HALIFAX COUNTY C&D LANDFILL

AREA 2
PERMIT TO CONSTRUCT DRAWINGS

DECEMBER 2012

Permit No.	Scan Date	DIN
4204-CDLF-2013	**February 5, 2013**	**18903**

RECEIVED
February 4, 2013
Solid Waste Section
Asheville Regional Office

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 021608 ENGINEER PETER K. SCHMIDT 1/11/13

SEAL

REV.	DATE	DESCRIPTION

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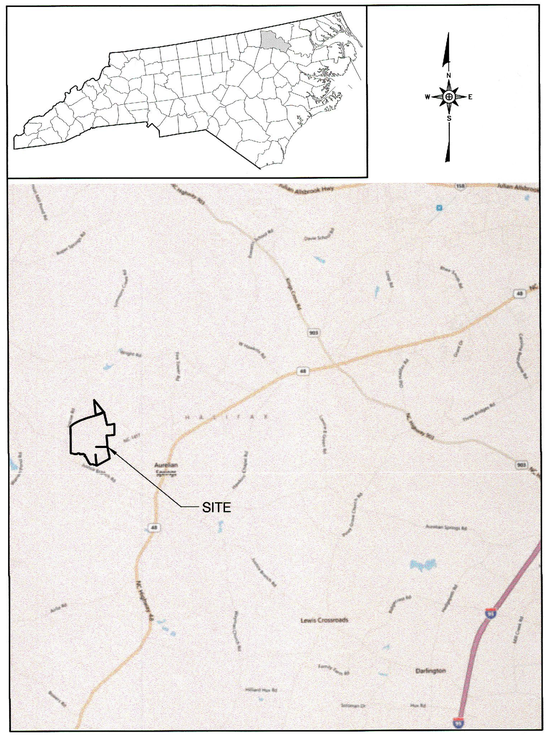


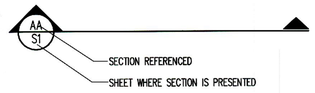
SITE LOCATION MAP
NOT TO SCALE

RIVER BASIN: TAR-PAMLICO

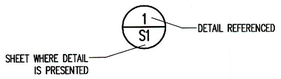
DEPARTMENT OF
PUBLIC UTILITIES

SHEET NO.	DRAWING NO.	DRAWING TITLE
1	--	TITLE – COVER SHEET
2	S1	EXISTING CONDITIONS
3	S2	AREA 2 SUBGRADE GRADING AND DRAINAGE PLAN
4	S3	AREA 2 FINAL COVER GRADING AND DRAINAGE PLAN
5	D1	DETAILS (SHEET 1 OF 5)
6	D2	DETAILS (SHEET 2 OF 5)
7	D3	DETAILS (SHEET 3 OF 5)
8	D4	DETAILS (SHEET 4 OF 5)
9	D5	DETAILS (SHEET 5 OF 5)
10	EX1	ENGINEERING CROSS SECTIONS
11	P1	PHASING PLAN

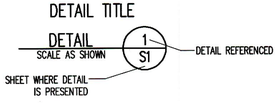
STANDARD SECTION LOCATION
CALLOUT (SHEET AND DETAIL)



STANDARD DETAIL CALLOUT



STANDARD DETAIL LABEL AND CALLOUT



STANDARD REVISION
CALLOUT (SHEET AND DETAIL)

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NC LIC. NO. C-0828 (ENGINEERING)

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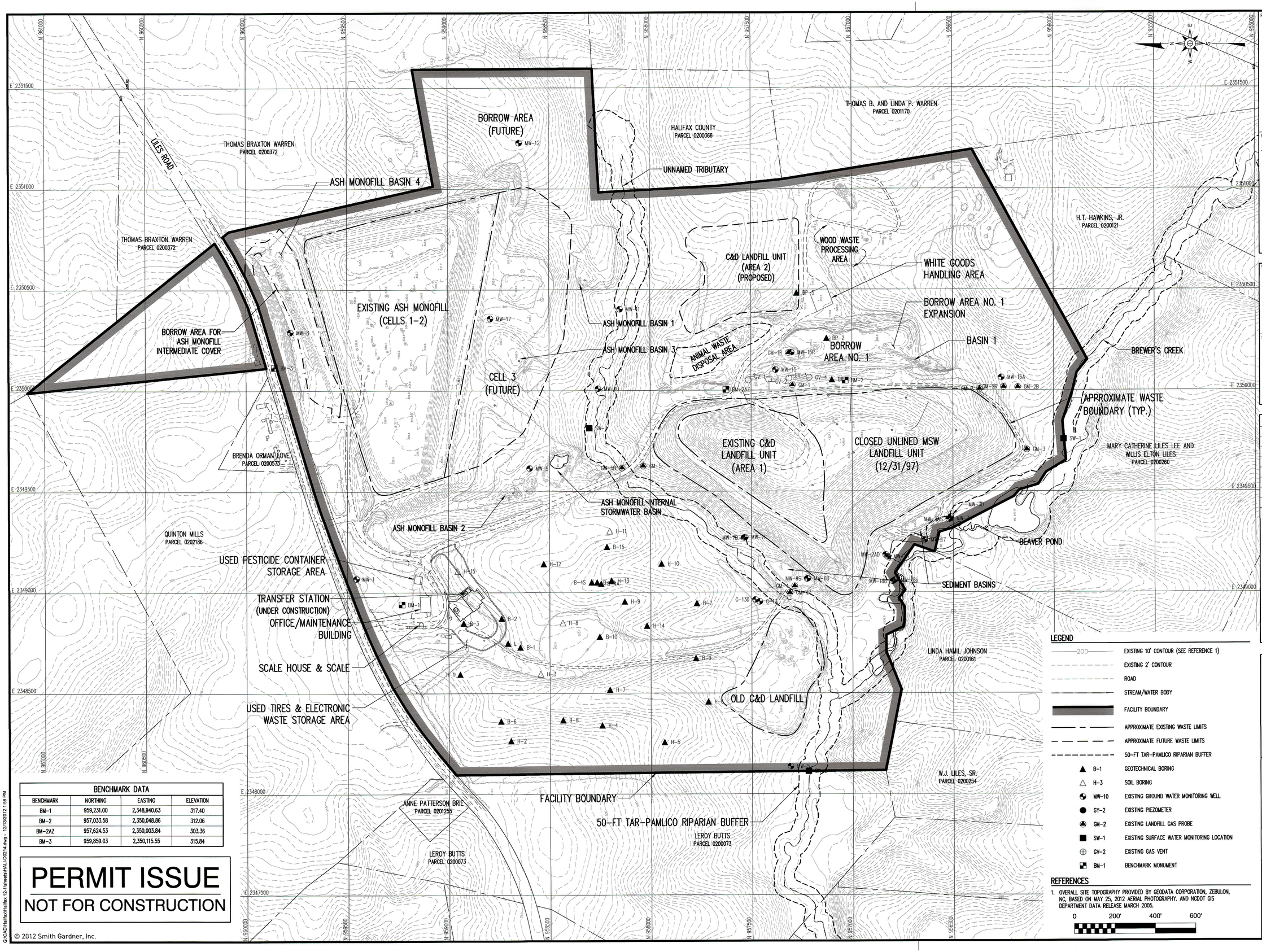

BENCHMARK DATA			
BENCHMARK	NORTHING	EASTING	ELEVATION
BM-1	959,231.00	2,348,940.63	317.40
BM-2	957,033.58	2,350,048.86	312.06
BM-2AZ	957,624.53	2,350,003.84	303.36
BM-3	959,859.03	2,350,115.55	315.84

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LEGEND

- EXISTING 10' CONTOUR (SEE REFERENCE 1)
- EXISTING 2' CONTOUR
- ROAD
- STREAM/WATER BODY
- FACILITY BOUNDARY
- APPROXIMATE EXISTING WASTE LIMITS
- APPROXIMATE FUTURE WASTE LIMITS
- 50-FT TAR-PAMLICO RIPARIAN BUFFER
- B-1 GEOTECHNICAL BORING
- H-3 SOIL BORING
- MW-10 EXISTING GROUND WATER MONITORING WELL
- GY-2 EXISTING PIEZOMETER
- GM-2 EXISTING LANDFILL GAS PROBE
- SW-1 EXISTING SURFACE WATER MONITORING LOCATION
- GV-2 EXISTING GAS VENT
- BM-1 BENCHMARK MONUMENT

REFERENCES

1. OVERALL SITE TOPOGRAPHY PROVIDED BY GEODATA CORPORATION, ZEBULON, NC, BASED ON MAY 25, 2012 AERIAL PHOTOGRAPHY. AND NCDOT GIS DEPARTMENT DATA RELEASE MARCH 2005.

0 200' 400' 600'

PREPARED FOR:

HALIFAX COUNTY NORTH CAROLINA DEPARTMENT OF PUBLIC UTILITIES

PREPARED BY:

NC LIC. NO. C-0838 (ENGINEERING)

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SEAL

NORTH CAROLINA PROFESSIONAL SEAL 021668 ENGINEER PETER K. SCHEER 12/11/13

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REV.	DATE	DESCRIPTION
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PROJECT TITLE:

HALIFAX COUNTY C&D LANDFILL AREA 2 PERMIT TO CONSTRUCT DRAWINGS

DRAWING TITLE:

EXISTING CONDITIONS

DESIGNED: P.K.S.	PROJECT NO: HALIFAX-12-1
DRAWN: C.T.J.	SCALE: AS SHOWN
APPROVED:	DATE: DEC. 2012
FILENAME: HALI-D0214	
SHEET NUMBER: 2	DRAWING NUMBER: S1

ROCK DAM 1/D2

16' MIN. ENTRANCE WIDTH

DRAINAGE CHANNEL (TYP.) 4/D2

LEVEL SPREADER (30'L x 10'W x 1'D) 3/D2

EMERGENCY SPILLWAY (20' WIDTH, GRASSED)

C&D BASIN 1

SILT FENCE (TYP.) 2/D2

STONE FILTER FENCE (30' LENGTH) 4/D1

RIP RAP OUTLET PROTECTION (TYP.) 5/D3

BAFFLES (TYP.) 2/D1

FILTER BERM (TYP.) 5/D2

EXISTING SEDIMENT TRAP

WOOD WASTE PROCESSING AREA

AREA 2 WASTE LIMITS (5.7 AC)

CONTRACT (CLEARING) LIMITS (10.0 AC)

WHITE GOODS HANDLING AREA

ANIMAL WASTE DISPOSAL AREA

BORROW AREA NO.1

200' BUFFER

VARIES

E 2351000

E 2350500

E 2350000

N 958000

N 957000

CURVE TABLE				
CURVE	DELTA	TANGENT (FT)	RADIUS (FT)	CHORD LENGTH (FT)
C1	99°27'38"	29.51	25.00	38.15
C2	87°33'38"	22.84	23.84	32.98
C3	94°42'36"	54.29	50.00	73.56
C4	68°51'41"	34.27	50.00	56.54
C5	51°54'38"	24.34	50.00	43.77
C6	46°57'54"	21.72	50.00	39.85
C7	137°29'24"	192.81	75.00	139.80

AREA 2 LIMIT OF WASTE COORDINATES		
NODE ID	NORTHING	EASTING
CP-1	957289.83	2350852.24
CP-2	957260.95	2350827.30
CP-3	957263.90	2350418.94
CP-4	957286.71	2350395.13
CP-5	957757.11	2350285.98
CP-6	957825.21	2350313.78
CP-7	957848.24	2350375.58
CP-8	957834.57	2350430.45
CP-9	957743.66	2350511.09
CP-10	957726.94	2350551.54
CP-11	957730.00	2350601.83
CP-12	957748.07	2350637.35
CP-13	957794.38	2350675.59
CP-14	957750.50	2350808.32

LEGEND

- EXISTING 10' CONTOUR
- EXISTING 2' CONTOUR
- PROPERTY LINE
- PROPOSED 10' CONTOUR (SEE NOTE 1)
- PROPOSED 2' CONTOUR (SEE NOTE 1)
- PROPOSED WASTE LIMITS
- CONTRACT (CLEARING) LIMITS
- STREAM AND RIPARIAN BUFFER
- B-1 GEOTECHNICAL BORING
- H-3 SOIL BORING
- MW-10 EXISTING GROUND WATER MONITORING WELL
- GY-2 EXISTING PIEZOMETER
- GM-2 EXISTING LANDFILL GAS PROBE
- SW-1 EXISTING SURFACE WATER MONITORING LOCATION
- GV-2 EXISTING GAS VENT
- BM-1 BENCHMARK MONUMENT
- DC-11 DRAINAGE CHANNEL NUMBER
- C-A CULVERT NUMBER
- SILT FENCE

NOTES

1. GRADES SHOWN REPRESENT TOP OF SUBGRADE.
2. GROUT OR REMOVE TEMPORARY CULVERTS PRIOR TO WASTE PLACEMENT OVER AREA AROUND INLET.

REFERENCES

1. OVERALL SITE TOPOGRAPHY PROVIDED BY GEODATA CORPORATION, ZEBULON, NC, BASED ON MAY 25, 2012 AERIAL PHOTOGRAPHY.

GENERAL EROSION AND SEDIMENTATION CONTROL NOTES

1. ALL EROSION AND SEDIMENTATION CONTROL WORK SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE NORTH CAROLINA EROSION AND SEDIMENT CONTROL PLANNING AND DESIGN MANUAL AS WELL AS APPLICABLE REGULATIONS.
2. EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE ESTABLISHED PRIOR TO, OR AS SOON AS PRACTICAL THEREAFTER, ANY LAND CLEARING OR CONSTRUCTION ACTIVITIES MAY BEGIN. THE CONTRACTOR SHALL FOLLOW THE FOLLOWING SCHEDULE:
   A. FLAG THE CLEARING LIMITS AND IDENTIFY ANY TREE PROTECTION AREAS WITH THE OWNER.
   B. INSTALL TEMPORARY GRAVEL CONSTRUCTION ENTRANCE/EXIT.
   C. CLEAR THE VEGETATED PORTION OF THE SITE AND INSTALL SILT AND STONE FILTER FENCING PRIOR TO STRIPPING/GRUBBING.
   D. CONSTRUCT THE LEVEL SPREADER, ROCK DAM, AND NORTHERN PORTION OF DC-21. DO NOT ALLOW DIVERTED FLOW FROM THE EAST TO PASS THROUGH ROCK DAM UNTIL AREA BELOW THE ROCK DAM IS STABILIZED.
   E. ONLY STRIP/GRUB AREAS REQUIRED FOR INSTALLATION OF STRUCTURES, BERMS, AND DRAINAGE CHANNELS. OTHER AREAS WILL BE STRIPPED/GRUBBED ONCE THE SEDIMENT BASIN IS COMPLETED.
   F. INSTALL SEDIMENT BASIN OUTLET STRUCTURE; OUTLET PROTECTION AND/OR CHANNEL, BERM, AND EMERGENCY SPILLWAY.
   G. PERFORM FINE GRADING AND PERMANENT VEGETATION.
   H. AFTER STABILIZATION, REMOVE SILT AND STONE FILTER FENCING AND OTHER TEMPORARY MEASURES AND INSTALL PERMANENT VEGETATION ON THE DISTURBED AREAS.
3. ALL EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE CONSTRUCTED ACCORDING TO THE CONTRACT DRAWINGS AND SPECIFICATIONS.
4. ALL EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE INSPECTED AT LEAST ONCE EVERY SEVEN CALENDAR DAYS AND WITHIN 24 HOURS AFTER ANY STORM EVENT OF GREATER THAN 0.5 INCHES OF RAIN PER 24 HOUR PERIOD AND APPROPRIATE MAINTENANCE CONDUCTED. MAINTENANCE SHALL INCLUDE, BUT NOT BE LIMITED TO:
   A. THE REMOVAL AND SATISFACTORY DISPOSAL OF TRAPPED OR DEPOSITED SEDIMENTS FROM BASINS, TRAPS, BARRIERS, FILTERS, AND/OR DRAINAGE FEATURES/DEVICES;
   B. REPLACEMENT OF FILTER FABRICS USED FOR SILT FENCES UPON LOSS OF EFFICIENCY; AND
   C. REPLACEMENT OF ANY OTHER COMPONENTS WHICH ARE DAMAGED OR CANNOT SERVE THE INTENDED USE.
5. SOIL STABILIZATION SHALL BE ACHIEVED ON ANY AREA OF THE SITE WHERE LAND-DISTURBING ACTIVITIES HAVE TEMPORARILY OR PERMANENTLY CEASED ACCORDING TO THE FOLLOWING SCHEDULE:
   A. ALL PERIMETER DIKES, SWALES, DITCHES, PERIMETER SLOPES, AND ALL SLOPES STEEPER THAN 3 HORIZONTAL TO 1 VERTICAL (3H:1V) 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.
   B. 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.
   C. BASINS, TRAPS, CHANNELS, AND DIVERSIONS SHALL BE LINED WITH ANCHORED ROLLED EROSION PRODUCTS OR RIP RAP AND/OR VEGETATED UPON CONSTRUCTION.

0 50' 100' 150'

CULVERT SCHEDULE							
NO.	NO. OF PIPES	SIZE/TYPE	LENGTH (FEET)	SLOPE (%)	INV. IN (FEET)	INV. OUT (FEET)	REMARKS
C-A	1	24" CPE (TYPE C) W/ FES (BOTH ENDS)	80	10.0	283.0	275.0	OUTLETS IN C&D BASIN 1
C-B	1	24" CPE (TYPE C) W/ FES (BOTH ENDS)	90	7.8	281.0	274.0	OUTLETS IN C&D BASIN 1

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PREPARED FOR:

HALIFAX COUNTY
NORTH CAROLINA
DEPARTMENT OF
PUBLIC UTILITIES

PREPARED BY:

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NORTH CAROLINA PROFESSIONAL SEAL 021688 ENGINEER PETER K. SCHEER 1/11/13

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PROJECT TITLE:

HALIFAX COUNTY
C&D LANDFILL
AREA 2
PERMIT TO CONSTRUCT
DRAWINGS

DRAWING TITLE:

AREA 2
SUBGRADE GRADING
AND DRAINAGE PLAN

DESIGNED:	P.K.S.	PROJECT NO:	HALIFAX-12-1
DRAWN:	J.A.L.	SCALE:	AS SHOWN
APPROVED:		DATE:	DEC. 2012
FILENAME:	HALI-D0215		
SHEET NUMBER:	3	DRAWING NUMBER:	S2

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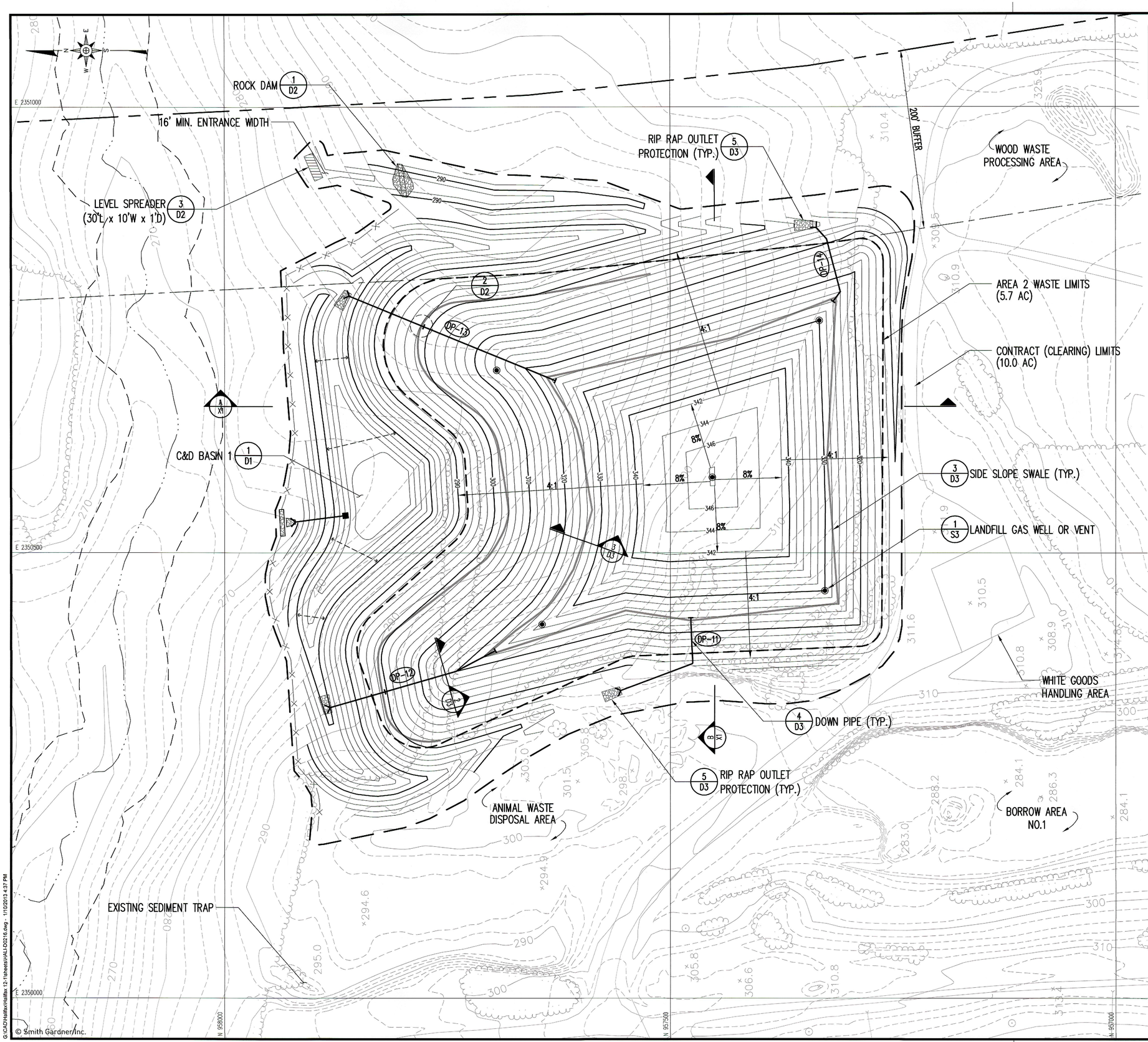

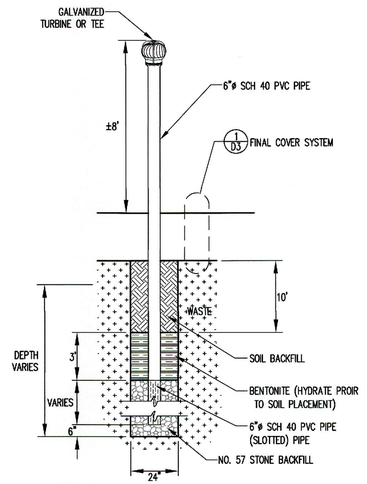

NOTES:
1. AS AN ALTERNITIVE TO WELLS, GAS COLLECTION TRENCHES MAY BE INSTALLED JUST BELOW THE FINAL COVER. TRENCHES SHALL CONSIST OF PERFORATED PIPE BEDDED IN NO. 57 STONE AND WRAPPED IN A TYPE GT-S GEOTEXTILE. TRENCHES SHALL HAVE NOMINAL SIZE OF 6' WIDE x 20' LONG x 2' DEEP.

TYPICAL LANDFILL GAS WELL
DETAIL 1/S3 NOT TO SCALE

DOWN PIPE SCHEDULE	
DOWN PIPE	DIAMETER (IN)
DP-11	18"
DP-12	18"
DP-13	24"
DP-14	18"

LEGEND
- 200 — EXISTING 10' CONTOUR
- EXISTING 2' CONTOUR
- PROPERTY LINE
- PROPOSED 10' CONTOUR (SEE NOTE 1)
- PROPOSED 2' CONTOUR (SEE NOTE 1)
- PROPOSED WASTE LIMITS
- CONTRACT (CLEARING) LIMITS
- STREAM AND RIPARIAN BUFFER
- DP-1 DOWN PIPE NUMBER
- SIDE SLOPE SWALE
- SILT FENCE
- LFG WELL OR VENT

NOTES
1. GRADES SHOWN INSIDE AREA 2 WASTE LIMITS REPRESENT TOP OF FINAL COVER ELEVATIONS.

REFERENCES
1. OVERALL SITE TOPOGRAPHY PROVIDED BY GEODATA CORPORATION, ZEBULON, NC, BASED ON MAY 25, 2012 AERIAL PHOTOGRAPHY.

0 50' 100' 150'

PREPARED FOR:

HALIFAX COUNTY
NORTH CAROLINA
DEPARTMENT OF
PUBLIC UTILITIES

PREPARED BY:

NC LIC. NO. C-0828 (ENGINEERING)

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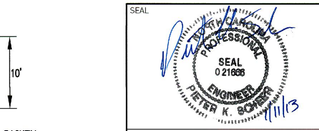

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PROJECT TITLE:

HALIFAX COUNTY
C&D LANDFILL
AREA 2
PERMIT TO CONSTRUCT
DRAWINGS

DRAWING TITLE:

AREA 2
FINAL COVER
GRADING AND
DRAINAGE PLAN

DESIGNED:	PROJECT NO:
P.K.S.	HALIFAX-12-1
DRAWN: J.A.L.	SCALE: AS SHOWN
APPROVED:	DATE: DEC. 2012
FILENAME: HALI-D0216	
SHEET NUMBER: 4	DRAWING NUMBER: S3

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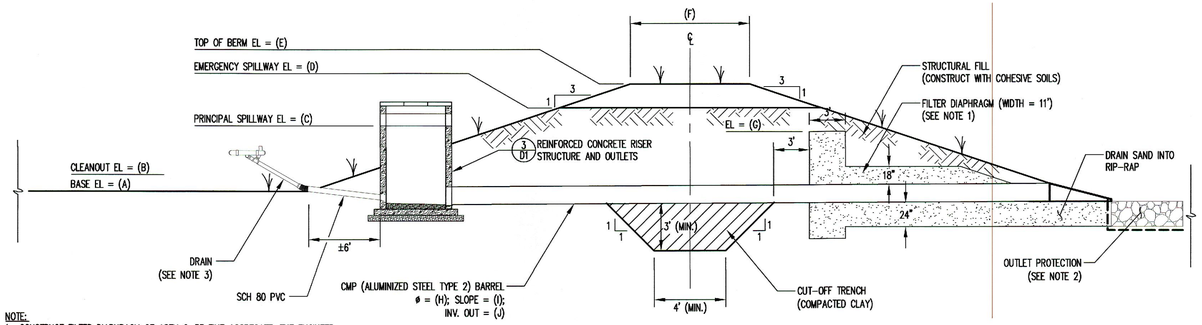
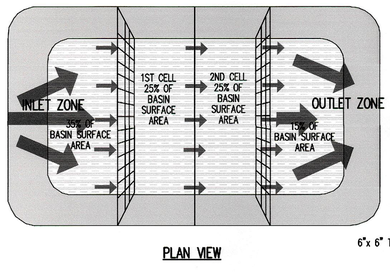


NOTE:
1. CONSTRUCT FILTER DIAPHRAGM OF ASTM C-33 FINE AGGREGATE. THE ENGINEER SHALL VERIFY COMPATIBILITY OF FINE AGGREGATE AND MATERIAL TO BE USED AS ADJACENT STRUCTURAL FILL PRIOR TO CONSTRUCTION. ALTERNATIVELY, USE TWO (2) ANTI-SEEPAGE COLLARS AS DIRECTED BY THE ENGINEER.
2. OUTLET PROTECTION TO CONSIST OF RIP RAP APRON.
3. DRAIN TO CONSIST OF FAIRCLOTH SKIMMER (3.0"ϕ ORIFICE) AND ADEQUATELY SIZED OUTLET PIPE. PROVIDE 6'x6'x1' THICK RIP RAP PAD AT BOTTOM OF BASIN FOR SKIMMER TO REST ON WHEN BASIN IS DRY. SELECTED SKIMMER SHALL PROVIDE A 3 TO 5 DAY DRAWDOWN BASED ON THE APPROXIMATE STORAGE VOLUME OF C&D BASIN 1 (40,000 CF).

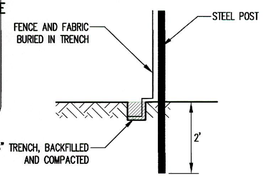
EXTENDED DRY DETENTION BASIN SCHEDULE										
BASIN NO.	A	B	C	D	E	F	G	H	I	J
C&D 1	272.0'	274.5'	276.0'	278.0'	280.0'	10'	277.0'	18"	2.7%	270.0'

TYPICAL EXTENDED DRY DETENTION BASIN CROSS SECTION

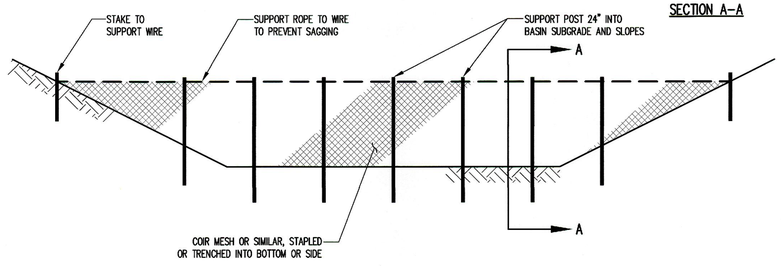
DETAIL 1/D1 — NOT TO SCALE



PLAN VIEW



SECTION A-A

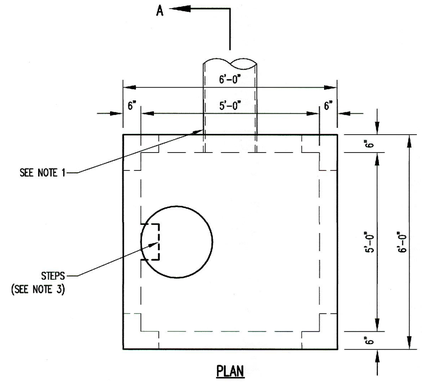


ELEVATION

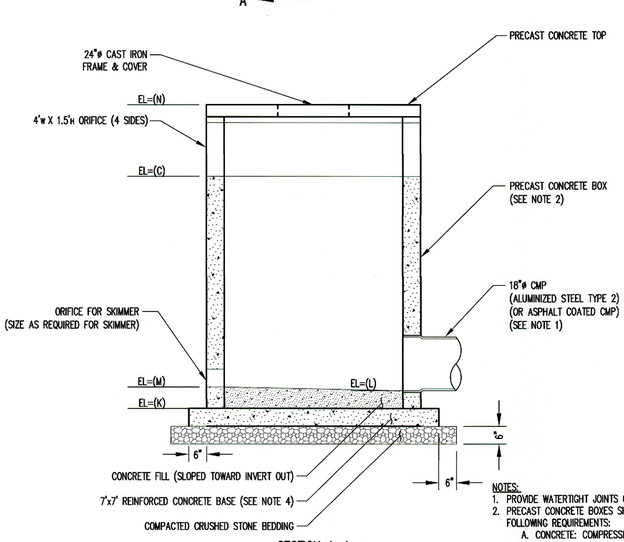
BAFFLES

DETAIL 2/D1 — NOT TO SCALE

NOTES:
1. BAFFLE MATERIAL SHOULD BE SECURED AT THE BOTTOM AND SIDES USING STAPLES OR BY TRENCHING AS FOR SILT FENCE.
2. MOST OF THE SEDIMENT WILL ACCUMULATE IN THE FIRST BAY, WHICH SHOULD BE READILY ACCESSIBLE FOR MAINTENANCE.
3. PROVIDE 3 BAFFLES (USE TWO IF LESS THAN 20 FEET IN LENGTH).
4. BAFFLE SHALL BE 700 g/m² COIR EROSION BLANKET.
5. TOPS OF BAFFLES SHOULD BE 2 INCHES LOWER THAN THE TOP OF THE BERMS.
6. INSPECT BAFFLES FOR REPAIR ONCE A WEEK AND AFTER EACH RAINFALL.



PLAN



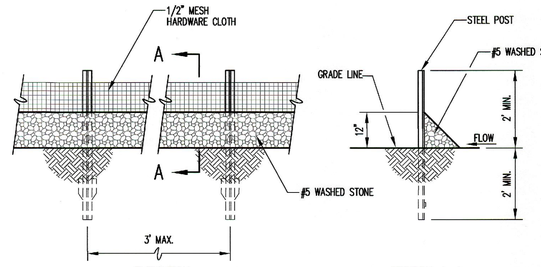
SECTION A-A

NOTES:
1. PROVIDE WATERTIGHT JOINTS ON ALL PIPING.
2. PRECAST CONCRETE BOXES SHALL CONFORM TO THE FOLLOWING REQUIREMENTS:
   A. CONCRETE: COMPRESSIVE STRENGTH 4000 PSI
   B. REINFORCING: ASTM A-615, GRADE 60
   C. MEETS H-20 LOADING.
3. PROVIDE STEPS FOR DROP INLETS WITH H>4.5'. STEPS SHALL HAVE A 16" SPACING THE FULL HEIGHT OF THE DROP INLET. START FIRST STEP 6" BELOW TOP.
4. BASE MUST BE PHYSICALLY ATTACHED OR INTEGRATED INTO THE DESIGN OF THE RISER STRUCTURE.

RISER SCHEDULE					
BASIN NO.	C	K	L	M	N
C&D 1	276.0'	271.0'	271.5'	271.6'	278.0'

EXTENDED DRY BASIN RISER

DETAIL 3/D1 — NOT TO SCALE



ELEVATION — SECTION A-A

STONE FILTER FENCE

DETAIL 4/D1 — NOT TO SCALE

PERMIT ISSUE
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PREPARED FOR:
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PREPARED BY:
NC LIC. NO. C-0828 (ENGINEERING)
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NORTH CAROLINA PROFESSIONAL SEAL 021688 ENGINEER PIETER K. SCHEER
1/11/13

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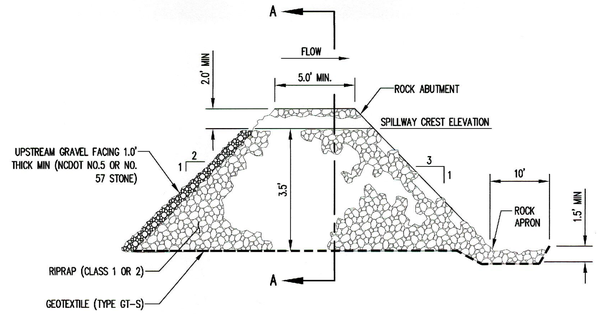
PROJECT TITLE:
HALIFAX COUNTY
C&D LANDFILL
AREA 2
PERMIT TO CONSTRUCT
DRAWINGS

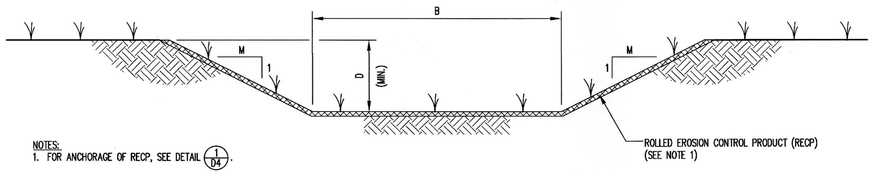
DRAWING TITLE:
DETAILS
(SHEET 1 OF 5)

DESIGNED: P.K.S.	PROJECT NO.: HALIFAX-12-1
DRAWN: J.A.L.	SCALE: AS SHOWN
APPROVED:	DATE: DEC. 2012
FILENAME: HALI-D0249	
SHEET NUMBER: 5	DRAWING NUMBER: D1



SECTION B–B

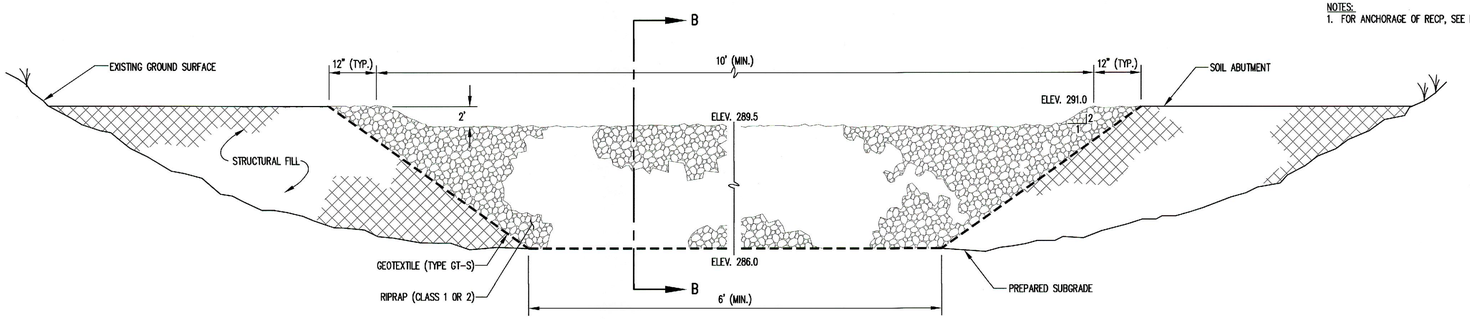
DRAINAGE CHANNEL SCHEDULE				
DRAINAGE CHANNEL	LINING	B	D	M
DC-11	TRM*	4.0	2.0	3
DC-12A	ECB*	0.0	2.0	3
DC-12B	TRM	4.0	2.0	3
DC-21	TRM	6.0	2.0	3
*ECB = EROSION CONTROL BLANKET / TRM = TURF REINFORCEMENT MATTING				



NOTES:
1. FOR ANCHORAGE OF RECP, SEE DETAIL 1/D4.

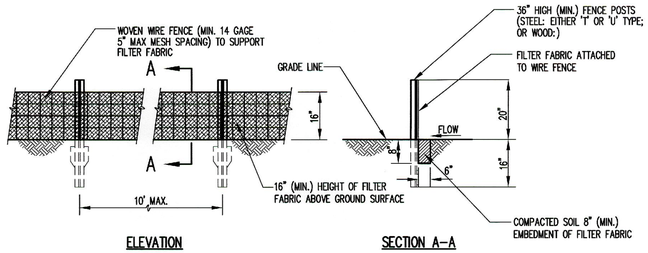
RECP LINED CHANNELS

DRAINAGE CHANNEL DETAIL 4/D2 NOT TO SCALE



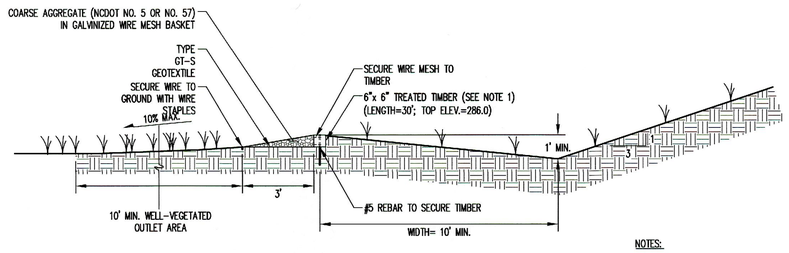
SECTION A–A

ROCK DAM DETAIL 1/D2 NOT TO SCALE



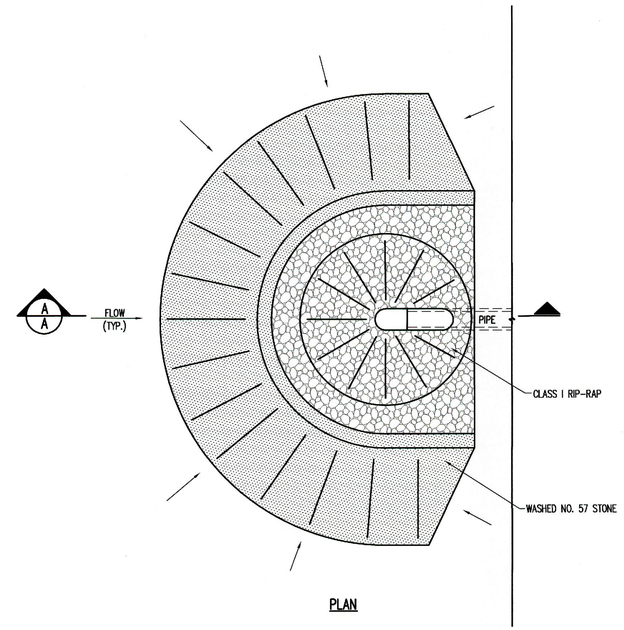
ELEVATION SECTION A–A

SILT FENCE DETAIL 2/D2 NOT TO SCALE

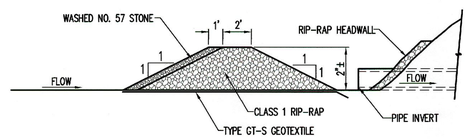


NOTES:
1. TOP OF TIMBER MUST BE LEVEL.

LEVEL SPREADER DETAIL 3/D2 NOT TO SCALE



PLAN



SECTION A–A

FILTER–BERM DETAIL 5/D2 NOT TO SCALE

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PREPARED FOR:

HALIFAX COUNTY
NORTH CAROLINA
DEPARTMENT OF
PUBLIC UTILITIES

PREPARED BY:

NC LIC. NO. C-0828 (ENGINEERING)
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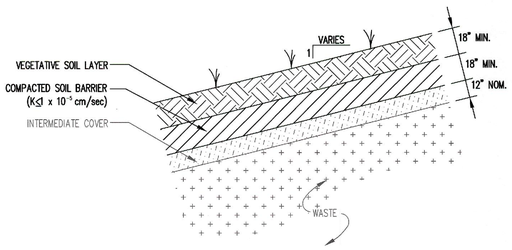
HALIFAX COUNTY
C&D LANDFILL
AREA 2
PERMIT TO CONSTRUCT
DRAWINGS

DRAWING TITLE:

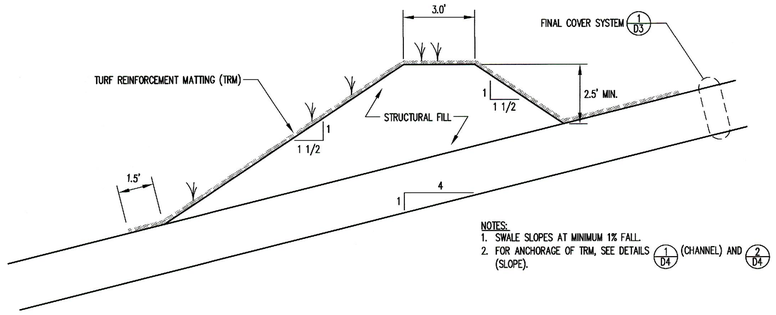
DETAILS
(SHEET 2 OF 5)

DESIGNED: P.K.S.	PROJECT NO: HALIFAX-12-1
DRAWN: J.A.L.	SCALE: AS SHOWN
APPROVED:	DATE: DEC. 2012
FILENAME: HALI-D0217	
SHEET NUMBER: 6	DRAWING NUMBER: D2



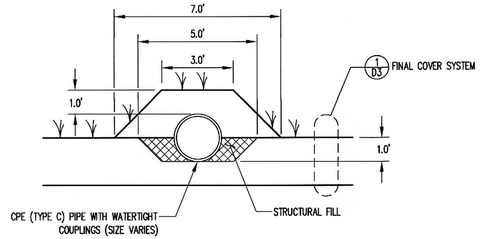
FINAL COVER SYSTEM

DETAIL NOT TO SCALE 1 / D3



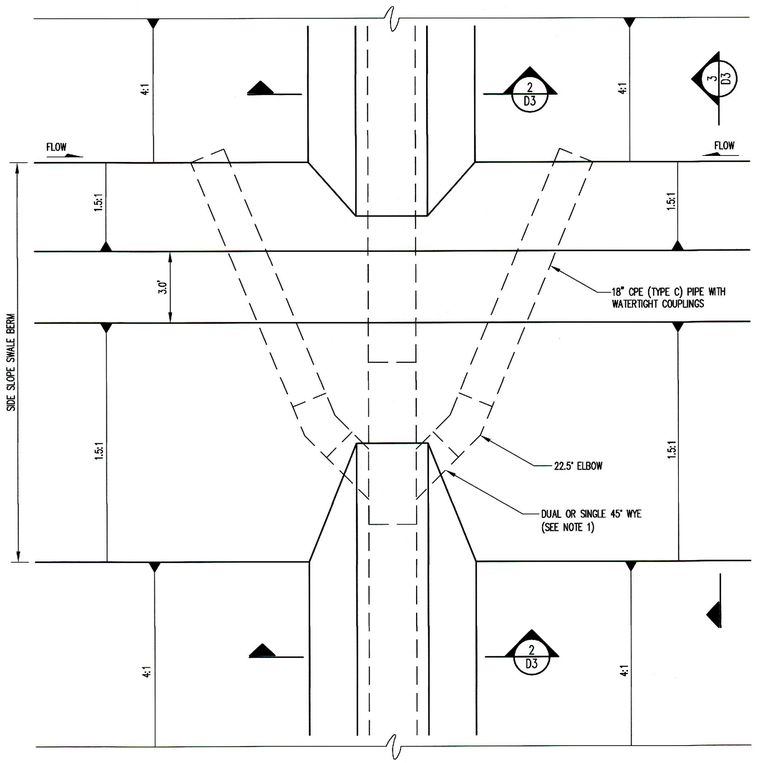
FINAL COVER SIDE SLOPE SWALE

DETAIL NOT TO SCALE 3 / D3



DOWNPIPE ON SLOPE

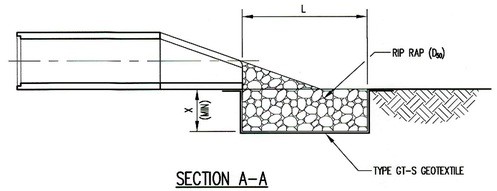
DETAIL NOT TO SCALE 2 / D3



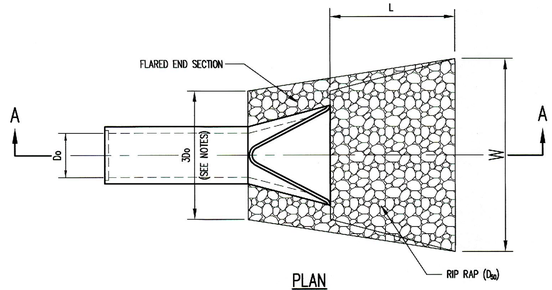
NOTES:
1. DEPENDING ON LOCATION AND SIZE OF DOWN PIPE, WYE FITTING MAY BE SINGLE OR DUAL AND MAY BE A REDUCING WYE.

DOWNPIPE

DETAIL NOT TO SCALE 4 / D3



SECTION A-A



PLAN

RIPRAP OUTLET PROTECTION
(OUTLET TO FLAT AREA)

DETAIL NOT TO SCALE 5 / D3

NOTE:
1. D50 REFERS TO THE MINIMUM REQUIRED AVERAGE STONE SIZE
2. FOR MORE THAN ONE PIPE, EXTEND RIP RAP 1.0' MIN. BEYOND OUTSIDE EDGES OF PIPES.
3. WHEN OUTLETING INTO DEFINED CHANNEL, CONTINUE RIP RAP TO TOP OF BANK.

RIP RAP OUTLET PROTECTION SCHEDULE

PIPE	Do (INCHES)	L (FEET)	W (FEET)	D50 (INCHES)	X (FEET)
C-A	24	18	10	6	1.0
C-B	24	18	10	6	1.0
C&D BASIN 1 BARREL	18	14	16	6	1.0
DP-11	18	14	16	6	1.0
DP-12	18	14	16	6	1.0
DP-13	24	14	16	6	1.0
DP-14	18	14	16	6	1.0

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PREPARED BY:

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AREA 2
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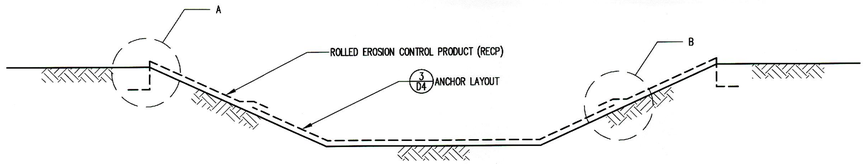
DRAWINGS

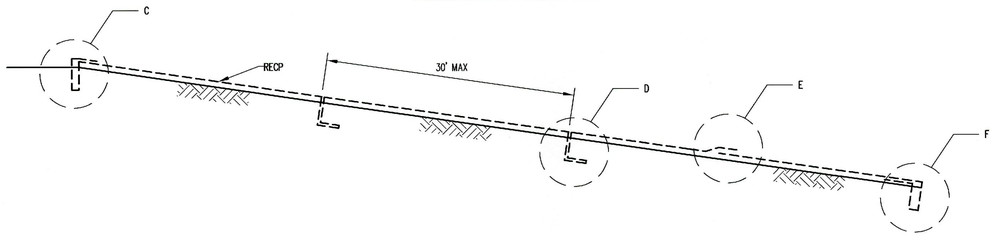
DRAWING TITLE:

DETAILS
(SHEET 3 OF 5)

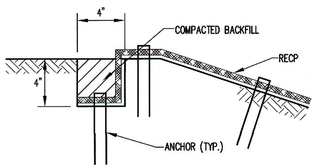
DESIGNED: P.K.S.	PROJECT NO.: HALIFAX-12-1
DRAWN: J.A.L.	SCALE: AS SHOWN
APPROVED:	DATE: DEC. 2012
FILENAME: HALI-D0219	
SHEET NUMBER: 7	DRAWING NUMBER: D3



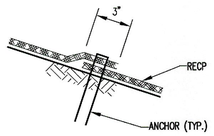
TYPICAL CHANNEL CROSS SECTION



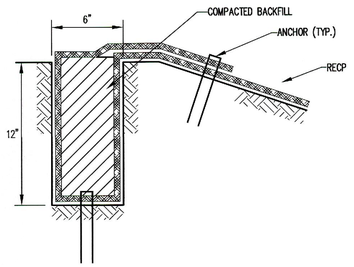
TYPICAL CHANNEL PROFILE



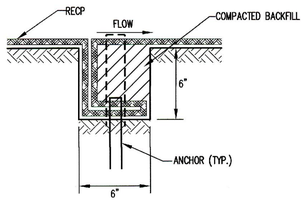
A. LONGITUDINAL ANCHOR TRENCH



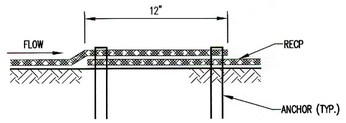
B. OVERLAP AT ADJACENT EDGES



C. UPSTREAM TERMINAL ANCHOR TRENCH



D. INTERMITTENT CHECK SLOT

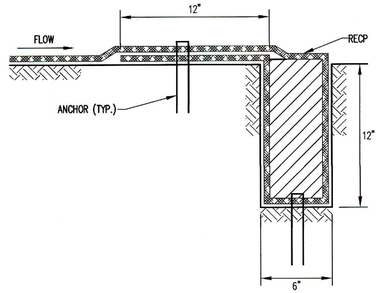


E. OVERLAP AT ROLL ENDS

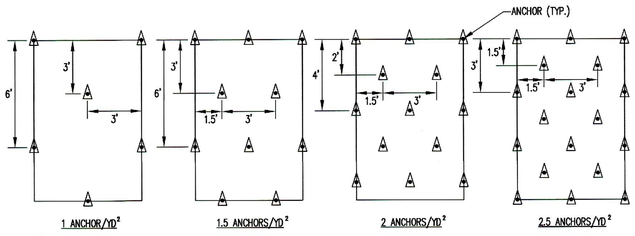
NOTES:
1. PLACE ANCHORS AT ANCHOR TRENCHES, OVERLAPS, AND CHECK SLOTS ON 1 FOOT CENTERS. IF APPLICABLE, STAGGER ANCHOR SPACING BETWEEN MULTIPLE ROWS OF ANCHORS.

INSTALLATION OF ROLLED EROSION CONTROL PRODUCTS (CHANNELS)

DETAIL 1/D4 NOT TO SCALE

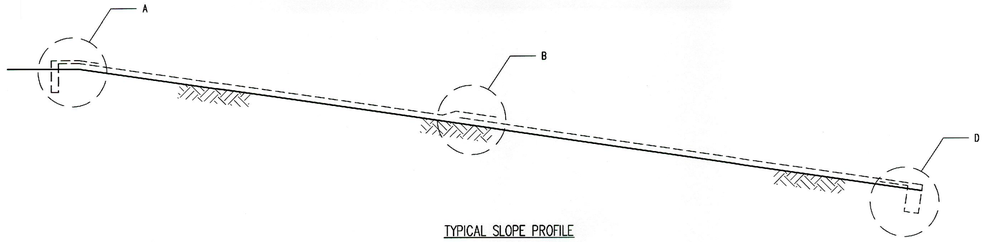


F. DOWNSTRAM TERMINAL ANCHOR TRENCH

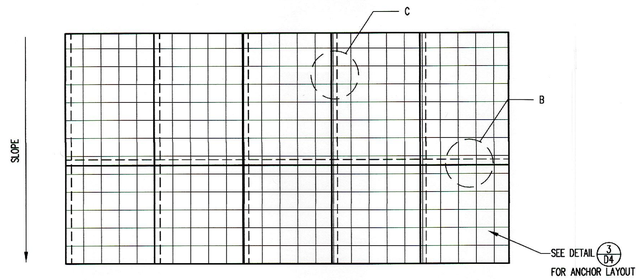


ANCHOR LAYOUT

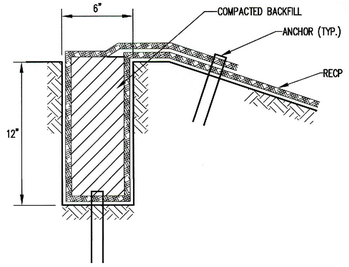
DETAIL 3/D4 NOT TO SCALE



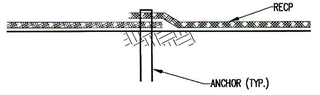
TYPICAL SLOPE PROFILE



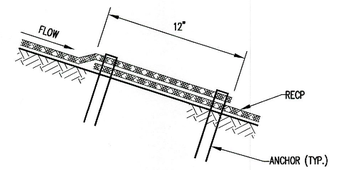
TYPICAL SLOPE PLAN VIEW



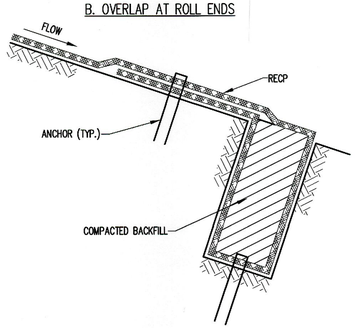
A. UPSLOPE TERMINAL ANCHOR TRENCH



C. OVERLAP AT ADJACENT EDGES



B. OVERLAP AT ROLL ENDS



D. DOWNSLOPE TERMINAL ANCHOR TRENCH

NOTES:
1. PLACE ANCHORS AT ANCHOR TRENCHES, OVERLAPS, AND CHECK SLOTS ON 1 FOOT CENTERS. IF APPLICABLE, STAGGER ANCHOR SPACING BETWEEN MULTIPLE ROWS OF ANCHORS.

INSTALLATION OF ROLLED EROSION CONTROL PRODUCTS (SLOPES)

DETAIL 2/D4 NOT TO SCALE

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PREPARED FOR:

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PUBLIC UTILITIES

PREPARED BY:

NC LIC. NO. C-0826 (ENGINEERING)
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NORTH CAROLINA PROFESSIONAL SEAL 021668 ENGINEER PETER K. SCHEER 1/11/13

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HALIFAX COUNTY
C&D LANDFILL
AREA 2
PERMIT TO CONSTRUCT
DRAWINGS

DRAWING TITLE:

DETAILS
(SHEET 4 OF 5)

DESIGNED:	PROJECT NO:
P.K.S.	HALIFAX-12-1
DRAWN:	SCALE:
J.A.L.	AS SHOWN
APPROVED:	DATE:
	DEC. 2012
FILENAME:	
HALI-D0218	
SHEET NUMBER:	DRAWING NUMBER:
8	D4

SEEDING SCHEDULE		
MATERIAL	SEED TYPE	APPLICATION RATE
LIME	–	4,000 LBS/ACRE
FERTILIZER (10-10-10)	–	1,000 LBS/ACRE
SEED PERMANENT (SEE NOTE 4)	 KENTUCKY 31 TALL FESCUE PENSACOLA BAHIAGRASS SERICEA LESPEDEZA KOBE LESPEDEZA SEASONAL NURSE CROP	 250 LBS/ACRE 50 LBS/ACRE 30 LBS/ACRE 10 LBS/ACRE SEE NOTE 2
TEMPORARY	SEASONAL NURSE CROP	SEE NOTE 2
MULCH	–	4,000–5,000 LBS/ACRE
BINDER	–	400 GALLONS/ACRE

NOTES:
1. APPLICATION RATES AND/OR CHEMICAL ANALYSIS SHALL BE CONFIRMED OR ESTABLISHED BY A SOIL TEST.
2. USE SEASONAL NURSE CROP IN ACCORDANCE WITH SEEDING DATES AS STATED BELOW:
   APRIL 15 – AUGUST 15 — 10 LBS/ACRE GERMAN MILLET OR 15 LBS/ACRE SUDANGRASS
   AUGUST 16 – APRIL 14 — 25 LBS/ACRE RYE (GRAIN)
3. FROM SEPTEMBER 1 – MARCH 1, USE UNSCARIFIED SERICEA SEED.
4. REMOVE BAHIAGRASS IN AREAS TO BE MAINTAINED AS LAWN.

SPECIFICATIONS:

1. GENERAL:

THE CONTRACTOR SHALL ESTABLISH A SMOOTH, HEALTHY, UNIFORM, CLOSE STAND OF GRASS FROM THE SPECIFIED SEED. PRIOR TO REVEGETATION, THE CONTRACTOR SHALL ADEQUATELY TEST THE SOILS TO BE REVEGETATED TO ENSURE THE ADEQUACY OF THE SPECIFIED REQUIREMENTS. ANY MODIFICATIONS TO THESE REQUIREMENTS DEEMED NECESSARY AFTER THE REVIEW OF SOIL TEST RESULTS, SHALL BE AT THE CONTRACTOR'S SOLE EXPENSE. THE ENGINEER WILL PERFORM THE OBSERVATIONS TO DETERMINE WHEN SUCCESSFUL REVEGETATION IS ACHIEVED.

2. SOIL PREPARATION:

A. LIMIT PREPARATION TO AREAS WHICH WILL BE PLANTED SOON AFTER PREPARATION.
B. LOOSEN SURFACE TO MINIMUM DEPTH OF FOUR (4) INCHES.
C. REMOVE STONES, STICKS, ROOTS, RUBBISH AND OTHER EXTRANEOUS MATTER OVER THREE (3) INCHES IN ANY DIMENSION.
D. SPREAD LIME UNIFORMLY OVER DESIGNATED AREAS AT THE RATE SPECIFIED IN THE SEEDING SCHEDULE.
E. AFTER APPLICATION OF LIME, PRIOR TO APPLYING FERTILIZER, LOOSEN AREAS TO BE SEEDED WITH DOUBLE DISC OR OTHER SUITABLE DEVICE IF SOIL HAS BECOME HARD OR COMPACTED. CORRECT ANY SURFACE IRREGULARITIES IN ORDER TO PREVENT POCKET OR LOW AREAS WHICH WILL ALLOW WATER TO STAND.
F. DISTRIBUTE FERTILIZER UNIFORMLY OVER AREAS TO BE SEEDED AT THE RATE SPECIFIED IN THE SEEDING SCHEDULE.
   (1) USE SUITABLE DISTRIBUTOR.
   (2) INCORPORATE FERTILIZER INTO SOIL TO DEPTH OF A LEAST TWO (2) INCHES.
   (3) REMOVE STONES OR OTHER SUBSTANCES WHICH WILL INTERFERE WITH TURF DEVELOPMENT OR SUBSEQUENT MOWING.
G. GRADE SEEDED AREAS TO SMOOTH, EVEN SURFACE WITH LOOSE, UNIFORMLY FINE TEXTURE.
   (1) ROLL AND RAKE, REMOVE RIDGES AND FILL DEPRESSIONS, AS REQUIRED TO MEET FINISH GRADES.
   (2) FINE GRADE JUST PRIOR TO PLANTING.

3. SEEDING:

A. USE APPROVED MECHANICAL POWER DRIVEN DRILLS OR SEEDERS, MECHANICAL HAND SEEDERS, OR OTHER APPROVED EQUIPMENT.
B. DISTRIBUTE SEED EVENLY OVER ENTIRE AREA AT THE RATE SPECIFIED IN THE SEEDING SCHEDULE.
C. STOP WORK WHEN WORK EXTENDS BEYOND MOST FAVORABLE PLANTING SEASON FOR SPECIES DESIGNATED, OR WHEN SATISFACTORY RESULTS CANNOT BE OBTAINED BECAUSE OF DROUGHT, HIGH WINDS, EXCESSIVE MOISTURE, OR OTHER FACTORS.
D. RESUME WORK ONLY WHEN FAVORABLE CONDITION DEVELOPS, OR AS DIRECTED BY THE ENGINEER.
E. LIGHTLY RAKE SEED INTO SOIL FOLLOWED BY LIGHT ROLLING OR CULTIPACKING.
F. IMMEDIATELY PROTECT SEEDED AREAS AGAINST EROSION BY MULCHING OR PLACING ROLLED EROSION CONTROL PRODUCTS, WHERE APPLICABLE.
   (1) SPREAD MULCH IN A CONTINUOUS BLANKET AT THE RATE SPECIFIED IN THE SEEDING SCHEDULE.
   (2) IMMEDIATELY FOLLOWING SPREADING MULCH, SECURE WITH EVENLY DISTRIBUTED BINDER AT THE RATE SPECIFIED IN THE SEEDING SCHEDULE.
   (3) FOR SLOPES NOT STEEPER THAN 3H:1V AND AS AN OPTION TO USING BINDER TO SECURE MULCH, USE A MULCH ANCHORING TOOL OPERATED ALONG THE CONTOUR OF THE SLOPE.

4. MAINTENANCE:

THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING ALL SEEDED AREAS THROUGH THE END OF HIS WARRANTY PERIOD. THE CONTRACTOR SHALL PROVIDE, AT HIS EXPENSE, PROTECTION OF ALL SEEDED AREAS AGAINST DAMAGE AT ALL TIMES UNTIL ACCEPTANCE OF THE WORK. MAINTENANCE SHALL INCLUDE, BUT NOT BE LIMITED TO, THE FOLLOWING ITEMS:
A. REGRADE AND REVEGETATE ALL ERODED AREAS UNTIL ADEQUATELY STABILIZED BY GRASS.
B. REMULCH WITH NEW MULCH IN AREAS WHERE MULCH HAS BEEN DISTURBED BY WIND OR MAINTENANCE OPERATIONS SUFFICIENTLY TO NULLIFY ITS PURPOSE. ANCHOR AS REQUIRED TO PREVENT DISPLACEMENT.
C. REPLANT BARE AREAS USING SAME MATERIALS SPECIFIED.

VEGETATIVE STABILIZATION

DETAIL 1 / EC2
NOT TO SCALE

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PREPARED FOR:

HALIFAX COUNTY
NORTH CAROLINA
DEPARTMENT OF
PUBLIC UTILITIES

PREPARED BY:

NC LIC. NO. C-0828 (ENGINEERING)

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14 N. Boylan Avenue, Raleigh NC 27603 | 919.828.0577

SEAL

NORTH CAROLINA PROFESSIONAL SEAL 021695 ENGINEER PETER K. SCHERER
11/13

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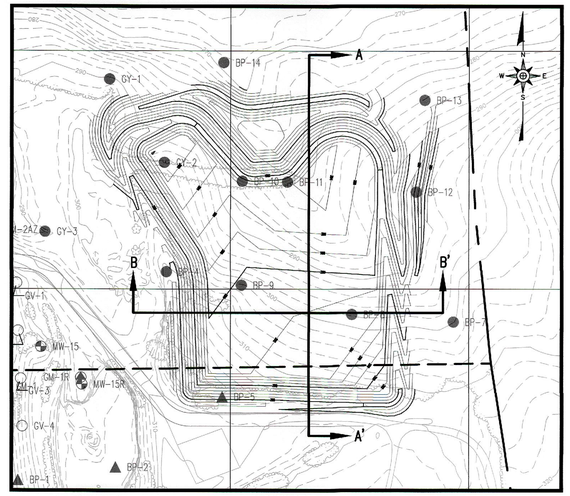
PROJECT TITLE:

HALIFAX COUNTY
C&D LANDFILL
AREA 2
PERMIT TO CONSTRUCT
DRAWINGS

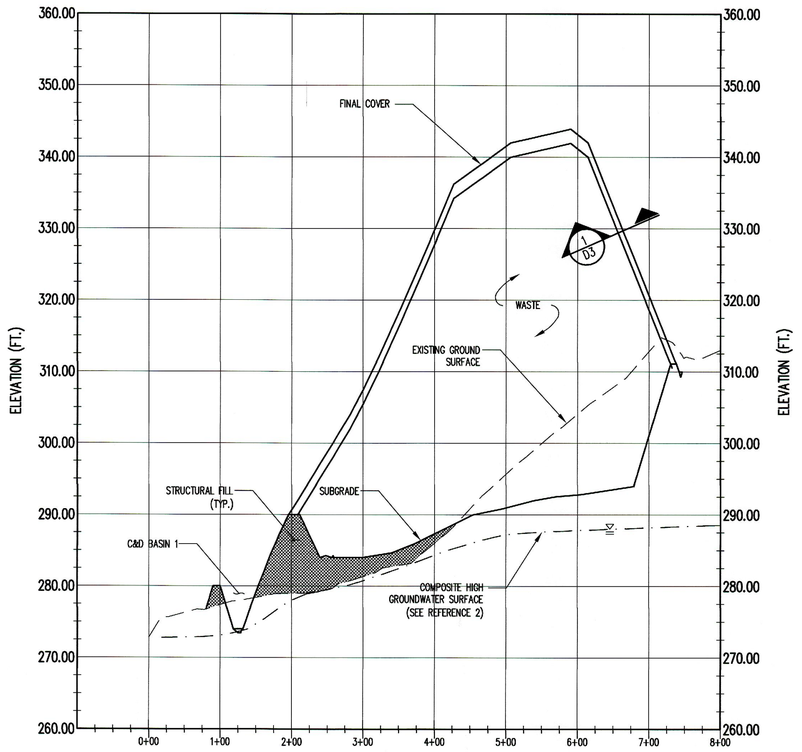
DRAWING TITLE:

DETAILS
(SHEET 5 OF 5)

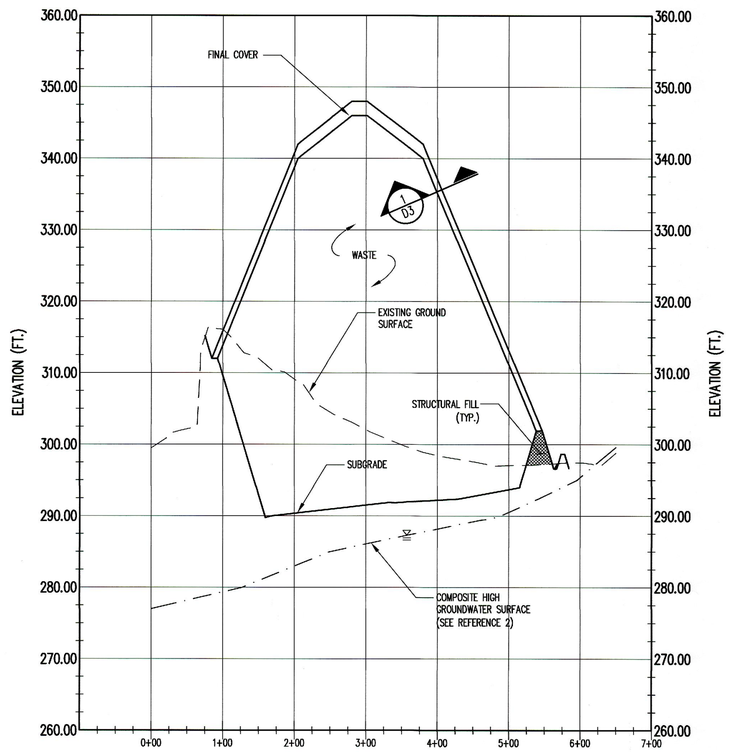
DESIGNED: P.K.S.	PROJECT NO.: HALIFAX-12-1
DRAWN: W.R.B.	SCALE: AS SHOWN
APPROVED:	DATE: DEC. 2012
FILENAME: HALI-D0253	
SHEET NUMBER: 9	DRAWING NUMBER: D5



SECTION LOCATION MAP
NOT TO SCALE



SECTION A
SECTION A / X1
SCALE: AS SHOWN



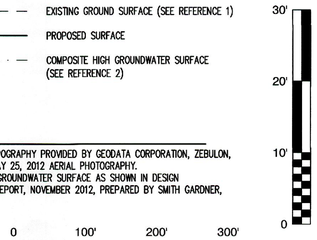
SECTION B
SECTION B / X1
SCALE: AS SHOWN

LEGEND

- EXISTING GROUND SURFACE (SEE REFERENCE 1)
- PROPOSED SURFACE
- COMPOSITE HIGH GROUNDWATER SURFACE (SEE REFERENCE 2)

REFERENCES

1. OVERALL SITE TOPOGRAPHY PROVIDED BY GEODATA CORPORATION, ZEBULON, NC, BASED ON MAY 25, 2012 AERIAL PHOTOGRAPHY.
2. COMPOSITE HIGH GROUNDWATER SURFACE AS SHOWN IN DESIGN HYDROGEOLOGIC REPORT, NOVEMBER 2012, PREPARED BY SMITH GARDNER, INC.



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PREPARED BY:

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NORTH CAROLINA PROFESSIONAL SEAL 021666 ENGINEER PETER K. SCHNER
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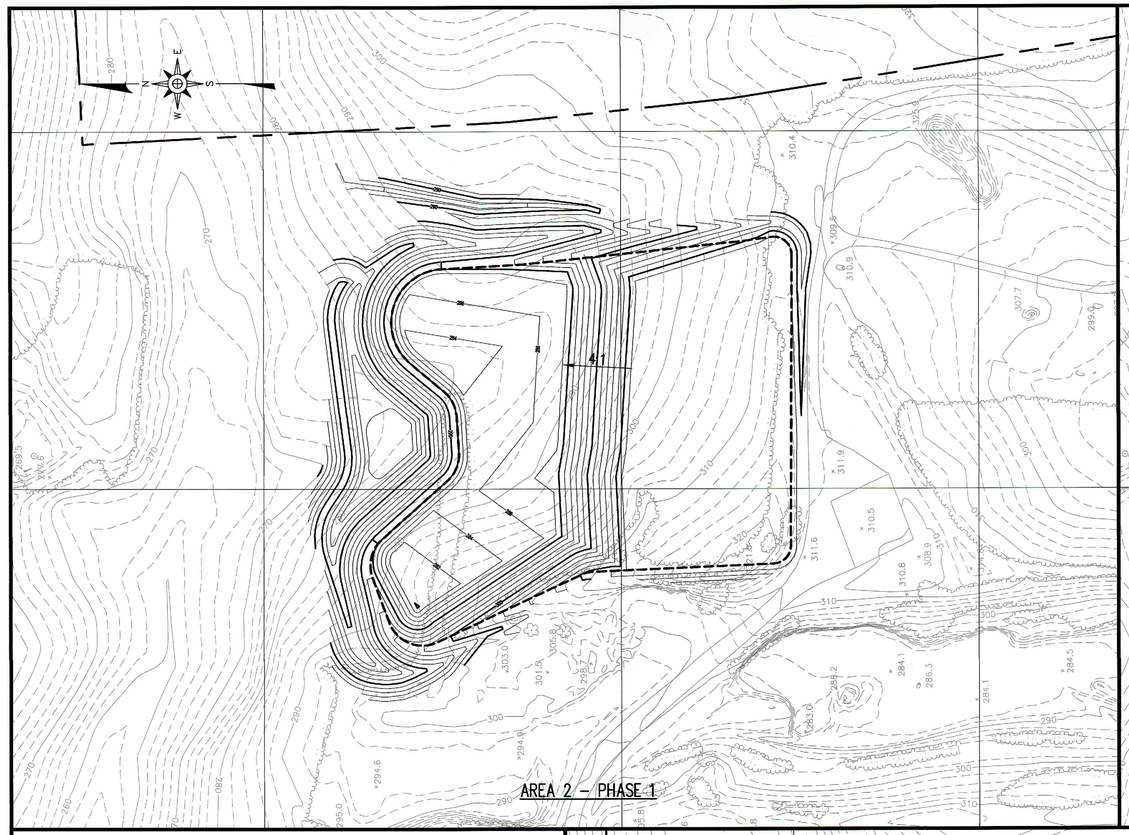
PROJECT TITLE:

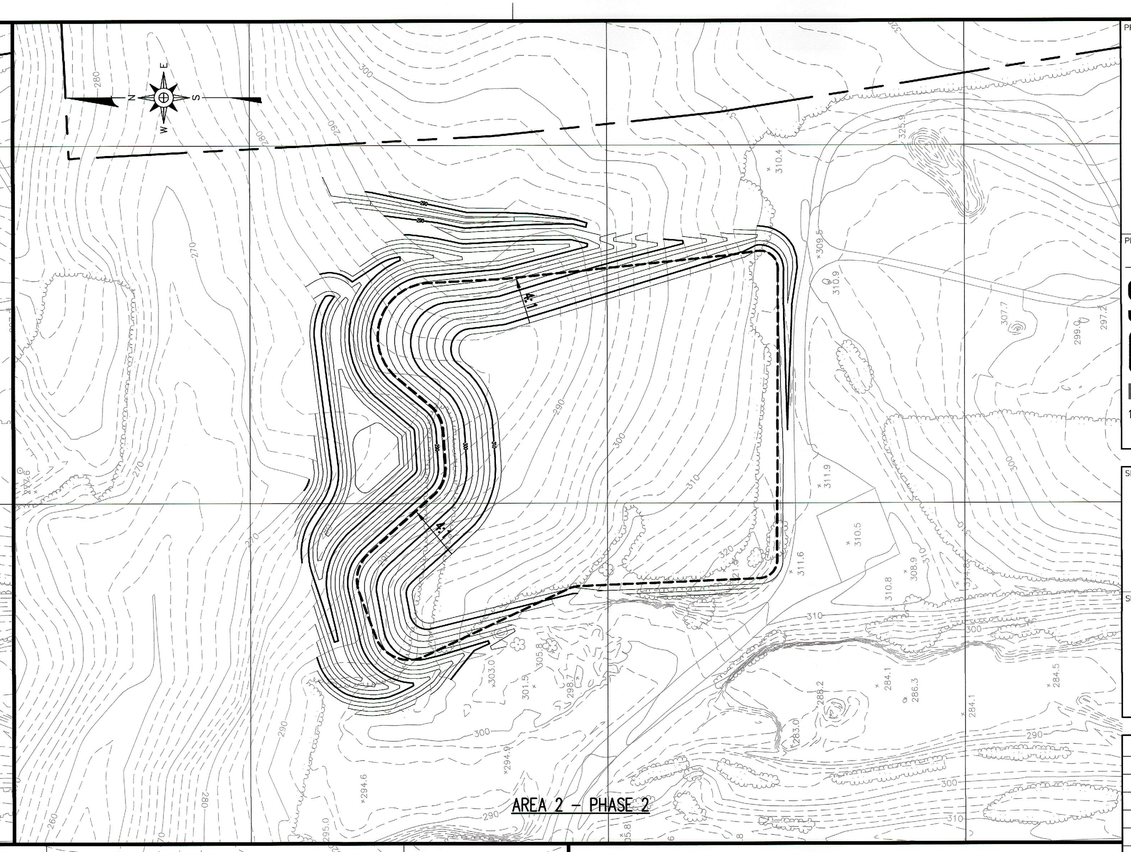
HALIFAX COUNTY
C&D LANDFILL
AREA 2
PERMIT TO CONSTRUCT
DRAWINGS

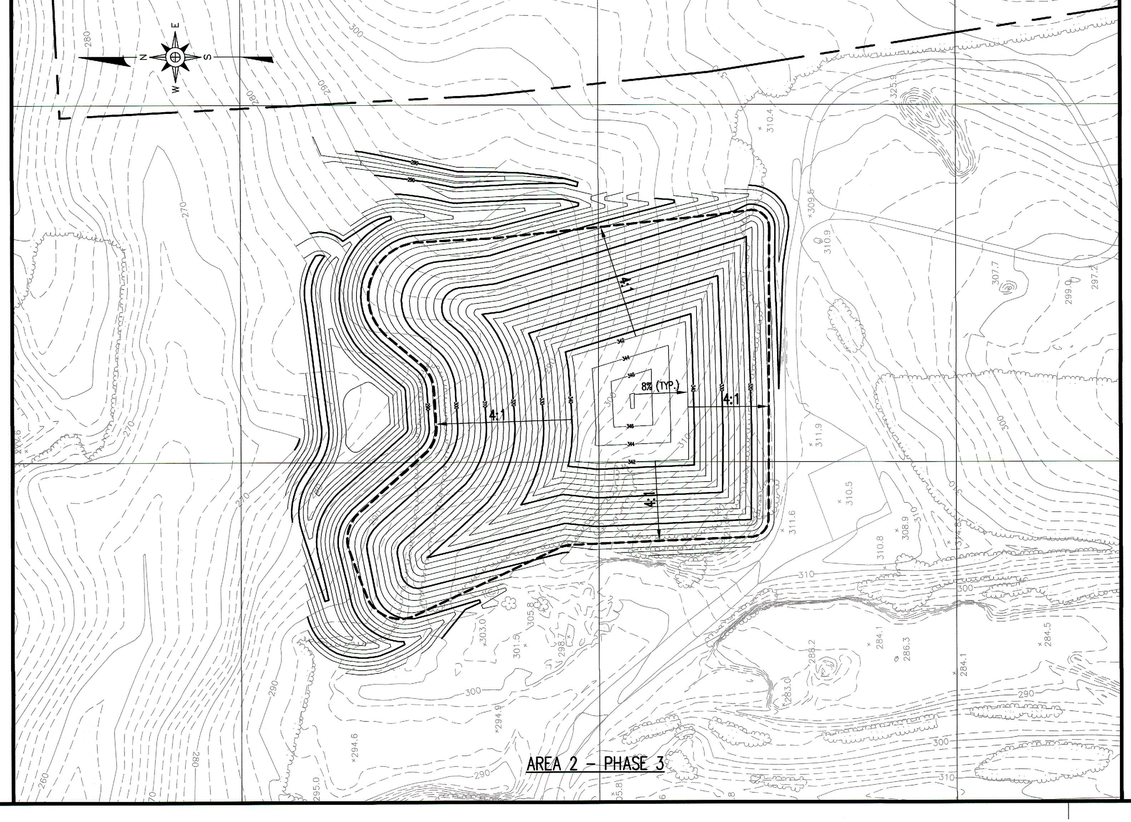
DRAWING TITLE:

ENGINEERING
CROSS SECTIONS

DESIGNED: P.K.S.	PROJECT NO.: HALIFAX-12-1
DRAWN: J.A.L.	SCALE: AS SHOWN
APPROVED:	DATE: DEC. 2012
FILENAME: HALI-D0220	
SHEET NUMBER: 10	DRAWING NUMBER: EX1







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LEGEND

- 200 — EXISTING 10' CONTOUR
- EXISTING 2' CONTOUR
- PROPERTY LINE
- AREA 2 WASTE LIMITS
- PROPOSED 10' CONTOUR
- PROPOSED 2' CONTOUR

REFERENCES:

1. OVERALL SITE TOPOGRAPHY PROVIDED BY GEODATA CORPORATION, ZEBULON, NC, BASED ON MAY 25, 2012 AERIAL PHOTOGRAPHY.
2. WASTE CONTOURS FROM SURVEY DATED SEPTEMBER 2002.
3. BORROW SITE CONTOURS FROM SURVEY BY BURR & ASSOCIATES DATED SEPTEMBER 12, 2001.

0 100' 200' 300'

PREPARED FOR:

HALIFAX COUNTY NORTH CAROLINA DEPARTMENT OF PUBLIC UTILITIES

PREPARED BY:

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NORTH CAROLINA PROFESSIONAL SEAL 021686 ENGINEER PETER K. SCHERER 1/10/13

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PROJECT TITLE:

HALIFAX COUNTY C&D LANDFILL AREA 2 PERMIT TO CONSTRUCT DRAWINGS

DRAWING TITLE:

PHASING PLAN

DESIGNED: P.K.S.	PROJECT NO.: HALIFAX-12-1
DRAWN: J.A.L.	SCALE: AS SHOWN
APPROVED:	DATE: DEC. 2012
FILENAME: HALI-D0221	
SHEET NUMBER: 11	DRAWING NUMBER: P1