

Lime

Agricultural Granular Lime

Use agricultural grade, standard ground limestone for all permanent seeding applications and Sodding applications.

Applying Granular Lime

A soil analysis is recommended prior to application. Apply at a rate within ±10% of weight recommendation of soil analysis. Do not apply more than 2,500 lbs/acre of in a single application.

Fast Acting Lime

Use fast acting liquid and/or dry forms of lime for all temporary seeding and permanent seeding applications.

Fertilizer

Granular Fertilizer

Use for all permanent seeding applications and all Sodding applications. Proper mixture is dependent on the existing soil conditions and it is recommended that a soil analysis be performed if the soil conditions are uncertain in the area of fertilizer application.

Use fertilizer that incorporates a minimum of 50% water insoluble (slow release) nitrogen. Animal by-product or municipal waste fertilizers are not acceptable under this Specification.

Unless a soil analysis is performed to determine otherwise, a good rule of thumb granular fertilizer to apply in the Upstate of South Carolina is 10-10-10. In no case should a 20-20-20 fertilizer be used due to the potential burning of the seedbed.

Compost Soil Amendment

For seedbeds that have little or no topsoil, are highly acidic, or are lacking sufficient nutrients to sustain a health stand of grass place, and mix certified weed free compost into the seedbed to ensure a good stand of grass.

Biological Growth Stimulant

Use for all permanent seeding, Sodding, and temporary seeding applications. Animal by-products or municipal waste products are not acceptable. Liquid fertilizers are not acceptable, and can cause burning of the seedbed if applied as such.

Temporary Stabilization

Temporary Stabilization is defined as a condition where exposed soils or disturbed areas are provided a temporary vegetative and/or non-vegetative protective cover to prevent erosion and sediment loss. Temporary stabilization may include temporary seeding, geotextiles, mulches, and other techniques to reduce or eliminate erosion until either final stabilization can be achieved or until further construction activities take place to re-disturb this area.

Initiating Temporary Stabilization

Initiate temporary stabilization by mulch or temporary stabilization by seeding within 7 calendar days where land disturbing activities have temporarily ceased on the Project and will not resume for a period exceeding 14 calendar days. Where land disturbing activities on a portion of the Project are temporarily ceased, and the land disturbing activities are resumed within 14 days, temporary stabilization measures are not required to be initiated on that portion of the Project.

Temporary stabilization by seeding is required if the Project will not be worked for a period longer than 60 days.

Initiate temporary stabilization measures as soon as practicable for areas where initiating temporary stabilization measures within 7 days is infeasible (e.g., where snow cover, frozen ground, or drought conditions preclude stabilization).

Acceptance of Temporary Stabilization

Before acceptance of temporary stabilization by the regulatory agency and the Design Engineer or Landscape Architect, temporary stabilization is required that is sufficient to control erosion for a given area and length of time before the next phase of construction or the establishment of permanent seeding is to commence. A satisfactory stand of temporary stabilization meeting the requirements of this Specification is required regardless of the time of the year the work is performed.

Temporary Cover by Mulch

Use temporary cover by mulch where it is not feasible or practicable to bring an area to final slope and grade. Finish the surface so that permanent seeding can be performed without subsequent disturbance by additional grading.

Temporary Cover by Seeding

Following the preparation of the seedbed, sow seed per the seeding Tables and apply an appropriate Mulch prior to a rainfall event that compacts the seedbed. The CONTRACTOR may add granular lime and fertilizer as necessary to enhance growth.

Final Stabilization

Final Stabilization is defined that all land-disturbing activities at the construction site have been completed and that on all areas not covered by permanent structures, either

(1) A uniform (e.g., evenly distributed, without large bare areas) permanent vegetative cover with a density of 70 percent has been established, or

(2) Equivalent permanent stabilization measures (such as the use of landscaping mulch, riprap, pavement, and gravel) have been implemented to provide effective cover for exposed portions of the construction site not stabilized with permanent vegetation.

Permanent Seeding

Initiate permanent seeding within 7 calendar days where land disturbing activities have permanently ceased on the project. Where land disturbing activities are resumed within 14 days, stabilization measures are not required to be initiated on that portion of the project. Initiate permanent seeding measures as soon as practicable for areas where initiating permanent seeding measures within 7 days is infeasible (e.g., where snow cover, frozen ground, or drought conditions preclude stabilization).

Final stabilization by vegetation must be achieved with permanent perennial vegetation prior to contract completion.

When performing permanent seeding for permanent detention ponds, ensure that the detention pond is cleaned of any deposited sediment and graded to the required permanent detention basin configuration. Ensure the seedbed for the permanent seeding is established in accordance with this Specification.

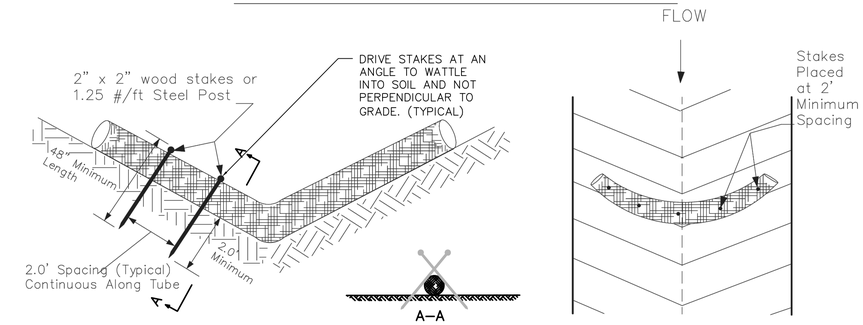
Acceptance of Permanent Seeding

Before acceptance, a uniform perennial vegetative cover with a density of 70% of each square yard of the seeded area is required. A well developed root system must be established to sufficiently survive dry periods and winter weather and be capable of reestablishment in the spring.

Permanent Seeding Installation

Following the preparation of the seedbed, perform permanent seeding per the seeding Tables and apply an appropriate Mulch within 5 working days and/or prior to a rainfall event that compacts the prepared seedbed. If a rain event occurs that compacts or erodes the seedbed prior to performing permanent seeding, the seedbed must be re-prepared prior to conducting permanent seeding. Add fertilizer and lime as required by a soil test.

SEDIMENT TUBE INSTALLATION



SEDIMENT TUBE SPACING

SLOPE	MAX. SEDIMENT TUBE SPACING
LESS THAN 2%	150-FEET
2%	100-FEET
3%	75-FEET
4%	50-FEET
5%	40-FEET
6%	30-FEET
GREATER THAN 6%	25-FEET

SEDIMENT TUBES – GENERAL NOTES

1. Sediment tubes may be installed along contours, in drainage conveyance channels, and around inlets to help prevent off-site discharge of sediment-laden stormwater runoff.
2. Sediment tubes are elongated tubes of compacted geotextiles, curled excelsior wood, natural coconut fiber, or hardwood mulch. Straw, pine needle, and leaf mulch-filled sediment tubes are not permitted.
3. The outer netting of the sediment tube should consist of seamless, high-density polyethylene photodegradable materials treated with ultraviolet stabilizers or a seamless, high-density polyethylene non-degradable material.
4. Sediment tubes, when used as checks within channels, should range between 18-inches and 24-inches depending on channel dimensions. Diameters outside this range may be allowed where necessary when approved.
5. Curled excelsior wood, or natural coconut products that are rolled up to create a sediment tube are not allowed.
6. Sediment tubes should be staked using wooden stakes (2-inch X 2-inch) or steel posts (standard "U" or "T" sections with a minimum weight of 1.25 pounds per foot) at a minimum of 48-inches in length placed on 2-foot centers.
7. Install all sediment tubes to ensure that no gaps exist between the soil and the bottom of the tube. Manufacturer's recommendations should always be consulted before installation.
8. The ends of adjacent sediment tubes should be overlapped 6-inches to prevent flow and sediment from passing through the field joint.
9. Sediment tubes should not be stacked on top of one another, unless recommended by manufacturer.
10. Each sediment tube should be installed in a trench with a depth equal to 1/5 the diameter of the sediment tube.
11. Sediment tubes should continue up the side slopes a minimum of 1-foot above the design flow depth of the channel.
12. Install stakes at a diagonal facing incoming runoff.

SEDIMENT TUBES – INSPECTION & MAINTENANCE

1. The key to functional sediment tubes is weekly inspections, routine maintenance, and regular sediment removal.
2. Regular inspections of sediment tubes shall be conducted once every calendar week and, as recommended, within 24-hours after each rainfall even that produces 1/2-inch or more of precipitation.
3. Attention to sediment accumulations in front of the sediment tube is extremely important. Accumulated sediment should be continually monitored and removed when necessary.
4. Remove accumulated sediment when it reaches 1/3 the height of the sediment tube.
5. Removed sediment shall be placed in stockpile storage areas or spread thinly across disturbed area. Stabilize the removed sediment after it is relocated.
6. Large debris, trash, and leaves should be removed from in front of tubes when found.
7. If erosion causes the edges to fall to a height equal to or below the height of the sediment tube, repairs should be made immediately to prevent runoff from bypassing tube.
8. Sediment tubes should be removed after the contributing drainage area has been completely stabilized. Permanent vegetation should replace areas from which sediment tubes have been removed.

SEDIMENT TUBE INSTALLATION (1)
NTS

HDR Engineering Inc.
of the Carolinas

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Charlotte, NC 28202-2075
704.338.6700

ISSUE	DATE	DESCRIPTION
A	06/2016	ISSUED FOR PROPOSAL

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PROJECT ENGINEER	
DRAWN BY	J. GAUL
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SOUTH CAROLINA HDR ENGINEERING, INC. OF THE CAROLINAS NO. C0318 CERTIFICATE OF AUTHORIZATION

SOUTH CAROLINA REGISTERED PROFESSIONAL ENGINEER No. 18072 ERIC ALAN WRIGHT 6/3/16

TWIN CHIMNEYS
GREENVILLE COUNTY LANDFILL

Rough Grading U4C1
Greenville County South Carolina

SEEDING AND STABILIZATION DETAILS
SHEET 1 OF 2

0 1" 2"

FILENAME	07C-10.dwg
SCALE	AS SHOWN

SHEET 07C-10

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1 | 2 | 3 | 4 | 5 | 6 | 7 | 8

Greenville County Standard Notes

Seeding Dates and Rates of Application

Perform seeding during the periods and at the rates specified in the seeding tables. Do not use temporary cover by seeding or permanent seeding for projects when:

The ground is frozen and/or when the 10–day forecasted low temperature remains below 35 degrees Fahrenheit;

- The ground is excessively wet; or
- The ground is excessively dry (periods of drought) unless watering is specified.

During periods of adverse conditions, use temporary cover by mulch.

Seedbed Preparation

- Ensure that the areas receiving permanent seeding are uniform and conform to the finished grade of the Project.
- Perform minor shaping and evening of uneven and rough areas outside of the graded area in order to provide for more effective erosion control and for ease of subsequent mowing operations.
- Loosen the seedbed (including cut slopes) to a minimum depth of three (3) inches before initiating permanent seeding and temporary seeding.
- An acceptable method of preparing the seedbed on slopes is vertically tracking the seedbed up and seedbed up and down the slope with proper equipment.
- Remove stones larger than two and one–half (2½) inches in any dimension, large dirt clods, roots, or other debris brought to the surface.
- Use compost if good seedbed material is not located on site or results of the soil test show the seedbed is excessively nutrient deficient to the extent of requiring costly fertilizer additions and or have excessively low pH values (lower than 5.0).
- Consider the use of mechanical seed drills to perform permanent seeding on areas where temporary seeding or temporary cover by mulch was previously utilized.

Mulch

Required for all permanent seeding, temporary seeding, and temporary cover applications. Do not use Mulch in areas where concentrated flow is expected. Use HECP Mulch for temporary seeding and temporary cover applications when the application area will require additional grading prior to permanent seeding. Do not use Erosion Control Blankets (ECB) or Turf Reinforcement Matting (TRM) in this situation.

Wood Chip Mulch

Wood chip mulch is not acceptable for seeding applications. If wood chip mulch is used for temporary cover by mulch, it must be removed prior to performing permanent seeding

Straw or Hay Mulch with Tackifier

Use material that is certified weed. Do not use on slopes steeper than 4H:1V. Anchor using one of the following tacking agents:

- Organic or Chemical Tackifier
- Hydraulic Straw Tackifiers
- Emulsified Asphalt

Applying Straw or Hay Mulch

Uniformly apply material at the rate of 2,000 pounds per acre.

Compost Mulch

Only use from producer that participates in the USCC STA program. Do not use materials that have been treated with chemical preservatives as a compost mulch. Do not use mixed municipal solid waste compost.

Hydraulic Erosion Control Products (HECPs)

Use as an allowable mulch for temporary cover by mulch, temporary cover by seeding or permanent cover by seeding applications. Do not use as a channel liner or for areas receiving concentrated flow.

Temporary Erosion Control Blankets (ECB) and Turf Reinforcement Matting (TRM)

Consider for permanent seeding application areas with steep slopes or areas where there is a significant erosion problem or potential for erosion. Use in areas where concentrated flow is expected. Do not use for temporary seeding applications when the application areas will require additional grading or modifications prior to permanent seeding.

Protection of Structures

Cover any parts of bridges, culverts, guardrails, signs, sidewalks, curb and gutters, catch basins, pipe ends, and other structures as necessary to prevent discoloration before spraying HECPs, organic or chemical tackifiers.

Greenville County Standard Notes

Slope Interruption Devices

The maximum allowable continuous slope length for straw or hay mulch, HECPs, compost and ECB applications is 50 feet. Slope interruption devices (such as sediment tubes) or TRMs are required for continuous slope length longer than 50 feet.

Inspection

Ensure that all seed, Sod, fast acting lime, biological growth stimulants, agricultural granular lime, granular fertilizer, straw and hay mulch, HECPs, compost mulch, and ECBs are applied as Specified. The Design Engineer or Landscape Architect, or member of the Design Engineer or Landscape Architect staff must document on–site that these materials are applied correctly by completing and signing proper forms.

Maintenance

Perform all maintenance necessary to keep Stabilization areas in a satisfactory condition until the work is finally accepted. This includes mowing, repairing areas of erosion and washes, and applying additional seed, fertilizer, and mulch to areas where a satisfactory stand of grass has not been achieved.

Mowing

Mow road shoulders and medians when vegetation reaches a height of approximately 18 to 24 inches. Do not perform excessive mowing of Slopes resulting in ruts, furrows or grooves. Do not perform excessive mowing of Slopes that inhibits the establishment of the slope vegetation.Do not perform mowing when soil and weather conditions are such that rutting or other damage to the Project may occur.

Ensure mowing results in a uniform vegetation height of 4 to 6 inches, unless otherwise directed. When utilizing a nurse crop for permanent seeding, mow Millet (no lower than 3 inches) once it reaches a height of 18 inches to reduce competitiveness with the permanent vegetation. Mow Wheat and Rye Grain (no lower than 3 inches) once they reach a height of 6–8 inches to reduce competitiveness with permanent vegetation.

MULCH APPLICATION TABLE

Mulch	Applicable Slopes (H:V)[1]	Minimum Application Rate (lbs/acre -dry)[2]
Wood Chips	≤ 4:1	500 CY/acre
Straw or Hay with Tackifier	≤ 4:1	2,000
HECP Type 1	≤ 4:1	2,000
HECP Type 2	4:1< S ≤ 3:1	2,500
HECP Type 3	3:1< S ≤ 2:1	3,000
HECP Type 4	2:1< S ≤ 1:1	3,500
	>1:1	4,000 (temp cover only)[3]
Compost Mulch	≤ 2:1	200 CY/acre

1 The maximum allowable continuous slope length for all mulch applications is 50 feet. Slope interruption devices or TRMs are required for continuous slope length longer than 50 feet.

2 Strictly comply with the manufacturer's mixing recommendations for the actual slope steepness and the actual continuous slope length of the application.

3 HECP Type 4 may be used for permanent cover applications on slopes 1:1 or greater at a minimum rate of 4,500 pounds per acre.

ECB and TRM APPLICATION TABLE

ECB/TRM Type[1]	Slope (H:V)[2]	Minimum Slope Length (ft)
Temporary ECB or Type 1 TRM	≤ 2:1	5
Type 2 TRM	≤ 1.5:1	5
Type 3 TRM	≤ 1:1	5

1 Strictly comply with the manufacturer's specifications.

2 The maximum allowable continuous slope length for ECBs is 50 feet. Slope interruption devices or TRMs are required for continuous slope length longer than 50 feet.

Non Slope Areas

Spring / Summer Non Slope Areas (during establishment, mow when Millet reaches 18-inches in height)

	Common Name[4]	Botanical Name	Planting Rate (lbs/acre)	Planting Rate (lbs/1000sf)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
✓	Common Bermudagrass[1] (hulled = hull absent)	*Cynodon dactylon*	50	1.15				•	•	•	•					
✓	White Clover	*Trifolium repens*	5	0.11			•	•				•				
✓	Browntop Millet	*Panicum ramosum*	10	0.23				•	•	•	•	•				

Fall / Winter Non Slope Areas (during establishment, mow when Rye reaches 6 to 8-inches in height)

	Common Name[4]	Botanical Name	Planting Rate (lbs/acre)	Planting Rate (lbs/1000sf)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
✓	Tall Fescue (KY-31)	*Festuca arundinacea*	50	1.15	•	•	•	•					•	•	•	•
✓	Common Bermudagrass[1] (unhulled = hull present)	*Cynodon dactylon*	15	0.34	•	•	•					•	•	•	•	•
✓	White Clover	*Trifolium repens*	5	0.11		•	•	•					•	•	•	
✓	Crimson Clover[2]	*Trfolium incarnatum*	20	0.46	•	•	•	•					•	•	•	•
✓	Rye Grain[3]	*Secale cereale*	15	0.34	•	•	•	•					•	•	•	•

[1] Common Bermudagrass: Do not use Giant Bermudagrass(NK-37).
[2] Only use pre-inoculated legumes or use an appropriate inoculant with the seed at planting.
[3] Mow Rye Grain (no lower than 3 inches) once it reaches a height of 6-8 inches to reduce competitiveness with permanent vegetation.
[4] If the Common Name of the seed listed in the Tables is not available, use seed with the listed Botanical Name.

Road Medians & Shoulders

Spring / Summer Road Median & Shoulders (during establishment, mow when Millet reaches 18-inches in height)

	Common Name[4]	Botanical Name	Planting Rate (lbs/acre)	Planting Rate (lbs/1000sf)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
✓	Common Bermudagrass[1] (hulled = hull absent)	*Cynodon dactylon*	25	0.57				•	•	•	•					
✓	Browntop Millet	*Panicum ramosum*	10	0.23				•	•	•	•	•				

Fall / Winter Road Median & Shoulders (during establishment, mow when Rye reaches 6 to 8-inches in height)

	Common Name[4]	Botanical Name	Planting Rate (lbs/acre)	Planting Rate (lbs/1000sf)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
✓	Tall Fescue (KY-31)	*Festuca aruninacea*	50	1.15	•	•	•	•					•	•	•	•
✓	Common Bermudagrass[1] (unhulled = hull present)	*Cynodon dactylon*	15	0.34	•	•	•						•	•	•	•
✓	Crimson Clover[2]	*Trfolium incarnatum*	20	0.46	•	•	•					•	•	•	•	•
✓	Rye Grain[3]	*Secale cereale*	15	0.34	•	•	•					•	•	•	•	•

[1] Common Bermudagrass: Do not use Giant Bermudagrass(NK-37).
[2] Only use pre-inoculated legumes or use an appropriate inoculant with the seed at planting.
[3] Mow Rye Grain (no lower than 3 inches) once it reaches a height of 6-8 inches to reduce competitiveness with permanent vegetation.
[4] If the Common Name of the seed listed in the Tables is not available, use seed with the listed Botanical Name.

Slopes & Buffers

Spring / Summer Slopes (during establishment, mow when Millet reaches 18-inches in height. After establishment, only mow at end of winter season)

	Common Name[4]	Botanical Name	Planting Rate (lbs/acre)	Planting Rate (lbs/1000sf)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Pick 1	Tall Fescue (KY-31)	*Festuca aruninacea*	50	1.15			•	•								
Pick 1	Bahiagrass	*Paspalum notatum*	30	0.69			•	•	•	•	•					
Pick 1	Common Bermudagrass[1] (hulled = hull absent)	*Cynodon dactylon*	15	0.34				•	•	•	•					
✓	White Clover	*Trifolium repens*	5	0.11			•	•				•				
✓	Weeping Lovegrass	*Erograstis curvula*	5	0.11			•	•	•	•	•	•				
✓	Hairy Vetch[2]	*Vicia villosa*	10	0.23				•								
✓	Browntop Millet	*Panicum ramosum*	10	0.23				•	•	•	•	•				

Fall / Winter Slopes (during establishment, mow when Rye reaches 6 to 8-inches in height. After establishment, only mow at end of winter season)

	Common Name[4]	Botanical Name	Planting Rate (lbs/acre)	Planting Rate (lbs/1000sf)	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
✓	Tall Fescue (KY-31)	*Festuca aruninacea*	50	1.15	•	•	•						•	•	•	•
✓	Common Bermudagrass[1] (unhulled = hull present)	*Cynodon dactylon*	15	0.34	•	•	•						•	•	•	•
✓	White Clover[2]	*Trifolium repens*	5	0.11		•	•						•	•	•	
✓	Weeping Lovegrass	*Erograstis curvula*	5	0.11	•	•	•						•	•	•	•
Pick 1	Crimson Clover[2]	*Trfolium incarnatum*	20	0.46	•	•	•						•	•	•	•
Pick 1	Hairy Vetch[2]	*Vicia villosa*	10	0.23	•	•	•						•	•	•	•
✓	Rye Grain[3]	*Secale cereale*	15	0.34	•	•	•						•	•	•	•

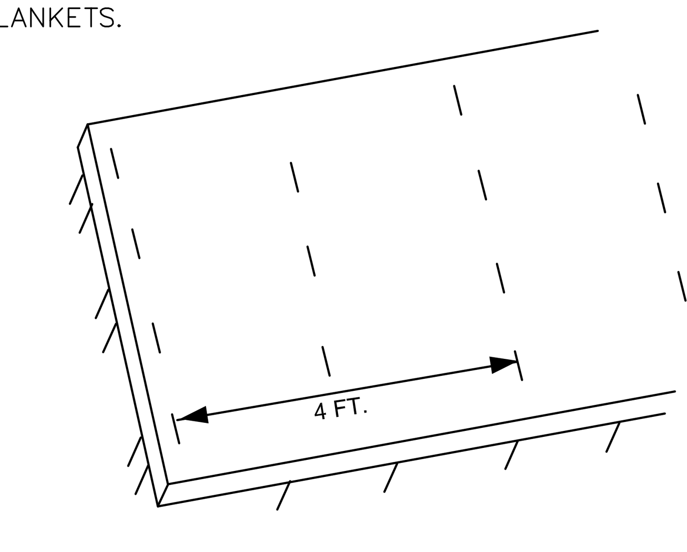
[1] Common Bermudagrass: Do not use Giant Bermudagrass(NK-37).
[2] Only use pre-inoculated legumes or use an appropriate inoculant with the seed at planting.
[3] Mow Rye Grain (no lower than 3 inches) once it reaches a height of 6-8 inches to reduce competitiveness with permanent vegetation.
[4] If the Common Name of the seed listed in the Tables is not available, use seed with the listed Botanical Name.

INSTALLATION:
PROPERLY PREPARE, FERTILIZE AND SEED AREA TO BE COVERED BEFORE BLANKET IS APPLIED. WHEN THE BLANKET IS UNROLLED, NETTING SHOULD BE ON TOP AND FIBERS IN CONTACT WITH THE SOIL OVER THE ENTIRE AREA. IN DITCHES, APPLY BLANKETS IN THE DIRECTION THE WATER FLOWS, BUTTING THEM AT THE ENDS AND SIDES AND THEN STAPLING. ON SLOPES, APPLY BLANKETS EITHER HORIZONTALLY OR VERTICALLY TO SLOPE, BUTT ENDS AND SIDES AND THEN STAPLE.

STAPLING INSTRUCTIONS:
USE WIRE STAPLES, .091" IN DIAMETER OR GREATER, "U" SHAPED WITH LEGS 6" LONG OR LONGER AND 1" CROWN. SIZE AND GAUGE OF STAPLES USED WILL VARY WITH SOIL CONDITIONS. DRIVE STAPLES VERTICALLY INTO THE GROUND. USE FOUR STAPLES ACROSS AT THE START OF EACH ROLL. FOR SLOPE INSTALLATION, CONTINUE TO STAPLE ALONG THE LENGTH OF THE ROLL AT 6 FT. INTERVALS. FOR DITCH LINER, STAPLE ALONG THE LENGTH OF THE ROLL AT 4 FT. INTERVALS. ANOTHER ROW OF STAPLES IN THE CENTER OF EACH BLANKET SHOULD BE ALTERNATELY SPACED BETWEEN EACH SIDE FOR EITHER SLOPE FOR DITCH. USE A COMMON ROW OF STAPLES ON ADJOINING BLANKETS.

TYPICAL STAPLING PATTERN FOR HIGH–VELOCITY DITCHES AND SLOPES.

USE 4 STAPLES ACROSS AT THE START OF EACH ROLL AND CONTINUE TO STAPLE THROUGHOUT THE LENGTH OF THE ROLL AT 2 FT. INTERVALS.



EROSION CONTROL MATTING (1 / –)
NOT TO SCALE

D
C
B
A

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HDR Engineering Inc.
of the Carolinas

440 S. Church St. Suite 1000
Charlotte, NC 28202-2075
704.338.6700

ISSUE	DATE	DESCRIPTION
A	06/2016	ISSUED FOR PROPOSAL

PROJECT MANAGER	E.A.WRIGHT, P.E.
PROJECT ENGINEER	
DRAWN BY	J. GAUL
PROJECT NUMBER	06985.243581.018

SOUTH CAROLINA CERTIFICATE OF AUTHORIZATION HDR ENGINEERING, INC. OF THE CAROLINAS NO. C0318

SOUTH CAROLINA REGISTERED PROFESSIONAL ENGINEER No. 18072 ERIC ALAN WRIGHT 6/3/16

TWIN CHIMNEYS GREENVILLE COUNTY LANDFILL

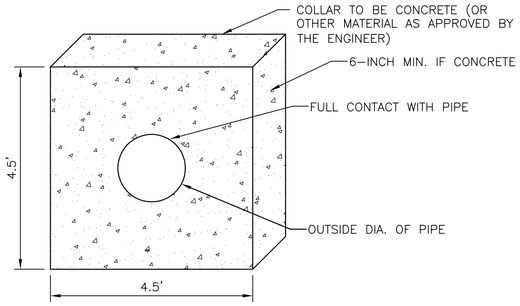
Rough Grading U4C1
Greenville County South Carolina

SEEDING AND STABILIZATION DETAILS SHEET 2 OF 2

0 1" 2"

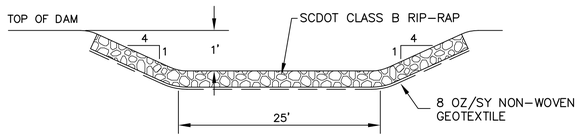
FILENAME	07C-11.dwg
SCALE	AS SHOWN

SHEET **07C-11**



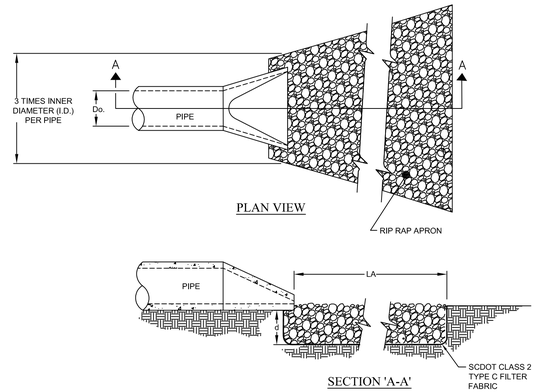
ANTI-SEEP COLLAR (1)

N.T.S.



EMERGENCY SPILLWAY (2)

N.T.S.



LOCATION	LENGTH OF APRON, La (FT.)	OUTLET WIDTH OF APRON, 3Do (FT.)	DOWNSTREAM WIDTH OF APRON, W (FT.)	THICKNESS d (FT)	RIPRAP	
					MEDIAN STONE SIZE, d50 (FT.)	SCDOT RIPRAP CLASS
SB 2	16	7.5	18.5	2	0.50	A
SB 3	16	7.5	18.5	2	0.50	A
SB 4	16	7.5	18.5	2	0.50	A
SB 5	16	7.5	18.5	2	0.50	A
SB 9	26	12	30	2	0.85	B
SB 10	26	12	30	2	0.85	B
SB 11	26	12	30	2	0.85	B
SINGLE DI	16	9	18	1.2	0.50	A
DOUBLE DI	16	18	22	1.2	0.50	A

OUTLET PROTECTION (4)

NTS

PRECAST CONCRETE RISER WITH BASE

ENSURE ALL RISER (MANHOLE) MATERIALS, MANUFACTURING, TESTING AND PRODUCT PERFORMANCE FOR PRECAST CONCRETE COMPONENTS AND ACCESSORIES ARE IN ACCORDANCE WITH AASHTO M199 AND SECTION 719 OF THE SCDOT STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, 2007 EDITION, OR LATEST REVISION.

USER PRECAST CONCRETE COMPONENTS DESIGNED IN ACCORDANCE WITH THE REQUIREMENTS OF THE LATEST AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS.

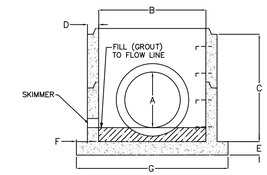
USE PRECAST CONCRETE MANHOLES WITH A HL-93 DESIGN LIVE LOADING.

USE CLASS 4000 CONCRETE (MINIMUM) FOR ALL PRECAST CONCRETE ELEMENTS.

USE REINFORCING BARS CONFORMING TO THE REQUIREMENTS OF ASTM A706, GRADE 60.

USE WELDED WIRE FABRIC MEETING THE REQUIREMENTS OF AASHTO M55 AND AASHTO M221, ASTM A185, or ASTM A497.

USE WATER TIGHT BARREL TO RISER CONNECTORS



THIS DRAWING IS NOT TO SCALE

SEDIMENT BASIN	PIPE DIAMETER (A) inches	RISER DIAMETER (B) feet	RISER HEIGHT (C) feet	WALL THICKNESS (D) inches MIN	BASE THICKNESS (E) inches MIN	BASE EXTENTION (F) inches MIN	BASE DIAMETER (G) inches MIN	SKIMMER DIAMETER
1	48	6x6	6.50	6	8	8	88x88	5"
2	30	5x5	6.50	6	8	8	88x88	5"
3	30	5x5	8.33	6	8	8	88x88	5"
4	30	5x5	6.00	6	8	8	88x88	5"
5	30	5x5	12.50	6	8	8	88x88	5"
9	48	5x5	7.15	6	8	8	88x88	5"
10	48	5x5	8.25	6	8	8	88x88	8"
11	48	5x5	8.00	6	8	8	88x88	8"

Greenville County Storm Water Management

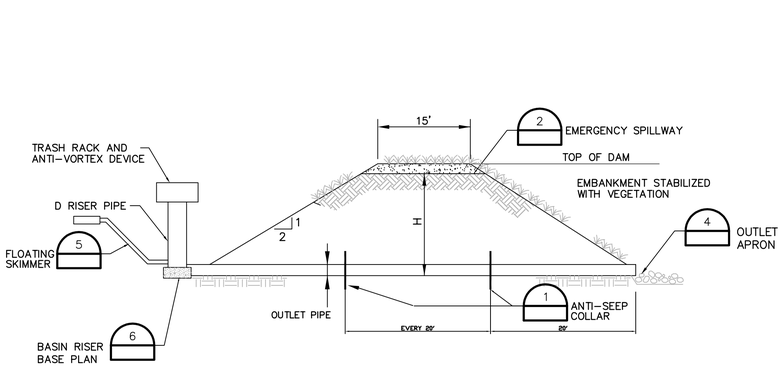
SURFACE OUTLET & BAFFLE SEDIMENT BASIN

STANDARD DRAWING NO. SC-01 Page 3 of 3

APPROVED BY: GREENVILLE COUNTY STORM WATER MANAGEMENT — January, 2013 DATE

SEDIMENT BASIN OUTLET (6)

NTS

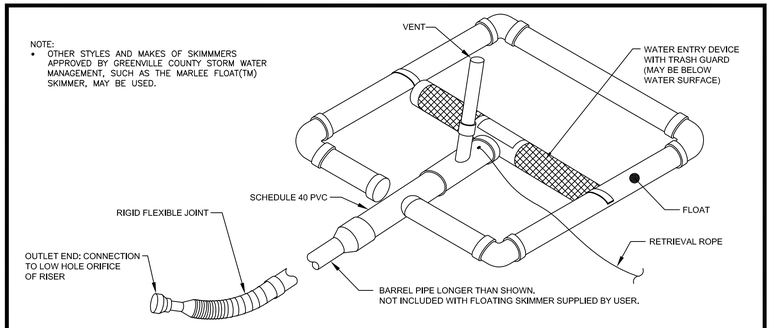


BASIN NO.	CLEANOUT DEPTH (FT.)	OUTLET PIPE INLET ELEV.	OUTLET PIPE LENGTH (FT.)	OUTLET PIPE DISCHARGE ELEV.	OUTLET PIPE DIA. (IN)	BASIN BOTTOM ELEV.	RISER ELEV.	RISER SIZE (FT. x FT.)	SPILLWAY ELEV.	SPILLWAY LENGTH (FT.)	DAM ELEV.	SIMMER SIZE (IN)	SKIMMER ORIFICE (IN)
1	1.25	692.00	63	685.00	48	692.00	698.50	6 x 6	698.50	25	700.00	5	5
2	1.25	718.00	63	717.37	30	718.00	724.50	5 x 5	724.50	25	726.00	5	3
3	1.25	716.00	63	713.00	30	716.00	719.50	5 x 5	719.50	25	721.00	5	4
4	1.25	760.00	144	759.28	30	760.00	764.50	5 x 5	764.50	25	766.00	5	4
5	1.25	736.00	67	734.50	30	736.00	748.50	5 x 5	748.50	25	750	5	4
9	2.00	708.25	82	701.00	48	708.25	715.40	5 x 5	716.50	25	718.00	5	5
10	2.00	689.75	96	673.00	48	689.75	698.00	5 x 5	699.50	25	701.50	8	5
11	2.00	690.00	112	673.00	48	690.00	698.00	5 x 5	699.50	25	701.50	8	5

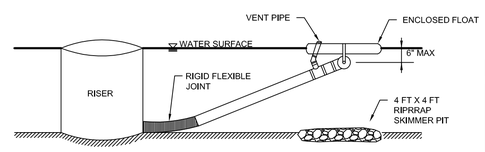
SEDIMENT BASIN (3)

NTS

NOTE:
- OTHER STYLES AND MAKES OF SKIMMERS APPROVED BY GREENVILLE COUNTY STORM WATER MANAGEMENT, SUCH AS THE MARLEE FLOAT(TM) SKIMMER, MAY BE USED.



FLOATING SKIMMER DETAIL (NTS)



FLOATING SKIMMER/RISER PROFILE VIEW

Greenville County Storm Water Management

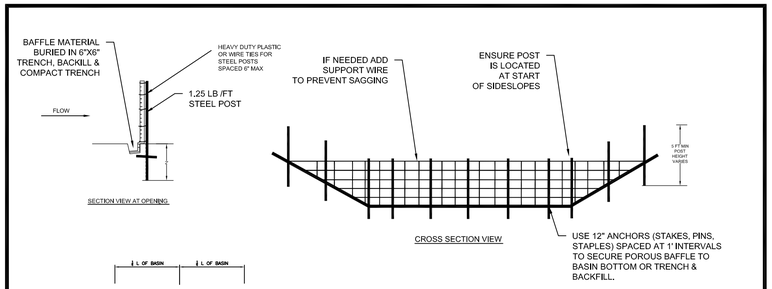
FLOATING SKIMMER

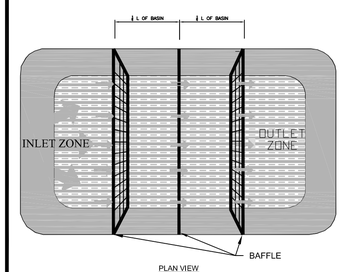
STANDARD DRAWING NO. SC-10

APPROVED BY: GREENVILLE COUNTY STORM WATER MANAGEMENT — January, 2013 DATE

FLOATING SKIMMER (5)

NTS





NOTES:
- SECURE BAFFLE MATERIAL AT THE BOTTOM AND SIDES USING STAPLES OR BY TRENCHING.
- MOST SEDIMENT ACCUMULATES IN THE 1ST BAY, AND SHOULD BE READILY ACCESSIBLE FOR MAINTENANCE.
- PROVIDE 3 ROWS OF BAFFLES EVENLY SPACED AT ½ BASIN LENGTH (2 ROWS IF BASIN IS LESS THAN 25 FEET IN LENGTH).
- WOOD POSTS ARE NOT ALLOWED.
- ATTACH POROUS MATERIAL ON UPSTREAM SIDE OF STEEL POST WITH HEAVY DUTY PLASTIC OR WIRE TIES EVENLY SPACED TO PREVENT SAGGING OR TEARING OF BAFFLE. MATERIAL.
- SPACE TIES AT 6' MAX. INTERVALS

Greenville County Storm Water Management

POROUS BAFFLE DETAIL

STANDARD DRAWING NO. SC-11

APPROVED BY: GREENVILLE COUNTY STORM WATER MANAGEMENT — January, 2013 DATE

BAFFLE (7)

NTS

HDR Engineering Inc. of the Carolinas

440 S. Church St. Suite 1000
Charlotte, NC 28202-2075
704.338.6700

ISSUE	DATE	DESCRIPTION
A	06/2016	ISSUED FOR PROPOSAL

PROJECT MANAGER	E.A.WRIGHT, P.E.
PROJECT ENGINEER	
DRAWN BY	J. GAUL
PROJECT NUMBER	06985.243581.018

SOUTH CAROLINA CERTIFICATE OF AUTHORIZATION — HDR ENGINEERING, INC. OF THE CAROLINAS NO. C0318

SOUTH CAROLINA PROFESSIONAL ENGINEER No. 18072 ERIC ALAN WRIGHT — 6/3/16

TWIN CHIMNEYS — GREENVILLE COUNTY LANDFILL

Rough Grading U4C1
Greenville County South Carolina

SEDIMENT BASIN AND OUTLET STRUCTURE DETAILS

0 1" 2"

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SCALE AS SHOWN

SHEET 07C-12

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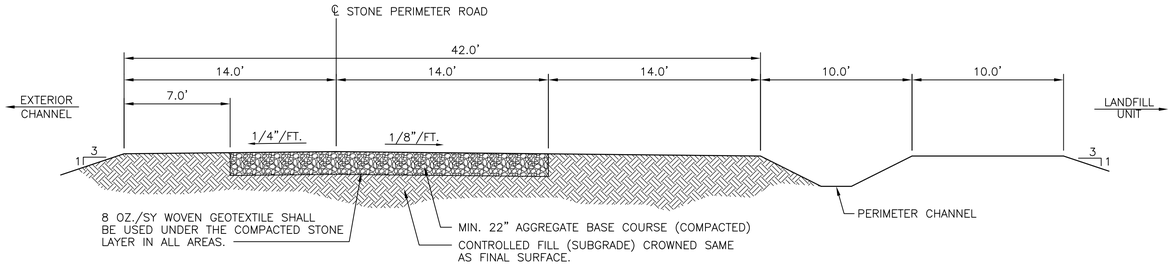
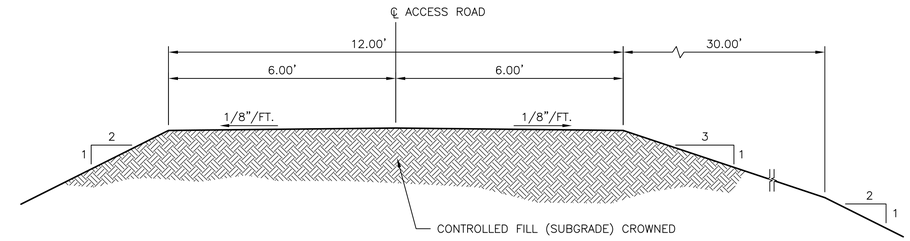


PERIMETER ROAD

1"=5'

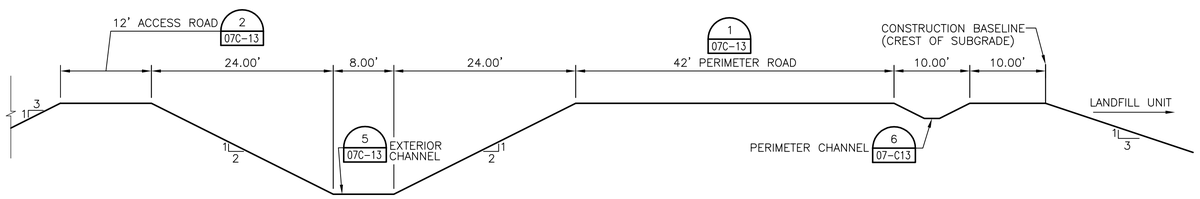
1 / 07C-04



ACCESS ROAD

1"=2'

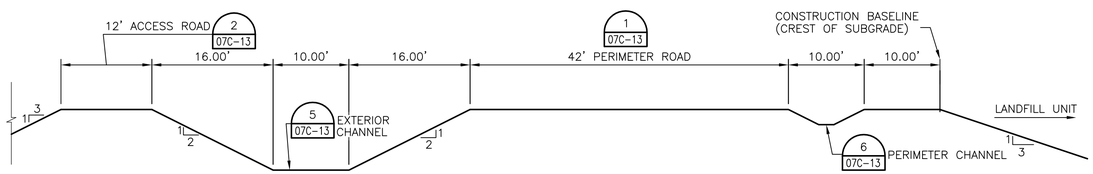
2 / 07C-04



PERIMETER SECTION "A"

NOT TO SCALE

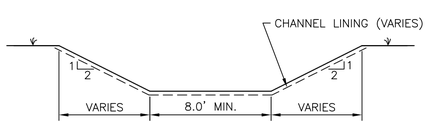
3 / 07C-13



PERIMETER SECTION "B"

NOT TO SCALE

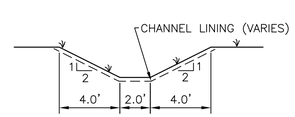
4 / 07C-13



EXTERIOR CHANNEL

1"=5'

5 / 07C-13



PERIMETER CHANNEL

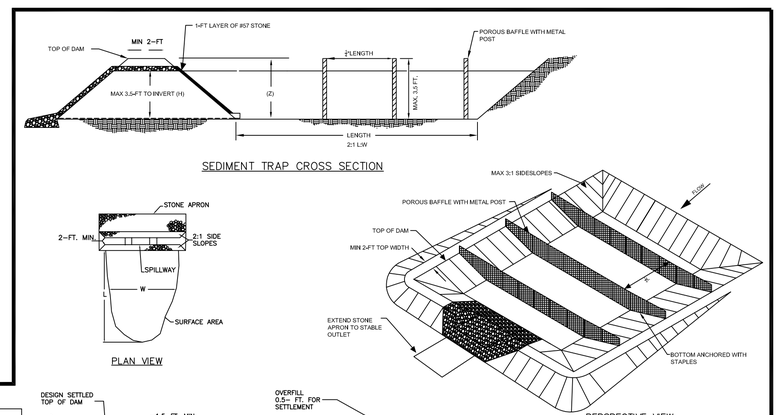
1"=5'

6 / 07C-13

HEIGHT ABOVE CHANNEL FLOOR	CHANNEL SLOPE	LINING	VEGETATION
FULL	<1%	CURLEX 1	GRASS
FLOOR AND FIRST 1' VERTICAL OF SLOPE	1%–7.5%	NAG C350 OR EQUAL	GRASS
1' VERTICAL FROM FLOOR AND ABOVE (SLOPE)	1%–7.5%	CURLEX 1 OR EQUAL	GRASS

DATA BLOCK

TRAP NO.	DRAINAGE AREA (ACRES)	DENUDED AREA (ACRES)	q_u (cfs)	BASIN VOLUME REQUIRED (C.F.)	BASIN VOLUME PROVIDED (C.F.)	SEDIMENT TRAP RATIO	CLEANOUT DEPTH H/2 (FT.)	H (FEET)	Z (FEET)	BOTTOM ELEV.	SPILLWAY ELEV.	DAM ELEV.
1	4.10	4.10	4.84	10151	35711	84%	1.25	2.50	4.00	710.00	712.50	714.00
2	4.40	4.40	2.87	18565	63723	87%	1.25	2.50	4.00	694.00	696.50	698.00
3	2.70	2.70	2.47	11586	38824	86%	1.25	2.50	4.00	699.00	701.50	703.00
4	3.80	3.80	2.32	21132	64065	87%	1.25	2.50	4.00	720.00	722.50	724.00
5	4.90	4.90	2.93	21469	63623	87%	1.25	2.50	4.00	725.00	727.50	729.00



Greenville County
Storm Water Management

SEDIMENT TRAP

STANDARD DRAWING NO. SC–02

APPROVED BY: GREENVILLE COUNTY STORM WATER MANAGEMENT — DATE: January, 2013

SEDIMENT TRAP

NOT TO SCALE

7 / –

HDR Engineering Inc.
of the Carolinas

440 S. Church St. Suite 1000
Charlotte, NC 28202-2075
704.338.6700

ISSUE	DATE	DESCRIPTION
A	06/2016	ISSUED FOR PROPOSAL

PROJECT MANAGER	E.A.WRIGHT, P.E.
PROJECT ENGINEER	
DRAWN BY	J. GAUL
PROJECT NUMBER	06985.243581.018

SOUTH CAROLINA — HDR ENGINEERING, INC. OF THE CAROLINAS NO. C0318 — CERTIFICATE OF AUTHORIZATION

SOUTH CAROLINA — No. 18072 — ELTON ALAN WRIGHT — 6/3/16

TWIN CHIMNEYS
GREENVILLE COUNTY LANDFILL

Rough Grading U4C1
Greenville County South Carolina

ROAD DETAILS

0 1" 2"

FILENAME 07C-13.dwg
SCALE AS SHOWN

SHEET 07C-13

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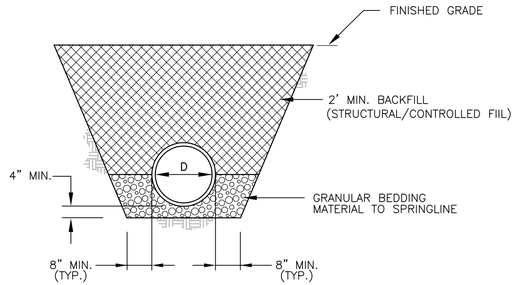
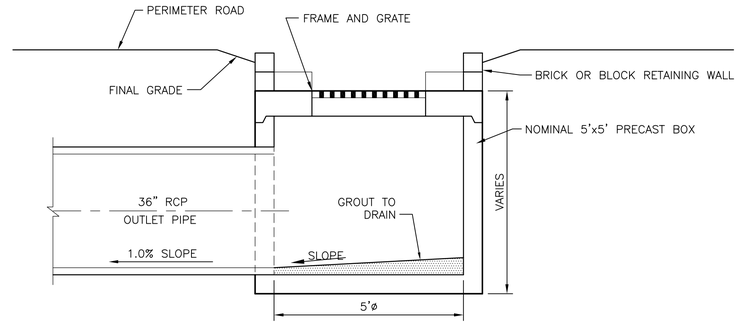


NOTE: THIS DETAIL IS FOR ALL CULVERTS AND PIPE EXCEPT IN THE SEDIMENT BASINS.

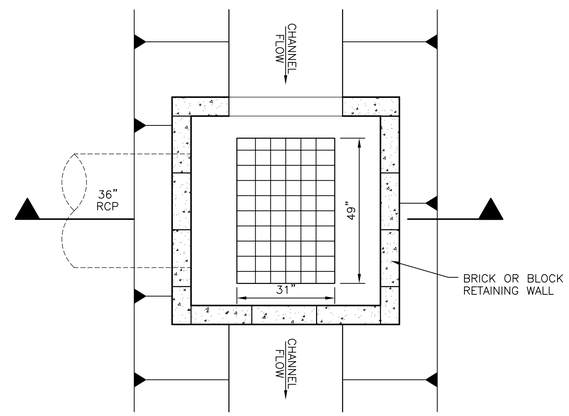
PIPE BEDDING DETAIL

NTS

1 / 07C-14



SECTION



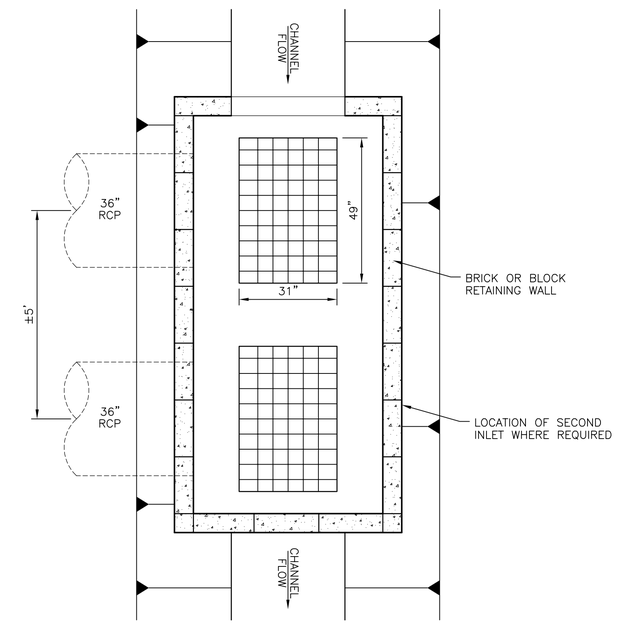
TOP VIEW

PRECAST CONCRETE SINGLE DROP INLET

NTS

2 / 07C-14

NOTE: INLETS #1, 2, 3, 6, 9, AND 10 ARE SINGLE INLETS



TOP VIEW

NOTE:
WHERE TWO DROP INLETS ARE REQUIRED THEY MAY BE CONSTRUCTED AS ONE LARGER BOX OR AS TWO SEPARATE BUT ADJACENT BOXES (WHERE WATER DOES NOT FLOW FROM ONE BOX TO THE NEXT).

PRECAST CONCRETE DOUBLE DROP INLET

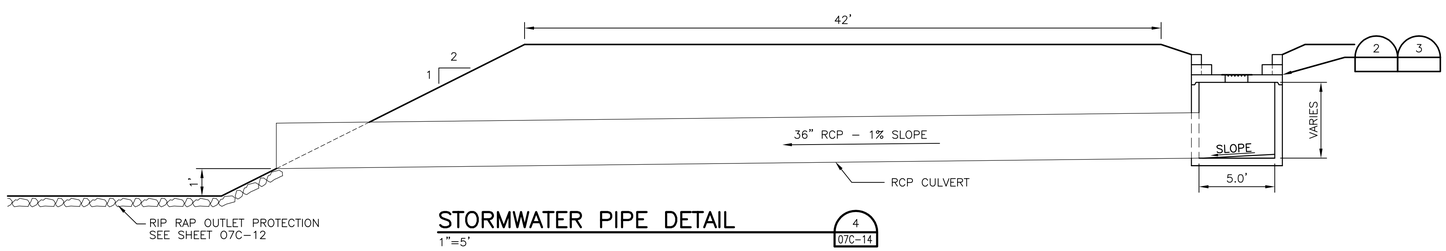
NTS

3 / 07C-14

NOTE: INLETS #4 & 5, 7 & 8, AND 11 & 12 ARE DOUBLE INLETS

STORMWATER PIPE SCHEDULE			
NUMBER	LENGTH (FT)	INV IN	INV OUT
1	66	713.21	712.75
2	58	713.26	712.68
3	63	708.71	708.08
4	60	706.63	706.03
5	60	706.59	705.99
6	70	699.22	698.52
7	67	698.67	698.00
8	67	698.65	697.98
9	70	695.22	694.52
10	70	692.59	691.89
11	68	691.41	690.73
12	68	691.41	690.73

DROP INLET SCHEDULE			
NUMBER	RIM ELEV.	NORTHING	EASTING
1	720.66	985171.85	1605659.77
2	716.67	985040.98	1605940.12
3	714.13	984954.34	1606218.79
4	710.74	984815.25	1606481.88
5	710.68	984812.19	1606485.61
6	708.33	984632.94	1606574.48
7	706.14	984436.13	1606625.65
8	706.09	984431.55	1606626.94
9	703.84	984230.32	1606680.06
10	701.56	984026.36	1606733.74
11	699.59	983844.63	1606728.53
12	699.61	983840.16	1606726.91



STORMWATER PIPE DETAIL

1"=5'

4 / 07C-14

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SOUTH CAROLINA REGISTERED PROFESSIONAL ENGINEER No. 18072 ERIC ALAN WRIGHT 6/3/16

TWIN CHIMNEYS
GREENVILLE COUNTY LANDFILL

Rough Grading U4C1
Greenville County South Carolina

DROP INLET DETAILS

0 1" 2"

FILENAME 07C-14.dwg
SCALE AS SHOWN

SHEET 07C-14