



5400 Glenwood Avenue, Suite 300
Raleigh, North Carolina 27612
tel: 919-325-3500
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March 31, 2011

Mr. Ming-Tai Chao, P.E.
Environmental Engineer II
North Carolina Department of Environmental and Natural Resources
Division of Waste Management
Permitting Branch, Solid Waste Section
1646 Mail Service Center
Raleigh, NC 27699-1646

Subject: Dare County
Dare County Construction and Demolition Landfill (C&DLF)
Construction Quality Assurance Report
Response to Comments

Dear Mr. Chao:

On behalf of Dare County, CDM is pleased to submit revisions to the Dare County Construction and Demolition Landfill Construction Quality Assurance Report per your review comments received on February 28, 2011. For your convenience, CDM has formatted this letter correspondence to present your comment followed immediately by our response in *italics*.

1. Please provide the final letter dated June 28, 2010 with the signature and seal of the NC licensed surveyor.

The signed and sealed letter of final quantities is included in Attachment No. 1.

2. (Appendix A-5) The Section 6.1A of the approved CQA Plan specified that the compacted fill material shall have the minimum internal friction angle of 35 degree according to testing method ASTM D4767; however, the test result of the sample - Proctor No. 3 has the internal friction angle of 31 degree. Please explain why the sample result is acceptable and provide any remedial approaches.

Failure envelope has two components: cohesion and friction. Based on the test results, this sample (Proctor #3) will have an internal friction angle of 31.6 degrees and cohesion of 1,348 psf. The failure envelope for this sample intersects with a failure envelope, which has only an internal friction angle of 35 degrees component, at a vertical stress of around 16 ksf. For any load less than this pressure, the test result (internal friction plus cohesion) will be more conservative. The maximum anticipated load (in the middle of the cell) above this fill layer will be less than 3 ksf.



Mr. Ming-Tai Chao

March 31, 2011

Page 2

3. (Appendices A-5 & A-8; Compaction Test Report dated June 11, 2010; Location Cell 4 Pad, Sub Lots - 5, 6, 7, 8, 9, 10) The dry density for Test Sample 1 shall be 101.7 pcf, not the reported 105.3 pcf, if the wet density is 119.8 pcf and moisture content is 17.8%. Then, the calculated "% Proctor" is approximately 93.7% of the maximum dry density, which is less than the specified criterion - 95% of the maximum dry density in the approved CQA plan. Please explain why the sample result is acceptable and provide any remedial approaches.

*The compaction test report dated June 11, 2010 contained a typographical error in the percent moisture for test number 1. The revised sheet is included in **Attachment No. 2.***

4. (Appendix A-6, Geotechnics Lab Data Sheet for Moisture-Density Relationship dated June 15, 2010. Boring No. ACRE 1; Lift 5; Lab ID 2010-652-09-03) The Sample Identification Number - Upper CF-01 is likely a typographic error of Upper CF-11. Please clarify.

*The QCL conformance test results for moisture density relationship with lab ID: 652-09-03, sample ID: Upper CF-01 and dated June 15, 2010 contain a typographical error with the sample ID and should read Upper CF-11. The revised moisture density sheets associated with this sample number are included in **Attachment No. 3.***

5. (Appendix A-7) In the Summary Table (CFFDR-01, Page 1 of 10, dated April 23, 2010), the values of in-placed moisture content (12.4%) & density (119.9 pcf) of the sample SC-02 are inconsistent with those stated in the Raw Data Sheet (14.2% & 121.9 pcf). Please clarify.

*The measured in place wet density, percent moisture and dry density of CQC field data summary table for CFFDR-01 contained typographical errors for test numbers SC-02 and SC-03. The revised sheets are included in **Attachment No. 4.***

6. (Appendix A-7) The descriptions of the following sample locations - ND-51, ND-52, ND-55, ND-56, ND-63, & ND-64 stated in the Summary Table (CFFDR-02, Page 1 of 8, dated May 4, 2010) are inconsistent with the attached sample location drawings. Please clarify.



Mr. Ming-Tai Chao

March 31, 2011

Page 3

The CQC field data summary table for CFFDR-02 contained typographical errors in the test location for test numbers ND-51, ND-55, ND-56, ND-59, ND-60, ND-63 and ND-64. The revised sheets are included in Attachment No. 5.

7. (Appendix A-7) In the Summary Tables (CFFDR-04, Page 2 of 15, dated June 7, 2010 & CFFDR-05, Page 1 of 8, dated June 9, 2010) the Proctor ID (652-07-02) and related moisture & density data are not provided in the CQA report. Please provide the data.

The CQC field data summary table for CFFDR-04 contained typographical errors in the proctor ID for test numbers ND-193 to ND-208. The proctor ID was revised to read 652-07-05. Additionally the proctor ID in the legend for the Upper Common Fill Moisture \ Density 1 point plot was revised. The revised sheets are included in Attachment No. 6.

The CQC field data summary table for CFFDR-05 contained typographical errors in the proctor ID for test numbers ND-237 to ND-280. The proctor ID was revised to read 652-07-05. Additionally the proctor ID in the legend for the Upper Common Fill Moisture \ Density 1 point plot was revised. The revised sheets are included in Attachment No. 7.

8. (Appendix A-7) In the Summary Table (CFFDR-08, Page 1 of 5, dated June 29, 2010) the sample ND-387 has referenced the maximum dry density of 112.9 pcf (the Proctor ID 652-09-03) for the compaction effort. However, the measured maximum dry density for the sample - Proctor ID 652-09-03 is 109.4 pcf. Please make necessary correction.

The CQC field data summary table for CFFDR-08 contained typographical errors in maximum dry density and optimum percent moisture for test number ND-387. The revised sheet is included in Attachment No. 8.

Additionally, in the February 14 2011 cover letter that came along with the CQA Report indicated that there were two pre-operational conditions of the Permit to Construct for Cell No. 4 had not been completed by the County at this time, which included:

1. Modification of the Operations Plan by adding the provisions and day-to-day management practices of recyclable material including, but not limited to, white goods/scrap metals, used/scrap tires as described in the December 31 2009 response letter (Doc ID 9246), prepared by CDM on



Mr. Ming-Tai Chao

March 31, 2011

Page 4

behalf of Dare County to DWM's Comment Nos. 7, 8, and 9. Dare County must submit the Solid Waste Section the revised Operations Plan for review and approval.

Section 7 of the Operations Plan was modified to include information regarding management of white goods and scrap tires. A revised Section 7 is included in Attachment No. 9. Additionally, Sheet SD-1 in the Facility Plan was modified to include the location of the white goods gravel pad. The revised Sheet SD-1 is included in Attachment No. 10.

2. Modification of the Operations Plan by removing the scrap tire from the waste stream for disposal at Cell 4 and future cells.

Reference to scrap tires was removed from Section 2 of the Operations Plan. The revised section is included in Attachment No. 11.

3. Please provide the modified Operations Plan including the above-mentioned information as an addendum or supplemental to the Application of Permit to Construction for Cell No. 4.

Refer to Attachments Nos. 9, 10 and 11 for modifications to the Operations and Facility Plans.

Furthermore, please identify if B-103 is a soil boring or a piezometer that is located in the footprints of the Cell No.4 (Refer Sheet No. 1 "Site Map" in the approved Hydrogeologic Report and Water Quality Monitoring Plan for Cell No. 4 [Doc ID 6910]). If B-103 is a piezometer, please provide the related well abandonment record which was not provided in the "Dare County Construction and Demolition Mr. Edward Mann February 28, 2010 Doc ID 13041 Page 3 of 3 Debris Landfill Phase No. 4 Expansion Well Abandonment Record" dated April 14, 2010 and prepared by Froehling & Robertson, Inc.

Boring B-103 is a soil boring as shown on the Site Map in the Hydrogeologic Report and Water Quality Monitoring Plan for Cell No. 4.



Mr. Ming-Tai Chao
March 31, 2011
Page 5

If you have any questions or need additional information, please do not hesitate to call me at (919) 787-5620.

Very truly yours,

W. Michael Brinchek, P.E., BCEE
Senior Project Manager
Camp Dresser & McKee

cc: Ed Mussler, NCDENR DWM
Edward Mann, Dare County



Attachment No. 1

Surveying Solutions, PC

License C-1948
5401 Hillsborough St
P.O. Box 33324
Raleigh, NC 27636
Phone: 919-854-4833
Fax: 919-854-4834

June 28, 2010

Glover Construction Company, Inc.

Attn: Ed Marks

P.O. Box 40

Highway 301 N.

Pleasant Hill, NC 27866

Re: Quantities, Dare County - Construction and Demolition Debris Landfill, Cell 4

Mr. Marks,

Per your request, listed below are the computed fill quantities for the above listed site for the month of June and final quantity summaries for the project:

Cell 4 area

Total amount of fill to date	107,429 Cubic yards
Amount of fill for April (letter dated May 10, 2010)	53,809 Cubic yards
Amount of fill for May (letter dated June 10, 2010)	37,751 Cubic yards
Amount of fill for June	15,869 Cubic yards

Breakdown of June fill, Cell 4 area:

Amount of fill to subgrade (up to 2' below final grade and including road)	5,638 Cubic yards
Amount of fill for final grade (2' minimum final lift)	10,231 Cubic yards

Cell 4 area final quantity summary:

Total amount of fill to subgrade	67,093 Cubic yards
Total amount of fill for final grade (2' minimum final lift)	34,698 Cubic yards

Note: Quantity calculations for Cell 4 are computed using topographic information provided by the contractor for the following:

Topographic information of the cell area after stripping

Borrow area fill:
Total amount of fill

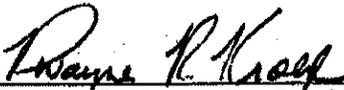
43,035 Cubic yards

Note: Quantity calculations for the borrow area fill are computed using topographic information provided by the contractor for the following:

Topographic information of the additional borrow area after excavation
Topographic information of the additional borrow area after filling

All information shown was computed from field information obtained under my direct supervision except as noted. The date of the final survey for the site was June 15, 2010. All quantity information provided is true and correct to the best of my knowledge and belief.




Dwayne R. Kroeze, P.L.S. L-3911

Attachment No. 2



GET Solutions, Inc.
 106 Capital Trace, Unit E
 Elizabeth City, North Carolina 27909
 Tel: (252) 335-9765
 Fax: (252) 335-9766

COMPACTION TEST REPORT

Project: Dare County Landfill - Phase (Cell) 4
Project Location: Dare County North Carolina
Client: CDM
General Contractor: Glover
Grading Contractor: Glover
Date: 6/11/10
Technician: J. Meads
Job Number: EC10-166T
Weather: Clear
Temp. (°F): 75
General Test Location: Cell 4 Pad; Sub-Lots 5, 6, 7, 8, 9, 10

Test Number	Moisture (%)	Dry Density (pcf)	Wet Density (pcf)	Proctor Number	% Proctor		Pass	Fail	Test Elevation*	Test Location (Grid, Coordinates, Roadway Station, etc.)
					Spec	Actual				
1	13.8	105.3	119.8	5	95%	97%	X		FG	Lot 5; 35.50.027' N 74.49.115' W
2	11.0	111.8	124.1	5	95%	100+%	X		FG	Lot 4; 35.50.027' N 75.49.137' W
3	15.9	104.9	121.5	5	95%	97%	X		FG	Lot 7 35.50.070' N 75.49.117' W
4	14.3	107.6	123.0	5	95%	99%	X		FG	Lot 6 35.50.068' N 75.49.140' W
5	16.1	105.1	122.0	5	95%	97%	X		FG	Lot 9 35.50.121' N 75.49.122' W
6	13.1	108.7	122.9	5	95%	100%	X		FG	Lot 10 35.50.119' N 75.49.147' W

* Note: BFF = Below Finish Floor, BFG = Below Finish Grade, FG = Finished Grade, BOF = Base of Footing

Compaction Equipment Used: Roller
Test Location Established By: GET Solutions Inc.
Test Elevation Established By: GET Solutions Inc.
Description of Material Tested: Onsite excavated soils
Proctor Type: ASTM D698
Gauge Standardization counts: Moisture: 602 Density: 2768
Gauge make/model/serial #: Troxler 3430 MODEL SERIAL # 31918
Field Testing Procedure: ASTM D 6938
Field Testing Method: A) Direct transmission & test depth
 B) Backscatter
Proctor Number: 5
Max. Dry Density (pcf): 108.5
Optimum Moisture (%): 16.0%

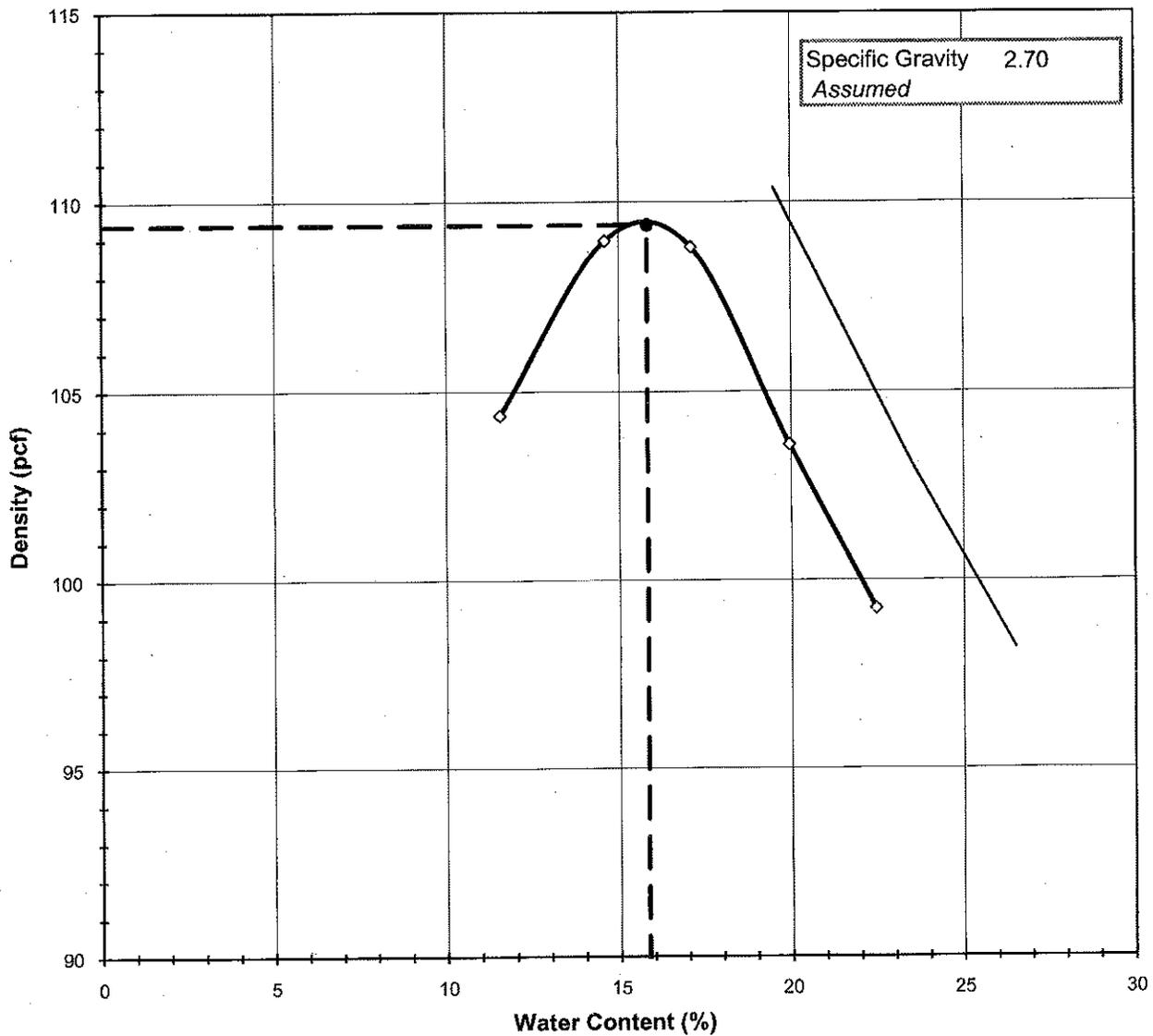
Remarks:

Attachment No. 3

MOISTURE DENSITY RELATIONSHIP
ASTM D698-91 SOP-S12

Client	GLOVER CONSTRUCTION	Boring No.	ACRE 1
Client Reference	DARE CO. C&D LF	Depth (ft)	LIFT 5
Project No.	2010-652-09	Sample No.	UPPER CF-11
Lab ID	2010-652-09-03	Test Method	STANDARD
Visual Description	GRAY CLAYEY SAND		

Optimum Water Content 15.8
Maximum Dry Density 109.4



Tested By **SD** Date **6/15/2010** Checked By **JRB** Date **3.2.11**



MOISTURE - DENSITY RELATIONSHIP
ASTM D698-91 SOP-S12

Client	GLOVER CONSTRUCTION	Boring No.	ACRE 1
Client Reference	DARE CO. C&D LF	Depth (ft)	LIFT 5
Project No.	2010-652-09	Sample No.	UPPER CF-11
Lab ID	2010-652-09-03		

Visual Description GRAY CLAYEY SAND

Total Weight of the Sample (gm)	22210
As Received Water Content(%)	NA
Assumed Specific Gravity	2.70
Percent Retained on 3/4"	NA
Percent Retained on 3/8"	NA
Percent Retained on #4	NA
Oversize Material	Not included
Procedure Used	A

TestType	STANDARD	
Rammer Weight (lbs)		5.5
Rammer Drop (in)		12
Rammer Type	MECHANICAL	
Machine ID	R	174
Mold ID	R	172
Mold diameter		4"
Weight of the Mold		4308
Volume of the Mold(cc)		941

Mold / Specimen

Point No.	1	2	3	4	5
Wt. of Mold & WS (gm)	6064	6191	6230	6182	6141
Wt. of Mold (gm)	4308	4308	4308	4308	4308
Wt. of WS	1756	1883	1922	1874	1833
Mold Volume (cc)	941	941	941	941	941

Moisture Content / Density

Tare Number	304	311	306	307	315
Wt. of Tare & WS (gm)	477.00	436.60	619.00	575.80	563.10
Wt. of Tare & DS (gm)	439.07	391.70	541.49	498.47	480.20
Wt. of Tare (gm)	110.30	83.90	88.50	110.90	110.90
Wt. of Water (gm)	37.93	44.90	77.51	77.33	82.90
Wt. of DS (gm)	328.77	307.80	452.99	387.57	369.30

Wet Density (gm/cc)	1.87	2.00	2.04	1.99	1.95
Wet Density (pcf)	116.4	124.9	127.4	124.3	121.5
Moisture Content (%)	11.5	14.6	17.1	20.0	22.4
Dry Density (pcf)	104.4	109.0	108.8	103.6	99.3

Zero Air Voids

Moisture Content (%)	19.5	23.5	26.5
Dry Unit Weight (pcf)	110.4	103.1	98.2

Tested By SD Date 6/15/2010 Checked By JCB Date 8.2.11

Attachment No. 4



Client: Glover Construction
 Project Name: Dare Co. C&D LF - Phase No. 4
 Project Number: 2010-652

Field Density Report

Report Number: CFFDR-01
 Date (s): 4.5 - 4.16.10
 Geotechnics Representative: Jacob R. Buda
 Reviewed By: *[Signature]*

Page: 1 of 10
 Date: 3-2-11

Contractor: Glover Construction
 Borrow Source: On-Site Stockpile

Compaction Equipment: New Holland TJ450 Farm Tractor w/ Smoothdrum Roller

Test Number	Test Location	Elevation/ Lift	Rod Depth	Proctor I.D. No.	Proctor Data		Measured In Place			Compaction		Comments
					MDD pcf	Opt. %M	WD (pcf)	% M	DD (pcf)	% C	% Req.	
ND - 01	ACRE 1	BRIDGE LIFT	8"	652-01-03	101.7	16.2	111.0	10.9	100.1	98.4%	95.0%	
SC - 01	ACRE 1	BRIDGE LIFT	NA	652-01-03	101.7	16.2	109.1	11.2	98.1	96.5%	95.0%	
ND - 02	ACRE 1	BRIDGE LIFT	8"	652-01-03	101.7	16.2	112.5	11.2	101.2	99.5%	95.0%	
ND - 03	ACRE 1	BRIDGE LIFT	8"	652-01-03	101.7	16.2	111.4	9.9	101.4	99.7%	95.0%	
ND - 04	ACRE 1	BRIDGE LIFT	8"	652-01-03	101.7	16.2	113.3	14.9	98.6	97.0%	95.0%	
ND - 05	ACRE 2	BRIDGE LIFT	8"	652-01-03	101.7	16.2	113.9	11.1	102.5	100.8%	95.0%	
ND - 06	ACRE 2	BRIDGE LIFT	8"	1pt.-02	110.1	14.2	122.7	14.2	107.4	97.6%	95.0%	
SC - 02	ACRE 2	BRIDGE LIFT	NA	1pt.-02	110.1	14.2	121.9	14.2	106.7	97.0%	95.0%	
ND - 07	ACRE 2	BRIDGE LIFT	8"	652-01-03	101.7	16.2	112.7	11.6	101.0	99.3%	95.0%	
ND - 08	ACRE 2	BRIDGE LIFT	8"	652-02-02	107.8	13.5	118.5	12.7	105.1	97.5%	95.0%	
ND - 09	ACRE 3	BRIDGE LIFT	8"	652-02-02	107.8	13.5	117.7	12.7	104.4	96.9%	95.0%	
ND - 10	ACRE 3	BRIDGE LIFT	8"	1pt.-02	110.1	14.2	122.3	11.3	109.9	99.8%	95.0%	
ND - 11	ACRE 3	BRIDGE LIFT	8"	652-02-02	107.8	13.5	118.1	11.9	105.5	97.9%	95.0%	
ND - 12	ACRE 3	BRIDGE LIFT	8"	1pt.-02	110.1	14.2	124.5	10.2	113.0	102.6%	95.0%	
ND - 13	ACRE 4	BRIDGE LIFT	8"	652-02-02	107.8	13.5	118.1	13.5	104.1	96.5%	95.0%	
ND - 14	ACRE 4	BRIDGE LIFT	8"	1pt.-02	110.1	14.2	119.9	10.0	109.0	99.0%	95.0%	
ND - 15	ACRE 4	BRIDGE LIFT	8"	652-02-02	107.8	13.5	116.2	11.6	104.1	96.6%	95.0%	
ND - 16	ACRE 4	BRIDGE LIFT	8"	652-02-02	107.8	13.5	118.3	12.8	104.9	97.3%	95.0%	
ND - 17	ACRE 1	LIFT 1	6"	652-02-02	107.8	13.5	121.0	11.3	108.7	100.8%	95.0%	
ND - 18	ACRE 1	LIFT 1	6"	652-02-02	107.8	13.5	117.1	11.0	105.5	97.9%	95.0%	
ND - 19	ACRE 1	LIFT 1	6"	652-02-02	107.8	13.5	118.8	11.1	106.9	99.2%	95.0%	
ND - 20	ACRE 1	LIFT 1	6"	652-02-02	107.8	13.5	117.0	11.1	105.3	97.7%	95.0%	
ND - 21	ACRE 2	LIFT 1	6"	652-02-02	107.8	13.5	118.6	11.5	106.4	98.7%	95.0%	
ND - 22	ACRE 2	LIFT 1	6"	652-02-02	107.8	13.5	115.5	10.5	104.5	97.0%	95.0%	
ND - 23	ACRE 2	LIFT 1	6"	652-02-02	107.8	13.5	118.4	12.8	105.0	97.4%	95.0%	
ND - 24	ACRE 2	LIFT 1	6"	652-02-02	107.8	13.5	121.3	12.9	107.4	99.7%	95.0%	

Gauge Number	Gauge Model
33577	3440



Client: Glover Construction
 Project Name: Dare Co. C&D LF - Phase No. 4
 Project Number: 2010-652

Field Density Report

Report Number: CFFDR-01
 Date (s): 4.5 - 4.16.10
 Geotechnics Representative: Jacob R. Buda
 Reviewed By: *MBS*
 Page: 2 of 10
 Date: 3-2-11

Contractor: Glover Construction
 Borrow Source: On-Site Stockpile

Compaction Equipment: New Holland TJ450 Farm Tractor w/ Smoothdrum Roller

Test Number	Test Location	Elevation/ Lift	Rod Depth	Proctor I.D. No.	Proctor Data		Measured In Place			Compaction		Comments
					MDD pcf	Opt. %M	WD (pcf)	% M	DD (pcf)	% C	% Req.	
SC - 03	ACRE 2	LIFT 1	NA	652-02-02	107.8	13.5	119.9	12.4	106.7	99.0%	95.0%	
ND - 25	ACRE 5	BRIDGE LIFT	8"	1pt-02	110.1	14.2	123.7	13.3	109.2	99.2%	95.0%	
ND - 26	ACRE 5	BRIDGE LIFT	8"	652-02-02	107.8	13.5	115.9	11.8	103.7	96.2%	95.0%	
ND - 27	ACRE 5	BRIDGE LIFT	8"	652-02-02	107.8	13.5	114.3	9.6	104.3	96.7%	95.0%	
ND - 28	ACRE 5	BRIDGE LIFT	8"	1pt-02	110.1	14.2	117.4	7.6	109.1	99.1%	95.0%	
ND - 29	ACRE 6	BRIDGE LIFT	8"	652-02-02	107.8	13.5	113.2	9.0	103.9	96.3%	95.0%	
ND - 30	ACRE 6	BRIDGE LIFT	8"	652-02-02	107.8	13.5	115.7	8.1	107.0	99.3%	95.0%	
ND - 31	ACRE 6	BRIDGE LIFT	8"	652-02-02	107.8	13.5	116.1	8.9	106.6	98.9%	95.0%	
ND - 32	ACRE 6	BRIDGE LIFT	8"	652-02-02	107.8	13.5	117.7	13.4	103.8	96.3%	95.0%	
ND - 33	ACRE 7	BRIDGE LIFT	8"	652-02-02	107.8	13.5	119.6	14.4	104.5	97.0%	95.0%	
ND - 34	ACRE 7	BRIDGE LIFT	8"	652-02-02	107.8	13.5	117.7	12.7	104.4	96.9%	95.0%	
ND - 35	ACRE 7	BRIDGE LIFT	8"	652-02-02	107.8	13.5	119.2	12.9	105.6	97.9%	95.0%	
ND - 36	ACRE 7	BRIDGE LIFT	8"	1pt-02	110.1	14.2	121.6	11.1	109.5	99.4%	95.0%	
ND - 37	ACRE 8	BRIDGE LIFT	8"	652-02-02	107.8	13.5	118.7	12.9	105.1	97.5%	95.0%	
ND - 38	ACRE 8	BRIDGE LIFT	8"	652-02-02	107.8	13.5	116.5	11.4	104.6	97.0%	95.0%	
ND - 39	ACRE 8	BRIDGE LIFT	8"	652-02-02	107.8	13.5	120.2	15.6	104.0	96.5%	95.0%	
ND - 40	ACRE 8	BRIDGE LIFT	8"	652-02-02	107.8	13.5	119.0	13.2	105.1	97.5%	95.0%	
ND - 41	ACRE 3	LIFT 1	8"	1pt-02	110.1	14.2	122.4	10.9	110.4	100.2%	95.0%	
ND - 42	ACRE 3	LIFT 1	8"	1pt-02	110.1	14.2	118.8	9.2	108.8	98.8%	95.0%	
ND - 43	ACRE 3	LIFT 1	8"	1pt-02	110.1	14.2	121.4	9.7	110.7	100.5%	95.0%	
ND - 44	ACRE 3	LIFT 1	8"	652-01-01	105.2	17.1	116.4	10.4	105.4	100.2%	95.0%	
ND - 45	ACRE 4	LIFT 1	8"	652-01-01	105.2	17.1	115.8	11.6	103.8	98.6%	95.0%	
ND - 46	ACRE 4	LIFT 1	8"	652-01-01	105.2	17.1	115.9	11.1	104.3	99.2%	95.0%	
ND - 47	ACRE 4	LIFT 1	8"	652-01-01	105.2	17.1	116.4	10.5	105.3	100.1%	95.0%	
ND - 48	ACRE 4	LIFT 1	8"	652-01-01	105.2	17.1	112.8	11.1	101.5	96.5%	95.0%	

Gauge Number	Gauge Model
33577	3440

Attachment No. 5



Client: Glover Construction
 Project Name: Dare Co. C&D LF - Phase 4
 Project Number: 2010-652

Field Density Report

Report Number: CFFDR-02
 Date (s): 4.19. - 4.23.10
 Geotechnics Representative: Jacob R. Buda
 Reviewed By: *JMB*

Page: 1 of 8
 Date: 3-2-11

Contractor: Glover Construction
 Borrow Source: On-Site Stockpile

Compaction Equipment: New Holland T1450 Farm Tractor w/ Smoothdrum Roller

Test Number	Test Location	Elevation/ Lift	Rod Depth	Proctor I.D. No.	Proctor Data		Measured In Place			Compaction		Comments
					MDD pcf	Opt. %M	WD (pcf)	% M	DD (pcf)	% C	% Req.	
ND - 49	ACRE 10	Bridge Lift	8"	652-02-02	107.8	13.5	120.9	16.1	104.1	96.6%	95.0%	
ND - 50	ACRE 10	Bridge Lift	8"	652-02-02	107.8	13.5	116.6	12.7	103.5	96.0%	95.0%	
ND - 51	ACRE 12	Bridge Lift	8"	652-02-02	107.8	13.5	119.7	12.6	106.3	98.6%	95.0%	
ND - 52	ACRE 12	Bridge Lift	8"	652-02-02	107.8	13.5	116.8	12.7	103.6	96.1%	95.0%	
ND - 53	ACRE 12	Bridge Lift	8"	652-02-02	107.8	13.5	115.6	9.6	105.5	97.8%	95.0%	
ND - 54	ACRE 12	Bridge Lift	8"	652-02-02	107.8	13.5	123.5	15.2	107.2	99.4%	95.0%	
ND - 55	ACRE 10	Bridge Lift	8"	1pt-02	110.1	14.2	121.8	10.8	109.9	99.8%	95.0%	
ND - 56	ACRE 10	Bridge Lift	8"	1pt-02	110.1	14.2	124.1	13.5	109.3	99.3%	95.0%	
ND - 57	ACRE 9	Bridge Lift	8"	1pt-02	110.1	14.2	126.7	13.1	112.0	101.7%	95.0%	
ND - 58	ACRE 9	Bridge Lift	8"	1pt-02	110.1	14.2	122.7	8.4	113.2	102.8%	95.0%	
ND - 59	ACRE 11	Bridge Lift	8"	652-02-02	107.8	13.5	113.8	7.3	106.1	98.4%	95.0%	
ND - 60	ACRE 11	Bridge Lift	8"	652-02-02	107.8	13.5	111.8	9.0	102.6	95.1%	95.0%	
ND - 61	ACRE 11	Bridge Lift	8"	652-02-02	107.8	13.5	115.6	12.3	102.9	95.5%	95.0%	
ND - 62	ACRE 11	Bridge Lift	8"	652-02-02	107.8	13.5	116.3	10.2	105.5	97.9%	95.0%	
ND - 63	ACRE 9	Bridge Lift	8"	652-02-02	107.8	13.5	121.1	12.7	107.5	99.7%	95.0%	
ND - 64	ACRE 9	Bridge Lift	8"	652-02-02	107.8	13.5	119.4	13.7	105.0	97.4%	95.0%	
ND - 65	ACRE 13	Bridge Lift	8"	652-02-02	107.8	13.5	118.6	9.4	108.4	100.6%	95.0%	
ND - 66	ACRE 13	Bridge Lift	8"	652-02-02	107.8	13.5	119.1	12.4	106.0	98.3%	95.0%	
ND - 67	ACRE 13	Bridge Lift	8"	652-02-02	107.8	13.5	121.0	12.1	107.9	100.1%	95.0%	
ND - 68	ACRE 13	Bridge Lift	8"	652-02-02	107.8	13.5	121.3	11.2	109.1	101.2%	95.0%	
ND - 69	ACRE 14	Bridge Lift	8"	652-02-02	107.8	13.5	118.3	11.0	106.6	98.9%	95.0%	
ND - 70	ACRE 14	Bridge Lift	8"	652-02-02	107.8	13.5	118.3	11.9	105.7	98.1%	95.0%	
ND - 71	ACRE 14	Bridge Lift	8"	652-02-02	107.8	13.5	120.3	12.7	106.7	99.0%	95.0%	
ND - 72	ACRE 14	Bridge Lift	8"	652-02-02	107.8	13.5	117.6	13.2	103.9	96.4%	95.0%	
ND - 73	ACRE 6	LIFT 1	6"	652-02-02	107.8	13.5	115.1	10.7	104.0	96.5%	95.0%	
ND - 74	ACRE 6	LIFT 1	6"	652-02-02	107.8	13.5	120.1	15.1	104.3	96.8%	95.0%	

Gauge Number	Gauge Model
33577	3440

Attachment No. 6



Client: Glover Construction
 Project Name: Dare Co. C&D LF - Phase 4
 Project Number: 2010-652

Field Density Report

Report Number: CFFDR-04
 Date (s): 5.19. - 5.22.10
 Geotechnics Representative: Jacob R. Buda
 Reviewed By: *[Signature]*
 Page: 2 of 15
 Date: 3-2-11

Contractor: Glover Construction
 Borrow Source: On-Site Borrow Source

Compaction Equipment: New Holland T450 Farm Tractor w/ Smoothdrum Roller and CAT 683E Vibratory Smoothdrum Roller

Test Number	Test Location	Elevation/ Lift	Rod Depth	Proctor I.D. No.	Proctor Data		Measured In Place			Compaction		Comments
					MDD pcf	Opt. %M	WD (pcf)	% M	DD (pcf)	% C	% Req.	
ND - 179	S. Access Rd.	~ Grade	6"	652-03-05	101.3	17.8	109.6	5.6	103.8	102.5%	95.0%	
ND - 180	S. Access Rd.	~ Grade	6"	652-03-05	101.3	17.8	104.9	5.3	99.6	98.3%	95.0%	
ND - 181	ACRE 2	LIFT 3	6"	652-07-01	106.8	17.5	120.2	12.5	106.8	100.0%	95.0%	
ND - 182	ACRE 2	LIFT 3	6"	652-07-01	106.8	17.5	120.2	17.5	102.3	95.8%	95.0%	
ND - 183	ACRE 4	LIFT 3	6"	652-07-01	106.8	17.5	120.3	15.2	104.4	97.8%	95.0%	
ND - 184	ACRE 4	LIFT 3	6"	652-07-01	106.8	17.5	122.9	18.6	103.6	97.0%	95.0%	
ND - 185	ACRE 6	LIFT 3	6"	652-07-01	106.8	17.5	121.1	18.9	101.9	95.4%	95.0%	
ND - 186	ACRE 6	LIFT 3	6"	652-07-01	106.8	17.5	121.0	18.4	102.2	95.7%	95.0%	
ND - 187	ACRE 6	LIFT 3	6"	652-07-01	106.8	17.5	120.5	18.8	101.4	95.0%	95.0%	
ND - 188	ACRE 6	LIFT 3	6"	652-07-01	106.8	17.5	119.6	17.9	101.4	95.0%	95.0%	
ND - 189	ACRE 4	LIFT 3	6"	652-07-01	106.8	17.5	118.8	16.9	101.6	95.2%	95.0%	
ND - 190	ACRE 4	LIFT 3	6"	652-07-01	106.8	17.5	118.1	14.6	103.1	96.5%	95.0%	
ND - 191	ACRE 2	LIFT 3	6"	652-07-01	106.8	17.5	122.9	20.4	102.1	95.6%	95.0%	
ND - 192	ACRE 2	LIFT 3	6"	652-07-01	106.8	17.5	122.5	14.3	107.2	100.4%	95.0%	
ND - 193	ACRE 8	LIFT 3	6"	652-07-05	104.8	17.7	120.1	18.2	101.6	97.0%	95.0%	
ND - 194	ACRE 8	LIFT 3	6"	652-07-05	104.8	17.7	120.9	20.7	100.2	95.6%	95.0%	
ND - 195	ACRE 10	LIFT 3	6"	652-07-05	104.8	17.7	121.3	21.5	99.8	95.3%	95.0%	
ND - 196	ACRE 10	LIFT 3	6"	652-07-05	104.8	17.7	119.2	17.0	101.9	97.2%	95.0%	
ND - 197	ACRE 12	LIFT 3	6"	652-07-05	104.8	17.7	119.5	20.0	99.6	95.0%	95.0%	
ND - 198	ACRE 12	LIFT 3	6"	652-07-05	104.8	17.7	121.8	21.5	100.2	95.7%	95.0%	
ND - 199	ACRE 14	LIFT 3	6"	652-07-05	104.8	17.7	119.3	19.1	100.2	95.6%	95.0%	
ND - 200	ACRE 14	LIFT 3	6"	652-07-05	104.8	17.7	120.0	19.5	100.4	95.8%	95.0%	
ND - 201	ACRE 14	LIFT 3	6"	652-07-05	104.8	17.7	119.8	19.4	100.3	95.7%	95.0%	
ND - 202	ACRE 14	LIFT 3	6"	652-07-05	104.8	17.7	118.7	19.2	99.6	95.0%	95.0%	
ND - 203	ACRE 12	LIFT 3	6"	652-07-05	104.8	17.7	120.2	20.3	99.9	95.3%	95.0%	
ND - 204	ACRE 12	LIFT 3	6"	652-07-05	104.8	17.7	120.4	19.3	100.9	96.3%	95.0%	

Gauge Number	Gauge Model
33577	3440



Client: Glover Construction
 Project Name: Dare Co. C&D LF - Phase 4
 Project Number: 2010-652

Field Density Report

Report Number: CFFDR-04
 Date (s): 5.19. - 5.22.10
 Geotechnics Representative: Jacob R. Buda
 Reviewed By: *MB*

Page: 3 of 15
 Date: 3-2-11

Contractor: Glover Construction
 Borrow Source: On-Site Borrow Source

Compaction Equipment: New Holland TJ450 Farm Tractor w/ Smoothdrum Roller and CAT 683E Vibratory Smoothdrum Roller

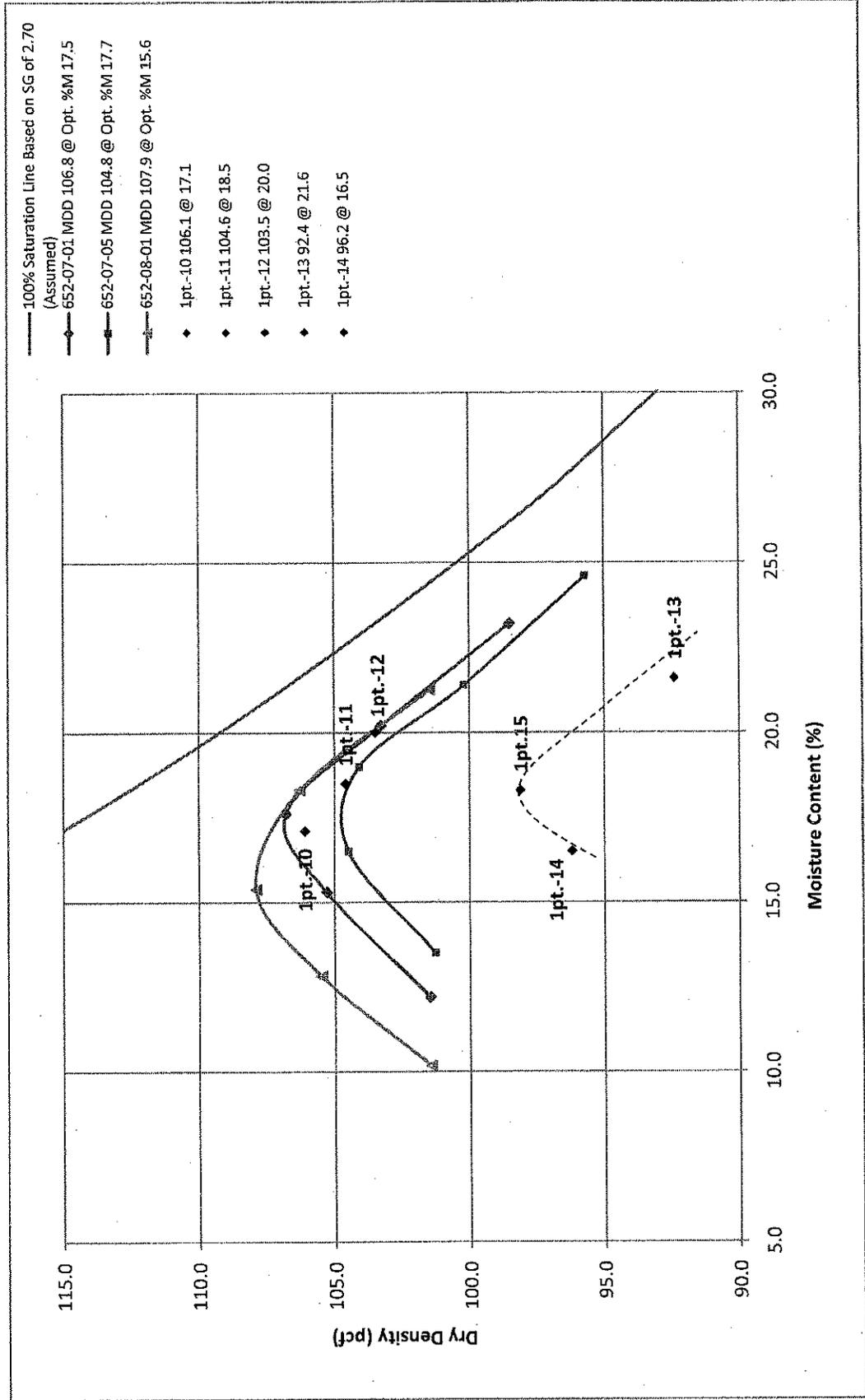
Test Number	Test Location	Elevation/ Lift	Rod Depth	Proctor I.D. No.	Proctor Data			Measured In Place			Compaction		Comments
					MDD pcf	Opt. %M	WD (pcf)	% M	DD (pcf)	% C	% Req.		
ND - 205	ACRE 10	LIFT 3	6"	652-07-05	104.8	17.7	121.9	20.6	101.1	96.4%	95.0%		
ND - 206	ACRE 10	LIFT 3	6"	652-07-05	104.8	17.7	120.2	19.7	100.4	95.8%	95.0%		
ND - 207	ACRE 8	LIFT 3	6"	652-07-05	104.8	17.7	121.9	20.4	101.2	96.6%	95.0%		
ND - 208	ACRE 8	LIFT 3	6"	652-07-05	104.8	17.7	121.6	19.5	101.8	97.1%	95.0%		
ND - 209	ACRE 13	LIFT 3	6"	1pt.-15	98.1	18.3	119.4	20.7	98.9	100.8%	95.0%		
ND - 210	ACRE 13	LIFT 3	6"	1pt.-15	98.1	18.3	116.3	22.7	94.8	96.6%	95.0%		
ND - 211	ACRE 11	LIFT 3	6"	1pt.-15	98.1	18.3	119.0	20.8	98.5	100.4%	95.0%		
ND - 212	ACRE 11	LIFT 3	6"	1pt.-15	98.1	18.3	116.0	20.3	96.4	98.3%	95.0%		
ND - 213	ACRE 9	LIFT 3	6"	1pt.-15	98.1	18.3	117.6	19.2	98.7	100.6%	95.0%		
ND - 214	ACRE 9	LIFT 3	6"	1pt.-15	98.1	18.3	120.2	20.1	100.1	102.0%	95.0%		
ND - 215	ACRE 9	LIFT 3	6"	1pt.-15	98.1	18.3	121.7	21.2	100.4	102.4%	95.0%		
ND - 216	ACRE 9	LIFT 3	6"	1pt.-15	98.1	18.3	117.3	17.7	99.7	101.6%	95.0%		
ND - 217	ACRE 11	LIFT 3	6"	1pt.-15	98.1	18.3	113.1	19.4	94.7	96.6%	95.0%		
ND - 218	ACRE 11	LIFT 3	6"	1pt.-15	98.1	18.3	111.4	19.5	93.2	95.0%	95.0%		
ND - 219	ACRE 13	LIFT 3	6"	1pt.-15	98.1	18.3	117.2	21.7	96.3	98.2%	95.0%		
ND - 220	ACRE 13	LIFT 3	6"	1pt.-15	98.1	18.3	115.6	22.1	94.7	96.5%	95.0%		
ND - 221	ACRE 7	LIFT 3	6"	1pt.-15	98.1	18.3	118.9	18.6	100.3	102.2%	95.0%		
ND - 222	ACRE 7	LIFT 3	6"	1pt.-15	98.1	18.3	118.0	23.5	95.5	97.4%	95.0%		
ND - 223	ACRE 5	LIFT 3	6"	1pt.-15	98.1	18.3	117.0	24.6	93.9	95.7%	95.0%		
ND - 224	ACRE 5	LIFT 3	6"	1pt.-15	98.1	18.3	119.3	23.0	97.0	98.9%	95.0%		
ND - 225	ACRE 3	LIFT 3	6"	1pt.-15	98.1	18.3	117.7	24.9	94.2	96.1%	95.0%		
ND - 226	ACRE 3	LIFT 3	6"	1pt.-15	98.1	18.3	117.9	22.3	96.4	98.3%	95.0%		
ND - 227	ACRE 3	LIFT 3	6"	1pt.-15	98.1	18.3	115.5	23.3	93.7	95.5%	95.0%		
ND - 228	ACRE 3	LIFT 3	6"	1pt.-15	98.1	18.3	115.6	22.1	94.7	96.5%	95.0%		
ND - 229	ACRE 5	LIFT 3	6"	1pt.-15	98.1	18.3	115.6	21.7	95.0	96.8%	95.0%		
ND - 230	ACRE 5	LIFT 3	6"	1pt.-15	98.1	18.3	115.7	22.3	94.6	96.4%	95.0%		

Gauge Number	Gauge Model
33577	3440



Onsite Upper Common Fill Moisture / Density Relationships

Client: Glover Construction
 Project Name: Dare Co. C&D LF - Phase 4
 Project Number: 2010-652



Attachment No. 7



Client: Glover Construction
 Project Name: Dare Co. C&D LF - Phase 4
 Project Number: 2010-652

Field Density Report

Report Number : CFFDR-05	Geotechnics Representative : Jacob R. Buda	Page : 1 of 8
Date (s) : 5.24 - 5.28.10	Reviewed By : <i>[Signature]</i>	Date : 5-2-11

Contractor : Glover Construction Borrow Source : On-Site Borrow Source

Compaction Equipment : New Holland TJ450 Farm Tractor w/ Smoothdrum Roller and CAT 683E Vibratory Smoothdrum Roller

Test Number	Test Location	Elevation/ Lift	Rod Depth	Proctor I.D. No.	Proctor Data			Measured In Place			Compaction		Comments
					MDD pcf	Opt. %M	WD (pcf)	% M	DD (pcf)	% C	% Req.		
ND - 233	ACRE 1	LIFT 3	6"	1pt.-15	98.1	18.3	117.4	20.9	97.1	99.0%	95.0%		
ND - 234	ACRE 1	LIFT 3	6"	1pt.-15	98.1	18.3	116.8	21.4	96.2	98.1%	95.0%		
ND - 235	ACRE 1	LIFT 3	6"	1pt.-15	98.1	18.3	115.2	19.6	96.3	98.2%	95.0%		
ND - 236	ACRE 1	LIFT 3	6"	1pt.-15	98.1	18.3	117.0	20.1	97.4	99.3%	95.0%		
ND - 237	ACRE 2	LIFT 4	6"	652-07-05	104.8	17.7	118.5	18.5	100.0	95.4%	95.0%		
ND - 238	ACRE 2	LIFT 4	6"	652-07-05	104.8	17.7	118.7	17.8	100.8	96.1%	95.0%		
ND - 239	ACRE 4	LIFT 4	6"	652-07-05	104.8	17.7	119.3	19.2	100.1	95.5%	95.0%		
ND - 240	ACRE 4	LIFT 4	6"	652-07-05	104.8	17.7	118.1	17.9	100.2	95.6%	95.0%		
ND - 241	ACRE 6	LIFT 4	6"	652-07-05	104.8	17.7	116.8	17.3	99.6	95.0%	95.0%		
ND - 242	ACRE 6	LIFT 4	6"	652-07-05	104.8	17.7	119.1	17.4	101.4	96.8%	95.0%		
ND - 243	ACRE 8	LIFT 4	6"	652-07-05	104.8	17.7	117.9	16.8	100.9	96.3%	95.0%		
ND - 244	ACRE 8	LIFT 4	6"	652-07-05	104.8	17.7	118.0	17.3	100.6	96.0%	95.0%		
ND - 245	ACRE 8	LIFT 4	6"	652-07-05	104.8	17.7	118.1	17.9	100.2	95.6%	95.0%		
ND - 246	ACRE 8	LIFT 4	6"	652-07-05	104.8	17.7	120.1	17.8	102.0	97.3%	95.0%		
ND - 247	ACRE 6	LIFT 4	6"	652-07-05	104.8	17.7	118.1	18.4	99.7	95.2%	95.0%		
ND - 248	ACRE 6	LIFT 4	6"	652-07-05	104.8	17.7	117.2	17.1	100.1	95.5%	95.0%		
ND - 249	ACRE 4	LIFT 4	6"	652-07-05	104.8	17.7	118.3	18.0	100.3	95.7%	95.0%		
ND - 250	ACRE 4	LIFT 4	6"	652-07-05	104.8	17.7	123.5	20.1	102.8	98.1%	95.0%		
ND - 251	ACRE 2	LIFT 4	6"	652-07-05	104.8	17.7	118.1	17.8	100.3	95.7%	95.0%		
ND - 252	ACRE 2	LIFT 4	6"	652-07-05	104.8	17.7	123.3	17.0	105.4	100.6%	95.0%		
ND - 253	ACRE 10	LIFT 4	6"	652-07-05	104.8	17.7	119.6	19.1	100.4	95.8%	95.0%		
ND - 254	ACRE 10	LIFT 4	6"	652-07-05	104.8	17.7	120.6	17.4	102.7	98.0%	95.0%		
ND - 255	ACRE 12	LIFT 4	6"	652-07-05	104.8	17.7	118.2	18.0	100.2	95.6%	95.0%		
ND - 256	ACRE 12	LIFT 4	6"	652-07-05	104.8	17.7	119.1	17.8	101.1	96.5%	95.0%		
ND - 257	ACRE 14	LIFT 4	6"	652-07-05	104.8	17.7	117.8	17.4	100.3	95.7%	95.0%		
ND - 258	ACRE 14	LIFT 4	6"	652-07-05	104.8	17.7	122.5	17.5	104.3	99.5%	95.0%		

Gauge Number	Gauge Model
33577	3440



Client: Glover Construction
 Project Name: Dare Co. C&D LF - Phase 4
 Project Number: 2010-652

Field Density Report

Report Number : CFFDR-05	Geotechnics Representative : Jacob R. Buda	Page : 2 of 8
Date (s) : 5.24. - 5.28.10	Reviewed By : <i>MB</i>	Date : 5-2-11

Contractor : Glover Construction	Borrow Source : On-Site Borrow Source
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Compaction Equipment : New Holland TJ450 Farm Tractor w/ Smoothdrum Roller and CAT 683E Vibratory Smoothdrum Roller

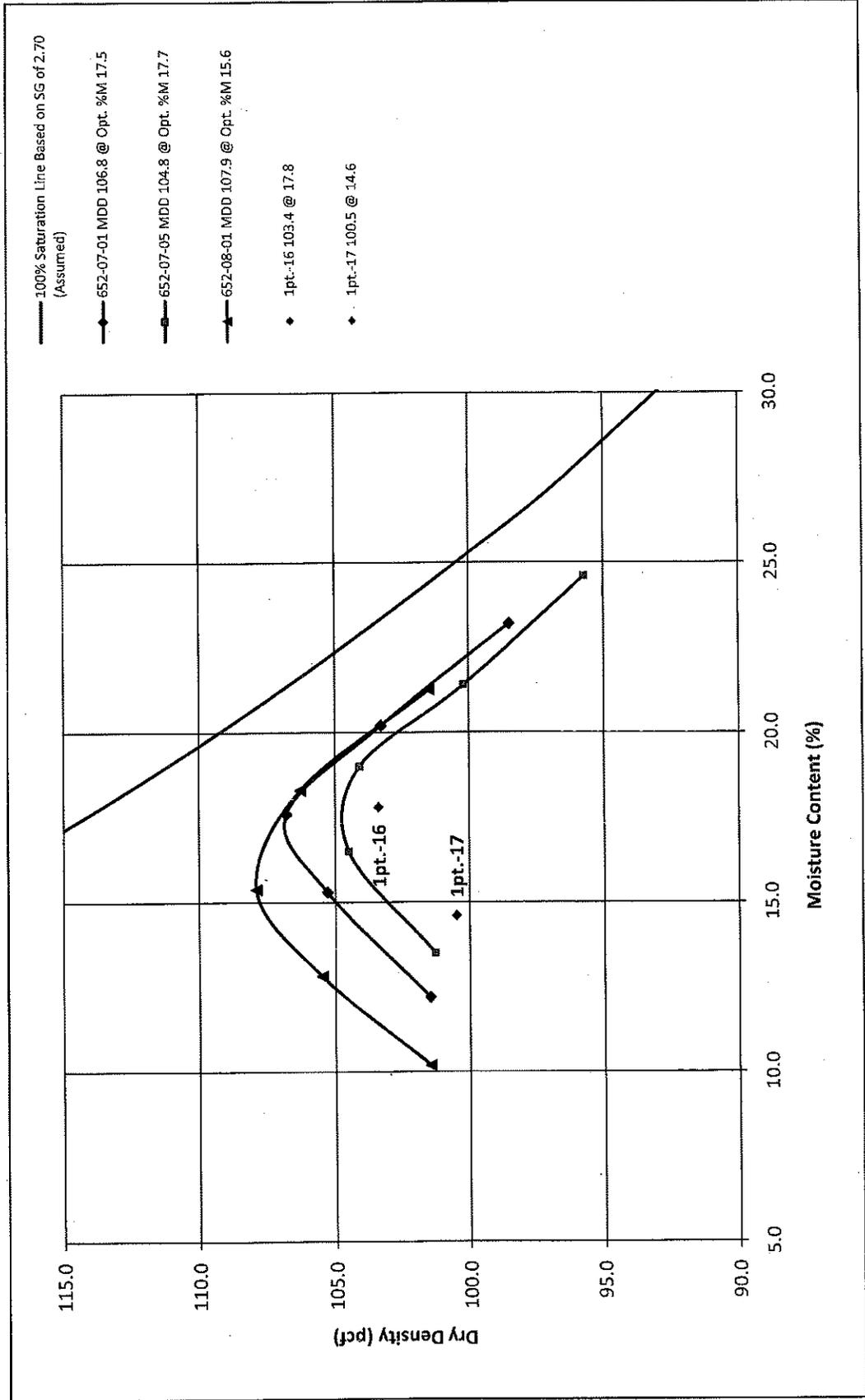
Test Number	Test Location	Elevation/ Lift	Rod Depth	Proctor I.D. No.	Proctor Data			Measured In Place			Compaction		Comments
					MDD pcf	Opt. %M	WD (pcf)	% M	DD (pcf)	% C	% Req.		
ND - 259	ACRE 14	LIFT 4	6"	652-07-05	104.8	18.3	117.8	18.2	99.7	95.1%	95.0%		
ND - 260	ACRE 14	LIFT 4	6"	652-07-05	104.8	18.3	117.7	16.9	100.7	96.1%	95.0%		
ND - 261	ACRE 12	LIFT 4	6"	652-07-05	104.8	17.7	117.8	17.9	99.9	95.3%	95.0%		
ND - 262	ACRE 12	LIFT 4	6"	652-07-05	104.8	17.7	122.6	20.3	101.9	97.2%	95.0%		
ND - 263	ACRE 10	LIFT 4	6"	652-07-05	104.8	17.7	117.2	17.5	99.7	95.2%	95.0%		
ND - 264	ACRE 10	LIFT 4	6"	652-07-05	104.8	17.7	119.6	18.3	101.1	96.5%	95.0%		
ND - 265	ACRE 1	LIFT 4	6"	652-07-05	104.8	17.7	122.5	17.2	104.5	99.7%	95.0%		
ND - 266	ACRE 1	LIFT 4	6"	652-07-05	104.8	17.7	123.1	17.7	104.6	99.8%	95.0%		
ND - 267	ACRE 3	LIFT 4	6"	652-07-05	104.8	17.7	120.1	15.7	103.8	99.0%	95.0%		
ND - 268	ACRE 3	LIFT 4	6"	652-07-05	104.8	17.7	118.9	17.7	101.0	96.4%	95.0%		
ND - 269	ACRE 5	LIFT 4	6"	652-07-05	104.8	17.7	120.1	16.1	103.4	98.7%	95.0%		
ND - 270	ACRE 5	LIFT 4	6"	652-07-05	104.8	17.7	121.7	18.4	102.8	98.1%	95.0%		
ND - 271	ACRE 7	LIFT 4	6"	652-07-05	104.8	17.7	119.0	17.7	101.1	96.5%	95.0%		
ND - 272	ACRE 7	LIFT 4	6"	652-07-05	104.8	17.7	118.2	16.5	101.5	96.8%	95.0%		
ND - 273	ACRE 7	LIFT 4	6"	652-07-05	104.8	17.7	117.6	16.4	101.0	96.4%	95.0%		
ND - 274	ACRE 7	LIFT 4	6"	652-07-05	104.8	17.7	121.3	16.9	103.8	99.0%	95.0%		
ND - 275	ACRE 5	LIFT 4	6"	652-07-05	104.8	17.7	119.3	15.6	103.2	98.5%	95.0%		
ND - 276	ACRE 5	LIFT 4	6"	652-07-05	104.8	17.7	120.0	16.9	102.7	98.0%	95.0%		
ND - 277	ACRE 3	LIFT 4	6"	652-07-05	104.8	17.7	117.1	16.5	100.5	95.9%	95.0%		
ND - 278	ACRE 3	LIFT 4	6"	652-07-05	104.8	17.7	120.4	19.2	101.0	96.4%	95.0%		
ND - 279	ACRE 1	LIFT 4	6"	652-07-05	104.8	17.7	124.0	16.6	106.3	101.5%	95.0%		
ND - 280	ACRE 1	LIFT 4	6"	652-07-05	104.8	17.7	122.6	20.0	102.2	97.5%	95.0%		
ND - 281	ACRE 9	LIFT 4	6"	652-08-01	107.9	15.6	122.7	16.2	105.6	97.9%	95.0%		
ND - 282	ACRE 9	LIFT 4	6"	652-08-01	107.9	15.6	123.5	16.0	106.5	98.7%	95.0%		
ND - 283	ACRE 11	LIFT 4	6"	652-08-01	107.9	15.6	121.0	17.1	103.3	95.8%	95.0%		
ND - 284	ACRE 11	LIFT 4	6"	652-08-01	107.9	15.6	124.7	16.6	106.9	99.1%	95.0%		

Gauge Number	Gauge Model
33577	3440



Onsite Upper Common Fill Moisture / Density Relationships

Client: Glover Construction
 Project Name: Dare Co. C&D LF - Phase 4
 Project Number: 2010-652



Attachment No. 8



Client: Glover Construction
 Project Name: Dare Co. C&D LF - Phase 4
 Project Number: 2010-652

Field Density Report

Report Number: CFFDR-08
 Date (s): 6.14. - 6.15.10
 Geotechnics Representative: Jacob R. Buda
 Reviewed By: *[Signature]*
 Page: 1 of 5
 Date: 3-2-11

Contractor: Glover Construction
 Borrow Source: On-Site Borrow Source

Compaction Equipment: New Holland TJ450 Farm Tractor w/ Smoothdrum Roller and CAT 683E Vibratory Smoothdrum Roller

Test Number	Test Location	Elevation/ Lift	Rod Depth	Proctor I.D. No.	Proctor Data			Measured In Place			Compaction		Comments
					MDD pcf	Opt. %M	WD (pcf)	% M	DD (pcf)	% C	% Req.		
ND - 387	ACRE 2	LIFT 6	6"	652-09-03	109.4	15.8	125.8	14.6	109.8	100.3%	95.0%		
ND - 388	ACRE 2	LIFT 6	6"	652-09-03	109.4	15.8	116.2	9.3	106.3	97.2%	95.0%		
ND - 389	ACRE 4	LIFT 6	6"	652-09-03	109.4	15.8	115.7	9.5	105.7	96.6%	95.0%		
ND - 390	ACRE 4	LIFT 6	6"	652-09-03	109.4	15.8	119.0	12.1	106.2	97.0%	95.0%		
ND - 391	ACRE 6	LIFT 6	6"	652-09-03	109.4	15.8	118.8	11.0	107.0	97.8%	95.0%		
ND - 392	ACRE 6	LIFT 6	6"	652-09-03	109.4	15.8	123.4	12.3	109.9	100.4%	95.0%		
ND - 393	ACRE 6	LIFT 6	6"	652-09-03	109.4	15.8	120.7	11.9	107.9	98.6%	95.0%		
ND - 394	ACRE 6	LIFT 6	6"	652-09-03	109.4	15.8	116.1	10.6	105.0	96.0%	95.0%		
ND - 395	ACRE 4	LIFT 6	6"	652-09-03	109.4	15.8	122.7	16.1	105.7	96.6%	95.0%		
ND - 396	ACRE 4	LIFT 6	6"	652-09-03	109.4	15.8	125.1	16.1	107.8	98.5%	95.0%		
ND - 397	ACRE 2	LIFT 6	6"	652-09-03	109.4	15.8	124.0	17.8	105.3	96.2%	95.0%		
ND - 398	ACRE 2	LIFT 6	6"	652-09-03	109.4	15.8	123.7	14.7	107.8	98.6%	95.0%		
ND - 399	ACRE 1	LIFT 6	6"	652-11-02	104.3	19.0	124.6	19.7	104.1	99.8%	95.0%		
ND - 400	ACRE 1	LIFT 6	6"	652-11-02	104.3	19.0	119.6	15.6	103.5	99.2%	95.0%		
ND - 401	ACRE 3	LIFT 6	6"	652-11-02	104.3	19.0	125.6	18.1	106.4	102.0%	95.0%		
ND - 402	ACRE 3	LIFT 6	6"	652-11-02	104.3	19.0	119.1	16.8	102.0	97.8%	95.0%		
ND - 403	ACRE 5	LIFT 6	6"	652-11-02	104.3	19.0	121.5	17.3	103.6	99.3%	95.0%		
ND - 404	ACRE 5	LIFT 6	6"	652-11-02	104.3	19.0	119.6	13.8	105.1	100.8%	95.0%		
ND - 405	ACRE 5	LIFT 6	6"	652-11-02	104.3	19.0	119.2	18.5	100.6	96.4%	95.0%		
ND - 406	ACRE 5	LIFT 6	6"	652-11-02	104.3	19.0	118.5	14.3	103.7	99.4%	95.0%		
ND - 407	ACRE 3	LIFT 6	6"	652-11-02	104.3	19.0	117.9	18.3	99.7	95.6%	95.0%		
ND - 408	ACRE 3	LIFT 6	6"	652-11-02	104.3	19.0	121.3	19.2	101.8	97.6%	95.0%		
ND - 409	ACRE 1	LIFT 6	6"	652-11-02	104.3	19.0	122.1	17.3	104.1	99.8%	95.0%		
ND - 410	ACRE 1	LIFT 6	6"	652-11-02	104.3	19.0	122.2	17.6	103.9	99.6%	95.0%		
ND - 411	ACRE 7	LIFT 6	6"	652-11-02	104.3	19.0	122.9	18.3	103.9	99.6%	95.0%		
ND - 412	ACRE 7	LIFT 6	6"	652-11-02	104.3	19.0	120.7	18.8	101.6	97.4%	95.0%		

Gauge Number	Gauge Model
33577	3440

Attachment No. 9

Section 7

Access and Safety Requirements

7.1 Landfill Access and Safety

In accordance with 15A NCAC 13B . 0542(j)(1), the Dare County C&D Landfill must be adequately secured by means of gates, chains, berms, fences and other security measures approved by the Division of Solid Waste Management to prevent unauthorized entry.

The property is located in a relatively remote area of mainland Dare County and is bounded to the east by US Hwy 264 and by the Alligator River National Wildlife Refuge, which is under the administration of the US Fish and Wildlife Service (USFWS) on the remaining sides. Access to the C&D disposal area from US Hwy 264 is provided by a constructed canal crossing that connects Cub Road with US Hwy 264. Secondary access to the site is provided by Link Road, however this access remains closed to the public. Primary access to the C&D disposal area is provided by way of Cub Road.

The eastern ends of Link Road and Cub Road cross a drainage canal before they connect to US Hwy 264. Because of the canal and adjacent forested wetlands, there are no other access points to the site from US Hwy 264 and additional fencing is not required.

An access gate is currently located at the entrance of Cub and Link Road and is locked when the site is closed. All vehicles disposing of waste at the facility will enter and leave through the access control gate at Cub Road. A gate attendant house is located immediately inside the gate on the southern edge of Cub Road. All vehicles carrying waste to the landfill must first be weighed at the scale house before disposing at the landfill.

Access from the western side of the site is limited because all adjacent properties are in the wildlife refuge and the nearest public access (other than Link Road and Cub Road) is approximately five miles away. An access gate is at the western end of Link Road. This gate belongs to the USFWS and is locked at all times when not in use to prevent unauthorized access to the wildlife refuge.

7.2 Attendant

In accordance with 15A NCAC 13B .0542(j)(2), an attendant shall be on duty at the site at all times while the facility is open for public use to ensure compliance with operational requirements.

A full-time attendant will be located in the scale house during operating hours. The attendant will verify compliance with operation requirements. In addition, a Facility Supervisor will be present on-site at all times during operation.

7.3 Access Road

In accordance with 15A NCAC 13B .0542(j)(3), the access road to the site shall be of all weather construction and maintained in good condition. The all weather access roads at the site include Link Road, Cub Road and the access roads from Link and Cub Road to each of the disposal cells, which are paved with compacted crushed stone. Potholes, ruts, and debris on the roads will receive immediate attention in order to avoid damage to vehicles and maintain all weather access. Access roads will be regraded as necessary to maintain positive slope for adequate drainage.

7.4 Dust Control

Per Rule .0542(j)(4), dust control measures shall be implemented when necessary. Minimum dust control will include a water truck for wetting of dusty roads. Sprinklers are also used along some portions of the landfill perimeter access road. Petroleum products shall not be used for dust control.

7.5 Signs

In accordance with Rule .0542(j)(5), a sign providing information on disposal procedures, the hours during which the site is open for public use, the permit number and other pertinent information specified in the permit conditions is posted at the site entrance at Cub Road.

In accordance with Rule .0542(j)(6), signs shall be clearly posted stating that no liquid, hazardous and municipal solid waste can be disposed in the C&D landfill.

In accordance with Rule .0542(j)(7), traffic signs or markers are provided to promote an orderly traffic pattern to and from the discharge area and to maintain efficient operating conditions.

7.6 Waste Removal Scavenging Policy

Per Rule .0542(j)(8), the removal of solid waste from the C&D landfill is prohibited.

7.7 Managing Recyclables

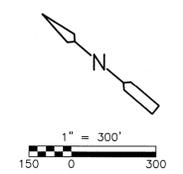
The only recyclables accepted at the Dare County C&D landfill facility are white goods, scrap metal and tires. Upon arrival of these materials at the scale house they are inspected. White goods and scrap metal are directed to an all weather gravel pad located east of the existing transfer station as shown on SD-1. Tires are collected in transfer trailers and hauled by the Dare County Public Works Recycling Department to Emanuel Tire in Waverly Virginia for processing and recycling.

Attachment No. 10

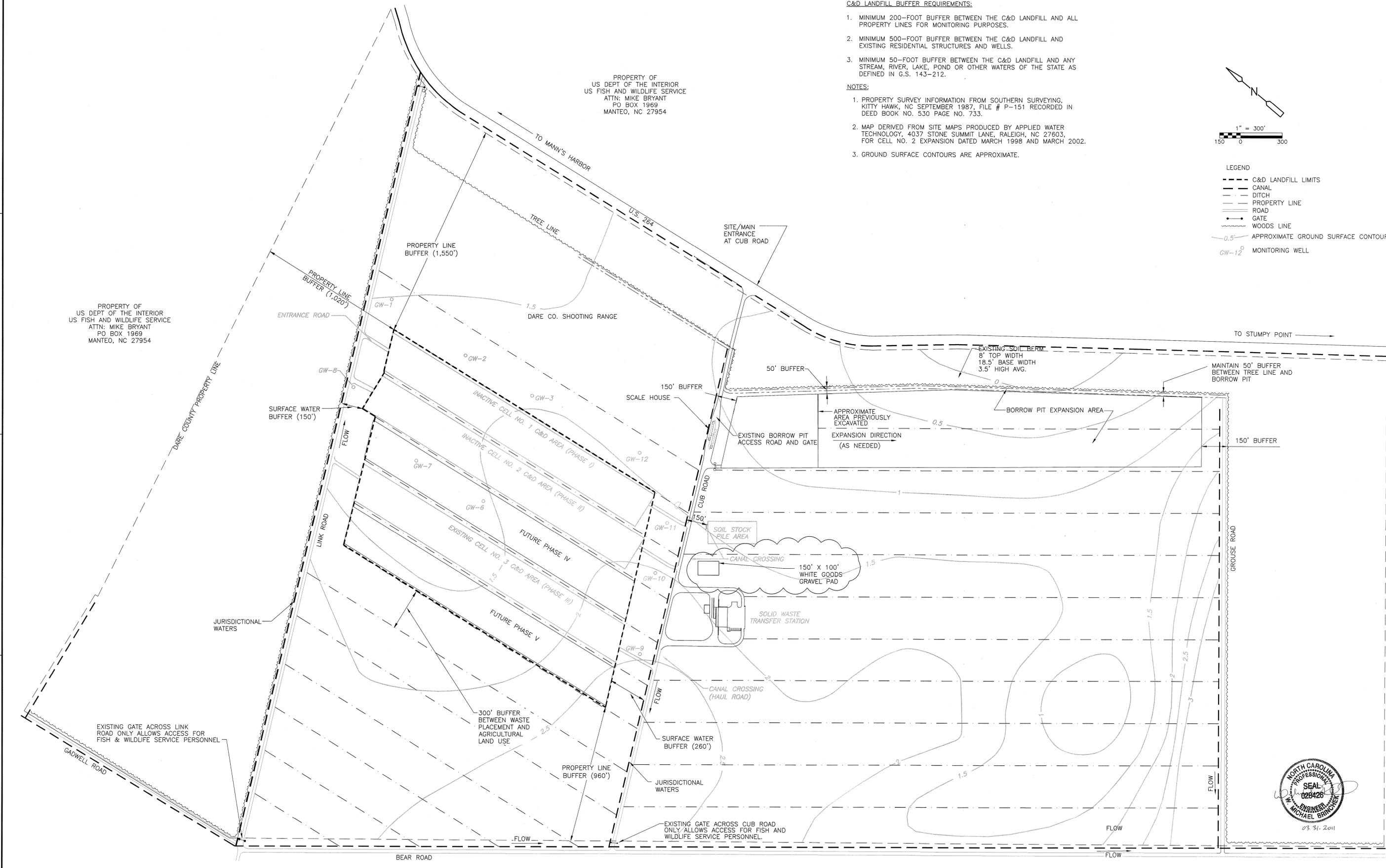
PROPERTY OF
US DEPT OF THE INTERIOR
US FISH AND WILDLIFE SERVICE
ATTN: MIKE BRYANT
PO BOX 1969
MANTEO, NC 27954

PROPERTY OF
US DEPT OF THE INTERIOR
US FISH AND WILDLIFE SERVICE
ATTN: MIKE BRYANT
PO BOX 1969
MANTEO, NC 27954

- C&D LANDFILL BUFFER REQUIREMENTS:**
1. MINIMUM 200-FOOT BUFFER BETWEEN THE C&D LANDFILL AND ALL PROPERTY LINES FOR MONITORING PURPOSES.
 2. MINIMUM 500-FOOT BUFFER BETWEEN THE C&D LANDFILL AND EXISTING RESIDENTIAL STRUCTURES AND WELLS.
 3. MINIMUM 50-FOOT BUFFER BETWEEN THE C&D LANDFILL AND ANY STREAM, RIVER, LAKE, POND OR OTHER WATERS OF THE STATE AS DEFINED IN G.S. 143-212.
- NOTES:**
1. PROPERTY SURVEY INFORMATION FROM SOUTHERN SURVEYING, KITTY HAWK, NC SEPTEMBER 1987, FILE # P-151 RECORDED IN DEED BOOK NO. 530 PAGE NO. 733.
 2. MAP DERIVED FROM SITE MAPS PRODUCED BY APPLIED WATER TECHNOLOGY, 4037 STONE SUMMIT LANE, RALEIGH, NC 27803, FOR CELL NO. 2 EXPANSION DATED MARCH 1998 AND MARCH 2002.
 3. GROUND SURFACE CONTOURS ARE APPROXIMATE.



- LEGEND**
- - - C&D LANDFILL LIMITS
 - - - CANAL
 - - - DITCH
 - - - PROPERTY LINE
 - - - ROAD
 - - - GATE
 - - - WOODS LINE
 - - - 0.5' APPROXIMATE GROUND SURFACE CONTOUR
 - GW-12 MONITORING WELL



REV. NO.	DATE	DRWN	CHKD	REMARKS
1	3/11	WPS	WMB	REV. FACILITY PLAN TO INCLUDE RECYCLABLE PAD PER NCDENR COMMENTS

DESIGNED BY: M. BRINCKEY
DRAWN BY: J. KILLINGSWORTH
SHEET CHK'D BY: P. STOUT
CROSS CHK'D BY: K. YANG
APPROVED BY: _____
DATE: JULY 2009

CDM
Camp Dresser & McKee
5400 Glenwood Avenue, Suite 300
Raleigh, NC 27612
Tel: (919) 787-5620 Fax: (919) 781-5730
consulting • engineering • construction • operations

DARE COUNTY
NORTH CAROLINA
**CONSTRUCTION & DEMOLITION DEBRIS LANDFILL
PHASE IV PERMIT DRAWINGS**

EXISTING CONDITIONS

PROJECT NO. 17952-56960
FILE NAME: SD-1
SHEET NO.
SD-1

Attachment No. 11

Section 2

Waste Acceptance and Disposal Requirements

2.1 Waste Definitions

Agricultural Waste - waste material produced from raising of plants and animals, including animal manures, bedding plant stalks, hulls, and vegetative matter.

Asbestos Waste - any waste material that is determined to contain asbestos.

Asphalt - in accordance with G.S. 130-294 (m).

Blood Product - all bulk blood and blood products.

Commercial Solid Waste - all types of solid waste generated by retail stores, offices, restaurants, warehouses, and other non-manufacturing activities, excluding residential waste.

Construction or Demolition Debris - solid waste resulting solely from construction, remodeling, repairs or demolition operations on pavement, buildings, or other structures, but does not include inert debris, land-clearing debris or yard debris.

Hazardous Waste - any solid waste that is defined as hazardous in 15A NCAC 13A 261.3 and that is not excluded from regulation as a hazardous waste from conditionally exempt small quantity generators as defined within 15A NCAC 13A 261.5.

Hot Load - when a waste hauling vehicle is transporting solid waste that is burning or smoldering, it is referred to as a hot load.

Household Waste - any solid waste derived from households including hotels and motels, bunkhouses, ranger stations, crew quarters, campgrounds, picnic grounds, and day-use recreation areas.

Industrial Solid Waste - solid waste generated by manufacturing processes that is not a hazardous waste regulated under Subtitle C of RCRA. Such waste may include, but is not limited to, waste resulting from the following manufacturing processes: electric power generation; fertilizer/agricultural chemicals; food and related products/by-products; inorganic chemicals; iron and steel manufacturing; leather and leather products; nonferrous metals manufacturing/foundries; organic chemicals; plastics and resins manufacturing; pulp and paper industry; rubber and miscellaneous plastic products; stone, glass, clay, and concrete products; textile manufacturing; transportation equipment; and water treatment. This term does not include mining waste or oil and gas waste.

Inert Debris - any solid waste which consists solely of material such as concrete, brick, concrete block, uncontaminated soil, rock, and gravel.

Infectious Waste - any solid waste capable of producing an infectious disease. These types of waste include microbiological waste, pathological waste, blood products, and sharps.

Land-Clearing Debris - solid waste which is generated solely from land clearing activities such as stumps and trees trunks.

Liquid Hydrocarbons - as defined under Article 21A of Chapter 143 of the North Carolina General Statutes: except that any such oils or other liquid hydrocarbons that meet the criteria for hazardous waste under the Federal Resource Conservation and Recovery Act (P.L. 94-580) as amended.

Liquid Waste - any waste material that is determined to contain free liquid by Method 9095 (Paint Filter Test).

Microbiological Waste - includes cultures and stocks of etiologic agents. The term includes cultures of specimens from medical, pathological, pharmaceutical, research, commercial, and industrial laboratories.

Oils - As defined under Article 21A of Chapter 143 of the North Carolina General Statutes: except that any such oils that meet the criteria for hazardous waste under the Federal Resource Conservation and Recovery Act (P.L. 94-580) as amended.

Pathological Waste - includes: human tissue, organs, body parts, secretions, and excretions, blood, and body fluids that are removed during surgery and autopsies; the carcasses and body parts of all animals that were exposed to pathogens in research, were used in the production of biological or in the in-vitro testing of pharmaceuticals, or that died of known or suspected infectious disease.

Polychlorinated Biphenyls (PCB) - defined as any of several compounds that are produced by replacing hydrogen atoms in biphenyl with chlorine. PCB's were most frequently used as an additive to oil or other liquid in situations where heat is involved. PCB's have been used in paints and lubricants, however the most common application was in electric transformers.

Radioactive Waste - any waste that contains radioactivity as defined by the North Carolina Radiation Protection Act, G.S. 104E-1 through 104E-23. Radioactivity is defined as the property possessed by some elements of spontaneously emitting alpha or beta rays and sometimes gamma rays by the disintegration of the nuclei of atoms.

Sharps - includes needles, syringes with attached needles, capillary tubes, slides and cover slips, and scalpel blades.

Spoiled Food - any food which has been removed from sale by the United States Department of Agriculture, North Carolina Department of Agriculture, Food and Drug Administration, or any other regulatory agency having jurisdiction in determining that food is unfit for consumption.

Treatment or Processing Waste - any waste that is a residual solid from a wastewater treatment or pretreatment facility.

Tires - rubber tires from vehicles.

White Goods - any inoperative and discarded refrigerators, freezers, ranges, washers, dryers, water heaters, and other large domestic commercial appliances.

Yard Trash - solid waste resulting from landscaping and yard maintenance such as brush, grass, tree limbs, and similar vegetative material.

2.2 Acceptable Waste

In accordance with Rule .0542(c)(1), a C&D landfill shall only accept those solid wastes which it is permitted to dispose of. In accordance with the current Permit to Operate (dated November 30, 2006), the Dare County C&D Landfill is permitted to dispose of the following using normal operating procedures (as defined previously):

- Construction or Demolition Debris;
- Inert Debris;
- Land-Clearing Debris;
- Asphalt; and
- Asbestos (Non-Friable Asbestos Only)

2.3 Acceptable Waste Requiring Special Handling

- Non-Friable Asbestos waste is part of the permitted, acceptable waste stream and will require special handling procedures. All approved asbestos loads will be directed to the toe of the landfill slope away from the working face. The location of the primary asbestos disposal area will change along with the landfill development so as to always be away from the working face.
- The asbestos waste shall be managed in accordance with 40 CFR 61. In accordance with Rule .0542(c)(2), the regulated asbestos waste shall be covered immediately with soil in a manner that will not cause airborne conditions and must be disposed of separate and apart from other solid wastes.
- Hot loads arriving at the site should be dumped immediately in the designated primary hot load area located near the working face. The designated area must be

located only on areas containing compacted refuse covered by at least 12 inches of cover material. The location of the primary hot load area will change along with the landfill development so as to always be near the working face. Hot loads should be extinguished immediately after being dumped by applying water to the burning refuse and by covering the refuse with soil from the stockpile area. If problems are encountered, the local fire department should be called. Once extinguished, the hot load should be observed until it is certain that the fire is out. The remaining refuse should then be compacted and buried at the working face.

2.4 Prohibited Wastes

The following wastes will be prohibited from disposal at the Dare County C&D Landfill:

- Wastewater treatment sludge;
- Containers such as tubes, drums, barrels, tanks, cans, and bottles unless they are empty and perforated to ensure that no liquid, hazardous or municipal solid waste is contained within;
- Garbage as defined in G.S. 130A-290(a)(7);
- Hazardous waste as defined in G.S. 130A-290(a)(8);
- Industrial solid waste;
- Liquid waste;
- Medical waste as defined in G.S. 130A-290(a)(18);
- Municipal solid waste as defined in G.S. 130A-290(a)(18a);
- Polychlorinated biphenyls (PCB) wastes as defined in 40CFR 761;
- Radioactive waste as defined in G.S. 104E-5(14);
- Septage as defined in G.S. 130A-290(a)(32);
- Sludge as defined in G.S. 130A-290(a)(34);
- Special wastes as defined in G.S. 130A-290(a)(40);
- White goods as defined in G.S. 130A-290(a)(44); and
- Yard trash as defined in G.S. 130A-290(a)(45);
- Tires.

The following wastes cannot be received if separate from C&D landfill waste:

- Lamps or bulbs including but not limited to halogen, incandescent, neon or fluorescent;
- Lighting ballast or fixtures;
- Thermostats and light switches;

- Batteries including but not limited to those from exit and emergency lights and smoke detectors;
- Lead pipes;
- Lead roof flashing;
- Transformers;
- Capacitors; and
- Copper chrome arsenate (CCA) and creosote treated woods.

Waste accepted for disposal in the C&D landfill shall be readily identifiable as C&D waste and shall not have been shredded, pulverized, or processed to such an extent that the composition of the original waste cannot be readily ascertained.

The County shall not knowingly dispose any type or form of C&D waste that is generated within the boundaries of a unit of local government that by ordinance:

- Prohibits generators or collectors of C&D waste from disposing that type or form of C&D waste.
- Requires generators or collectors of C&D waste to recycle that type or form of C&D waste.

2.5 Receiving Prohibited Waste

The Dare County C&D Landfill shall only accept those solid wastes that it is permitted to receive. The County will notify the North Carolina Department of Environment and Nature Resources Division of Waste Management (NCDENR DWM) within 24 hours of attempted disposal of any waste the C&D landfill is not permitted to receive.

A report shall be prepared of any attempted delivery of waste of which the landfill is not permitted to receive, including waste from outside the permitted landfill service area. The report will be forwarded to:

Department of Environment and Natural Resources
Division of Waste Management
Solid Waste Section
1646 Mail Service Center
Raleigh, North Carolina 27699-1646

2.6 Waste Screening Program

Dare County has adopted a waste screening program at their C&D landfill facility for detecting and preventing the disposal of MSW, hazardous waste, and liquid waste. This program includes:

- Random inspection of incoming loads or other comparable procedures.

- Records of inspection.
- Training of facility personnel to recognize hazardous and liquid waste.
- Development of a contingency plan to properly manage any identified hazardous and liquid waste addressing identification, removal, storage, and final disposition of the waste.

Since Cell No. 4 will be located within the same property as the Dare County C&D Landfill, the existing waste screening program can be effectively used.