ADDENDUM NO. 1 TO THE CONTRACT DOCUMENTS

CATAWBA COUNTY – BLACKBURN MSW LANDFILL UNIT 4 CONSTRUCTION ADVANCE SITE WORK AND UTILITY RELOCATION PROJECT

BID NO. 25-1019

BID PROPOSALS DUE – JUNE 26, 2025 AT 3:00 PM

ISSUED: June 10, 2025

To All Official Plan Holders:

The following revisions, additions, and clarifications are hereby made part of the Contract Documents for the above-referenced project and shall be taken into account in the preparation of all Bids and the execution of all Work. Bidders shall acknowledge receipt of the Addendum in the appropriate space on the Bid Form.

I. GENERAL

- Notes from the Pre-Bid Meeting held on Thursday, June 5, 2025, at 10:00 AM are attached for reference.
- 2. Will the stockpile of topsoil have to be screened or amended to be used?

The stockpiled topsoil materials have not been processed to meet the requirements for Section 32 91 13, Part 3.2.D to provide a surface free of stones, sticks, or other material 3/8" or greater in any dimension. Per Section 01 22 00 – Measurement Payment, Part 1.5.M, the unit bid price for topsoil placement, indicates that topsoil materials shall be processed to meet project requirements.

3. The intent of Bid Items 9 - Soil Excavation is that the 30,000 CY of excavated soil materials would be utilized for structural fill or for "excavation to fill". Some of the materials excavated will include topsoil materials that would need to be segregated for re-use under Payment Item 13. Some other excavated materials may be deemed unsuitable for re-use and would be measured and paid under Item 5. The balance of the remaining structural fill quantities under Item 10, approximately 40,000 CY, shall be obtained from the designated on-site borrow areas within Unit 4.

See attached revised Bid Form to reflect this adjustment in description and quantities.

II. PROJECT MANUAL

Section 01 22 00

- 1. Revise Part 1.5.I to Read as Follows:
- I. Item 9 Soil Excavation to Fill:

This Work shall consist of furnishing all necessary materials, labor, equipment, and appurtenances necessary to excavate soil to achieve the subgrade elevations for perimeter berms and roadways, sediment basins and to haul and place as structural fill as shown on the Drawings and as specified in the Contract Documents. Payment for this bid item shall be made on a per cubic yard excavated

basis, wherein measurement will be made by survey. Payment for excavation and managing unsuitable soils or topsoil materials from the excavation areas shall be measured and paid under Items 5 and 13, respectively.

III. ATTACHMENTS

- A. Incorporate the enclosed Revised Bid Form.
- B. Incorporate the enclosed Attachment C Boring Logs and Soil Data

IV. DRAWINGS

Sheet 03G-02

- 1. Revise Land Disturbance Sequence Note 4 to Read as Follows:
 - 4. INSTALL DIVERSIONB BERMS AND DITCHES NECESSARY TO DIVERT AS MUCH RUNOFF AS POSSIBLE WITHIN THE LIMITS OF DISTURBANCE TO THE SEDIMENT BASINS

Sheet 003C-01

1. The Drawing depicts the location for Contractor's Heavy Duty Equipment Entrance Location. This gate location should be utilized for all Contractor access to the project. See attached Annotation for location of Contractor Laydown Areas.

Sheet 03C-01

1. Add Callout Note to PZ-76AB near Sta 4+00 of Perimeter Road to Read as Follows:

PROTECT AND EXTEND PIEZOMETER TO 12" BELOW FINISHED GRAVEL ROAD GRADE, PROTECT WITH PRECAST ECCENTRIC CONE, FRAME AND COVER

HDR Engineering, Inc.

leffrey S. Murray, PE, BCEE Vice President, Sr. Project Manager

Attachments

Revised Bid Form

Attachment C – Boring Logs and Soil Data

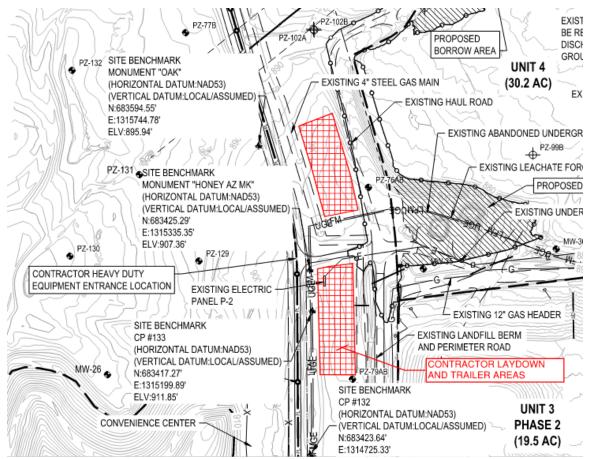


Figure 1- Sheet 003G-05 Annotation

BID FORM

FOR CONSTRUCTION CONTRACT

The terms used in this Bid with initial capital letters have the meanings stated in the Instructions to Bidders, the General Conditions, and the Supplementary Conditions.

ARTICLE 1—OWNER AND BIDDER

- 1.01 This Bid is submitted to: Catawba County 25 Government Drive, Newton, NC 28658.
- 1.02 The undersigned Bidder proposes and agrees, if this Bid is accepted, to enter into an Agreement with Owner in the form included in the Bidding Documents to perform all Work as specified or indicated in the Bidding Documents for the prices and within the times indicated in this Bid and in accordance with the other terms and conditions of the Bidding Documents.

ARTICLE 2—ATTACHMENTS TO THIS BID

- 2.01 The following documents are submitted with and made a condition of this Bid:
 - A. Required Bid security;
 - B. List of Proposed Subcontractors;
 - C. List of Proposed Suppliers;
 - D. Evidence of authority to do business in the state of the Project; or a written covenant to obtain such authority within the time for acceptance of Bids;
 - E. Contractor's license number as evidence of Bidder's State Contractor's License or a covenant by Bidder to obtain said license within the time for acceptance of Bids;
 - F. Required Bidder Qualification Statement with supporting data; and

ARTICLE 3—BASIS OF BID—LUMP SUM BID AND UNIT PRICES

- 3.01 Lump Sum Bids
 - A. Bidder will complete the Work in accordance with the Contract Documents for the following lump sum (stipulated) price(s), together with any unit prices indicated in Paragraph 3.02:
- 3.02 Unit Price Bids
 - A. Bidder will perform the following Work at the indicated unit prices:

Item No.	Description	Unit	Estimated Quantity	Bid Unit Price	Bid Amount					
General Administration										
1	Bonds, Mobilization and Insurance (5% max. of Total Work Items 2 - 30)	LS	1	\$	\$					

2	General Conditions and Construction Quality Control	LS	1	\$	\$
3	Surveying and Control	LS	1	\$	\$
Earth	work	•		•	
4	Demolition of Existing Sediment Basin	LS	1	\$	\$
5	Unsuitable Soil Excavation	CY	1000	\$	\$
6	Unsuitable Soil Replacement	CY	250	\$	\$
7	Erosion and Sediment Control	LS	1	\$	\$
8	Sediment Basin Discharge Structures	LS	1	\$	\$
9	Soil Excavation to Fill	CY	30,000	\$	\$
10	Structural Fill	CY	40,000	\$	\$
11	Perimeter Gravel Roadway	SY	13,000	\$	\$
12	TRM Channel Lining	SY	12,000	\$	\$
13	Topsoil Placement	AC	3.5	\$	\$
14	Temporary Seeding and Mulching	AC	1.5	\$	\$
15	Permanent Seeding and Mulching	AC	3.5	\$	\$
Utiliti	es	•		•	
16	Permanent 18" LFG Header and Valves	LF	2,300	\$	\$
17	Temporary 12" LFG Header and Valves	LF	1,000	\$	\$
18	3' Dia. Condensate Trap Pump Station	EA	1	\$	\$
19	Permanent 4"x8" Leachate Forcemain	LF	2,100	\$	\$
20	Temporary 3"x6" Leachate Forcemain	LF	1,800	\$	\$
21	4"x8" Condensate Forcemain	LF	300	\$	\$
22	6"x10" Leak Detection Pipe	LF	1,400	\$	\$
23	6' Dia. Leak Detection Manhole	EA	1	\$	\$
24	18" CPE Drainage Pipe	LF	510	\$	\$
25	24" CPE Drainage Pipe	LF	120	\$	\$
26	72" CPE Drainage Pipe	LF	160	\$	\$

27	8' Dia. Stormwater Manholes	EA	2	\$	\$						
28	French Drain	LF	120	\$	\$						
29	Underground Electrical Service	LS	1	\$	\$						
30	Temporary Electrical Service	LS	1	\$	\$						
31	Construction Contingency Allowance	LS	1	\$200,000	\$200,000						
Total of	Total of All Lump Sum and Unit Price Bid Items										

B. Bidder acknowledges that:

- 1. each Bid Unit Price includes an amount considered by Bidder to be adequate to cover Contractor's overhead and profit for each separately identified item, and
- 2. the estimated quantities are not guaranteed, and are solely for the purpose of comparison of Bids, and final payment for all Unit Price Work will be based on actual quantities, determined as provided in the Contract Documents.

ARTICLE 4—TIME OF COMPLETION

- 4.01 Bidder agrees that the Work will be substantially complete and will be completed and ready for final payment in accordance with Paragraph 15.06 of the General Conditions on or before the dates or within the number of days indicated in the Agreement.
- 4.02 Bidder accepts the provisions of the Agreement as to liquidated damages.

ARTICLE 5—BIDDER'S ACKNOWLEDGEMENTS: ACCEPTANCE PERIOD, INSTRUCTIONS, AND RECEIPT OF ADDENDA

5.01 Bid Acceptance Period

A. This Bid will remain subject to acceptance for 60 days after the Bid opening, or for such longer period of time that Bidder may agree to in writing upon request of Owner.

5.02 Instructions to Bidders

A. Bidder accepts all of the terms and conditions of the Instructions to Bidders, including without limitation those dealing with the disposition of Bid security.

5.03 Receipt of Addenda

A. Bidder hereby acknowledges receipt of the following Addenda:

Addendum Number	Addendum Date				

ARTICLE 6—BIDDER'S REPRESENTATIONS AND CERTIFICATIONS

6.01 Bidder's Representations

- A. In submitting this Bid, Bidder represents the following:
 - 1. Bidder has examined and carefully studied the Bidding Documents, including Addenda.
 - 2. Bidder has visited the Site, conducted a thorough visual examination of the Site and adjacent areas, and become familiar with the general, local, and Site conditions that may affect cost, progress, and performance of the Work.
 - 3. Bidder is familiar with all Laws and Regulations that may affect cost, progress, and performance of the Work.
 - 4. Bidder has carefully studied the reports of explorations and tests of subsurface conditions at or adjacent to the Site and the drawings of physical conditions relating to existing surface or subsurface structures at the Site that have been identified in the Supplementary Conditions, with respect to the Technical Data in such reports and drawings.
 - 5. Bidder has carefully studied the reports and drawings relating to Hazardous Environmental Conditions, if any, at or adjacent to the Site that have been identified in the Supplementary Conditions, with respect to Technical Data in such reports and drawings.
 - 6. Bidder has considered the information known to Bidder itself; information commonly known to contractors doing business in the locality of the Site; information and observations obtained from visits to the Site; the Bidding Documents; and the Technical Data identified in the Supplementary Conditions or by definition, with respect to the effect of such information, observations, and Technical Data on (a) the cost, progress, and performance of the Work; (b) the means, methods, techniques, sequences, and procedures of construction to be employed by Bidder, if selected as Contractor; and (c) Bidder's (Contractor's) safety precautions and programs.
 - 7. Based on the information and observations referred to in the preceding paragraph, Bidder agrees that no further examinations, investigations, explorations, tests, studies, or data are necessary for the performance of the Work at the Contract Price, within the Contract Times, and in accordance with the other terms and conditions of the Contract.
 - 8. Bidder is aware of the general nature of work to be performed by Owner and others at the Site that relates to the Work as indicated in the Bidding Documents.
 - Bidder has given Engineer written notice of all conflicts, errors, ambiguities, or discrepancies that Bidder has discovered in the Bidding Documents, and of discrepancies between Site conditions and the Contract Documents, and the written resolution thereof by Engineer is acceptable to Contractor.
 - 10. The Bidding Documents are generally sufficient to indicate and convey understanding of all terms and conditions for performance and furnishing of the Work.
 - 11. The submission of this Bid constitutes an incontrovertible representation by Bidder that without exception the Bid and all prices in the Bid are premised upon performing and furnishing the Work required by the Bidding Documents.

6.02 Bidder's Certifications

- A. The Bidder certifies the following:
 - This Bid is genuine and not made in the interest of or on behalf of any undisclosed individual or entity and is not submitted in conformity with any collusive agreement or rules of any group, association, organization, or corporation.
 - 2. Bidder has not directly or indirectly induced or solicited any other Bidder to submit a false or sham Bid.
 - 3. Bidder has not solicited or induced any individual or entity to refrain from bidding.
 - 4. Bidder has not engaged in corrupt, fraudulent, collusive, or coercive practices in competing for the Contract. For the purposes of this Paragraph 8.02.A:
 - a. Corrupt practice means the offering, giving, receiving, or soliciting of anything of value likely to influence the action of a public official in the bidding process.
 - b. Fraudulent practice means an intentional misrepresentation of facts made (a) to influence the bidding process to the detriment of Owner, (b) to establish bid prices at artificial non-competitive levels, or (c) to deprive Owner of the benefits of free and open competition.
 - c. Collusive practice means a scheme or arrangement between two or more Bidders, with or without the knowledge of Owner, a purpose of which is to establish bid prices at artificial, non-competitive levels.
 - d. Coercive practice means harming or threatening to harm, directly or indirectly, persons or their property to influence their participation in the bidding process or affect the execution of the Contract.

BIDDER hereby submits th Bidder:	is Bid as set forth above:
	(typed or printed name of organization)
Ву:	(individual's signature)
Name:	(maividual 3 signature)
	(typed or printed)
Title:	(typed or printed)
Date:	(typed of printed)
	(typed or printed)
If Bidder is a corporation, a	partnership, or a joint venture, attach evidence of authority to sign.
Attest:	
	(individual's signature)
Name:	(typed or printed)
Title:	(typed of princed)
	(typed or printed)
Date:	(typed or printed)
Bidder's Address for givin	
	,
Bidder's Contact Person:	
Name:	(typed or printed)
Title:	(V)
	(typed or printed)
Phone:	
Email:	
Address:	
Bidder's Contractor Licer	ise No.: (if applicable)

WELL NUMBER MW-37 PAGE 1 OF 2

CLIEN	IT _(V Cataw		nc.com/follc ounty				PROJECT NAME Blackburn LF Wel	Il Installation			
				10400064				PROJECT LOCATION Newton, NC				
						COM	PLETED 06/26/24 00:00			LE SIZE 8.25 inches		
	CONTRACTOR Geologic Exploration, Inc./ D. Hall											
							er, & 4 1/4 Hollow Stem Auger/					
							CKED BY Z. Hector	AT END OF DRILLING 12.80	ft			
NOTE			2					▼ 8.5hrs AFTER DRILLING 12.				
								= 0.0113 ATTEN DIALETTO 12.	1			
O DEPTH (ft)	SAMPLE TYPE	NUMBER	RECOVERY %	BLOW COUNTS (N VALUE)	U.S.C.S.	GRAPHIC LOG		MATERIAL DESCRIPTION		WELL DIAGRAM		
	М	SS		4-6-7				iff, dry, red (2.5YR 4/6), fine sand, no p	lasticity,			
-	ا \\	1	100	(13)			residuum, organics					
	<u> </u>											
_					ML					Cement Grout		
_	-											
							4.0					
-	1			46:			(ML) medium, moist			2 2 20 40		
5	1X1	SS 2	100	4-3-4 (7)					STANCE OF STANCES	PVC 2" SCH 40 PVC Bentonite Seal		
	μ	_		(.,						Bentonite Sea		
-	1											
					ML							
_	1											
_	-									[점화]		
-	1				 -	1	9.0 (ML) wet					
10	1X1	SS 3	100	4-7-3 (10)								
	μ	_		(,								
_	-											
					ML							
_	1											
_												
							14.0					
-	1						314.0 SILTY SAND, (SM) Ic	oose, wet, pale brown (10YR 6/3) and wl	hite (10YR			
15]X	SS 4	67	3-3-2 (5)			8/1), fine sand, poorly	graded, saprolite, weathered gneiss				
	μ	-7		(0)								
_	-									Sand Filter		
										Pack 0.010" Slotted		
-	1											
_										PVC Well Screen		
					SM							
_	1											
20	$ \chi $	SS	33	4-3-3								
	\mathbb{N}	5		(6)								
_												
-	1											

WELL NUMBER MW-37 PAGE 2 OF 2

440 S. Church Street, Suite 900 Charlotte, NC 28202-2075 Phone: 704-338-6700

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CLIENT Catawba County PROJECT NAME Blackburn LF Well Installation

PROJ	ECT NUN	BER _	10400064			PROJECT LOCATION Newton, NC	PROJECT LOCATION Newton, NC			
DEPTH (ft)	SAMPLE TYPE NUMBER	RECOVERY %	BLOW COUNTS (N VALUE)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM			
	\			SM		SILTY SAND, (SM) loose, wet, pale brown (10YR 6/3) and white (10YR 8/1), fine sand, poorly graded, saprolite, weathered gneiss (continued) (SM) dense				
_ 25	SS 6	44	0-3-4 (7)			(Sivi) delise				
30	SS 7	33	3-7-28 (35)	- SM						
35 - 35 - 35 - 35 - 35 - 35 - 35 - 35 -	SS 8	(100)	50/1"	SM		34.0 SILTY SAND, (SM) very dense, blueish black (10B 2.5/1), fine sand, poorly graded, weathered amphibolite 37.0				
- A0101	SS 9		50/0"	ı	1. h. h.	Refusal at 37.0 feet. Bottom of borehole at 37.0 feet.				
GENERAL BH / IF / WELL - GIN I S ID US LAB.GD I - 7/3 24 US.5/ - C.: FWWORNING (EAS) (10/35/9/ 1404) LS / WELL INSIAL GIN I S F J										

H	·)	3	Cha Pho	S. Church Irlotte, NC 2 Ine: 704-338 Inc.com/follo	.8202-2 8-6700	2075	WELL N	NUMBER MW-38 PAGE 1 OF 2
CLIE	NT _	Catav	vba Co	ounty			PROJECT NAME Blackburn LF Well Installation	
				10400064			PROJECT LOCATION Newton, NC	
							PLETED 06/27/24 00:00 GROUND ELEVATION HOLE	· · · · · · · · · · · · · · · · · · ·
							Hall NORTHING EASTIN	G
							r, & 4 1/4 Hollow Stem Auger/ Digredund WATER LEVELS: KED BY Z. Hector AT END OF DRILLING _21.36 ft	
1				30100		0112	▼ 24.75hrs AFTER DRILLING 19.62 ft	
O DEPTH (ft)		NUMBER	RECOVERY %	BLOW COUNTS (N VALUE)	U.S.C.S.	GRAPHIC	MATERIAL DESCRIPTION	WELL DIAGRAM
		SS 1	100	5-7-5 (12)	SM		SILTY SAND, (SM) medium dense, dry, pale brown (10YR 6/3), fine sand poorly graded, residuum, organics SANDY SILT, (ML) stiff, dry, red (2.5YR 4/6), fine sand, no plasticity,	1,
					ML		residuum	
		SS 2	100	6-4-4 (8)			(ML) medium, moist	
_ 5	-				ML			Cement Grout
- ·		SS 3	100	4-2-3 (5)	_		9.0 SILTV SAND (SM) loose majet vary pale brown (10VP 7/2) fine cand	PVC
10	_				SM		SILTY SAND, (SM) loose, moist, very pale brown (10YR 7/3), fine sand, poorly graded, saprolite, faint gneissic structure	Bentonite Seal
	- M	SS 4	67	3-3-4 (7)			(SM) brownish yellow (10YR 6/6)	
_ 15					SM			
		SS 5	0	2-1-2 (3)			No Recovery	
	_							Sand Filter Pack

WELL NUMBER MW-38

PAGE 2 OF 2

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CLIENT Catawba County PROJECT NAME Blackburn LF Well Installation PROJECT NUMBER 10400064 PROJECT LOCATION Newton, NC SAMPLE TYPE NUMBER BLOW COUNTS (N VALUE) GRAPHIC LOG RECOVERY DEPTH (ft) U.S.C.S. MATERIAL DESCRIPTION WELL DIAGRAM (SM) medium dense, wet, greenish gray (10BG 5/1), fine sand, poorly 3-5-8 (13) PVC Well SS graded, saprolite, ambphibolite structure 44 Screen 25 SM SS 7 20-30-44 100 29.0 (74) (SM) dense, pale brown (10YR 6/3) and white (10YR 8/1), gneissic structure, rig chatter began at 33 feet 30 GENERAL BH / TP / WELL - GINT STD US LAB.GDT - 7/31/24 09:37 - C.\PWWORKING\EAST01\D3971484\CATAWBA COUNTY WELL INSTAL GINT.GPJ SM SS 30-20-48 100 (68)SILTY SAND, (SM) very dense, wet, blueish black (10B 2.5/1), fine sand, poorly graded, partially weathered rock, trace coarse sand, amphibolite 35 structure SS SM 100 30-50/3" 40 Refusal at 42.5 feet. Bottom of borehole at 42.5 feet.

H		S	Cha Pho	S. Church Sarlotte, NC 28 ne: 704-338	3202-2 -6700	2075	900		WELL NU	JMBER MW-39A PAGE 1 OF 1				
CLIEN	VТ	Catav						PROJECT NAME Blackburn	I F Well Installation					
								PROJECT LOCATION Newt						
1								GROUND ELEVATION		SIZE 4.25 inches				
1								NORTHING						
								DIGREDUND WATER LEVELS:						
1							CKED BY Z. Hector		Dry					
NOTE	S_							26hrs AFTER DRILLIN	G 11.00 ft					
O DEPTH (ft)	SAMPI E TYPE	NUMBER	RECOVERY %	BLOW COUNTS (N VALUE)	U.S.C.S.	GRAPHIC LOG		MATERIAL DESCRIPTION		WELL DIAGRAM				
	M	SS 1	100	8-6-7 (13)			SANDY CLAY, (CL) oresiduum, organics	dry, yellowish red (5YR 5/6), fine	sand, no plasticity,	Cement Grout				
					CL					Bentonite Seal 2" SCH 40 PVC				
5	M	SS 2	100	6-3-4 (7)			4.0CLAYEY SAND, (SC graded, residuum, sli	CLAYEY SAND, (SC) moist, yellowish red (5YR 5/6), fine sand, poorly graded, residuum, slightly micaceous						
	-				SC									
 10 	M	SS 3	100	2-5-11/3"	SM		very pale brown (10Y	noist to wet, dark yellowish browr R 7/3), fine sand, poorly graded, ne feldspar and amphibolite grave	saprolite, few	Sand Filter Pack 0.010" Slotted 2" SCH 40 VVC Well Screen				
 	- - M	SS	100	6-32-50/0"				n black (10B 2.5/1), micaceous, s	some coarse, dry,					
15	Μ	4 SS	100	50/0"	SIVI		15.0 gneiss gravel collecte							
		5		50/0				Refusal at 15.0 feet. Bottom of borehole at 15.0 feet.						

WELL NUMBER MW-40 PAGE 1 OF 2

			→ hdr	inc.com/follo	w-us								
c	CLIEN	T Ca	tawba Co	ounty					PROJECT NAME Blackburn LF Well Installation				
P	PROJE	ECT N	JMBER	10400064					PROJECT LOCATION Newton, NC				
	DATE	STAR	TED <u>07</u>	7/02/24 00:0	0	COM	PLETED	07/02/24 00:00	GROUND ELEVATION HOLE SIZE 8.25 inches				
c	CONT	RACT	OR Geo	ologic Explor	ation, I	nc./ D	. Hall	_	NORTHING	EASTING			
									DIGRIOUND WATER LEVELS:				
								Z. Hector	$oldsymbol{\mathcal{I}}$ at end of drilling	24.10 ft			
N	NOTE	s							25.5hrs AFTER DRILL	ING 24.20 ft			
	O (ft)	SAMPLE TYPE	RECOVERY %	BLOW COUNTS (N VALUE)	U.S.C.S.	GRAPHIC LOG			MATERIAL DESCRIPTION		WELL DIAGRAM		
GPJ		S		8-5-5 (10)	ML		r		iff, dry, red (2.5YR 5/8), fine sai mphibolite gravel, manganese c				
L INSTAL GINT.	5 -	X s		10-4-5 (9)		-	5.0(ML) no gravel					
ATAWBA COUNTY WEL	10				ML		10.0				Cement Grout		
VWORKING\EAST01\D3971484\C		S S		4-2-2 (4)	ML		, The state of the	ML) soft, moist			PVC		
31/24 09:37 - C:\PV	<u>15</u> -	S		2-3-3 (6)				ML) medium, moist to nottled	o wet, with yellowish red (5YR 5	5/6), micaceous	Bentonite Seal		
GENERAL BH / TP / WELL - GINT STD US LAB.GDT - 7/31/24 09:37 - C:/PWWORKING/EAST01/D3971484/CATAWBA COUNTY WELL INSTAL GINT.GPJ	20	S	S 100	2-3-3 (6)	ML ML	-	20.0(ML) soft to medium,	moist to wet				
GENERAL BI	- 25												

WELL NUMBER MW-40

PAGE 2 OF 2

440 S. Church Street, Suite 900 Charlotte, NC 28202-2075 Phone: 704-338-6700

GENERAL BH / TP / WELL - GINT STD US LAB.GDT - 7/31/24 09:37 - C.\PWWORKING\EAST01\D3971484\CATAWBA COUNTY WELL INSTAL GINT.GPJ

hdrinc.com/follow-us CLIENT Catawba County PROJECT NAME Blackburn LF Well Installation PROJECT NUMBER 10400064 PROJECT LOCATION Newton, NC SAMPLE TYPE NUMBER BLOW COUNTS (N VALUE) GRAPHIC LOG RECOVERY U.S.C.S. DEPTH (ft) MATERIAL DESCRIPTION WELL DIAGRAM (ML) soft to medium, moist to wet (continued) SS 2-2-2 100 (4) Sand Filter Pack 0.010" Slotted 2" SCH 40 PVC Well Screen 30 ML SS 7 0-3-3 100 (6) 35 SILTY SAND, (SM) dense, wet, strong brown (7.5YR 4/6), fine sand, SS 5-17-23 poorly graded, saprolite, micaceous, faint amphibolite structure 67 (40)SM 40 (SM) and very dark gray (7.5YR 3/1), slightly micaceous, amphibolite SS 5-12-26 67 structure (38)SM 45 50/1' SS 0 No Recovery Refusal at 45.5 feet. Bottom of borehole at 45.5 feet.

WELL NUMBER MW-41 PAGE 1 OF 2

•		hdri	nc.com/follo	w-us							
CLIE	ENT Catav	wba Co	ounty				PROJECT NAME Blackburn LF Well Installation				
PRO	DJECT NUM	IBER .	10400064				PROJECT LOCATION Newton, N	NC			
DAT	TE STARTE	D <u>06</u>	/12/24 00:0	0	CON	IPLETED 06/14/24 00:00	GROUND ELEVATION HOLE SIZE 8.25 inches NORTHING EASTING				
CON	NTRACTOR	Geo	logic Explor	ation,	Inc./ D	. Hall					
							GROUND WATER LEVELS:				
						CKED BY Z. Hector		.20 ft			
ПОИ	TES						▼ 79hrs AFTER DRILLING _2	23.90 ft	_		
о ОЕРТН	SAMPLE TYPE NUMBER	RECOVERY %	BLOW COUNTS (N VALUE)	U.S.C.S.	GRAPHIC LOG		MATERIAL DESCRIPTION		WELL DIAGRAM		
I.GPJ	ss 1	28	3-3-6 (9)	CL		plasticity, residuum	stiff, dry, red (2.5YR 4/8), fine to med				
SATAWBA COUNTY WELL INSTAL GINT	ss 2	94	2-2-4 (6)	ML		medium gravel, low p	nedium to very soft, dry, red (2.5YR 4 plasticity, residuum, micaceous	/8), fine to	Cement Grout		
GENERAL BH / TP / WELL - GINT STD US LAB.GDT - 7/31/24 09:37 - C.PWWORKING/EAST01/D3971484/CATAWBA COUNTY WELL INSTAL GINT.GPJ C	ss 3	156	1-1-1 (2)	ML		(ML) moist			2" SCH 40 PVC		
NT STD US LAB.GDT - 7/31/24 09:37	SS 4	72	2-2-3 (5)	SM		8/1), fine to coarse s	oose, moist, light gray (7.5YR 7/1) an and, well graded, residuum, trace fine		■ Bentonite Seal		
GENERAL BH / TP / WELL - GII	SS 5	100	2-4-6 (10)	ML		plasticity, residuum, SILTY SAND, (SM) I	stiff, dry, red (2.5YR 4/8), fine to medimicaceous oose, moist, light gray (7.5YR 7/1) an medium sand, poorly graded, saprolite	d very dark gray			

WELL NUMBER MW-41

PAGE 2 OF 2

440 S. Church Street, Suite 900 Charlotte, NC 28202-2075 Phone: 704-338-6700 hdrinc.com/follow-us

CLIENT Catawba County PROJECT NAME Blackburn LF Well Installation PROJECT NUMBER 10400064 PROJECT LOCATION Newton, NC SAMPLE TYPE NUMBER BLOW COUNTS (N VALUE) GRAPHIC LOG RECOVERY DEPTH (ft) U.S.C.S. MATERIAL DESCRIPTION WELL DIAGRAM SILTY SAND, (SM) loose, moist, light gray (7.5YR 7/1) and very dark gray (7.5YR 3/1), fine to medium sand, poorly graded, saprolite, gneissic structure (continued) 25 SS 5-14-19 100 (33) SM 0.010" Slotted 2" SCH 40 PVC Well SS Screen 100 15-50/3" 30 WELL GRADED SAND, (SW) very dense, moist, light gray (7.5YR 7/1) Sand Filter GENERAL BH / TP / WELL - GINT STD US LAB.GDT - 7/31/24 09:37 - C.\PWWORKING\EAST01\D3971484\CATAWBA COUNTY WELL INSTAL GINT.GPJ and white (10YR 8/1), fine to coarse sand, partially weathered rock, trace Pack fine gravel, slightly micaceous SW 35 SS 60 50/5" WELL GRADED GRAVEL, (GP) very dense, moist, grayish brown (10YR 5/2), fine to coarse gravel, fine to coarse sand, partially weathered rock, amphibolite structure 8 GP SS 50/0' Refusal at 39.9 feet. 9 Bottom of borehole at 39.9 feet.

WELL NUMBER MW-42A PAGE 1 OF 3

CLIEN	IT Catav		nc.com/follo				PROJECT NAME Blackburn LF	Well Installation	
							PROJECT LOCATION Newton, I	NC	
						MPLETED 07/02/24 00:00			
			ologic Explor					EASTING	
							T DISKI DIND WATER LEVELS:		
	· <u></u>					ECKED BY Z. Hector			
NOTE	s				_		_ Z0.5hrs AFTER DRILLING	_24.90 ft	
o DEPTH (ft)	SAMPLE TYPE NUMBER	RECOVERY %	BLOW COUNTS (N VALUE)	U.S.C.S.	GRAPHIC		MATERIAL DESCRIPTION		WELL DIAGRAM
	V ss	100	5-4-4				stiff, dry, red (2.5YR 4/8), fine sand, r icaceous, trace coarse sand	no plasticity,	
5	SS 2	100	2-4-7 (11)	ML		4.5 SANDY CLAY, (CL) residuum, trace coa	stiff, dry, red (2.5YR 4/8), fine sand, se sand	no plasticity,	Cement Grou
10 -	SS 3	100	5-7-4 (11)	SM			medium dense, moist, yellowish red (residuum, slightly micaceous, few co		2" SCH 40 PVC
15	SS 4	100	2-4-5 (9)			(SM) loose, moist, b	rown (10YR 4/4) and white (5Y 8/1), t	few coarse sand	
20	SS 5	100	3-4-3 (7)	SM		19.5 (SM) wet, pale brow amphibolite structure	n (10YR 7/4) and white (10YR 8/1), s e	aprolite,	Bentonite Se

WELL NUMBER MW-42A

440 S. Church Street, Suite 900 Charlotte, NC 28202-2075 Phone: 704-338-6700

PAGE 2 OF 3 hdrinc.com/follow-us CLIENT Catawba County PROJECT NAME Blackburn LF Well Installation PROJECT NUMBER 10400064 PROJECT LOCATION Newton, NC SAMPLE TYPE NUMBER BLOW COUNTS (N VALUE) GRAPHIC LOG RECOVERY DEPTH (ft) U.S.C.S. MATERIAL DESCRIPTION WELL DIAGRAM (SM) wet, pale brown (10YR 7/4) and white (10YR 8/1), saprolite, amphibolite structure (continued) SM 24.5 (SM) with dark yellowish brown (10YR 4/4) 25 SS 4-4-3 100 <u>V</u> (7) SM Sand Filter Pack 0.010" Slotted 2" SCH 40 PVC Well (SM) medium dense to very dense, iron oxide observed in fractures, 30 SS 3-7-8 gneissic structure, rig chatter began at 33 feet GENERAL BH / TP / WELL - GINT STD US LAB.GDT - 7/31/24 09:37 - C.\PWWORKING\EAST01\D3971484\CATAWBA COUNTY WELL INSTAL GINT.GPJ 67 Screen (15)35 SS 28-22-39 8 (61)SM 40 19-25-49 SS 67 9 (74) 45 100 40-9/3" 10

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WELL NUMBER MW-42A

PAGE 3 OF 3

	ECT NUM		10400064			PROJECT NAME Blackburn LF Well Installation PROJECT LOCATION Newton, NC				
DEPTH (ft)	SAMPLE TYPE NUMBER	RECOVERY %	BLOW COUNTS (N VALUE)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM			
50	SS 11	0	50/1"	SM		SILTY SAND, (SM) very dense, wet, pale brown (10YR 7/4) and white (10YR 8/1), fine sand, partially weathered rock				

Refusal at 53.5 feet. Bottom of borehole at 53.5 feet.

GENERAL BH / TP / WELL - GINT STD US LAB.GDT - 7/31/24 09:37 - C./PWWORKING\EAST01\D3971484\CATAWBA COUNTY WELL INSTAL GINT.GPJ

WELL NUMBER MW-43 PAGE 1 OF 3

-		hdri	nc.com/follo	w-us					
CLI	ENT Cata	wba Co	ounty			PRO	JECT NAME Blackburn LF	Well Installation	
PRO	DJECT NUM	MBER .	10400064			PRO	JECT LOCATION Newton,	NC	
DAT	TE STARTE	D 07	/03/24 00:0	0	COM	PLETED <u>07/03/24 00:00</u> GRO	UND ELEVATION	HOLE SIZE	8.25 inches
cor	NTRACTOR	Geo	logic Explor	ation, l	Inc./ D.	Hall NOR	THING	EASTING	
DRI	LLING MET	THOD .	2 1/4 Hollo	w Ster	n Auge	r, & 4 1/4 Hollow Stem Auger/ Digrie			
LOC	GGED BY	B.Weis	serbs		CHE		AT END OF DRILLING 2		
NO	TES					<u> </u>	76.5hrs AFTER DRILLING	26.10 ft	
O DEPTH	SAMPLE TYPE NUMBER	RECOVERY %	BLOW COUNTS (N VALUE)	U.S.C.S.	GRAPHIC LOG	МАТЕ	ERIAL DESCRIPTION		WELL DIAGRAM
	√ ss	100	7-6-6			SANDY CLAY, (CL) stiff, dry residuum, organics	, red (2.5YR 5/8), fine sand,	, no plasticity,	
JPJ 1 1 1 1	1	100	(12)	CL		4.0			
GINT.6	SS 2	100	7-5-5 (10)			SILTY SAND, (SM) loose, dr graded, residuum	y, yellowish red (5YR 5/8), fi	ine sand, poorly	
ATAWBA COUNTY WELL INSTAI				SM		9.0 Dark yellowish brown (10YR	3/6) and white (10VR 8/1) 1	fine sand poorly	Cement Grout
RKING/EAST01/D3971484/C	SS 3	100	6-4-3 (7)			graded, residuum, micaceous	s, faint relict structure	mic scale, poorly	2" SCH 40 PVC
C:\PWWO									
75 09:37	SS 4	100	4-4-4 (8)	ML		15.0 15.5 SANDY SILT, (ML) medium,	dry, yellowish red (5YR 5/8)), fine sand, no	
GENERAL BH / TP / WELL - GINT STD US LAB.GDT - 7/31/24 09:37 - C:\PWWORKING\EAST01\D3971484\CATAWBA COUNTY WELL INSTAL GINT.GPJ	ss 5	100	5-8-10 (18)	SM		plasticity, residuum SILTY SAND, (SM) medium white (10YR 8/1), fine to coa structure	dense, dry, very pale brown	(10YR 7/4) and	■ Bentonite Seal

WELL NUMBER MW-43

PAGE 2 OF 3

440 S. Church Street, Suite 900 Charlotte, NC 28202-2075 Phone: 704-338-6700 hdring com/followeus

hdrinc.com/follow-us CLIENT Catawba County PROJECT NAME Blackburn LF Well Installation PROJECT NUMBER 10400064 PROJECT LOCATION Newton, NC SAMPLE TYPE NUMBER BLOW COUNTS (N VALUE) GRAPHIC LOG RECOVERY DEPTH (ft) U.S.C.S. MATERIAL DESCRIPTION WELL DIAGRAM SM (SM) loose, moist to wet SS 9-5-4 100 25 (9) SM <u>V</u> Sand Filter 29.0 Pack SANDY SILT, (ML) medium, wet, red (5YR 5/8), fine sand, no plasticity, 0.010" Slotted SS 2-3-5 residuum, manganese structure 100 2" SCH 40 PVC Well 30 (8) GENERAL BH / TP / WELL - GINT STD US LAB.GDT - 7/31/24 09:37 - C.\PWWORKING\EAST01\D3971484\CATAWBA COUNTY WELL INSTAL GINT.GPJ Screen ML(ML) few coarse sand SS 0-3-4 100 35 8 (7) ML 39.0 SILTY SAND, (SM) loose, wet, very pale brown (10YR 7/4) and white SS 1-2-7 (10YR 8/1), fine sand, poorly graded, saprolite, gneissic structure 22 (9) SM (SM) few coarse sand SS 23-27-20 100 45 10 (47)SM

WELL NUMBER MW-43

PAGE 3 OF 3

	T <u>Cataw</u> ECT NUM		ounty 10400064			PROJECT NAME Blackburn LF Well Installation PROJECT LOCATION Newton, NC	
DEPTH (ft)	SAMPLE TYPE NUMBER	RECOVERY %	BLOW COUNTS (N VALUE)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
50	SS 11	89	17-50/3"	SM		SILTY SAND, (SM) very dense, wet, blueish black (10B 2.5/1) with white (10YR 8/1), fine sand, poorly graded, partially weathered rock, few medium and trace coarse sand grains, amphibolite structure with white felspar grains, rig chatter begain at 53 feet (continued)	
55	SS 0		50/0"			No recovery 56.4	

Refusal at 56.4 feet. Bottom of borehole at 56.4 feet.

GENERAL BH / TP / WELL - GINT STD US LAB.GDT - 7/31/24 09:37 - C.IPWWORKING/EAST01/D3971484/CATAWBA COUNTY WELL INSTAL GINT.GPJ

WELL NUMBER PZ-210 PAGE 1 OF 3

CLIEN	T Cata		nc.com/follo unty					PROJECT NAME Blackburn LF	Well Installation	
	<u> </u>		10400064					PROJECT LOCATION Newton, I		
DATE	STARTI	ED <u>06</u>	/12/24 00:0	0	СО	MPLETE	ED 06/14/24 00:00	GROUND ELEVATION	HOLE SIZ	ZE 8.25 inches
CONT	RACTO	R Geol	logic Explora	ation, l	Inc./ [). Hall		NORTHING	EASTING	
DRILL	ING ME	THOD _	2 1/4 Hollo	w Ster	n Au	jer, & 4	1/4 Hollow Stem Auger	Ź D GRÖUND WATER LEVELS:		
LOGG	ED BY	C. Gru	enberg		СН	CKED	BY Z. Hector	$\underline{\underline{Y}}$ at end of drilling $\underline{\underline{11}}$	1.30 ft	
NOTE	s							\$66hrs AFTER DRILLING _	11.37 ft	
O DEPTH	SAMPLE TYPE NUMBER	RECOVERY %	BLOW COUNTS (N VALUE)	U.S.C.S.	GRAPHIC			MATERIAL DESCRIPTION		WELL DIAGRAM
	V ss	100	2-1-1	SM		1.0	SILTY SAND, (SM) medium sand, poorly	very loose, dry, strong brown (7.5YR 4 / graded, residuum, relict struture	4/6), fine to	
	1	100	(2)		· F.1	;1.0	SANDY SILT, (ML)	very soft to medium, dry to moist, yello 5YR 6/6), fine sand, no plasticity, res	siduum	Cement Grout
5	SS 2	100	1-1-1 (2)	ML						2" SCH 40 PVC Bentonite Seal
 	\				_	9.4	(ML) wet, fine to coa	urce sand		2" SCH 40 PVC Bentonite Seal
10	SS 3	100	2-3-3 (6)	_			(IVIL) Wet, Title to Coa	ise saiu		
	√ ss	100	2-3-3	ML		15.2				
	4	100	(6)					medium dense, wet, light brownish gra), fine to medium sand, poorly graded	ray (10YR 6/2) d, residuum,	Sand Filter
 				SM		19.4				0.010" Slotted 2" SCH 40 PVC Well Screen
20	V ss	100	3-6-8	ML	12, 12, 14	20.0	SANDY SILT, (ML) s sand, no plasticity, s	stiff, wet, yellowish red (5YR 4/6), fine aprolite	e to medium	
	5	100	(14)	SM			SILTY SAND, (SM)	medium dense to dense, wet, light bro e (10YR 8/1), fine to medium sand, po		

WELL NUMBER PZ-210

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GENERAL BH / TP / WELL - GINT STD US LAB.GDT - 7/31/24 09:37 - C.\PWWORKING\EAST01\D3971484\CATAWBA COUNTY WELL INSTAL GINT.GPJ

CLIENT Catawba County PROJECT NAME Blackburn LF Well Installation PROJECT NUMBER 10400064 PROJECT LOCATION Newton, NC SAMPLE TYPE NUMBER BLOW COUNTS (N VALUE) GRAPHIC LOG RECOVERY U.S.C.S. DEPTH (ft) MATERIAL DESCRIPTION WELL DIAGRAM SILTY SAND, (SM) medium dense to dense, wet, light brownish gray (10YR 6/2) and white (10YR 8/1), fine to medium sand, poorly graded, saprolite (continued) 25 SS 3-7-12 100 (19)SM 30 SS 7 9-17-28 100 (45)35 SS 4-14-26 (SM) with black (7.5YR 2.5/1), trace fine feldspar gravel 100 (40)SS 9 100 50/4" SM SS 100 50/4" 45 10

WELL NUMBER PZ-210 PAGE 3 OF 3

-		hdri	nc.com/follo	w-us						
CLIE	NT Catav	vba Co	ounty			PROJECT NAME Blackburn LF Well Installation				
PRO	JECT NUM	BER .	10400064			PROJECT LOCATION Newton, NC	PROJECT LOCATION Newton, NC			
DEPTH (ft)	SAMPLE TYPE NUMBER NUMBER RECOVERY % COUNTS (N VALUE)				GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM			
50	SS 11 11 -	100	50/4*	SM		SILTY SAND, (SM) medium dense to dense, wet, light brownish gray (10YR 6/2) and white (10YR 8/1), fine to medium sand, poorly graded, partially weathered rock (continued)				
55	SS - 12					SPT refusal, no recovery 56.4				
STAL GINT.GPJ	SS 13					SPT refusal, no recovery Refusal at 56.4 feet. Bottom of borehole at 56.4 feet.				

GENERAL BH / TP / WELL - GINT STD US LAB.GDT - 7/31/24 09:37 - C./PWWORKING\EAST01\D3971484\CATAWBA COUNTY WELL INSTAL GINT.GPJ

WELL NUMBER PZ-211

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┢		3	Cha Pho	S. Church Surlotte, NC 28 ne: 704-338 nc.com/follo	-6700			WELL NUMBER PZ-211 PAGE 1 OF 2
CLIE	NT	Cataw	/ba Co	ounty				PROJECT NAME Blackburn LF Well Installation
	_							
								00:00 GROUND ELEVATION HOLE SIZE 8.25 inches
								NORTHING EASTING
								em Auger/ DigreduNip Water Levels:
					CHECKED E			
NOTI	ES _			_				▼ 46hrs AFTER DRILLING 11.30 ft
O DEPTH (ft)	ADVT A IDMAS	NUMBER	RECOVERY %	BLOW COUNTS (N VALUE)	REMARKS	U.S.C.S.	GRAPHIC	MATERIAL DESCRIPTION WELL DIAGRAM
- -		SS 1	100	3-3-4 (7)				SILTY SAND, (SM) loose, dry, light reddish brown (5YR 7/2) and red (2.5YR 4/6), fine sand, poorly graded, residuum, relict structure Cement Grout
GENERAL BH / TP / WELL - GINT STD US LAB, GDT - 7/31/24 09:37 - C./PWW/ORKING/EAST01/D3971484/CATAWBA COUNTY WELL INSTAL GINT.GPJ O		SS 2	100	6-4-4 (8)	Shelby Tube (ST-1) collected from 8-10'	SM		9.1 SANDY SILT, (ML) stiff, dry to moist, red (2.5YR 4/6)
9:37 - C:\PWWORKING\EAST01\D3971484\	- <u> </u>	SS 3	100	4-2-3 (5)		ML		and pinkish gray (5YR 6/2), fine sand, no plasticity, residuum, micaceous
ELL - GINT STD US LAB.GDT - 7/31/24 09		4 SS	100	(9)		SM		SILTY SAND, (SM) loose to medium dense, moist to wet, light brownish gray (10YR 6/2) and white (10YR 8/1), fine to medium sand, poorly graded, saprolite, slightly micaceous SILTY SAND, (SM) loose to medium dense, moist to wet, light brownish gray (10YR 6/2) and white (10YR 8/1), fine to medium sand, poorly graded, saprolite, slightly micaceous SILTY SAND, (SM) loose to medium dense, moist to wet, light brownish gray (10YR 6/2) and white (10YR 8/1), fine to medium sand, poorly graded, saprolite, slightly micaceous
GENERAL BH / TP / WEL		5	100	(7)		ML		SANDY SILT, (ML) stiff, wet, yellowish red (5YR 4/6) and strong brown (7.5YR 4/6), fine sand, no plasticity, saprolite, relict structure mottled

WELL NUMBER PZ-211

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CLIENT Catawba County

PROJECT NAME Blackburn LF Well Installation

PROJECT NUMBER 10400064 PROJECT LOCATION Newton, NC SAMPLE TYPE NUMBER BLOW COUNTS (N VALUE) GRAPHIC LOG RECOVERY DEPTH (ft) U.S.C.S. **REMARKS** MATERIAL DESCRIPTION WELL DIAGRAM SANDY SILT, (ML) stiff, wet, yellowish red (5YR 4/6) and strong brown (7.5YR 4/6), fine sand, no plasticity, saprolite, relict structure mottled (continued) SS 5-4-7 25 100 (11)ML SS 7 4-10-17 30 100 30.0 (27)SILTY SAND, (SM) medium to dense, wet, light gray (10YR 7/2) and white (10YR 8/1), fine to medium GENERAL BH / TP / WELL - GINT STD US LAB.GDT - 7/31/24 09:37 - C.\PWWORKING\EAST01\D3971484\CATAWBA COUNTY WELL INSTAL GINT.GPJ sand, poorly graded, saprolite, trace amphibolite lenses, rig chatter at 37 feet SS SM 100 25-9/3" 35 SS 9 50/0' Refusal at 38.6 feet. Bottom of borehole at 38.6 feet.

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GENERAL BH / TP / WELL - GINT STD US LAB.GDT - 7/31/24 09:37 - C.\PWWORKING\EASTO\\U03971484\CATAWBA COUNTY WELL INSTAL GINT.GPJ

440 S. Church Street, Suite 900 Charlotte, NC 28202-2075

				ne: 704-338 nc.com/follo				
CLIE	NT _	Cataw	/ba Co	unty				PROJECT NAME Blackburn LF Well Installation
PRO.	IECT	NUM	BER _	10400064				PROJECT LOCATION Newton, NC
DATE	E STA	ARTE	D <u>06/</u>	/18/24 00:00	COMPLETED	06	/18/24	00:00 GROUND ELEVATION HOLE SIZE 8.25 inches
								NORTHING EASTING
DRIL	LING	MET	HOD _	2 1/4 Hollov	w Stem Auger, & 4 1/	4 Hol	low Ste	em Auger/ Digriefunt WATER LEVELS:
					CHECKED B	Y <u>Z.</u>	Hecto	
NOTE	<u> </u>							▼ 0.5hrs AFTER DRILLING 10.00 ft
O DEPTH (ft)	SAMPI E TYPE	NUMBER	RECOVERY %	BLOW COUNTS (N VALUE)	REMARKS		GRAPHIC LOG	MATERIAL DESCRIPTION WELL DIAGRAM
		SS 1	100	5-9-11 (20)		SM_		O.3— SILTY SAND, (SM) medium dense, dry, light brown (7.5YR 6/3), fine sand, poorly graded, residuum CLAYEY SAND, (SC) very stiff, dry, red (2.5YR 4/6), fine to medium sand, no plasticity, residuum, few fine gravel
5 		SS 2	100	10-4-5 (9)	Shelby Tube (ST-1) collected from 9.2-11.2'	sc		9.4
10 y		SS 3	100	7-10-12		SM		SILTY SAND, (SM) loose, wet, strong brown (7.5YR 5/8) and pale brown (10YR 6/3), fine to coarse sand, well graded, residuum, micaceous SILTY SAND, (SM) loose, wet, strong brown (7.5YR 5/8) and pale brown (10YR 6/3), fine to coarse sand, well graded, residuum, micaceous Output Description: Output Descri
		SS 5	100	4-4-5 (9)		ML		Pack Pack SANDY SILT, (ML) stiff, moist to wet, light brownish gray (10YR 6/2) and white (10YR 8/1), fine sand, no plasticity, residuum, relict foliations/ gneissic structure, micaceous

WELL NUMBER PZ-212 PAGE 2 OF 3

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	NT <u>Catav</u> ECT NUN		ounty 10400064				PROJECT NAME Blackburn LF Well Installation PROJECT LOCATION Newton, NC
DEPTH (ft)	SAMPLE TYPE NUMBER	RECOVERY %	BLOW COUNTS (N VALUE)	REMARKS	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION WELL DIAGRAM
25 	SS 6	100	10-15-4 (19)		ML ML		SANDY SILT, (ML) stiff, moist to wet, light brownish gray (10YR 6/2) and white (10YR 8/1), fine sand, no plasticity, residuum, relict foliations/ gneissic structure, micaceous (continued) (ML) reddish yellow (7.5YR 6/8) and black (7.5YR 2.5/1), saprolite, amphibolite structure
30	SS 7	100	7-6-13 (19)		SC		CLAYEY SAND, (SC) very stiff to hard, brown (7.5YR 5/4) and white (10YR 8/1), fine to medium sand, poorly graded, saprolite, relict structure
35	SS 8	100	10-22-33 (55)		SM		35.0 SILTY SAND, (SM) very dense, wet, light brownish gray (10YR 6/2) and white (10YR 8/1), fine to medium sand, poorly graded, saprolite, amphibolite lenses
40	ss 9	100	11-20-32 (52)				39.5 SILTY SAND, (SM) very dense, dry to moist, light brownish gray (10YR 6/2) and white (10YR 8/1), fine to medium sand, poorly graded, partially weathered rock, amphibolite lenses
45 	SS 10	100	11-27-50 (77)		SM		
-	⊠ ss	100	50/4"				

WELL NUMBER PZ-212

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CLIENT Catawba County

PROJECT NAME Blackburn LF Well Installation

PROJECT LOCATION Newton, NC PROJECT NUMBER 10400064

DEPTH (ft)	SAMPLE TYPE NUMBER	RECOVERY %	BLOW COUNTS (N VALUE)	REMARKS	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
50 55	\	(100)	50/3"		SM		SILTY SAND, (SM) very dense, dry to moist, light brownish gray (10YR 6/2) and white (10YR 8/1), fine to medium sand, poorly graded, partially weathered rock, amphibolite lenses (continued) 54.0 (SM) rig chatter at 54 feet	
	SS		50/0"				Refusal at 55.1 feet.	

13

Bottom of borehole at 55.1 feet.

GENERAL BH / TP / WELL - GINT STD US LAB.GDT - 7/31/24 09:37 - C.\PWWORKING\EASTO\\U03971484\CATAWBA COUNTY WELL INSTAL GINT.GPJ

WELL NUMBER PZ-213 PAGE 1 OF 3

PROJ DATE CONT DRILL LOGO	STARTE TRACTOR LING MET SED BY	wba Co IBER D 06 Geo THOD C. Gru	10400064 5/19/24 00:0 blogic Explor 2 1/4 Hollo lenberg	oo	COMI Inc./ D. m Auge	PLETED06/19/24 00:00	Ψ at end of drilling 10	NC HOLE SIZ EASTING _	
O DEPTH (ft)	SAMPLE TYPE NUMBER	RECOVERY %	BLOW COUNTS (N VALUE)	U.S.C.S.	GRAPHIC LOG		▼ 18hrs AFTER DRILLING _S	9.14 ft	WELL DIAGRAM
	SS 1	100	3-3-4 (7)	SM		SILTY SAND, clayey, (\ brown (7.5YR 6/4), fine	SM) loose, dry, yellowish red (5YR sand, poorly graded, residuum, mi	4/6) and light caceous	Cement Grout
AWBA COUNTY WELL INSTAL GINT.C	SS 2	100	11-5-5 (10)	-		4.9 SILTY SAND, (SM) loo (7.5YR 8/1), fine sand, structure, wet at 9 feet	se, dry to wet, light brown (7.5YR 6 poorly graded, saprolite, relict foliat	i/4) with white ions/ gneissic	5
GENERAL BH / TP / WELL - GINT STD US LAB.GDT - 7/31/24 09:37 - C:/PWWORKING\EASTO\103971484\CATAWBA COUNTY WELL INSTAL GINT.GFU C	SS 3	100	5-3-4 (7)	-					▼
STD US LAB.GDT - 7/31/24 09:37 - C:\	SS 4	100	4-4-4 (8)	SM					Sand Filter
3ENERAL BH / TP / WELL - GINTS	SS 5	100	5-6-8 (14)	_					Pack 0.010" Slotted 2" SCH 40 PVC Well Screen

WELL NUMBER PZ-213

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GENERAL BH / TP / WELL - GINT STD US LAB.GDT - 7/31/24 09:37 - C.\PWWORKING\EAST01\D3971484\CATAWBA COUNTY WELL INSTAL GINT.GPJ

hdrinc.com/follow-us CLIENT Catawba County PROJECT NAME Blackburn LF Well Installation PROJECT NUMBER 10400064 PROJECT LOCATION Newton, NC SAMPLE TYPE NUMBER BLOW COUNTS (N VALUE) GRAPHIC LOG RECOVERY U.S.C.S. DEPTH (ft) MATERIAL DESCRIPTION WELL DIAGRAM SILTY SAND, (SM) loose, dry to wet, light brown (7.5YR 6/4) with white (7.5YR 8/1), fine sand, poorly graded, saprolite, relict foliations/ gneissic structure, wet at 9 feet (continued) 25 6-6-8 (14) SS 100 SM 30 SS 4-4-7 100 (11) SANDY SILT, (ML) wet, reddish yellow (7.5YR 6/8), medium to coarse sand, saprolite, amphibolite structure ML 35 SS 9-14-17 35.2 100 SILTY SAND, (SM) dense, black (10YR 2/1) with white (10YR 8/1), fine to 8 (31)medium sand, poorly graded 40 3-5-24 SS 100 (29)SM 45 12-50/5" 100

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WELL NUMBER PZ-213 PAGE 3 OF 3

	•	Hulli	ic.com/iolio	w-us						
CLIEN	T Catav	vba Co	unty			PROJECT NAME Blackburn LF Well Installation	PROJECT NAME Blackburn LF Well Installation			
PROJE	ECT NUM	BER _	10400064			PROJECT LOCATION Newton, NC				
DEРТН (ft)	SAMPLE TYPE NUMBER	RECOVERY %	BLOW COUNTS (N VALUE)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM			
50	SS 11	100	44-50/1"	SM	5	SILTY SAND, (SM) dense, black (10YR 2/1) with white (10YR 8/1), fine to medium sand, poorly graded (continued)				
	SS 12		50/0"	ı	1.1.1.10	Refusal at 53.5 feet. Bottom of borehole at 53.5 feet.				

WELL NUMBER PZ-214 PAGE 1 OF 2

		hdri	nc.com/follo	w-us						
CLIENT Catawba County							PROJECT NAME Blackburn LF Well Installation			
PROJECT NUMBER 10400064							PROJECT LOCATION Newton, NC			
DATE STARTED 06/19/24 00:00					COMPLETED <u>06/19/24 00:00</u>		GROUND ELEVATION	HOLE S	HOLE SIZE 8.25 inches	
CONTRACTOR Geologic Exploration, Inc./ D. Hall						Hall	DRTHING EASTING			
DRIL	LING MET	HOD	2 1/4 Hollo	w Ster	m Auge	er, & 4 1/4 Hollow Stem Auger/	GROUND WATER LEVELS:			
LOG	GED BY _	C. Gru	enberg		CHE	CKED BY Z. Hector	Ψ at end of drilling 14	4.95 ft		
NOTE	ES						₹ 24hrs AFTER DRILLING 14.84 ft			
O DEPTH	SAMPLE TYPE NUMBER	RECOVERY %	BLOW COUNTS (N VALUE)	U.S.C.S.	GRAPHIC LOG		MATERIAL DESCRIPTION		WELL DIAGRAM	
IT.GPJ	ss 1	100	3-4-4 (8)	SM		yellowish red (5YR 5/8	se, dry to moist, light reddish brow), fine sand, poorly graded, residuu	ım	Cement Grout	
GENERAL BH / TP / WELL - GINT STD US LAB.GDT - 7/31/24 09:37 - C./PWWORKING/EAST01/D3971484/CATAWBA COUNTY WELL INSTAL GINT.GPJ C	SS 2	100	3-3-3 (6)	SC		CLAYEY SAND, (SC) loose, moist, yellowish red (5YR 5/8) to pale brown (10YR 6/3), fine sand, poorly graded, residuum		Bentonite Seal 2" SCH 40 PVC		
0.1PWWORKING\EAST01\D3971484\C	ss 3	100	6-3-7 (10)			(SC) fine to coarse sand, well graded, micaceous, trace fine gravel				
SINT STD US LAB.GDT - 7/31/24 09:37 - C	SS 4	100	4-4-4 (8)	sc					Sand Filter Pack 0.010" Slotted	
GENERAL BH / TP / WELL - G	SS 5	100	4-4-6 (10)	SM		with white (10YR 8/1),	se to dense, wet, light brownish gr fine sand, poorly graded, saprolite, tions, gneissic structure, fine wear	, slightly	2" SCH 40 PVC Well Screen	

WELL NUMBER PZ-214 PAGE 2 OF 2

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GENERAL BH / TP / WELL - GINT STD US LAB.GDT - 7/31/24 09:37 - C.\PWWORKING\EAST01\D3971484\CATAWBA COUNTY WELL INSTAL GINT.GPJ

hdrinc.com/follow-us CLIENT Catawba County PROJECT NAME Blackburn LF Well Installation PROJECT NUMBER 10400064 PROJECT LOCATION Newton, NC SAMPLE TYPE NUMBER BLOW COUNTS (N VALUE) GRAPHIC LOG RECOVERY DEPTH (ft) U.S.C.S. MATERIAL DESCRIPTION WELL DIAGRAM SILTY SAND, (SM) loose to dense, wet, light brownish gray (10YR 6/2) with white (10YR 8/1), fine sand, poorly graded, saprolite, slightly micaceous, relict formations, gneissic structure, fine weathered gneissic gravel at 29.6 feet (continued) 25 SS 17-14-30 100 (44)SS 7 100 50/5" 30 SM 50/4" SS 100 35 8 SS 9 SS 10 50/1' 50/0' 0 Refusal at 39.7 feet. Bottom of borehole at 39.7 feet.

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GENERAL BH / TP / WELL - GINT STD US LAB.GDT - 7/31/24 09:37 - C./PWWORKING\EAST01\D3971484\CATAWBA COUNTY WELL INSTAL GINT.GPJ

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			nc.com/follo										
CLIEN	CLIENT Catawba County PROJECT NAME Blackburn LF Well Installation												
PROJ	ECT NUM	IBER _	10400064				PROJ	IECT LOCATION Newton, I	NC				
DATE	STARTE	D _06	/20/24 00:00	COMPLETE	D <u>06</u>	/20/24	00:00 GRO I	JND ELEVATION	HOLE SIZ	E 8.25 inches			
			-	tion, Inc./ D. Hall				THING	EASTING _				
								UND WATER LEVELS:					
				CHECKED E	3Y _Z.	Hector		AT END OF DRILLING 15					
NOTE	s						<u> </u>	18hrs AFTER DRILLING	14.75 ft				
o DEPTH (ft)	SAMPLE TYPE NUMBER	RECOVERY %	BLOW COUNTS (N VALUE)	REMARKS	U.S.C.S.	GRAPHIC LOG		MATERIAL DESCRIPTION		WELL DIAGRAM			
	SS 1	100	4-3-4 (7)		SM		fine sand	AND, (SM) loose, dry, dark re d, poorly graded, residuum, m	nicaceous	Cement Grout			
5	SS 2	100	6-4-2 (6)	Shelby Tube	CL		3/6), fine SILTY S. (5YR 5/8	CLAY, (CL) medium, dry, dai e sand, low plasticity, residuu AND, (SM) loose, dry to mois 8), fine sand, poorly graded, r	m, micaceous	2" SCH 40 PVC Bentonite Seal			
10	SS 3	100	6-3-3 (6)	(ST-1) collected from 9.4-11.4'	ML	2.11.173	SANDY brownish 5/2), fine	SILT, (ML) soft to medium, n n gray (10YR 6/2) and grayisl e sand, no plasticity, saprolite	h brown (10YR				
20	SS 4	100	5-4-5 (9) 5-16-36 (52)		SM		brownish 5/2), fine	AND, (SM) loose to dense, m gray (10YR 6/2) and grayish sand, poorly graded, saproli v drilling begun at 31 feet	h brown (10YR 🏻 🤼	Sand Filter Pack 0.010" Slotted 2" SCH 40 PVC Well Screen			

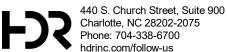
WELL NUMBER PZ-215

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440 S. Church Street, Suite 900 Charlotte, NC 28202-2075 Phone: 704-338-6700 hdrinc.com/follow-us

CLIENT Catawba County PROJECT NAME Blackburn LF Well Installation PROJECT NUMBER 10400064 PROJECT LOCATION Newton, NC SAMPLE TYPE NUMBER BLOW COUNTS (N VALUE) GRAPHIC LOG RECOVERY DEPTH (ft) U.S.C.S. **REMARKS** MATERIAL DESCRIPTION WELL DIAGRAM SILTY SAND, (SM) loose to dense, moist to wet, light brownish gray (10YR 6/2) and grayish brown (10YR 5/2), fine sand, poorly graded, saprolite, wet at 19.5 feet, slow drilling begun at 31 feet (continued) 25 SS 29-20-38 100 (58) SM 30 100 22-50/4" GENERAL BH / TP / WELL - GINT STD US LAB.GDT - 7/31/24 09:37 - C.\PWWORKING\EAST01\D3971484\CATAWBA COUNTY WELL INSTAL GINT.GPJ SS 8 (SM) very dark gray (10YR 3/1) and white (10YR 8/1), 35 100 40-50/3" relict formations SM SS 100 / 50/3" (SM) amphibolite structure, rig chatter at 40 feet 9 SM SS 10 50/0' Refusal at 43.3 feet. Bottom of borehole at 43.3 feet.

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GENERAL BH / TP / WELL - GINT STD US LAB.GDT - 7/31/24 09:37 - C./PWWORKING\EAST01\D3971484\CATAWBA COUNTY WELL INSTAL GINT.GPJ

	ノく	Pho	ne: 704-338 nc.com/follov	-6700					
CLIEN	NT Catav	/ba Co	ounty				PROJECT NAME Blackburn LF \	Well Installation	
PROJ	ECT NUM	BER _	10400064					NC	
							GROUND ELEVATION		
							NORTHING	EASTING	
							DERECUND WATER LEVELS:		
				CHECKED E	3Y <u>Z.</u>	Hector			
NOTE	S						✓ 2hrs AFTER DRILLING 13	3.17 ft	
O DEPTH	SAMPLE TYPE NUMBER	RECOVERY %	BLOW COUNTS (N VALUE)	REMARKS	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION		WELL DIAGRAM
	SS 1	100	4-4-4 (8)		CL		SANDY CLAY, silty, (CL) very loose to moist, red (2.5YR 4/8) with brownish 5/8), fine to medium sand, residuum, micaceous	yellow (10YR	Cement Grout
<u>5</u>	SS 2	100	4-3-4 (7)				SILTY SAND, (SM) very loose, moist prownish gray (10YR 6/2) with white (to medium sand, poorly graded, residu reet	(10YR 8/1), fine	PVC Bentonite Seal
10	SS 3	94	2-2-2 (4)		SM				
15	√ ss	100	2-2-2						
	4	100	(4)			15.7	CANDY OUT (MIX	llowish == 1/5/5	
· -					ML	19.4	SANDY SILT, (ML) very soft, wet, yell 5/6), fine sand, no plasticity, residuun	nowish red (5YR	0.010" Slotted 2" SCH 40 PVC Well Screen Sand Filter Pack
20	SS 5	100	2-3-5 (8)		SM		SILTY SAND, (SM) very loose to very wet, light brownish gray (10YR 6/2) w 8/1), fine to medium sand, poorly grad relict foliations	vith white (10YR	

WELL NUMBER PZ-216 PAGE 2 OF 3

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	NT <u>Catav</u> ECT NUN		10400064				PROJECT NAME Blackburn LF Well Installation PROJECT LOCATION Newton, NC				
DEPTH (ft)	SAMPLE TYPE NUMBER	RECOVERY %	BLOW COUNTS (N VALUE)	REMARKS	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM			
25	SS 6	100	3-2-3 (5)		SM		SILTY SAND, (SM) very loose to very dense, moist to wet, light brownish gray (10YR 6/2) with white (10YR 8/1), fine to medium sand, poorly graded, residuum, relict foliations (continued) 25.3 SANDY SILT, (ML) medium, wet, yellowish red (5YR 5/8), fine sand, no plasticity, residuum, relict formations				
30	ST 1	100	2-5-5	Shelby Tube (ST-1) collected from 26.1-28.1ft	ML						
- - -	7	100	(10)		SM		30.5 SILTY SAND, (SM) loose, wet, light brownish gray (10YR 6/2) and white (10YR 8/1), fine to medium sand, poorly graded, saprolite, slightly micaceous, relict foliations				
35 -	SS 8	100	4-5-7 (12)				35.0				
40	SS 9	100	6-9-13 (22)				(SM) with brown (10YR 4/3), amphibolite structure				
45 _	SS 10	100	10-25-38 (63)		SM						
_											

WELL NUMBER PZ-216 PAGE 3 OF 3

	hdrinc.com/follow-us												
CLIEN	T Catav	vba Co	unty				PROJECT NAME Blackburn LF Well Installation						
PROJI	ECT NUM	BER .	10400064				PROJECT LOCATION Newton, NC						
DEPTH (ft)	SAMPLE TYPE NUMBER	RECOVERY %	BLOW COUNTS (N VALUE)	REMARKS	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM					
50	SS 11	100	12-30-50 (80)		SM	50.9	(10YR 8/1), fine sand, amphibolite structure, chatter at 46 feet						
						53.5	No Recovery						
	SS 12		50/0"			• • • • • • • • • • • • • • • • • • • •	Refusal at 53.4 feet. Bottom of borehole at 53.4 feet.						

GENERAL BH / TP / WELL - GINT STD US LAB.GDT - 7/31/24 09:37 - C.\PWWORKING\EASTO\\U03971484\CATAWBA COUNTY WELL INSTAL GINT.GPJ

WELL NUMBER PZ-217 PAGE 1 OF 2

440 S. Church Street, Suite 900 Charlotte, NC 28202-2075 Phone: 704-338-6700

CLIEN	IT (Catawk		nc.com/follo unty				PROJECT NAME Blackburn LF We	ell Installation			
				10400064				PROJECT LOCATION Newton, NC				
						COI	MPLETED _06/25/24 00:00			HOLE SIZE 8.25 inches		
								NORTHING				
								DIGRICUND WATER LEVELS:				
							ECKED BY Z. Hector		ft			
NOTE								₹ 24hrs AFTER DRILLING 5.2				
o DEPTH (ft)	SAMPLE TYPE	NUMBER	RECOVERY %	BLOW COUNTS (N VALUE)	U.S.C.S.	GRAPHIC		MATERIAL DESCRIPTION		WELL DIAGRAM		
	M	ss	100	3-3-2			SANDY SILT, (ML) m sand, no plasticity, re	nedium, dry to moist, yellowish red (5YF siduum, organics, micaceous	R 5/6), fine	Cement Grout		
_	Μ	1	100	(5)				, g ,				
	,				ML					Rentonite Seal		
					""							
-												
_							4.0					
_	M	ss	400	4-4-4			SILTY SAND, (SM) n to medium sand, poor	nedium, moist to wet, reddish yellow (5` rly graded, residuum	YR 7/6), fine			
5_	$ \Lambda $	2	100	(8)			i to medium sand, pool	iy giaaca, rosiaaani				
	y N_				1							
_										2" SCH 40		
-										PVC		
										Sand Filter		
-										Pack 0.010" Slotted		
_					SM					2" SCH 40 PVC Well		
10	V	ss	100	4-3-3			1			Screen		
10	M	3	100	(6)								
_					1							
_												
							<u>;</u>					
_												
-	\				L		14.0 (SM) yery loose, wet	black (10YR 2/1), fine sand, residuum,				
15	$ \chi $	ss	100	2-3-2			structure, micaceous	plack (10 f K 2/1), liftle Saliu, residuum,	, relict			
	\mathbb{Z}	4	-	(5)								
_												
					SM							
-												
_												
-	1				 -		(SM) loose, wet, red	2.5YR 4/8), fine to coarse sand, well g				
20	$ \chi $	SS 5	83	3-2-3			residuum, relict struc		i adou,			
	\mathbb{Z}	5		(5)								
_					SM							
							<u>;</u>					
-												

WELL NUMBER PZ-217

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440 S. Church Street, Suite 900 Charlotte, NC 28202-2075 Phone: 704-338-6700

GENERAL BH / TP / WELL - GINT STD US LAB.GDT - 7/31/24 09:37 - C.\PWWORKING\EAST01\D3971484\CATAWBA COUNTY WELL INSTAL GINT.GPJ

hdrinc.com/follow-us PROJECT NAME Blackburn LF Well Installation CLIENT Catawba County PROJECT NUMBER 10400064 PROJECT LOCATION Newton, NC SAMPLE TYPE NUMBER BLOW COUNTS (N VALUE) GRAPHIC LOG RECOVERY DEPTH (ft) U.S.C.S. MATERIAL DESCRIPTION WELL DIAGRAM (SM) loose, wet, red (2.5YR 4/8), fine to coarse sand, well graded, SM residuum, relict structure (continued) SILTY SAND, (SM) dense, wet, light brownish gray (10YR 6/2), fine sand, SS 14-18-21 poorly graded, saprolite, relict foliations/ gneissic structure 25 67 (39)SM (SM) medium dense, wet, fine to coarse sand, well graded, saprolite SS 3-14-11 30 (25)SM SS 100 50/4" Rig chatter began at 35 feet No Recovery 8 35 SS SILTY SAND, (SM) very dense, wet, white (10YR 8/1) and yellowish 100 44-50/4" brown (10YR 5/4), fine to coarse sand, well graded, partially weathered rock, gneiss and amphibolite structure 40 SM SS 100 50/3" (SM) blueish black (5B 2.5/1) with white (10YR 8/1) 10 45 SM SS 11 50/0 Refusal at 47.0 feet. Bottom of borehole at 47.0 feet.

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440 S. Church Street, Suite 900 Charlotte, NC 28202-2075 Phone: 704-338-6700

	CLIEN	IT Cata	hdri	nc.com/follo ounty	ow-us			PROJECT NAME Blackburn LF W	ell Installation				
	PROJI	ECT NU	MBER	10400064					PROJECT LOCATION Newton, NC				
						CC	MI	LETED _06/25/24 00:00		SIZE 8.25 inches			
								Hall NORTHING					
	DRILL	ING ME	THOD	2 1/4 Hollo	w Ste	m Au	ide	, & 4 1/4 Hollow Stem Auger/ Digridunts WATER LEVELS:					
								KED BY Z. Hector	ft				
				56105		CIT	ILC						
	NOIE	s		T				▼ 20.5hrs AFTER DRILLING	π συ.υτ	1			
	O DEPTH (ft)	SAMPLE TYPE NUMBER	RECOVERY %	BLOW COUNTS (N VALUE)	U.S.C.S.	GRAPHIC	507	MATERIAL DESCRIPTION		WELL DIAGRAM			
		\bigvee ss	100	7-6-4				SANDY SILT, (ML) stiff, dry, red (2.5YR 4/8), fine sand, no residuum, organics, micaceous	plasticity,	Cement Grout			
PJ	 	1	100	(10)	ML	_		1.0		Bentonite Seal 2" SCH 40 PVC			
INT.G	_	V∣ss	67	3-2-2				(ML) soft, wet, brownish yellow (10YR 6/6), fine sand, no pl	asticity				
AL G	5	2	07	(4)									
AWBA COUNTY WELL INST	 				ML			0.0		Sand Filter Pack			
1484\CAT	10	SS 3	100	4-3-3 (6)				SILTY SAND, (SM) loose, wet, brownish yellow (10YR 6/6), poorly graded, residuum, relict structure	fine sand,	0.010" Slotted 2" SCH 40 VC Well			
GENERAL BH / TP / WELL - GINT STD US LAB.GDT - 7/31/24 09:37 - C:\PWWORKING\EAST01\D3971484\CATAWBA COUNTY WELL INSTAL GINT.GPJ	 	/ \			SM			4.0		Screen Screen			
37 - C	15	∭ ss	67	2-1-2				(SM) very loose, wet, red (2.5YR 4/6) and dark yellowish bro 3/4), fine sand, saprolite, gneiss structure	own (10YR				
4 09	15	4	"	(3)				,					
NT STD US LAB.GDT - 7/31/2	 				SM			9.0	·				
.L-G	20	∭ ss	67	3-3-2				(SM) loose, wet, pale brown (10YR 6/3) and white (10YR 8/graded, saprolite	1), poorly				
WEL	20	5	"	(5)									
GENERAL BH / TP /		1			SM								

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440 S. Church Street, Suite 900 Charlotte, NC 28202-2075 Phone: 704-338-6700 hdring com/followurs

hdrinc.com/follow-us CLIENT Catawba County PROJECT NAME Blackburn LF Well Installation PROJECT NUMBER 10400064 PROJECT LOCATION Newton, NC SAMPLE TYPE NUMBER BLOW COUNTS (N VALUE) GRAPHIC LOG RECOVERY DEPTH (ft) U.S.C.S. MATERIAL DESCRIPTION WELL DIAGRAM (SM) loose, wet, pale brown (10YR 6/3) and white (10YR 8/1), poorly graded, saprolite (continued) SM No Recovery 3-2-4 SS 0 25 (6) SILTY SAND, (SM) loose, wet, pale brown (10YR 6/3) and white (10YR SS 5-5-2 8/1), fine sand, poorly graded, saprolite, gneiss structure 67 30 (7) GENERAL BH / TP / WELL - GINT STD US LAB.GDT - 7/31/24 09:37 - C./PWWORKING\EAST01/D3971484/CATAWBA COUNTY WELL INSTAL GINT.GPJ SM (SM) dense SS 9-14-18 SM 67 35 8 (32)35.2 (SM) blueish black (5B 2.5/1) with white (10YR 8/1), amphibolite structure SM (SM) medium dense, pale brown (10YR 6/3) and white (10YR 8/1), no SS 6-13-11/0' 60 amphibolite strucuture SM SS 240 9-20-38/0" (SM) very dense 10 45 SM

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WELL NUMBER PZ-218

LIENT Catav		nc.com/follo unty			PROJECT NAME Blackburn LF Well Installation	
ROJECT NUM					PROJECT LOCATION Newton, NC	
(ft) SAMPLE TYPE NUMBER	SAMPLE TYPE NUMBER RECOVERY % COUNTS (N VALUE) U.S.C.S.				MATERIAL DESCRIPTION	WELL DIAGRAM
SS 11	61	16-37-39 (76)	SM		(SM) amphibolite lenses (continued)	
			SM			
SS 12	100	28-50/2"	SM	54.0	SILTY SAND, (SM) very dense, pale brown (10YR 6/3) and white (10YR 8/1), partially weathered rock, rig chatter begun at 55 feet, slow drilling from 55-59 feet	
SS 13		50/0"		59.0	Refusal at 59.0 feet. Bottom of borehole at 59.0 feet.	

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440 S. Church Street, Suite 900 Charlotte, NC 28202-2075

PROJ DATE	STARTE	vba Co IBER _ D _07	10400064 /01/24 00:0	0	cc	PRO 07/01/24 00:00 GRO	PROJECT LOCATION Newton, NC GROUND ELEVATION HOLE SIZE 8.25 inches NORTHING EASTING DIGREGIAND WATER LEVELS:			
DRILL	ING MET	HOD . B.Weis	2 1/4 Hollo serbs	w Ste	m Au	er, & 4 1/4 Hollow Stem Auger/ Digrie CKED BY Z. Hector				
O DEPTH (ft)	SAMPLE TYPE NUMBER	RECOVERY %	BLOW COUNTS (N VALUE)	U.S.C.S.	GRAPHIC	MAT	ERIAL DESCRIPTION	WELL DIAGRAM		
	SS 1	100	3-2-4 (6)	ML			i, moist, yellowish red (5YR 5/8), fin urse grains, manganese oxide	e sand, no Cement Grout Bentonite Sea 2" SCH 40 PVC		
	SS 2	100	6-2-3 (5)	ML		4.0 (ML) micaceous				
	ss 3	33	2-2-2 (4)	SM		(10YR 8/1), fine sand, poorl	se, wet, very pale brown (10YR 7/4) y graded, saprolite, gneissic structui fractures, rig chatter at 12 feet	and white re, dark Sand Filter Pack PYC Well Screen		
	SS 4	100	9-22-20/0"/	SM		(SM) dense, gray (10YR 6/1	I) and white (10YR 8/1)			
	SS 5	100	24-26-26 (52)	SM		(SM) very dense, with yellow fine to coarse amphibolite g	vish brown (10YR 4/6), few coarse s ravel	sand, few		

WELL NUMBER PZ-219

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440 S. Church Street, Suite 900 Charlotte, NC 28202-2075 Phone: 704-338-6700

GENERAL BH / TP / WELL - GINT STD US LAB.GDT - 7/31/24 09:37 - C:\PWWORKING\EAST01\D3971484\CATAWBA COUNTY WELL INSTAL GINT.GPJ

hdrinc.com/follow-us CLIENT Catawba County PROJECT NAME Blackburn LF Well Installation PROJECT NUMBER 10400064 PROJECT LOCATION Newton, NC

DEPTH (ft)	SAMPLE TYPE NUMBER	RECOVERY %	BLOW COUNTS (N VALUE)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM
				SM		(SM) very dense, with yellowish brown (10YR 4/6), few coarse sand, few fine to coarse amphibolite gravel <i>(continued)</i>	
25	SS 6	100	11-19- 41/0"			SANDY GRAVEL, (GW) very dense, wet, dark greenish gray (10BG 4/1) and white (10YR 8/1), fine to coarse gravel, course sand, well graded, saprolite, gravel is amphibolite	
	-			GW		29.0	
30	SS 7	78	36-41-48 (89)			SILTY SAND, (SM) very dense, gray (10YR 6/1) and white (10YR 8/1), fine sand, poorly graded, saprolite, some fine feldspar gravel, rig chatter begun at 33 feet	
	-			SM		33.5	
	SS 8		50/0"			Refusal at 33.5 feet.	

Bottom of borehole at 33.5 feet.

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CLIEN	IT Catav	/ba Co	unty				PROJECT NAME Blackburn LF Well Installation		
PROJ	ECT NUM	BER _	10400064				PROJECT LOCATION Newton, NC		
							00:00 GROUND ELEVATION HOLE SIZE 4.25 inches		
							NORTHING EASTING		
							em Auger/ DigitiouNito Water Levels:		
				CHECKED E	3Y <u>Z.</u>	Hecto			
NOTE	S						19hrs AFTER DRILLING 6.52 ft		
O DEPTH (ft)	SAMPLE TYPE NUMBER	RECOVERY %	BLOW COUNTS (N VALUE)	REMARKS	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION WELL DIAGRAM		
	SS 1	100	5-4-1 (5)		ML		SANDY SILT, (ML) medium, dry, red (2.5YR 4/8), fine sand, no plasticity, residuum, trace coarse gneiss and amphibolite gravel, organics Cement Grout Bentonite Seal 2" SCH 40 PVC		
Y WELL INSTAL GINT.GPJ	SS 2	100	3-3-4 (7)		ML		(ML) moist, light red (2.5YR 6/6), manganese oxide, no gravel		
GENERAL BH / TP / WELL - GINT STD US LAB.GOT - 7/3/24 09:37 - C./PWWORKING/EAST01/03971484/CATAWBA COUNTY WELL INSTAL GINT GRU 0	SS 3	100	2-3-6 (9)	Shelby Tube (ST-6) collected from 10-12ft		-	9.0		
- 15	V ss	100	2-4-14			-	14.0		
AB.GDT - 7/31/24 09:37 - C:/P	4		(18)		SM		SILTY SAND, (SM) medium dense, brownish yellow (10YR 6/6), fine sand, poorly graded, saprolite, few coarse sand grains, amphibolite structure		
TP / WELL - GINT STD US LAE	SS 5	100	20-20-14 (34)		SM		(SM) dense, very pale brown (10YR 7/3) and white (10YR 8/1), gneissic structure, rig chatter begun at 23 feet		
<u>H</u>							23.5		
GENERAL	SS 6		50/0"				Refusal at 23.5 feet. Bottom of borehole at 23.5 feet.		

WELL NUMBER PZ-221 PAGE 1 OF 2

440 S. Church Street, Suite 900 Charlotte, NC 28202-2075 Phone: 704-338-6700

				hdrii	nc.com/follo		•					
	CLIEN								PROJECT NAME Blackburn LF W			
									PROJECT LOCATION Newton, N		017E 4.05 in the c	
									GROUND ELEVATION			
									NORTHING	EASTING		
								er, & 4 1/4 Hollow Stem Auger/ I CKED BY Z. Hector	GROUND WATER LEVELS: AT END OF DRILLING 12.6	80 ft		
	NOTE						CHE	CRED BI _Z. Nector	▼ 48.25hrs AFTER DRILLING			
	HOIL	_							- TOLONIO AL TENDICENTO	0.00 N		
	O DEPTH (ft)	SAMPLETYPE	NUMBER	RECOVERY %	BLOW COUNTS (N VALUE)	U.S.C.S.	GRAPHIC LOG		MATERIAL DESCRIPTION		WELL DIAGRAM	
		\bigvee	SS 1	100	2-2-3 (5)			SANDY SILT, (ML) me fine sand, no plasticity,	dium, dry to moist, brownish yellow (residuum, manganese oxide	(10YR 6/8),	Cement Grout	
PJ						ML				755750 · · · · · · · · · · · · · · · · · · ·	Bentonite Seal 2" SCH 40 PVC	
AL GINT.G	5	X	SS 2	100	3-3-5 (8)			4.8 SILTY SAND, (SM) loc	use, moist to wet, very pale brown (10 sand, poorly graded, saprolite, amph	OYR 7/4) and		
ST01/D3971484/CATAWBA COUNTY WELL INSTAL GINT.GPJ						SM			sanu, poony graded, sapionie, ampri		Tand Filter	
	10		SS 3	0	2-1-2			No Recovery			Pack 0.010" Slotted 2" SCH 40 PVC Well Screen	
7/31/24 09:37 - C:\PV	 15		SS 4	33	2-2-5 (7)			(SM) wet, fine to medi	ım sand, gneissic structure			
GENERAL BH / TP / WELL - GINT STD US LAB.GDT - 7/31/24 09:37 - C.\PWWORKING\EA						SM		19.0				
P / WELL - GIF	20	\bigvee	SS 5	67	4-4-6 (10)			(SM) with dark yellowis	th brown (10YR 3/6), fine sand, mica	aceous		
GENERAL BH / 1						SM						

440 S. Church Street, Suite 900 Charlotte, NC 28202-2075 Phone: 704-338-6700 hdrinc.com/follow-us

	Cataw					PROJECT NAME Blackburn LF Well Installation					
PROJE	CT NUM	BER _	10400064			PROJECT LOCATION Newton, NC					
DEPTH (ft)	SAMPLE TYPE NUMBER	RECOVERY %	BLOW COUNTS (N VALUE)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM				
				SM		(SM) with dark yellowish brown (10YR 3/6), fine sand, micaceous (continued)					
25	SS 6	100	10-26-12 (38)			Fine to coarse sand, well graded, absence of micaceous layer					
						29.0					
30	SS 7	100	50/5"	SM		SILTY SAND, (SM) very dense, wet, blueish black (5PB 2.5/1) with white (10YR 8/1), fine sand, poorly graded, partially weathered rock, amphibolite structure, rig chatter begun at 27.5 feet					

Refusal at 30.0 feet. Bottom of borehole at 30.0 feet.

GENERAL BH / TP / WELL - GINT STD US LAB.GDT - 7/31/24 09:37 - C.IPWWORKING\EAST01\D3971484\CATAWBA COUNTY WELL INSTAL GINT.GPJ

WELL NUMBER PZ-222 PAGE 1 OF 2

FDS	440 S. Church Street, Suite 900 Charlotte, NC 28202-2075 Phone: 704-338-6700 hdrinc.com/follow-us
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• '		•	hdrii	nc.com/follo	w-us	-					
CLIEN	IT _(Cataw	/ba Co	ounty					PROJECT NAME Blackburn LF	Well Installation	
PROJ	ECT	NUM	BER _	10400064					PROJECT LOCATION Newton,	NC	
DATE	STA	RTE	D _07.	/08/24 00:0	0	CC	MP	PLETED _07/08/24 00:00	GROUND ELEVATION	HOLE S	SIZE 4.25 inches
CONT	RAC	TOR	Geo	logic Explor	ation,	Inc./	D. I	Hall	NORTHING	EASTING	
DRILL	ING	MET	HOD	2 1/4 Hollo	w Ste	m Aı	ıger.	, & 4 1/4 Hollow Stem Auger	DIGRIOUND WATER LEVELS:		
LOGG	ED I	BY _E	3.Weis	serbs		CH	IEC	KED BY Z. Hector			
NOTE	s _								25.25hrs AFTER DRILLIN	G 7.68 ft	
O DEPTH (ft)	SAMPLETYPE	NUMBER	RECOVERY %	BLOW COUNTS (N VALUE)	U.S.C.S.	GRAPHIC	907		MATERIAL DESCRIPTION		WELL DIAGRAM
		SS 1	100	3-3-6 (9)	ML		4	plasticity, residuum,			Bentonite Seal 2" SCH 40 PVC
5 10		SS 2	100	3-3-4 (7)	CL		9	low plasticity, residu			Cement Grout and Filter Pack 0.010" Slotted 2" SCH 40
<u>10</u>		SS 3	11	1-2-1				SANDY SILT, (ML) s	soft, fine sand, no plasticity, residuun	n	PVC Well Screen
15	M	SS 4	67	2-2-2 (4)	ML						
 20		SS 5	22	4-6-3 (9)			1		oose, wet, dark yellowish brown (10\ d, poorly graded, saprolite, micaceou		
15					SM						

WELL NUMBER PZ-222

PAGE 2 OF 2

440 S. Church Street, Suite 900 Charlotte, NC 28202-2075 Phone: 704-338-6700 hdring com/followurs

hdrinc.com/follow-us CLIENT Catawba County PROJECT NAME Blackburn LF Well Installation PROJECT NUMBER 10400064 PROJECT LOCATION Newton, NC SAMPLE TYPE NUMBER BLOW COUNTS (N VALUE) GRAPHIC LOG RECOVERY U.S.C.S. DEPTH (ft) MATERIAL DESCRIPTION WELL DIAGRAM SM (SM) very pale brown (10YR 7/8), gneissic structure 3-6-7 SS 33 25 (13) SM SS 7 SILTY SAND, (SM) very dense, wet, blueish black (5PB 2.5/1) with white 18-50/3" SM (10YR 8/1), fine sand, poorly graded, partially weathered rock, amphibolite 30 structure GENERAL BH / TP / WELL - GINT STD US LAB.GDT - 7/31/24 09:37 - C.\PWWORKING\EAST01\D3971484\CATAWBA COUNTY WELL INSTAL GINT.GPJ Rig chatter at 32 feet No Recovery SS 8 50/0 Refusal at 34.0 feet. Bottom of borehole at 34.0 feet.

WELL NUMBER PZ-223 PAGE 1 OF 3

440 S. Church Street, Suite 900 Charlotte, NC 28202-2075 Phone: 704-338-6700

		hdri	nc.com/follo	w-us					
CLIE	ENT Catav	vba Co	ounty				PROJECT NAME Blackburn LF W	ell Installation	
PRO	JECT NUM	IBER _	10400064				PROJECT LOCATION Newton, NO	2	
DAT	E STARTE	D _07	/08/24 00:0	0	СОМ	PLETED _07/08/24 00:00	GROUND ELEVATION	HOLE SIZE 4.	25 inches
			logic Explor						
DRIL	LING MET	HOD	2 1/4 Hollo	w Ste	m Auge	er, & 4 1/4 Hollow Stem Auger/	DISTIOUND WATER LEVELS:		
						CKED BY Z. Hector	Ψ at end of drilling 7.00) ft	
NOT	ES						▼ 18hrs AFTER DRILLING 12	2.76 ft	
O DEPTH	SAMPLE TYPE NUMBER	RECOVERY %	BLOW COUNTS (N VALUE)	U.S.C.S.	GRAPHIC LOG		MATERIAL DESCRIPTION	v	/ELL DIAGRAM
-	SS 1	100	5-5-9 (14)			SANDY CLAY, (CL) st residuum	iff, dry, red (2.5YR 5/8), fine sand, no		Cement Grout
WBA COUNTY WELL INSTAL GINT.GP	SS 2	100	5-5-4 (9)	CL		9.0			2" SCH 40 PVC Bentonite Seal
GENERAL BH / TP / WELL - GINT STD US LAB.GDT - 7/31/24 09:37 - C:\PWWORKING\EAST01\D3971484\CATAWBA COUNTY WELL INSTAL GINT.GPU	SS 3	100	4-4-3 (7)	CL		(CL) medium, moist, n			********** ¥
NT STD US LAB.GDT - 7/31/24 09:37 - C	SS 4	100	3-4-4 (8)	CL		(CL) medium, low plas			Sand Filter Pack 0.010" Slotted 2" SCH 40 PVC Well Screen
GENERAL BH / TP / WELL - GII	SS 5	100	3-3-3 (6)	SM			ose, wet, very pale brown (10YR 7/4) R 4/6), fine sand, poorly graded, residu		

WELL NUMBER PZ-223

PAGE 2 OF 3

440 S. Church Street, Suite 900 Charlotte, NC 28202-2075 Phone: 704-338-6700 hdring com/followers

GENERAL BH / TP / WELL - GINT STD US LAB.GDT - 7/31/24 09:37 - C.\PWWORKING\EAST01\D3971484\CATAWBA COUNTY WELL INSTAL GINT.GPJ

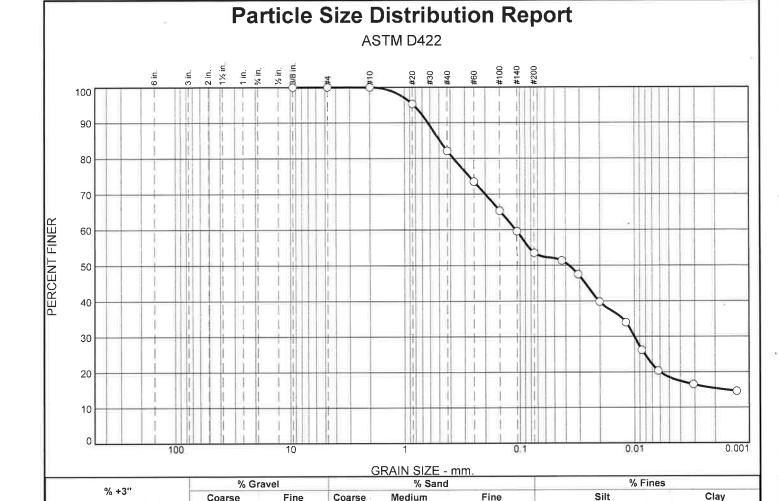
hdrinc.com/follow-us CLIENT Catawba County PROJECT NAME Blackburn LF Well Installation PROJECT NUMBER 10400064 PROJECT LOCATION Newton, NC SAMPLE TYPE NUMBER BLOW COUNTS (N VALUE) GRAPHIC LOG RECOVERY DEPTH (ft) U.S.C.S. MATERIAL DESCRIPTION WELL DIAGRAM SM (SM) with white (10YR 8/1) SS 3-2-3 25 33 (5) SM (SM) rig chatter at 30 feet No Recovery SS 4-3-3 0 30 (6) SM SILTY SAND, (SM) loose, wet, very pale brown (10YR 7/4) and dark yellowish brown (10YR 4/6), fine sand, poorly graded, residuum, SS 3-4-5 17 35 8 (9) SM 39.0 SANDY SILT, (ML) stiff, wet, yellowish red (5YR 5/8) and white (10YR SS 3-3-5 8/1), fine sand, no plasticity, residuum, very faint structure 22 (8) MLSILTY SAND, (SM) very dense, wet, very pale brown (10YR 7/4) and SS 11-27white (10YR 8/1), fine sand, poorly graded, saprolite 45 10 50/5" SM

WELL NUMBER PZ-223 PAGE 3 OF 3

	CLIENT Catawba County PROJECT NUMBER 10400064					PROJECT NAME Blackburn LF Well Installation PROJECT LOCATION Newton, NC			
DEPTH (ft)	SAMPLE TYPE NUMBER	RECOVERY %	BLOW COUNTS (N VALUE)	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	WELL DIAGRAM		
50	SS 11	33	6-5-42 (47)	SM		(SM) with blueish black (5B 2.5/1), weathered amphibolite lenses (continued)			
					:: :: 51.0	D (1 (540()			

Refusal at 51.0 feet. Bottom of borehole at 51.0 feet.

GENERAL BH / TP / WELL - GINT STD US LAB.GDT - 7/31/24 09:37 - C./PWWORKING\EAST01\D3971484\CATAWBA COUNTY WELL INSTAL GINT.GPJ



Test Results (ASTM D422)						
Sieve Size or Diam. (mm.)	Finer (%)	Spec.* (%)	Out of Spec. (%)	Pct. of Fines		
0.375	100.0					
#4	100.0					
#10	100.0					
#20	95.3			95.3		
#40	82.1			82.1		
#60	73.5			73.5		
#100	65.3			65.3		
#140	59.5			59.5		
#200	53.5			53.5		
0.0432 mm.	51.4					
0.0310 mm.	47.5					
0.0202 mm.	39.8					
0.0119 mm.	34.0					
0.0086 mm.	26.2					
0.0062 mm.	20.4					
0.0031 mm.	16.6					
0.0013 mm.	14.6					

Coarse

0.0

Fine

0.0

Coarse

0.0

Medium

17.9

Fine

28.6

Material Description Dark Orange-Brown Silty, Clayey Sand						
PL=	Atterberg Limits	PI=				
D ₉₀ = 0.6264 D ₅₀ = 0.0373 D ₁₀ =	Coefficients D ₈₅ = 0.4944 D ₃₀ = 0.0100 C _u =	D ₆₀ = 0.1089 D ₁₅ = 0.0016 C _c =				
USCS=	Classification AASHTC)=				
	Test Remarks					

Silt

35.0

18.5

Location: PZ-210, SS-2 @ 4.4'-5.9'

0.0

Pineville, North Carolina

Client: HDR Engineering

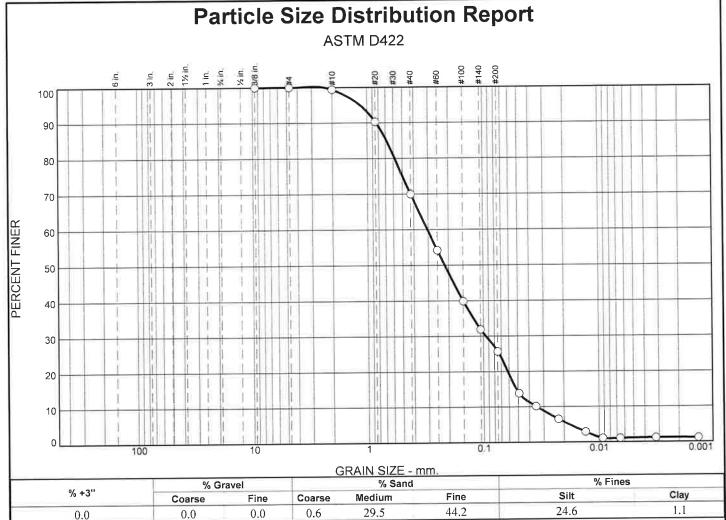
Project: Catawba Unit 4 Landfill Expansion

Project No: A24117.01899.000

Figure

Sample Date: 08-23-24

Checked By: MH Tested By: DG



T	Test Results (ASTM D422)							
Sieve Size or Diam. (mm.)	Finer (%)	Spec.* (%)	Out of Spec. (%)	Pct. of Fines				
0.375	100.0							
#4	100.0							
#10	99.4							
#20	90.3			90.8				
#40	69.9		1	70.4				
#60	54.2			54.5				
#100	39.9			40.1				
#140	31.9			32.1				
#200	25.7			25.8				
0.0490 mm.	13.9							
0.0350 mm.	10.2							
0.0224 mm.	6.6							
0.0131 mm.	2.9							
0.0093 mm.	1.1							
0.0066 mm.	1.1							
0.0032 mm.	1.2							
0.0013 mm.	1.2							

_	44.2	21.0						
	Material Description Light Orange-Brown Very Slightly Clayey, Silty Sand							
	PL=	Atterberg Limits	PI=					
	D ₉₀ = 0.8382 D ₅₀ = 0.2163 D ₁₀ = 0.0342	Coefficients D ₈₅ = 0.6871 D ₃₀ = 0.0955 C _u = 8.90	D ₆₀ = 0.3047 D ₁₅ = 0.0516 C _c = 0.88					
	USCS=	Classification AASHT	O=					
		Test Remarks						

Sample Date: 08-23-24

Figure

* (no specification provided)

Tested By: DG

Location: PZ-210, SS-5 @ 19.4'-20.9'

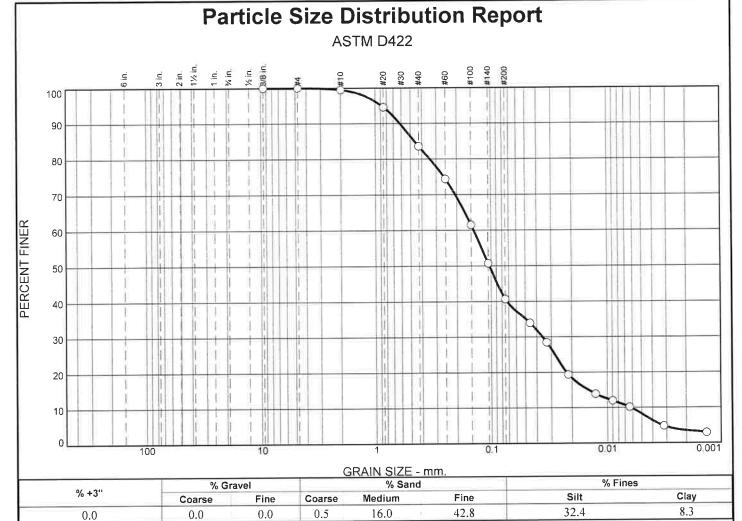
Client: HDR Engineering

Project: Catawba Unit 4 Landfill Expansion

Project No: A24117.01899.000

Pineville, North Carolina

Checked By: MH



Test Results (ASTM D422)					
Sieve Size or Diam. (mm.)	Finer (%)	Spec.* (%)	Out of Spec. (%)	Pct. of Fines	
0.375	100.0				
#4	100.0				
#10	99.5				
#20	94.6			95.1	
#40	83.5			83.9	
#60	74.3			74.7	
#100	61.5			61.8	
#140	50.7			51.0	
#200	40.7			40.9	
0.0456 mm.	33.9				
0.0329 mm.	28.5				
0.0215 mm.	19.4				
0.0126 mm.	13.9				
0.0090 mm.	12.0				
0.0064 mm.	10.2				
0.0032 mm.	4.8				
0.0013 mm.	3.0				
* (no specifica	ation provi	ded)			

.0	44.	.0	32.4	0.5	_			
	Material Description Light Orange-Brown Clayey. Silty Sand							
	PL=	Atterbe	erg Limits	PI=				
	D ₉₀ = 0.610 D ₅₀ = 0.10 D ₁₀ = 0.000		0.4635 0.0357 22.92	D ₆₀ = 0.1424 D ₁₅ = 0.0144 C _c = 1.44				
	USCS=	Class	ification AASHTC)=				
		<u>Test F</u>	<u>Remarks</u>					
					1			

Location: PZ-211. SS-2 @ 4.1'-5.6'



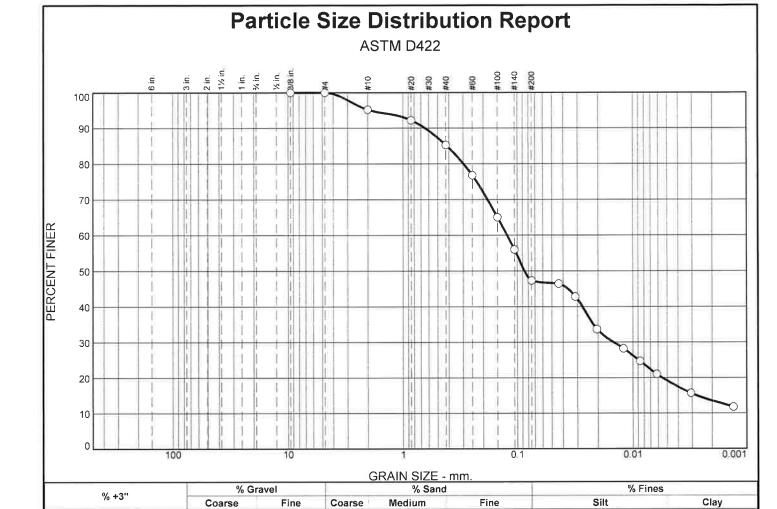
Client: HDR Engineering

Project: Catawba Unit 4 Landfill Expansion

Project No: A24117.01899.000

Figure

Sample Date: 08-23-24



	est Kest	Its (ASTM I		
Sieve Size or Diam. (mm.)	Finer (%)	Spec.* (%)	Out of Spec. (%)	Pct. of Fines
0.375	100.0			
#4	100.0			
#10	95.2			
#20	92.2			96.9
#40	85.2			89.5
#60	76.7			80.6
#100	65.0			68.3
#140	56.0			58.8
#200	47.3			49.7
0.0437 mm.	46.4			
0.0314 mm.	42.8			
0.0205 mm.	33.7			
0.0121 mm.	28.2			
0.0086 mm.	24.7			
0.0062 mm.	21.0			
0.0031 mm.	15.7			
0.0013 mm.	11.8			

0.0

Material Description Tan-Brown Clayey, Silty Sand							
PL=	Atterberg Limits	PI=					
D ₉₀ = 0.6464 D ₅₀ = 0.0869 D ₁₀ =	Coefficients D85= 0.4177 D30= 0.0147 Cu=	D ₆₀ = 0.1235 D ₁₅ = 0.0027 C _c =					
USCS=	Classification AASHT Test Remarks	-O=					
	Test Ivellial ks						

28.1

19.2

(no specification provided)

0.0

Location: PZ-211, SS-4 @ 14.1'-15.6'

Sample Date: 08-23-24



Client: HDR Engineering

Project: Catawba Unit 4 Landfill Expansion

Project No: A24117.01899.000

Figure

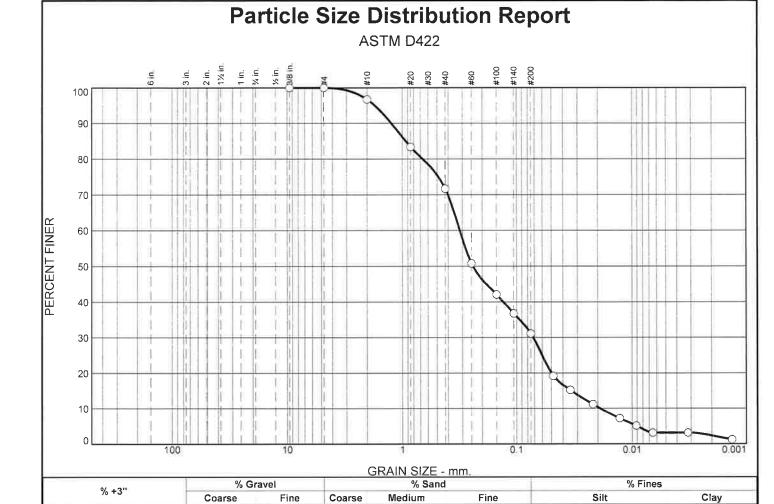
Tested By: DG Checked By: MH

0.0

4.8

10.0

37.9



1	est Resi	ults (ASTM I	D422)	
Sieve Size or Diam. (mm.)	Finer (%)	Spec.* (%)	Out of Spec. (%)	Pct. of Fines
0.375	100.0			
#4	100.0			
#10	96.7			
#20	83.4			86.2
#40	71.6			74.0
#60	50.8			52.5
#100	42.0			43.5
#140	36.8			38.0
#200	31.1			32.1
0.0483 mm.	19.2			
0.0345 mm.	15.2			
0.0221 mm.	11.2			
0.0129 mm.	7.2			
0.0092 mm.	5.2			
0.0065 mm.	3.2			
0.0032 mm.	3.2			
0.0013 mm.	1.2			
no specifica	tion provi	ded)		

0.0

0.0

3.3

25.1

Material Description Light-Brown Slightly Clayey, Silty Sand					
PL=	Atterberg Limits	PI=			
D ₉₀ = 1.2470 D ₅₀ = 0.2432 D ₁₀ = 0.0191	Coefficients D ₈₅ = 0.9365 D ₃₀ = 0.0716 C _u = 16.65	D ₆₀ = 0.3174 D ₁₅ = 0.0338 C _c = 0.85			
USCS=	Classification AASHT	O=			
Test Remarks					

27.9

3.2

40.5

Location: PZ-211, SS-6 @ 24.1'-25.6'

0.0

∥JUESPineville, North Carolina

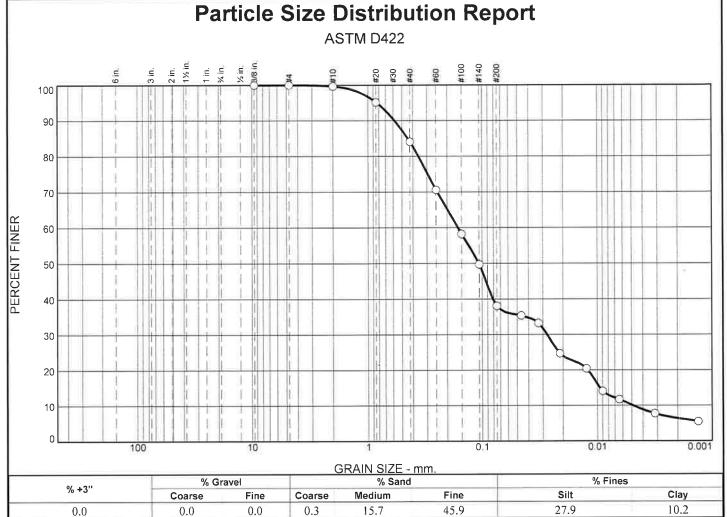
Client: HDR Engineering

Project: Catawba Unit 4 Landfill Expansion

Project No: A24117.01899.000

Figure

Sample Date: 08-23-24



Т	Test Results (ASTM D422)				
Sieve Size or Diam. (mm.)	Finer (%)	Spec.* (%)	Out of Spec. (%)	Pct. of Fines	
0.375 #4 #10 #20 #40 #60 #100 #140 #200 0.0462 mm. 0.0329 mm. 0.0125 mm. 0.0090 mm. 0.0064 mm. 0.0032 mm.	100.0 100.0 99.7 95.2 84.0 70.6 58.3 49.7 38.1 35.4 33.2 24.7 20.4 14.1 11.7 7.7			95.5 84.3 70.8 58.4 49.9 38.2	
0.0032 mm, 0.0013 mm.	5.5				

5./	45.9	27.9	10.2				
	Material Description Red-Brown Clayey. Silty Sand						
	PL=	Atterberg Limits	PI=				
	D ₉₀ = 0.5838 D ₅₀ = 0.1071 D ₁₀ = 0.0049	Coefficients D85= 0.4453 D30= 0.0276 Cu= 33.17	D ₆₀ = 0.1611 D ₁₅ = 0.0095 C _c = 0.97				
	USCS=	Classification AASHTO	=				
		Test Remarks					

(no specification provided)

Location: PZ-212, SS-2 @ 3.9'-5.4'

Tested By: DG

Client: HDR Engineering

Project: Catawba Unit 4 Landfill Expansion

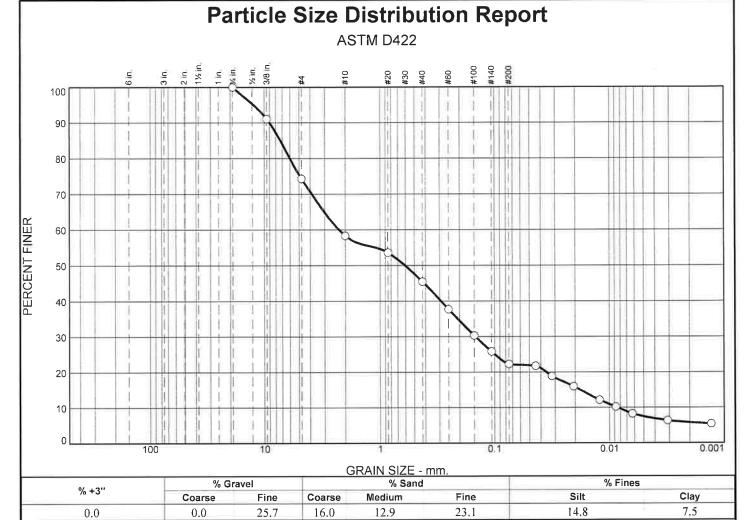
Project No: A24117.01899.000

Figure

Sample Date: 08-23-24

Pineville, North Carolina

Checked By: MH



Test Results (ASTM D422)				
Sieve Size or Diam. (mm.)	Finer (%)	Spec.* (%)	Out of Spec. (%)	Pct. of Fines
0.75	100,0		1	
0.375	91.0			
#4	74.3			
#10	58,3			
#20	53.6			91,8
#40	45.4			77.9
#60	37.7			64.6
#100	30,3			52.0
#140	25.8			44.2
=200	22,3			38.2
0.0443 mm.	21.7			
0.0320 mm.	18.9			
0.0207 mm.	15.9			
0.0122 mm.	12.1			
0.0088 mm	10,2			
0.0063 mm	8,3			
0.0031 mm	6.4			
0.0013 mm	5.4			

23,1	14.0	7.5				
Material Description Dark Orange-Brown Clayey, Silty Sand						
PL=	Atterberg Limits	PI=				
D ₉₀ = 9.0267 D ₅₀ = 0.6065 D ₁₀ = 0.0085	Coefficients D ₈₅ = 7.2922 D ₃₀ = 0.1464 C _u = 266.81	D ₆₀ = 2.2634 D ₁₅ = 0.0181 C _c = 1.12				
USCS=	Classification AASHT	O=				
	Test Remarks					

(no specification provided)

Location: PZ-212, ST-1 @ 9.2'-11.2'

Pineville, North Carolina

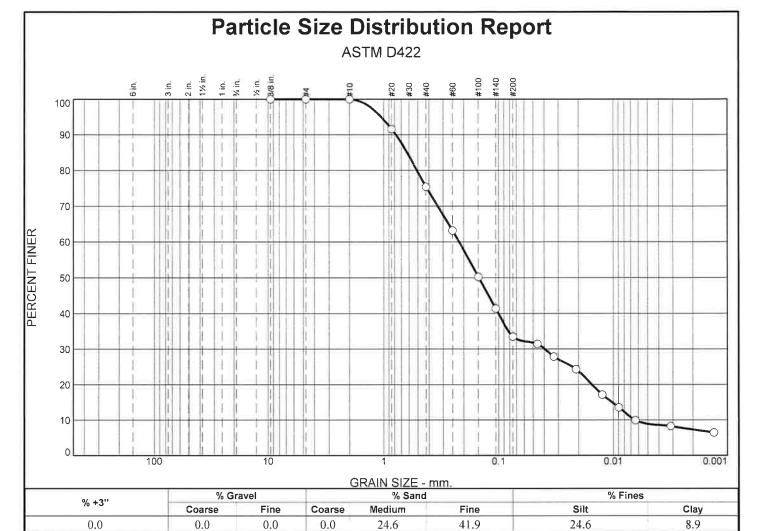
Client: HDR Engineering

Project: Catawba Unit 4 Landfill Expansion

Project No: A24117.01899.000

Figure

Sample Date: 08-23-25



Test Results (ASTM D422)				
Sieve Size or Diam. (mm.)	Finer (%)	Spec.* (%)	Out of Spec. (%)	Pct. of Fines
0.375	100.0			
#4	100.0			
#10	100.0			
#20	91.6			91.6
#40	75.4			75.4
#60	63.1			63.1
#100	50.2			50.2
#140	41.3			41.3
#200	33.5			33.5
0.0459 mm.	31.4			
0.0329 mm.	27.8			
0.0211 mm.	24.3			
0.0125 mm.	17.1			
0.0089 mm.	13.5			
0.0064 mm.	9.9			
0.0031 mm.	8.3			
0.0013 mm.	6.5			

 ,		0.7				
Material Description Tan-Brown Clayey, Silty Sand						
PL=	Atterberg Limits LL=	Pl=				
D ₉₀ = 0.7786 D ₅₀ = 0.1487 D ₁₀ = 0.0065	Coefficients D ₈₅ = 0.6242 D ₃₀ = 0.0397 C _u = 34.03	D ₆₀ = 0.2200 D ₁₅ = 0.0103 C _c = 1.11				
USCS=	Classification AASHT	D=				
	Test Remarks					

(no specification provided)

Location: PZ-212, SS-5 @ 18.9'-20.4'



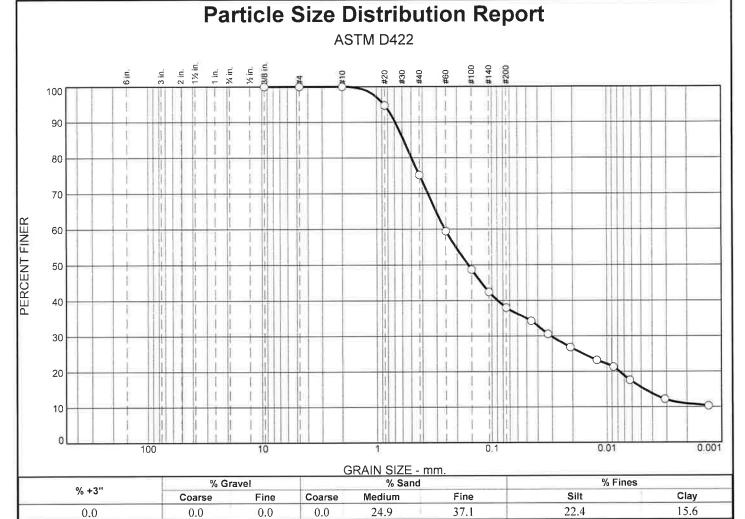
Client: HDR Engineering

Project: Catawba Unit 4 Landfill Expansion

Project No: A24117.01899.000

Figure

Sample Date: 08-23-24



Test Results (ASTM D422)				
Sieve Size or Diam. (mm.)	Finer (%)	Spec.* (%)	Out of Spec. (%)	Pct. of Fines
0.375	100.0			
#4	100.0			
#10	100.0			
#20	94.7			94.7
#40	75.1			75.1
#60	59.4			59.4
#100	48.7			48.7
#140	42.4			42.4
#200	38.0			38.0
0.0456 mm.	34.3			
0.0327 mm.	30.6			
0.0210 mm.	26.9			
0.0122 mm.	23.2			
0.0087 mm.	21.3			
0.0063 mm.	17.6			
0.0031 mm	12.2			
0.0013 mm.	10.3			

.9	37.1	22.4	13.0				
	Material Description Orange-Brown Clayey. Silty Sand						
	PL=	Atterberg Limits	PI=				
	D ₉₀ = 0.6913 D ₅₀ = 0.1603 D ₁₀ =	Coefficients D85= 0.5838 D30= 0.0307 Cu=	D ₆₀ = 0.2555 D ₁₅ = 0.0047 C _c =				
	USCS=	Classification AASHTO	=				
		Test Remarks					

* (no specification provided)

Location: PZ-212. SS-7 @ 28.9'-30.4'



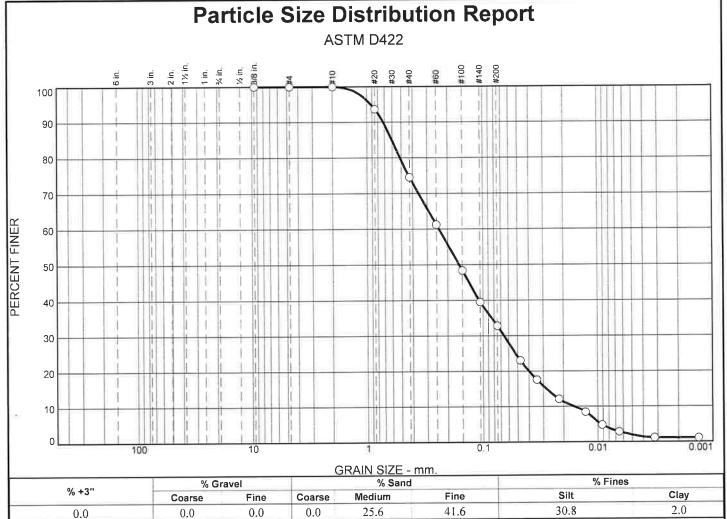
Client: HDR Engineering

Project: Catawba Unit 4 Landfill Expansion

Project No: A24117.01899.000

Figure

Sample Date: 08-23-24



T	Test Results (ASTM D422)				
Sieve Size or Diam. (mm.)	Finer (%)	Spec.* (%)	Out of Spec. (%)	Pct. of Fines	
0.375	100.0				
#4	100.0				
#10	100.0				
#20	93.6			93.6	
#40	74.4			74.4	
#60	61.2			61.2	
#100	48.4		1	48.4	
#140	39.5			39.5	
#200	32.8			32.8	
0.0474 mm.	23.0				
0.0341 mm.	17.5				
0.0220 mm.	12.1				
0.0128 mm.	8.4				
0.0092 mm.	4.8				
0.0065 mm.	2.9				
0.0032 mm.	1.2				
0.0013 mm.	1.1				

.0	41.0	30.8	2.0	_				
	Material Description Orange-Brown Slightly Clayey. Silty Sand							
	PL=	Atterberg Limits	PI=					
	D ₉₀ = 0.7207 D ₅₀ = 0.1600 D ₁₀ = 0.0161	Coefficients D85= 0.6049 D30= 0.0658 Cu= 14.79	D ₆₀ = 0.2386 D ₁₅ = 0.0284 C _c = 1.13					
	USCS=	Classification AASHT	O=					
		Test Remarks						
				_				

* (no specification provided)

Location: PZ-213, SS-2 @ 4.5'-6'



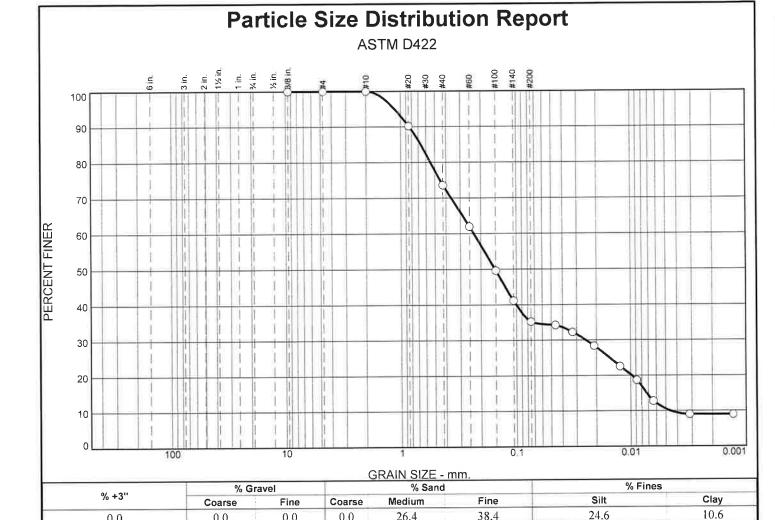
Client: HDR Engineering

Project: Catawba Unit 4 Landfill Expansion

Project No: A24117.01899.000

Figure

Sample Date: 08-23-24



0.0

0.0

Test Results (ASTM D422)				
Sieve Size or Diam. (mm.)	Finer (%)	Spec.* (%)	Out of Spec. (%)	Pct. of Fines
.375	100.0			
#4	100.0			
#10	100.0			
#20	90.2			90.2
#40	73.6			73.6
#60	61.9			61.9
#100	49.6			49.6
#140	41.1			41.1
#200	35.2			35.2
0.0460 mm.	34.2			
0.0327 mm.	32.3			
0.0210 mm.	28.4			
0.0123 mm.	22.6			
0.0088 mm.	18.7			
0.0064 mm.	12.8			
0.0031 mm.	9.0			
0.0013 mm.	9.0			

0.0

24.6 38.4 26.4 **Material Description** Orange-Brown Clayey, Silty Sand **Atterberg Limits** PI= PL= LL= Coefficients D₉₀= 0.8413 D₅₀= 0.1526 D₁₀= 0.0046 D₈₅= 0.6682 D₃₀= 0.0248 C_u= 50.50 $D_{60} = 0.2303$ $D_{15} = 0.0073$ $C_{c} = 0.59$ Classification AASHTO= USCS= **Test Remarks**

* (no specification provided)

0.0

Location: PZ-213, SS-6 @ 24.5'-26'



Client: HDR Engineering

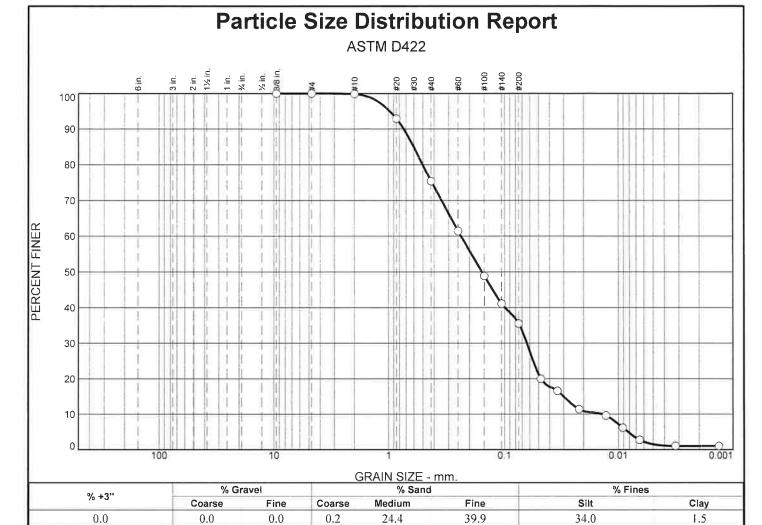
Project: Catawba Unit 4 Landfill Expansion

Project No: A24117.01899.000

Figure

Sample Date: 08-23-24

Checked By: MH Tested By: DG



Test Results (ASTM D422)				
Sieve Size or Diam. (mm.)	Finer (%)	Spec.* (%)	Out of Spec. (%)	Pct. of Fines
0.375	100.0		1	
#4	100.0			
#10	99.8			
#20	92.9		1	93.0
#40	75.4			75.5
#60	61.4			61.5
#100	48.8			48.9
#140	41.0			41.1
#200	35.5			35.5
0.0478 mm.	20.0			
0.0342 mm.	16.5			
0.0220 mm.	11.4			
0.0128 mm.	9.6			
0.0091 mm.	6.2			
0.0065 mm.	2.7			
0.0032 mm.	1.0			
0.0013 mm.	1.0			
(no specification provided)				

Location: PZ-213, SS-9 @ 39.5'-41'

UES TM Pineville, North Carolina

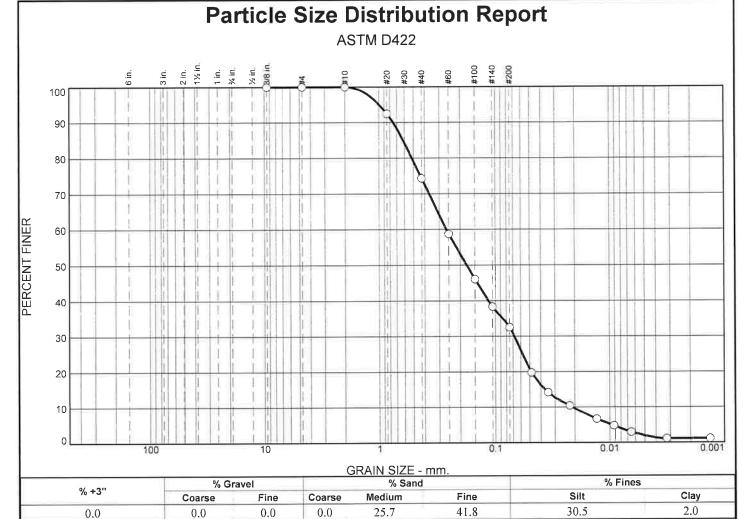
Client: HDR Engineering

Project: Catawba Unit 4 Landfill Expansion

Project No: A24117.01899.000

Figure

Sample Date: 08-23-24



Test Results (ASTM D422)				
Sieve Size or Diam. (mm.)	Finer (%)	Spec.* (%)	Out of Spec. (%)	Pct. of Fines
0.375 #4 #10 #20 #40 #60 #100 #140 #200 0.0481 mm. 0.0346 mm. 0.0129 mm. 0.0092 mm. 0.0065 mm.	100.0 100.0 100.0 92.4 74.3 58.7 46.0 38.3 32.5 19.8 14.2 10.5 6.7 4.8 3.0			92.4 74.3 58.7 46.0 38.3 32.5
0.0065 mm. 0.0032 mm. 0.0013 mm.	3.0 1.1 1.1			

 41.0	30.5	2.0				
Material Description Tan-Brown Slightly Clayey. Silty Sand						
PL=	Atterberg Limits LL=	PI=				
D ₉₀ = 0.7525 D ₅₀ = 0.1772 D ₁₀ = 0.0209	Coefficients D85= 0.6174 D30= 0.0682 Cu= 12.54	D ₆₀ = 0.2618 D ₁₅ = 0.0368 C _c = 0.85				
USCS=	Classification AASHTO)=				
	Test Remarks					

* (no specification provided)

Location: PZ-214, SS-2 @ 4.4'-5.9'



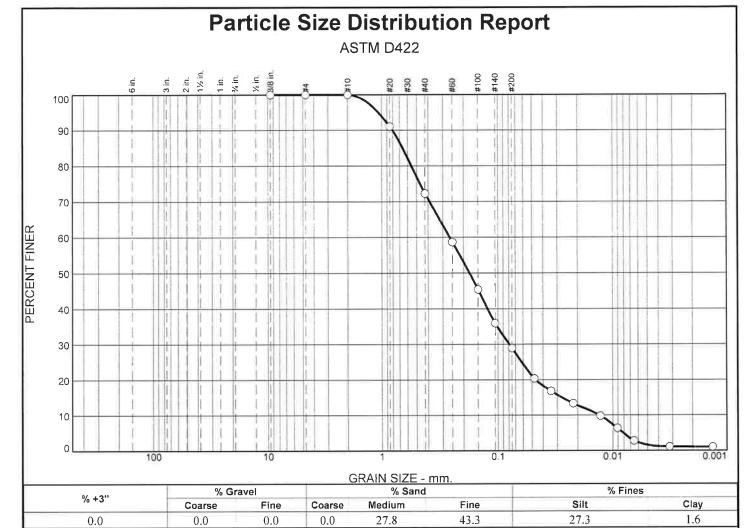
Client: HDR Engineering

Project: Catawba Unit 4 Landfill Expansion

Project No: A24117.01899.000

Figure

Sample Date: 08-23-24



Test Results (ASTM D422)				
Sieve Size or Diam. (mm.)	Finer (%)	Spec.* (%)	Out of Spec. (%)	Pct. of Fines
0.375	100.0			
#4	100.0			
#10	100.0			
#20	91.1			91.1
#40	72.2			72.2
#60	58.7			58.7
#100	45.4			45.4
#140	35.9			35.9
#200	28.9			28.9
0.0477 mm.	20.4			
0.0342 mm.	16.9			
0.0219 mm.	13.3			
0.0128 mm.	9.8			
0.0091 mm.	6.3			
0.0065 mm.	2.8			
0.0032 mm.	1.1			
0.0013 mm.	1.0			

(no specification provided)

Location: PZ-214, SS-5 @ 19.4'-20.9'



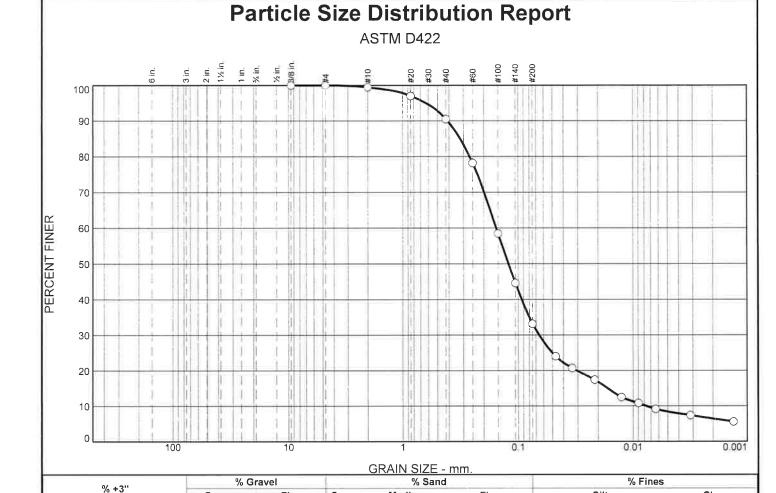
Client: HDR Engineering

Project: Catawba Unit 4 Landfill Expansion

Project No: A24117.01899.000

Figure

Sample Date: 08-23-24



Medium

9.0

Fine

57.4

Test Results (ASTM D422)				
Sieve Size or Diam. (mm.)	Finer (%)	Spec.* (%)	Out of Spec. (%)	Pct. of Fines
0.375	100.0			
#4	100.0			
#10	99.5			
#20	97.0			97.5
#40	90.5			91.0
#60	78.2			78.6
#100	58.5			58.8
#140	44.6			44.8
#200	33.1			33.3
0.0468 mm.	24.0			
0.0335 mm.	20.7			
0.0215 mm.	17.4			
0.0126 mm.	12.5			
0.0090 mm.	10.8			
0.0064 mm.	9.2			
0.0032 mm.	7.4			
0.0013 mm.	5.6			
(no specification provided)				

Coarse

0.0

Fine

0.0

Coarse

0.5

Silt

24.7

Clay

8.4

Location: PZ-215. SS-3 @ 9.5'-11'

0.0



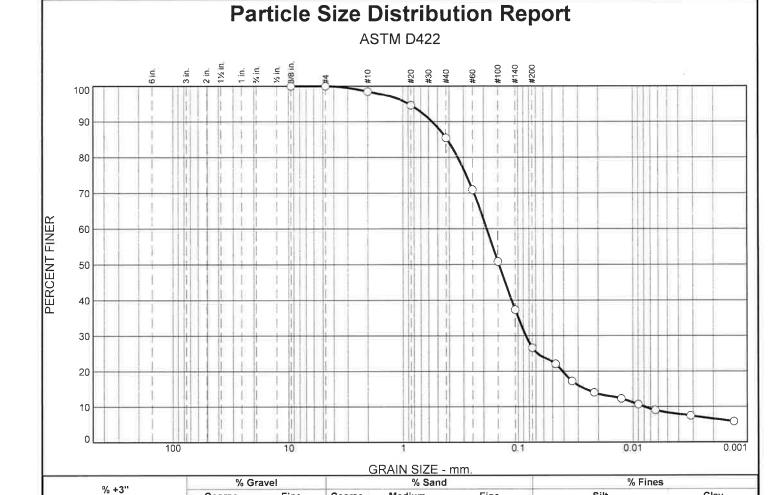
Client: HDR Engineering

Project: Catawba Unit 4 Landfill Expansion

Project No: A24117.01899.000

Figure

Sample Date: 08-23-24



Medium

13.1

Fine

58.8

-	Test Resu	ılts (ASTM I	D422)	
Sieve Size or Diam. (mm.)	Finer (%)	Spec.* (%)	Out of Spec. (%)	Pct. of Fines
0.375	100.0			
#4	100.0			
#10	98.5			
#20	94.6			96.1
#40	85.4			86.7
#60	70.9			72.0
#100	50.8			51.6
#140	37.3			37.9
#200	26.6			27.0
0.0470 mm.	22.1			
0.0339 mm.	17.2			
0.0217 mm.	14.0			
0.0126 mm.	12.3			
0.0090 mm.	10.7			
0.0064 mm.	9.1			
0.0031 mm.	7.5			
0.0013 mm.	5.8			

Coarse

0.0

Fine

0.0

Coarse

1.5

		Material Description on Micaceous Clayey, 9	
	PL=	Atterberg Limits LL=	PI=
	D ₉₀ = 0.5590 D ₅₀ = 0.1469 D ₁₀ = 0.0078	Coefficients D ₈₅ = 0.4178 D ₃₀ = 0.0855 C _u = 23.95	D ₆₀ = 0.1879 D ₁₅ = 0.0260 C _c = 4.96
	USCS=	Classification AASHTO)=
		Test Remarks	
)A			

Silt

18.2

Clay

8.4

0.0

Location: PZ-215, ST-1 @ 9.4'-11.4'

Pineville, North Carolina

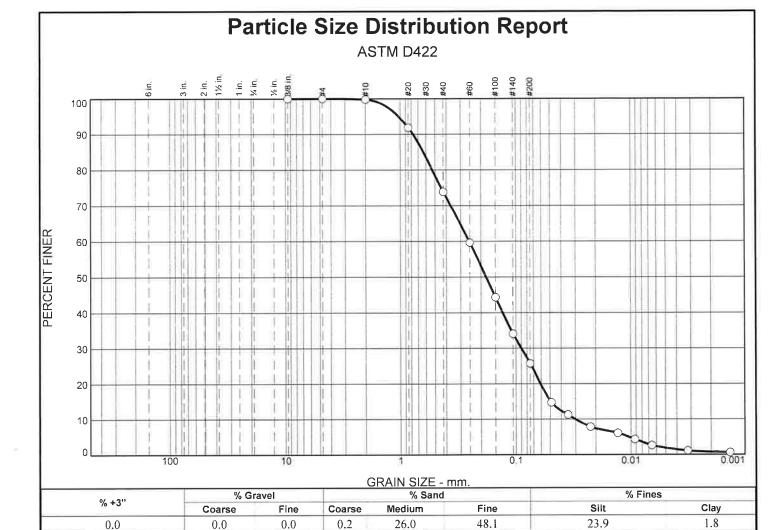
Client: HDR Engineering

Project: Catawba Unit 4 Landfill Expansion

Project No: A24117.01899.000

Figure

Sample Date: 08-23-24



1	Test Resu	ılts (ASTM I	D422)	
Sieve Size or Diam. (mm.)	Finer (%)	Spec.* (%)	Out of Spec. (%)	Pct. of Fines
0.375	100.0			
#4	100.0			
#10	99.8			
#20	91.9			92.0
#40	73.8			73.9
#60	59.6			59.7
#100	44.3			44.4
#140	34.1			34.1
#200	25.7			25.8
0.0488 mm.	14.7			
0.0349 mm.	11.3			
0.0223 mm.	7.9			ļ
0.0130 mm.	6.1			
0.0092 mm.	4.3			
0.0066 mm.	2.6			
0.0032 mm.	1.1			
0.0014 mm.	0.6			

Material Description Orange-Brown Slightly Clayey, Silty Sand		
PL=	Atterberg Limits	PI=
D ₉₀ = 0.7739 D ₅₀ = 0.1813 D ₁₀ = 0.0302	Coefficients D ₈₅ = 0.6327 D ₃₀ = 0.0899 C _u = 8.41	D ₆₀ = 0.2536 D ₁₅ = 0.0496 C _c = 1.06
USCS=	Classification AASHT	0=
	Test Remarks	

* (no specification provided)

Location: PZ-215. SS-5 @ 19.5'-21'

Tested By: DG

Client: HDR Engineering

Project: Catawba Unit 4 Landfill Expansion

Project No: A24117.01899.000

Figure

Sample Date: 08-23-24

	/ UES
1	Pineville, North Carolina

Particle Size Distribution Report ASTM D422 #30 90 80 70 PERCENT FINER 60 50 40 30 20 10 0.01 100 GRAIN SIZE - mm. % Gravel % Sand % Fines % +3"

Medium

Fine

1	Test Resu	ılts (ASTM I	D422)	
Sieve Size or Diam. (mm.)	Finer (%)	Spec.* (%)	Out of Spec. (%)	Pct. of Fines
0.375	100.0			
#4	100.0			
#10	98.3			
#20	92.1			93.7
#40	77.6			78.9
#60	63.3			64.4
#100	48.2			49.0
#140	39.3			39.9
#200	33.3			33.9
0.0477 mm.	23.9			
0.0343 mm.	18.1			
0.0220 mm.	14.3			
0.0129 mm.	8.7			
0.0092 mm.	6.7			
0.0065 mm.	4.8			
0.0032 mm.	3.1			
0.0014 mm.	0.7			

Coarse

0.0

Fine

0.0

Coarse

1.7

20.7	44.3	29.3	4.0
Material Description Light Orange-Brown Clayey, Silty Sand			
	PL=	Atterberg Limits	PI=
	D ₉₀ = 0.7452 D ₅₀ = 0.1598 D ₁₀ = 0.0148	D85= 0.5823 D30= 0.0638 C _u = 15.06	D ₆₀ = 0.2233 D ₁₅ = 0.0237 C _c = 1.23
	USCS=	Classification AASHT	D=
		Test Remarks	

Silt

Clay

(no specification provided) **Location:** PZ-216, SS-3 @ 9.4'-10.9'

Tested By: DG

0.0

Client: HDR Engineering

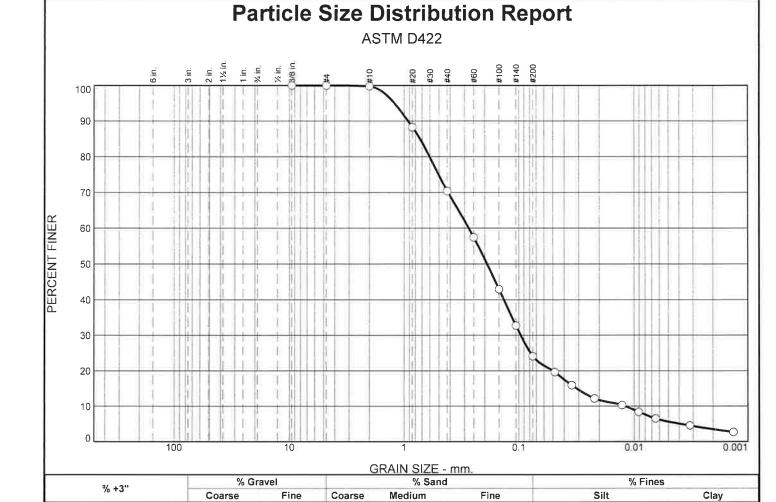
Project: Catawba Unit 4 Landfill Expansion

Project No: A24117.01899.000

Figure

Sample Date: 08-23-24

Pineville, North Carolina



0.2

29.4

46.3

0.0

1	Test Resu	ılts (ASTM I	D422)	
Sieve Size or Diam. (mm.)	Finer (%)	Spec.* (%)	Out of Spec. (%)	Pct. of Fines
.375	100.0		7	
#4	100.0			
#10	99.8			
#20	88.3			88.5
#40	70.4			70.5
#60	57.5			57.6
#100	42.9			43.0
#140	32.7			32.8
#200	24.1			24.2
0.0481 mm.	19.6			
0.0345 mm.	15.9			
0.0220 mm.	12.2			
0.0128 mm.	10.3			
0.0091 mm.	8.4			
0.0065 mm.	6.5		:	
0.0032 mm.	4.6			
0.0013 mm.	2.7			
(no specifica	tion provid	led)		

0.0

Material Description Light-Brown Clayey, Silty Sand		
Atterberg Limits	Pl=	
Coefficients D85= 0.7320 D30= 0.0960 Cu= 23.10	D ₆₀ = 0.2761 D ₁₅ = 0.0313 C _c = 2.79	
Classification AASHT	O=	
Test Remarks		
	Atterberg Limits LL= Coefficients D85= 0.7320 D30= 0.0960 Cu= 23.10 Classification AASHT	

18.4

5.7

0.0

Location: PZ-216, SS-5 @ 19.4'-20.9'

Sample Date: 08-23-24



Client: HDR Engineering

Project: Catawba Unit 4 Landfill Expansion

Project No: A24117.01899.000

Figure

Tested By: FG / DG Checked By: MH

Particle Size Distribution Report ASTM D422 100 90 80 70 PERCENT FINER 50 40 30 20 10 0.001 0.01 GRAIN SIZE - mm. % Fines % Gravel % Sand

Medium

Fine

Т	est Resu	ılts (ASTM I	D422)	
Sieve Size or Diam. (mm.)	Finer (%)	Spec.* (%)	Out of Spec. (%)	Pct. of Fines
0.375	100.0			
#4	100.0			
#10	97.1			
#20	94.8			97.7
#40	90.6			93.2
#60	81.5			83.9
#100	67.3			69.3
#140	57.7			59.4
#200	49.2			50.7
0.0420 mm.	44.9			
0.0309 mm.	37.3			
0.0205 mm.	26.7			
0.0122 mm.	19.1			
0.0088 mm.	16.1			
0.0063 mm.	13.0			
0.0031 mm.	10.1			
0.0013 mm.	8.5			

Coarse

0.0

6.5	41.4	37.4	11.8
		aterial Descriptio wn Clayey, Silty Sar	
	PL=	Atterberg Limits	PI=
	D ₉₀ = 0.4056 D ₅₀ = 0.0783 D ₁₀ = 0.0030	Coefficients D85= 0.2956 D30= 0.0235 Cu= 38.92	D ₆₀ = 0.1155 D ₁₅ = 0.0078 C _c = 1.62
	USCS=	Classification AASHTO)=
		Test Remarks	

Silt

Clay

Location: PZ-216, ST-1 @ 26.1'-28.1'

% +3"

0.0

Client: HDR Engineering

Coarse

2.9

Fine

0.0

Project: Catawba Unit 4 Landfill Expansion

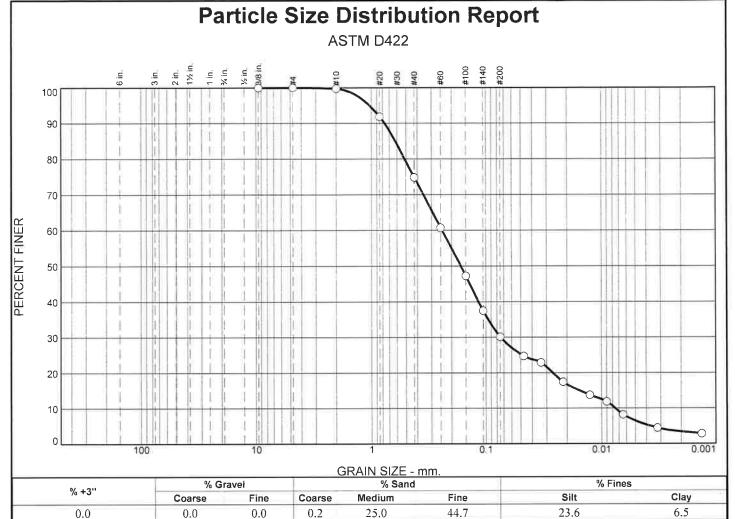
Project No: A24117.01899.000

Figure

Sample Date: 08-23-24

	LIES
1	TM
	Pineville, North Carolina

Tested By: DG



Т	Test Results (ASTM D422)						
Sieve Size or Diam. (mm.)	Finer (%)	Spec.* (%)	Out of Spec. (%)	Pct. of Fines			
0.375	100.0						
#4	100.0						
#10	99.8						
#20	91.9			92.1			
#40	74.8			74.9			
#60	60.7			60.9			
#100	47.2			47.3			
#140	37.4			37.5			
#200	30.1			30.2			
0.0473 mm.	24.7						
0.0336 mm.	22.9						
0.0217 mm.	17.4						
0.0127 mm.	13.7						
0.0090 mm.	11.9						
0.0065 mm.	8.2						
0.0032 mm.	4.5						
0.0013 mm.	2.8						

.0	44.7	23.0	0.3						
	Material Description Grey-Brown Clayey. Silty Sand								
	PL=	Atterberg Limits	PI=						
	D ₉₀ = 0.7696 D ₅₀ = 0.1663 D ₁₀ = 0.0076	D85= 0.6228 D30= 0.0744 C _u = 32.03	D ₆₀ = 0.2434 D ₁₅ = 0.0157 C _c = 2.99						
	USCS=	Classification AASHTO	=						
		Test Remarks							

Location: PZ-216. SS-8 @ 34.4'-35.9'

* (no specification provided)

Tested By: DG

Client: HDR Engineering

Project: Catawba Unit 4 Landfill Expansion

Project No: A24117.01899.000

Figure

Sample Date: 08-23-24

/ UES
Pineville, North Carolina

Particle Size Distribution Report ASTM D422 100 90 80 70 PERCENT FINER 50 40 30 20 10

GRAIN SIZE - mm. % Fines % Gravel % Sand % +3" Fine Silt Clay Medium Coarse Fine Coarse 18.9 29.7 36.2 0.0 0.0 0.0 0.5 14.7

1	Test Results (ASTM D422)					
Sieve Size or Diam. (mm.)	Finer (%)	Spec.* (%)	Out of Spec. (%)	Pct. of Fines		
0.375	100.0					
#4	100.0					
#10	99.5					
#20	95.8			96.3		
#40	84.8			85.3		
#60	74.3			74.7		
#100	64.6			64.9		
#140	59.0			59.3		
#200	55.I			55.4		
0.0421 mm.	51.4					
0.0302 mm.	47.9					
0.0193 mm.	46.2					
0.0112 mm.	44.4					
0.0080 mm.	40.9					
0.0058 mm.	37.5					
0.0029 mm.	32.0					
0.0012 mm.	28.7					

100

Material Description Orange-Brown Silty, Clayey Sand							
PL=	Atterberg Limits LL=	PI=					
D ₉₀ = 0.5666 D ₅₀ = 0.0369 D ₁₀ =	Coefficients D85= 0.4287 D30= 0.0018 Cu=	D ₆₀ = 0.1137 D ₁₅ = C _c =					
USCS= Classification AASHTO=							
	Test Remarks						

0.1

(no specification provided)

Location: PZ-217. SS-2 @ 4'-5.5'



Client: HDR Engineering

Project: Catawba Unit 4 Landfill Expansion

Project No: A24117.01899.000

Figure

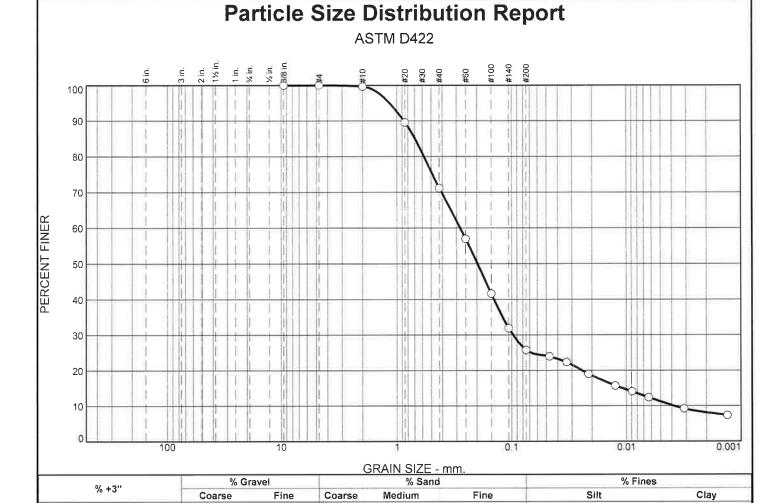
Sample Date: 08-23-24

0.001

0.01

Tested By: DG Checked By: MH

10



Test Results (ASTM D422)					
Sieve Size or Diam. (mm.)	Finer (%)	Spec.* (%)	Out of Spec. (%)	Pct. of Fines	
0.375	100.0				
#4	100.0				
#10	99.7				
#20	89.6			89.9	
#40	71.1			71.4	
#60	56.9			57.1	
#100	41.6			41.7	
#140	31.9			32.0	
#200	25.8			25.9	
0.0471 mm.	24.0				
0.0335 mm.	22.3				
0.0215 mm.	19.0				
0.0125 mm.	15.7				
0.0089 mm.	14.1				
0.0063 mm.	12.4				
0.0031 mm.	9.2				
0.0013 mm.	7.4				
no specifica	tion prov	ided)			

0.0

0.0

0.3

vicalulli	11 1110 0110		- Ulay							
28.6		45.3	14.5	11.3						
	Material Description Orange-Brown Clayey, Silty Sand									
	PL=		Atterberg Limits LL=	PI=						
	D ₉₀ = D ₅₀ = D ₁₀ =	0.8686 0.1981 0.0038	Coefficients D85= 0.6954 D30= 0.0971 Cu= 73.15	D ₆₀ = 0.2790 D ₁₅ = 0.0109 C _c = 8.86						
	USCS	=	Classification AASHTO)=						
			Test Remarks							

Location: PZ-217, SS-5 @ 19'-20.5'

0.0

∥ UES Merille, North Carolina

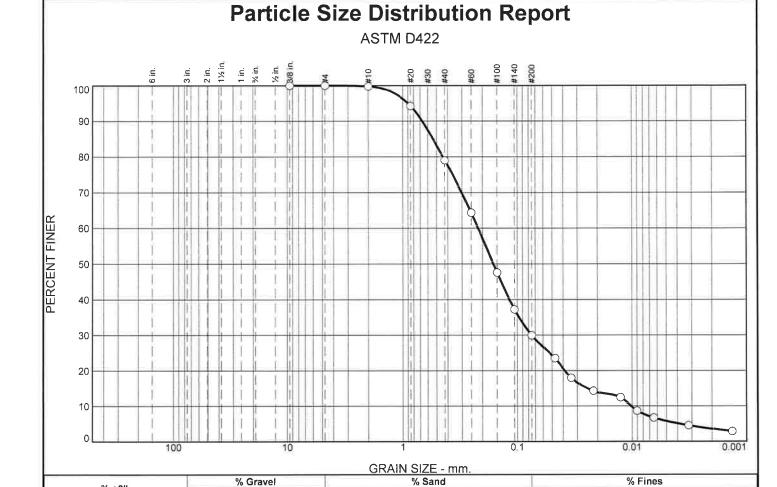
Client: HDR Engineering

Project: Catawba Unit 4 Landfill Expansion

Project No: A24117.01899.000

Figure

Sample Date: 08-23-24



Coarse

0.2

Fine

0.0

Medium

20.8

Fine

49.1

Test Results (ASTM D422)					
Sieve Size or Diam. (mm.)	Finer (%)	Spec.* (%)	Out of Spec. (%)	Pct. of Fines	
0.375	100.0				
#4	100.0				
#10	99.8				
#20	94.3			94.5	
#40	79.0			79.2	
#60	64.2			64.4	
#100	47.5			47.6	
#140	37.2			37.2	
#200	29.9			30.0	
0.0472 mm.	23.5				
0.0340 mm.	17.9				
0.0218 mm.	14.2				
0.0126 mm.	12.4				
0.0090 mm.	8.7				
0.0065 mm.	6.7				
0.0032 mm.	4.5				
0.0013 mm.	2.8				
* (no specifica	tion provid	ied)	-17		

Coarse

0.0

Material Description Orange-Brown Clayey, Silty Sand						
PL=	Atterberg Limits	Pl=				
D ₉₀ = 0.6709 D ₅₀ = 0.1620 D ₁₀ = 0.0102	Coefficients D ₈₅ = 0.5405 D ₃₀ = 0.0753 C _u = 21.38	D ₆₀ = 0.2186 D ₁₅ = 0.0246 C _c = 2.53				
USCS=	Classification AASHTO)=				
Test Remarks						

Silt

24.1

Clay

5.8

Location: PZ-217, SS-6 @ 24'-25.5'

% +3"

0.0

UES M. Pineville, North Carolina

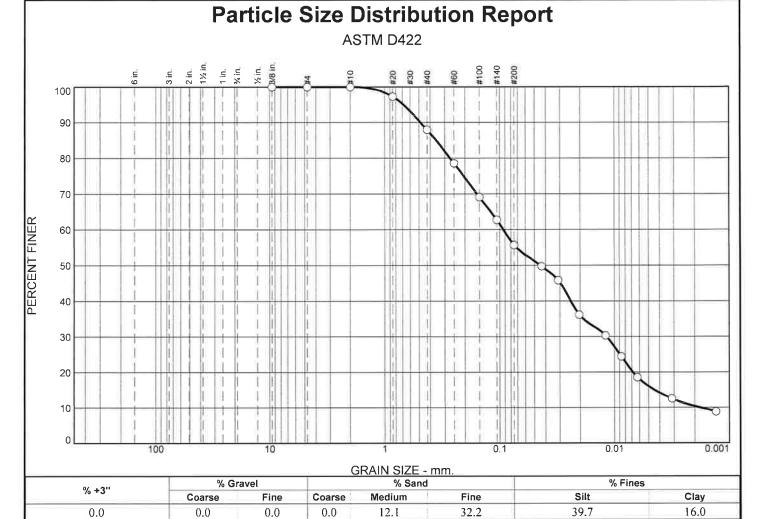
Client: HDR Engineering

Project: Catawba Unit 4 Landfill Expansion

Project No: A24117.01899.000

Figure

Sample Date: 08-23-24



7	Test Results (ASTM D422)					
Sieve Size or Diam. (mm.)	Finer (%)	Spec.* (%)	Out of Spec. (%)	Pct. of Fines		
0.375	100.0					
#4	100.0					
#10	100.0					
#20	97.3			97.3		
#40	87.9			87.9		
#60	78.5			78.5		
#100	69.1			69.1		
#140	62.7			62.7		
#200	55.7			55.7		
0.0434 mm.	49.7					
0.0311 mm.	45.9					
0.0204 mm.	36.2					
0.0120 mm.	30.3					
0.0087 mm.	24.4					
0.0063 mm.	18.6					
0.0031 mm.	12.5					
0.0013 mm.	8.9					
* (no specifica	tion provi	ded)				

	Material Description Clayey, Silty Sand	<u>on</u>			
PL=	Atterberg Limits	PI=			
D ₉₀ = 0.4863 D ₅₀ = 0.0445 D ₁₀ = 0.0018	Coefficients D85= 0.3575 D30= 0.0117 Cu= 52.19	D ₆₀ = 0.0932 D ₁₅ = 0.0045 C _c = 0.83			
USCS= Classification AASHTO=					
Test Remarks					

Location: PZ-218. SS-2 @ 4'-5.5'

Pineville, North Carolina

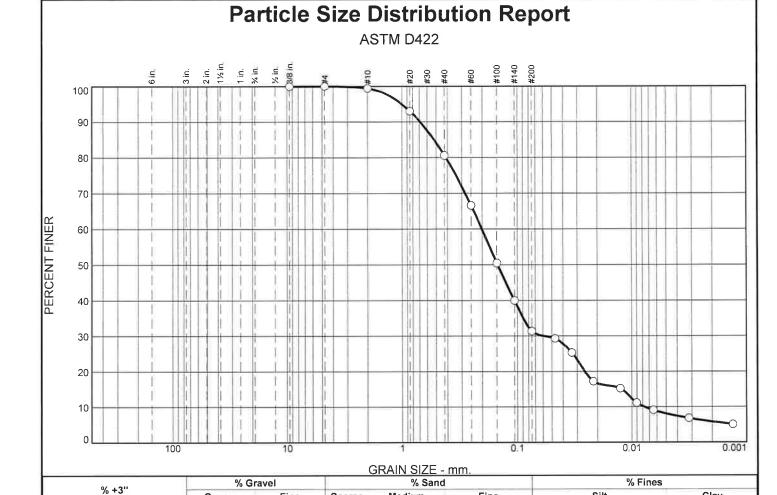
Client: HDR Engineering

Project: Catawba Unit 4 Landfill Expansion

Project No: A24117.01899.000

Figure

Sample Date: 08-23-24



Test Results (ASTM D422)					
Sieve Size or Diam. (mm.)	Finer (%)	Spec.* (%)	Out of Spec. (%)	Pct. of Fines	
0.375	100.0				
#4	100.0				
#10	99.4				
#20	93.0			93.5	
#40	80.6			81.0	
#60	66.6			66.9	
#100	50.4			50.7	
#140	40.0			40.2	
#200	31.4			31.5	
0.0468 mm.	29.3				
0.0335 mm.	25.3				
0.0218 mm.	17.2				
0.0126 mm.	15.2				
0.0091 mm.	11.2				
0.0064 mm.	9.1				
0.0032 mm.	6.9				
0.0013 mm.	5.1				
* (no specifica	tion prov	ided)			

Coarse

0.0

Fine

0.0

Coarse

0.6

Medium

18.8

Fine

49.2

PL=	Atterberg Limits	PI=
D ₉₀ = 0.6914 D ₅₀ = 0.1479 D ₁₀ = 0.0077	Coefficients D ₈₅ = 0.5246 D ₃₀ = 0.0590 C _u = 26.18	D ₆₀ = 0.2021 D ₁₅ = 0.0123 C _c = 2.23
USCS=	Classification AASHTC)=
	Test Remarks	

Silt

23.3

Clay

8.1

0.0

Location: PZ-218, SS-4 @ 14'-15.5'

Pineville, North Carolina

Client: HDR Engineering

Project: Catawba Unit 4 Landfill Expansion

Project No: A24117.01899.000

Figure

Sample Date: 08-23-24

Particle Size Distribution Report ASTM D422

			(RAIN SIZE -	mm.		
0/ - 011	% G	ravel		% Sand		% Fines	S
% +3"	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.1	25.0	41.9	24.0	9.0

	Test Resu	ilts (ASTM I	D422)	
Sieve Size or Diam. (mm.)	Finer (%)	Spec.* (%)	Out of Spec. (%)	Pct. of Fines
0.375	100.0			
#4	100.0			
#10	99.9		1	
#20	93.5			93.6
#40	74.9			75.0
#60	60.0			60.0
#100	47.5			47.5
#140	39.4			39.4
#200	33.0			33.0
0.0459 mm.	31.0			
0.0331 mm.	25.8			
0.0213 mm.	20.4			
0.0126 mm.	15.1			
0.0090 mm.	11.6			
0.0064 mm.	9.8			
0.0032 mm.	7.8			
0.0013 mm.	4.5			

100

N Dark-Brown Cla	Material Description yey, Silty Sand	<u>on</u>
PL=	Atterberg Limits	PI=
D ₉₀ = 0.7207 D ₅₀ = 0.1666 D ₁₀ = 0.0067	Coefficients D ₈₅ = 0.5992 D ₃₀ = 0.0421 C _u = 37.21	D ₆₀ = 0.2500 D ₁₅ = 0.0124 C _c = 1.06
USCS=	Classification AASHT	O=
	Test Remarks	

* (no specification provided)

Location: PZ-218, SS-7 @ 29'-30.5

Pineville, North Carolina

Client: HDR Engineering

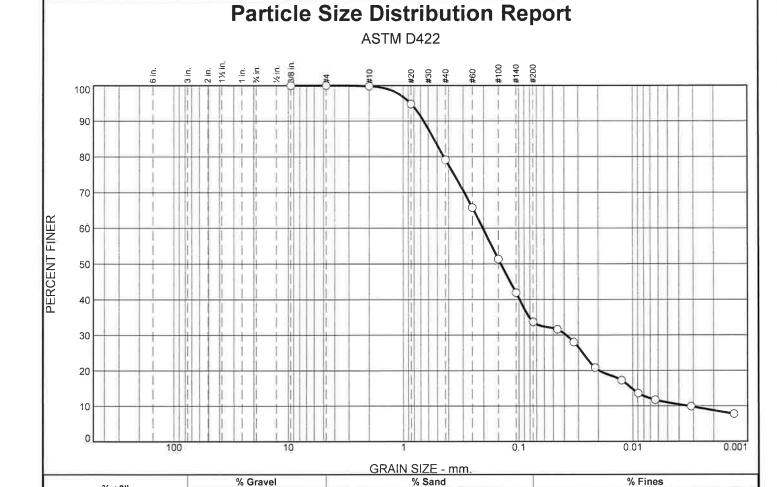
Project: Catawba Unit 4 Landfill Expansion

Project No: A24117.01899.000

Figure

Sample Date: 08-23-24

0.001



1	est Resi	ults (ASTM I	0422)	
Sieve Size or Diam. (mm.)	Finer (%)	Spec.* (%)	Out of Spec. (%)	Pct. of Fines
0.375	100.0			
#4	100.0			
#10	99.8			
#20	94.8			95.0
#40	79.1			79.3
#60	65.8			65.9
#100	51.3			51.4
#140	41.9			42.0
#200	33.7			33.8
0.0459 mm.	31.6			
0.0329 mm.	28.0			
0.0213 mm.	20.8			
0.0125 mm.	17.3			
0.0089 mm.	13.6			
0.0064 mm.	11.8			
0.0031 mm.	9.9			
0.0013 mm.	7.8			
* (no specifica	tion provi	ded)		

Coarse

0.0

Fine

0.0

Coarse

0.2

Medium

Fine

20.7	45.4	22.7	11.0
Ti	N an-Brown Clay	faterial Descriptior ey, Silty Sand	1
Р	L=	Atterberg Limits	PI=
D D D	90= 0.6593 50= 0.1430 10= 0.0033	Coefficients D85= 0.5372 D30= 0.0384 Cu= 62.44	D ₆₀ = 0.2033 D ₁₅ = 0.0102 C _c = 2.23
U	SCS=	Classification AASHTC)=
		Test Remarks	

Silt

Clay

Location: PZ-219, SS-2 @ 4'-5.5'

% +3"

0.0

Pineville, North Carolina

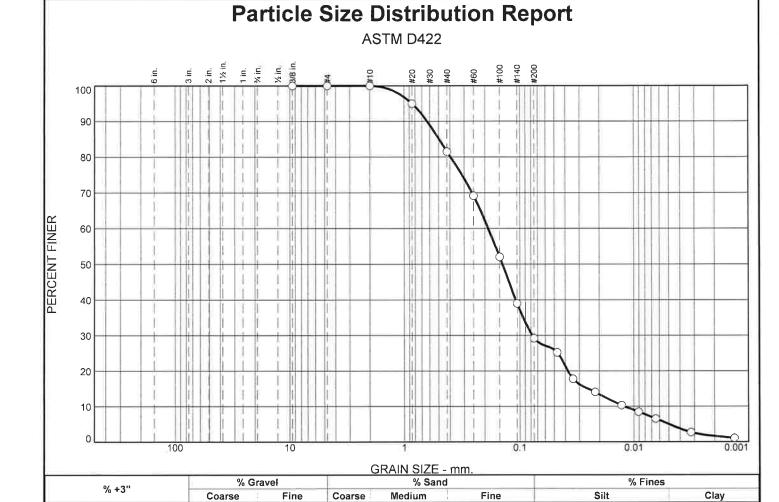
Client: HDR Engineering

Project: Catawba Unit 4 Landfill Expansion

Project No: A24117.01899.000

Figure

Sample Date: 08-23-24



1	Test Results (ASTM D422)						
Sieve Size or Diam. (mm.)	Finer (%)	Spec.* (%)	Out of Spec. (%)	Pct. of Fines			
0.375	100.0						
#4	100.0						
#10	100.0						
#20	95.0			95.0			
#40	81.5			81.5			
#60	69.1			69.1			
#100	52.0			52.0			
#140	39.0			39.0			
#200	29.2			29.2			
0.0473 mm.	25.2						
0.0343 mm.	17.8						
0.0219 mm.	14.1						
0.0128 mm.	10.4						
0.0091 mm.	8.5						
0.0065 mm.	6.5						
0.0032 mm.	2.7						
0.0013 mm.	1.1						
* (no specifica	tion prov	ided)					

0.0

0.0

0.0

18.5	52.3	24.2	5.0
	Light-Brown Cla	Material Description ayey, Silty Sand	<u>n</u>
	PL=	Atterberg Limits	PI=
	D ₉₀ = 0.6318 D ₅₀ = 0.1420 D ₁₀ = 0.0121	Coefficients D ₈₅ = 0.4992 D ₃₀ = 0.0780 C _u = 15.59	D ₆₀ = 0.1880 D ₁₅ = 0.0254 C _c = 2.68
	USCS=	Classification AASHTO)=
		Test Remarks	

Location: PZ-219, SS-3 @ 9'-10.5'

0.0

Pineville, North Carolina

Client: HDR Engineering

Project: Catawba Unit 4 Landfill Expansion

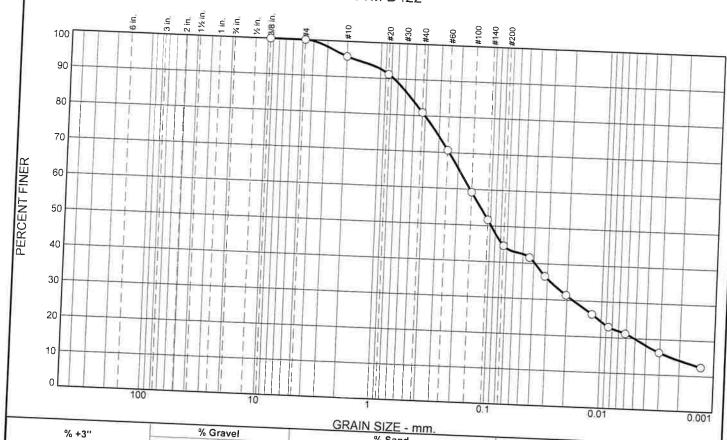
Project No: A24117.01899.000

Figure

Sample Date: 08-23-24

Particle Size Distribution Report

ASTM D422



% +3''	% Gr	avel		GRAIN SIZE -	mm.		
0.0	Coarse	Fine	Coarse	% Sand Medium		% Fin	es
0.0	0.0	0.0	4.3		Fine	Silt	Clay
	Results (ASTM D42		7.5	14.8	36.3	24.7	19.9

	Test Resu	ilts (ASTM	D422)	
Sieve Size or Diam. (mm.)	Finer (%)	Spec.* (%)	Out of Spec.	Pct.
0.375	100.0		(%)	Fines
#4	100.0			
#10	95.7		1	
#20	91.2		1 1	05.3
#40	80.9		1 1	95.3
#60	70.6			84.5
#100	59.2		1	73.8
#140	51.7		1	61.8
#200	44.6			54.0
0.0439 mm.	41.6			46.5
0.0317 mm.	36.5		1	
0.0205 mm.	31.4			
0.0121 mm.	26.3			
0.0086 mm.	23.0	- 1		
0.0061 mm.	21.3	-		
0.0031 mm.	16.3	1		
0.0013 mm.	12.5			

DI			
PL=	=	Atterberg Lim	iits PI=
D ₉₀ D ₅₀ D ₁₀	0.7608 0.0984	Coefficients D85= 0.5414 D30= 0.0178 Cu=	Doo= 0.1555
USC	S=	Classification AASI	<u>n</u> HTO=
		Test Remarks	3

(no specification provided)

Location: PZ-220, SS-2 @ 4'-5.5'

UES TA Pineville, North Carolina

Client: HDR Engineering

Project: Catawba Unit 4 Landfill Expansion

Project No: A24117.01899.000

Figure

Sample Date: 08-23-24

Tested By: DG / FG

Particle Size Distribution Report ASTM D422 7. ii. 100 90 80 70 PERCENT FINER 60 40 30 20 10 0.01 0.001 100 10 GRAIN SIZE - mm. % Fines % Gravel % Sand % +3" Medium Fine Silt Clay Fine Coarse Coarse

1	est Resu	ılts (ASTM I	D422)	
Sieve Size or Diam. (mm.)	Finer (%)	Spec.* (%)	Out of Spec. (%)	Pct. of Fines
0.375	100.0			
#4	99.7			
#10	91.5			
#20	87.8			96.0
#40	77.7			85.0
#60	68.6			75.0
#100	58.4			63.9
#140	51.3			56.1
#200	45.2			49.5
0.0429 mm.	40.9			
0.0308 mm.	37.9			
0.0199 mm.	33.5			
0.0117 mm.	30.5			
0.0083 mm.	29.0			
0.0059 mm.	27.6			
0.0029 mm.	21.9			
0.0013 mm.	19.9			

0.0

	Material Description Silty, Clayey Sand	<u>n</u>
PL=	Atterberg Limits	PI=
D ₉₀ = 1.3612 D ₅₀ = 0.0990 D ₁₀ =	Coefficients D ₈₅ = 0.6718 D ₃₀ = 0.0105 C _u =	D ₆₀ = 0.1623 D ₁₅ = C _c =
USCS=	Classification AASHT)=
	Test Remarks	

18.9

26.3

32.5

(no specification provided)

Location: PZ-220, ST-1 @ 10'-12'

0.0



Client: HDR Engineering

8.2

0.3

13.8

Project: Catawba Unit 4 Landfill Expansion

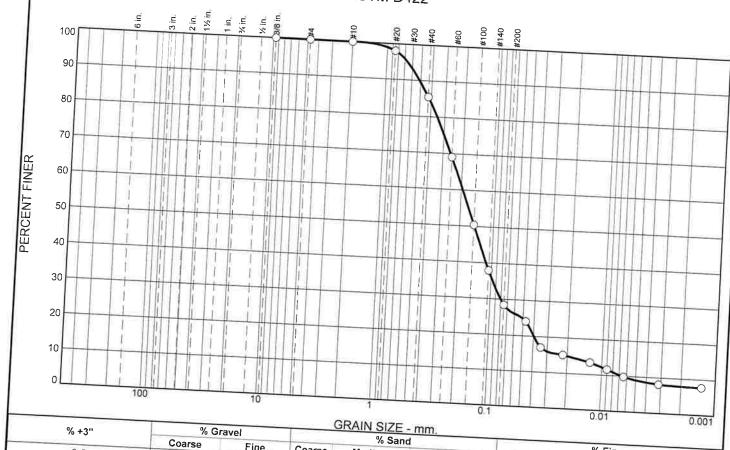
Project No: A24117.01899.000

Figure

Sample Date: 08-23-24

Particle Size Distribution Report

ASTM D422



Medium

Fine

		0.0	0.	U
	Test Resu	ılts (ASTM	D422)	
Sieve Size or Diam. (mm.)	Finer (%)	Spec.* (%)	Out of Spec.	Pct.
0.375	100.0		(%)	Fines
#4	100.0		1	
#10	100.0			
#20	98.0		1 1	00.0
#40	85.5		1	98.0
#60	69.0			85.5
#100	50.4		1	69.0
#140	37.9			50.4
#200	28.4			37.9
0.0474 mm.	24.1	1		28.4
0.0343 mm.	17.0	1	1	
0.0219 mm.	15.1	1		
0.0127 mm.	13.4	1.		
.0090 mm.	11.7	- 1		
.0064 mm.	9.8			
.0032 mm.	8.2	1		
.0013 mm.	7.7	1		

0.0

Fine

Coarse

14.5 57.1	19.3		Clay
			9.1
Light-Brown C	Material Description layey, Silty Sand	<u>on</u>	
PL=	Atterberg Limits	PI=	
D ₉₀ = 0.5140 D ₅₀ = 0.1483 D ₁₀ = 0.0067	D ₈₅ = 0.4166 D ₃₀ = 0.0808 C _u = 29.15	D ₆₀ = 0.1943 D ₁₅ = 0.0209 C _c = 5.05	
USCS=	Classification AASHTC		
	Test Remarks		
		====	

Location: PZ-220, SS-5 @ 19'-20.5'

0.0

Pineville, North Carolina

Client: HDR Engineering

Project: Catawba Unit 4 Landfill Expansion

Project No: A24117.01899.000

Figure

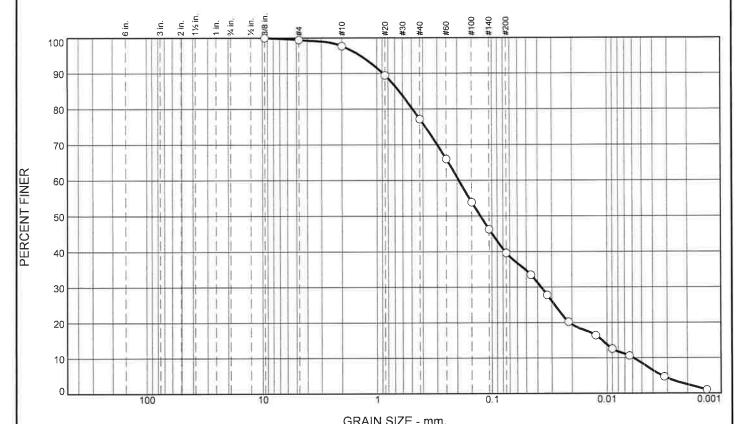
Sample Date: 08-23-24

% Fines

Silt

Tested By: DG

Particle Size Distribution Report ASTM D422



				NAIN SIZE -	11111-		
04 - 811	% G	ravel		% Sand		% Fine	es
% +3"	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.6	1.7	20.6	37.5	31.0	8.6

T	est Res	ults (ASTM D	422)	
Sieve Size or Diam. (mm.)	Finer (%)	Spec.* (%)	Out of Spec. (%)	Pct. of Fines
0.375	100.0			
#4	99.4			
#10	97.7			
#20	89.4			91.5
#40	77.1			79.0
#60	66.0			67.5
#100	53.9			55.1
#140	46.3			47.4
#200	39.6			40.5
0.0458 mm.	33.5			
0.0330 mm.	27.8			
0.0214 mm.	20.2			
0.0125 mm.	16.4			
0.0090 mm.	12.6			
0.0064 mm.	10.6			
0.0032 mm.	4.7			
0.0013 mm.	1.0			

Tan-Brown Clay	Material Description vey, Silty Sand	1
PL=	Atterberg Limits	PI=
D ₉₀ = 0.8870 D ₅₀ = 0.1262 D ₁₀ = 0.0059	Coefficients D ₈₅ = 0.6432 D ₃₀ = 0.0373 C _u = 33.03	D ₆₀ = 0.1942 D ₁₅ = 0.0110 C _c = 1.22
USCS=	Classification AASHTO)=
	Test Remarks	

* (no specification provided)

Location: PZ-221, SS-2 @ 4'-5.5'

UES✓ Pineville, North Carolina

Client: HDR Engineering

Project: Catawba Unit 4 Landfill Expansion

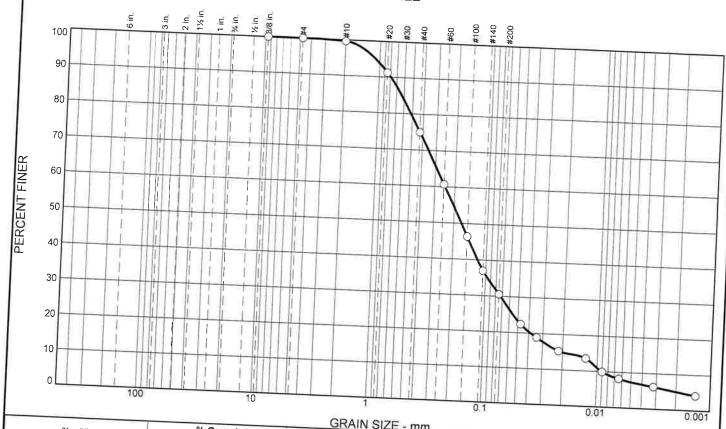
Project No: A24117.01899.000

Figure

Sample Date: 08-23-24

Particle Size Distribution Report

ASTM D422



% +3"	% Gr	avei		BRAIN SIZE -	mm.		
	Coarse	Fine	Coarse	% Sand		% Fine	26
0.0	0.0	0.0	0.4	Medium	Fine	Silt	Cla
	Results (ASTM D4:		0.4	24.6	44.4	23.3	7

	Test Resi	ılts (ASTM ı	0422)	
Sieve Size or Diam. (mm.)	Finer (%)	Spec.* (%)	Out of Spec.	Pct. of
0.375	100.0		(%)	Fines
#4	100.0			11.
#10	99.6		1	
#20	91.3		1 1	01.6
#40	75.0		1 1	91.6
#60	60.7]]	75.3
#100	46.4			60.9
#140	37.0			46.6
#200	30.6			37.1
0.0474 mm.	22.4			30.7
0.0340 mm.	18.9			
0.0217 mm.	15.3	4		
0.0126 mm.	13.5	- 1	1	
0.0090 mm.	9.9	-	1	
0.0064 mm.	8.2	1		
0.0032 mm.	6.3	1		
0.0013 mm.	4.2	-		

Light	-Brown C	Material Description layey, Silty Sand	on
PL=		A.L	
		Atterberg Limits LL=	PI=
D ₅₀ =	0.7908 0.1707 0.0091	Coefficients D85= 0.6290 D30= 0.0726 Cu= 26.78	D ₆₀ = 0.2438 D ₁₅ = 0.0203 C _c = 2.37
USCS	=	Classification AASHT	
		Test Remarks	

(no specification provided)

Location: PZ-221, SS-4 @ 14'-15.5'

Client: HDR Engineering Sample Date: 08-23-24

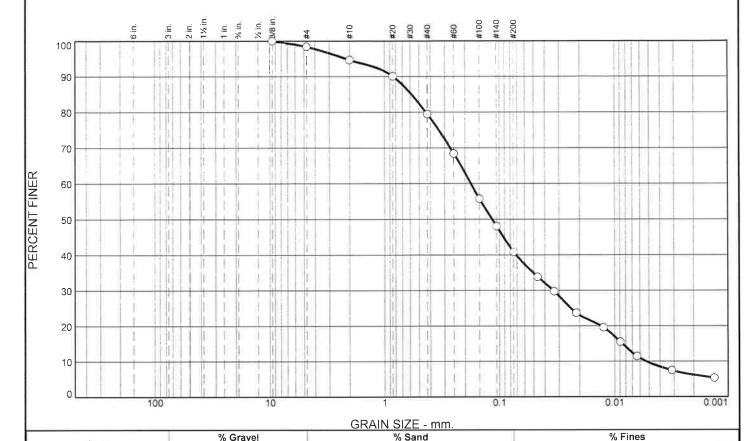
Project: Catawba Unit 4 Landfill Expansion

Project No: A24117.01899.000 Figure

Pineville, North Carolina

Particle Size Distribution Report

ASTM D422



Medium

15.2

Fine

38.7

1	Test Results (ASTM D422)				
Sieve Size or Diam. (mm.)	Finer (%)	Spec.* (%)	Out of Spec. (%)	Pct. of Fines	
0.375	100.0				
#4	98.4				
#10	94.7				
#20	90.1			95.2	
#40	79.5			83.9	
#60	68.4		1	72.2	
#100	55.8			58.9	
#140	48.1			50.8	
#200	40.8			43.1	
0.0462 mm.	33.9				
0.0331 mm.	29.8				
0.0213 mm.	23.7				
0.0125 mm.	19.6				
0.0089 mm.	15.5				
0.0064 mm.	11.5				
0.0032 mm.	7.5				
0.0013 mm.	5.3				
(no specifica	ition provi	ded)			

Coarse

0.0

Fine

1.6

Coarse

3.7

Silt

31.2

Clay

9.6

Location: PZ-222, SS-4 @ 14'-15.5'

% +3"

0.0

UES✓ Pineville, North Carolina

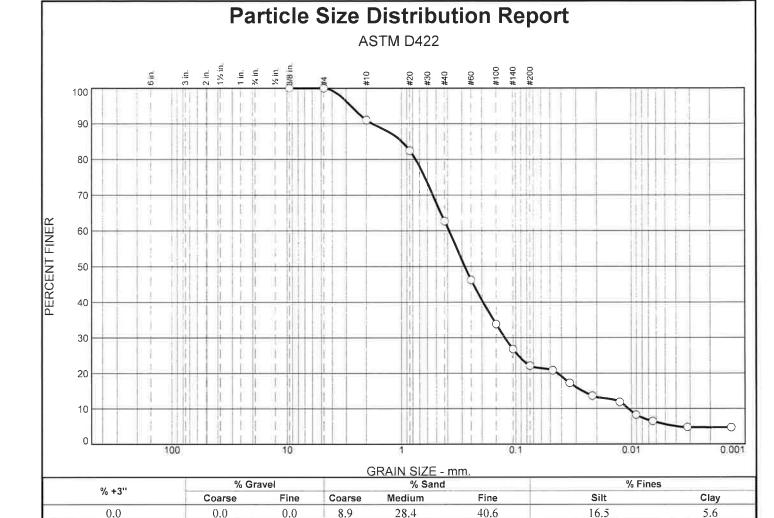
Client: HDR Engineering

Project: Catawba Unit 4 Landfill Expansion

Project No: A24117.01899.000

Figure

Sample Date: 08-23-24



7	est Resu	ılts (ASTM E	0422)	
Sieve Size or Diam. (mm.)	Finer (%)	Spec.* (%)	Out of Spec. (%)	Pct. of Fines
0.375	100.0			
#4	100.0			
#10	91.1			
#20	82.4			90.5
#40	62.7			68.9
#60	46.3			50.8
#100	33.8			37.1
#140	26.8			29.4
#200	22.1			24.3
0.0477 mm.	20.9			
0.0342 mm.	17.3			
0.0219 mm.	13.7			
0.0127 mm.	11.9			
0.0091 mm.	8.3			
0.0065 mm.	6.5			
0.0032 mm.	4.8			
0.0013 mm.	4.7			
(no specifica	tion provid	ded)		

28.4	40.6	16.5	5.6
		Material Description rown Clayey. Silty Sand	
	PL=	Atterberg Limits LL=	PI=
	D ₉₀ = 1.7813 D ₅₀ = 0.2841 D ₁₀ = 0.0106	Coefficients D85= 0.9961 D30= 0.1258 Cu= 36.59	D ₆₀ = 0.3890 D ₁₅ = 0.0265 C _c = 3.82
	USCS=	Classification AASHTO)=
		Test Remarks	

Location: PZ-222. SS-5 @ 19'-250.5'

Pineville, North Carolina

Client: HDR Engineering

Project: Catawba Unit 4 Landfill Expansion

Project No: A24117.01899.000

Figure

Sample Date: 08-23-24

ASTM D422 ASTM D422

Particle Size Distribution Report

GRAIN SIZE - mm. % Gravel % Sand % Fines % +3" Clay Coarse Fine Coarse Medium Fine Silt 0.0 0.0 1.0 28.2 20.1 38.9 0.0 11.8

1	est Resu	ılts (ASTM I	D422)	
Sieve Size or Diam. (mm.)	Finer (%)	Spec.* (%)	Out of Spec. (%)	Pct. of Fines
0.375	100.0			
#4	100.0			
#10	99.0			
#20	94.9			95.9
#40	87.2			88.1
#60	78.6			79.4
#100	69.4			70.2
#140	63.4			64.1
#200	59.0			59.6
0.0425 mm.	56.5			
0.0305 mm.	52.5			
0.0194 mm.	50.6			
0.0114 mm.	46.6			
0.0081 mm.	44.5			
0.0058 mm.	40.5			
0.0029 mm.	34.5			
0.0012 mm.	32.7			

100

Red-Brown Silt	Material Descriptio y. Clayey Sand	n
PL=	Atterberg Limits	PI=
D ₉₀ = 0.5270 D ₅₀ = 0.0179 D ₁₀ =	Coefficients D ₈₅ = 0.3662 D ₃₀ = C _u =	D ₆₀ = 0.0828 D ₁₅ = C _c =
USCS=	Classification AASHT	O=
	Test Remarks	

0.01

0.001

(no specification provided)

20

10

Location: PZ-223, SS-2 @ 4'-5.5'

Sample Date: 08-12-24



Client: HDR Engineering

Project: Catawba Unit 4 Landfill Expansion

Project No: A24117.01899.000

Figure

GRAIN SIZE - mm.

Medium

Coarse

0.5

% Sand

Fine

٦	est Resu	ılts (ASTM I	D422)	
Sieve Size or Diam. (mm.)	Finer (%)	Spec.* (%)	Out of Spec. (%)	Pct. of Fines
0.375	100.0			
#4	100.0			
#10	99.5			
#20	89.3			89.7
#40	73.3			73.6
#60	60.9			61.2
#100	48.8			49.0
#140	40.2			40.3
#200	33.5			33.6
0.0471 mm.	27.5			
0.0337 mm.	23.5			
0.0216 mm.	19.4			
0.0126 mm.	15.4			
0.0090 mm.	11.3			
0.0065 mm.	7.2			
0.0032 mm.	3.3			
0.0013 mm.	3.3			

% Gravel

Fine

0.0

Coarse

0.0

26.2	39.8	28.4	5.1
	1,000	Material Description Clayey, Silty Sand	!
	PL=	Atterberg Limits	PI=
	D ₉₀ = 0.8853 D ₅₀ = 0.1577 D ₁₀ = 0.0082	Coefficients D85= 0.6885 D30= 0.0580 Cu= 29.35	D ₆₀ = 0.2402 D ₁₅ = 0.0122 C _c = 1.71
	USCS=	Classification AASHTC)=
		Test Remarks	

(no specification provided) **Location:** PZ-223, SS-5 @ 19'-20.5

% +3"

0.0

Pineville, North Carolina

Client: HDR Engineering

Project: Catawba Unit 4 Landfill Expansion

Project No: A24117.01899.000

Figure

Sample Date: 08-23-24

% Fines

Clay

Silt

Particle Size Distribution Report ASTM D422

GRAIN SIZE - mm. % Fines % Gravel % Sand % +3" Silt Clay Fine Coarse Coarse Medium Fine 29.2 7.6 0.0 0.0 0.0 0.0 18.1 45.1

Т	est Res	ults (ASTM [0422)	
Sieve Size or Diam. (mm.)	Finer (%)	Spec.* (%)	Out of Spec. (%)	Pct. of Fines
0.375	100.0			
#4	100.0			
#10	100.0			
#20	94.5			94.5
#40	81.9			81.9
#60	69.7			69.7
#100	55.3			55.3
#140	45.9			45.9
#200	36.8			36.8
0.0466 mm.	27.1			
0.0334 mm.	23.6			
0.0217 mm.	16.6			
0.0127 mm.	13.2			
0.0090 mm.	11.4			
0.0064 mm.	9.6			
0.0032 mm.	4.3			
0.0013 mm.	2.7			

100

Grey-Brown Cla	laterial Descriptio yey, Silty Sand	<u>on</u>
PL=	Atterberg Limits	PI=
D ₉₀ = 0.6368 D ₅₀ = 0.1237 D ₁₀ = 0.0068	Coefficients D85= 0.4944 D30= 0.0549 Cu= 25.84	D ₆₀ = 0.1770 D ₁₅ = 0.0179 C _c = 2.49
USCS=	Classification AASHT	O=
	Test Remarks	

0.1

(no specification provided)

10

Location: PZ-223, SS-10 @ 44'-45.5'



Client: HDR Engineering

Project: Catawba Unit 4 Landfill Expansion

Project No: A24117.01899.000

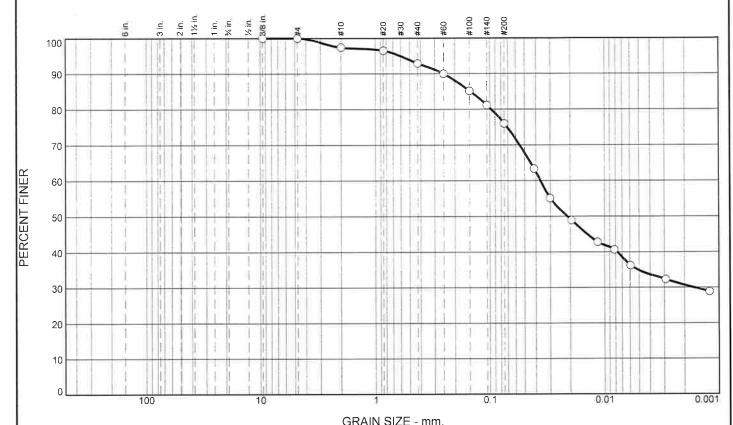
Figure

Sample Date: 08-23-24

0.001

0.01

Particle Size Distribution Report ASTM D422



27 - 211	% Gr	avel		% Sand		% Fine	es
% +3''	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	2.6	4.5	16.9	41.2	34.8

T	est Res	ults (ASTM D	422)	
Sieve Size or Diam. (mm.)	Finer (%)	Spec.* (%)	Out of Spec. (%)	Pct. of Fines
0.375	100.0			
#4	100.0			
#10	97.4			
#20	96.5			99.1
#40	92.9			95.4
#60	89.9			92.3
#100	85.1			87.4
#140	81.1			83.3
#200	76.0			78.0
0.0413 mm.	63.3			
0.0302 mm.	55.1			
0.0195 mm.	48.9			
0.0115 mm.	42.8			
0.0082 mm.	40.7			
0.0059 mm.	36.2			
0.0029 mm.	32.3			
0.0012 mm.	28.9			

	Material Descriptio Sandy. Clayey Silt	<u>n</u>
PL=	Atterberg Limits LL=	PI=
D ₉₀ = 0.2523 D ₅₀ = 0.0213 D ₁₀ =	D ₈₅ = 0.1483 D ₃₀ = 0.0017 C _u =	D ₆₀ = 0.0365 D ₁₅ = C _c =
USCS=	Classification AASHT	O=
	Test Remarks	

(no specification provided)

Location: MW-37, SS-2 @ 4.5'-5.5'

Sample Date: 08-23-24



Client: HDR Engineering

Project: Catawba Unit 4 Landfill Expansion

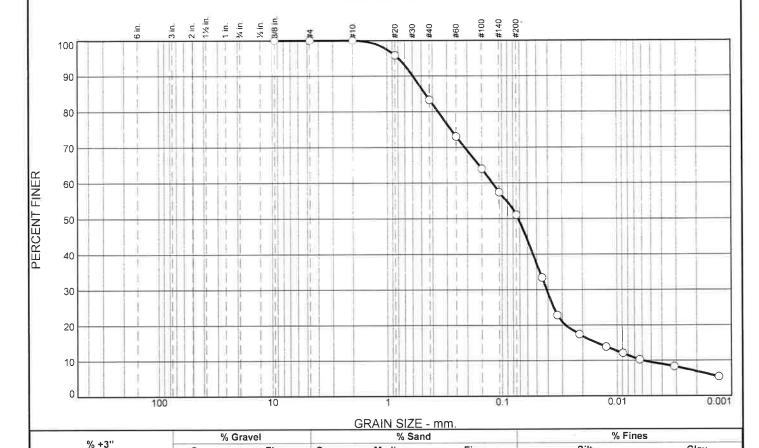
Project No: A24117.01899.000

Figure

Tested By: DG

Particle Size Distribution Report

ASTM D422



Medium

Fine

1	est Resu	ılts (ASTM I	0422)	
Sieve Size or Diam. (mm.)	Finer (%)	Spec.* (%)	Out of Spec. (%)	Pct. of Fines
0.375	100.0			
#4	100.0			
#10	100.0			
#20	95.8			95.8
#40	83.3			83.3
#60	72.9			72.9
#100	64.0			64.0
#140	57.4			57.4
#200	51.1			51.1
0.0450 mm.	33.4			
0.0331 mm.	22.8			
0.0214 mm.	17.4			
0.0125 mm.	13.9			
0.0089 mm.	12.1			
0.0063 mm.	10.3			
0.0031 mm.	8.4			
0.0013 mm.	5.4			

Coarse

0.0

Fine

0.0

Coarse

0.0

16.7	32.2	41.6	9.5
	Tan-Brown Clay	Material Description rey Silty Sand	1
	PL=	Atterberg Limits	PI=
	D ₉₀ = 0.5954 D ₅₀ = 0.0722 D ₁₀ = 0.0059	Coefficients D85= 0.4647 D30= 0.0411 Cu= 20.76	D ₆₀ = 0.1217 D ₁₅ = 0.0152 C _c = 2.36
	USCS=	Classification AASHTO)=
		Test Remarks	

Silt

Clay

* (no specification provided)

0.0

Location: MW-37. SS-4 @ 14'-15.5'

Tested By: DG

Client: HDR Engineering

Project: Catawba Unit 4 Landfill Expansion

Project No: A24117.01899.000

Figure

Sample Date: 08-23-24

J UES
Pineville, North Carolina

Particle Size Distribution Report ASTM D422 100 90 80 80 40 30 20 10

			(BRAIN SIZE -	mm.		
0, 0,1	% Gravel		% Gravel % Sand		% Fines		
% +3''	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	13.8	37.4	35.0	13.8

1	Test Results (ASTM D422)				
Sieve Size or Diam. (mm.)	Finer (%)	Spec.* (%)	Out of Spec. (%)	Pct. of Fines	
0.375	100.0				
#4	100.0				
#10	100.0				
#20	97.0			97.0	
#40	86.2			86.2	
#60	76.2			76.2	
#100	64.8			64.8	
#140	56.6			56.6	
#200	48.8			48.8	
0.0446 mm.	33.7				
0.0317 mm.	32.0				
0.0208 mm.	23.5				
0.0122 mm.	18.4				
0.0087 mm.	16.7				
0.0062 mm.	14.9		1		
0.0031 mm.	11.4				
0.0013 mm.	8.5		1		

Material Description Orange-Brown Clayey, Silty Sand				
PL=	Atterberg Limits	PI=		
D ₉₀ = 0.5275 D ₅₀ = 0.0788 D ₁₀ = 0.0021	$\begin{array}{c} \textbf{Coefficients} \\ \textbf{D}_{85} = \ 0.3974 \\ \textbf{D}_{30} = \ 0.0279 \\ \textbf{C}_{u} = \ 58.83 \end{array}$	D ₆₀ = 0.1225 D ₁₅ = 0.0063 C _c = 3.06		
USCS=	Classification AASHT	O=		
	Test Remarks			

0.1

0.01

0,001

(no specification provided) **Location:** MW-38. SS-3 @ 8'-9.5'

Client: HDR Engineering

Project: Catawba Unit 4 Landfill Expansion

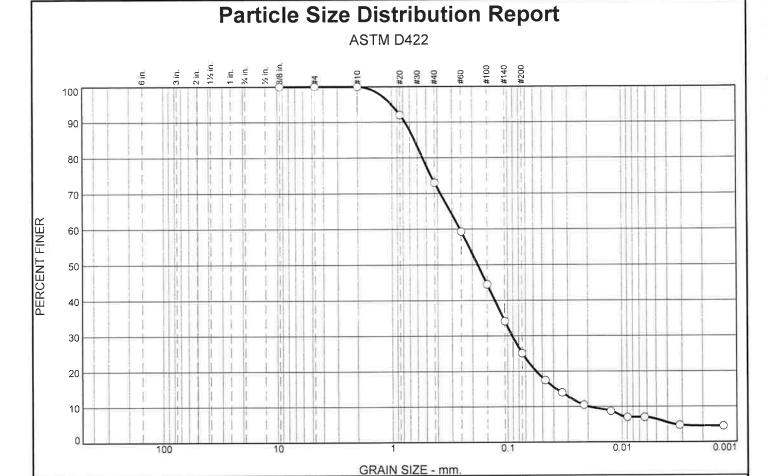
Project No: A24117.01899.000

Figure

Sample Date: 08-23-24

Tested By: DG

Pineville, North Carolina



_			% Sand		% Fines	
Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	27.0	47.9	18.6	6.5
ults (ASTM D	422)			Materi	al Description	
Spec.* (%)	Out of Spec. (%)	Pct. of Fines	Yel	low-Brown Clayey.	Silty Sand	
	ults (ASTM D	ults (ASTM D422) Spec.* Out of Spec.	ults (ASTM D422) Spec.* Out of Pct. Spec. of	ults (ASTM D422) Spec. * Out of Pct. Yel	ults (ASTM D422) Spec.* Out of Pct. (92) Yellow-Brown Clayey.	ults (ASTM D422) Spec.* Out of Pct. Spec. of Yellow-Brown Clayey, Silty Sand

	, , , , , , , , , , , , , , , , , , , ,			
Sieve Size or Diam. (mm.)	Finer (%)	Spec.* (%)	Out of Spec. (%)	Pct. of Fines
0.375	100.0			
#4	100.0			
#10	100.0			
#20	92.1			92.1
#40	73.0			73.0
#60	59.3			59.3
#100	44.5			44.5
#140	34.1			34.1
#200	25.1			25.1
0.0473 mm.	17.4			
0.0338 mm.	14.0			
0.0217 mm.	10.5			
0.0126 mm.	8.8			
0.0089 mm.	7.0			
0.0063 mm.	7.0			
0.0032 mm.	4.8			
0.0013 mm.	4.5			

	Yellow-Brown Clayey. Silty Sand					
	PL=	Atterberg Limits LL=	PI=			
R	D ₉₀ = 0.7703 D ₅₀ = 0.1808 D ₁₀ = 0.0193	D ₈₅ = 0.6380 D ₃₀ = 0.0914 C _u = 13.28	D ₆₀ = 0.2566 D ₁₅ = 0.0379 C _c = 1.69			
	USCS=	Classification AASHTO	=			
		Test Remarks				

* (no specification provided)

Location: MW-38. SS-4 @ 13'-14.5'

Client: HDR Engineering
Project: Catawba Unit 4 Landfill Expansion

•

Project No: A24117.01899.000

Figure

Sample Date: 08-23-24

Pineville, North Carolina

ASTM D422 ASTM D422

Particle Size Distribution Report

GRAIN SIZE - mm. % Fines % Gravel % Sand % +3" Coarse Coarse Medium Fine Silt Clay Fine 40.0 32.5 18.8 0.0 0.0 0.0 0.0 8.7

T	Test Results (ASTM D422)				
Sieve Size or Diam. (mm.)	Finer (%)	Spec.* (%)	Out of Spec. (%)	Pct. of Fines	
0.375	100.0				
#4	100.0				
#10	100.0				
#20	99.1			99.1	
#40	91.3			91.3	
#60	82.8			82.8	
#100	72.3			72.3	
#140	64.5			64.5	
#200	58.8			58.8	
0.0440 mm.	37.5				
0.0318 mm.	32.2				
0.0205 mm.	26.8				
0.0119 mm.	25.0				
0.0085 mm.	21.4				
0.0061 mm.	19.7				
0.0030 mm.	17.4				
0.0013 mm.	17.0				

5./_	32.3	40.0	10.0			
	Material Description Orange-Brown Clayey, Silty Sand					
	PL=	Atterberg Limits	PI=			
	D ₉₀ = 0.3873 D ₅₀ = 0.0599 D ₁₀ =	D ₈₅ = 0.2835 D ₃₀ = 0.0273 C _u =	D ₆₀ = 0.0789 D ₁₅ = C _c =			
	USCS=	Classification AASHTO	=			
		<u>Test Remarks</u>				

(no specification provided)

20

10

Location: MW-39A, SS-2 @ 4'-5.5'

Pineville, North Carolina

Client: HDR Engineering

Project: Catawba Unit 4 Landfill Expansion

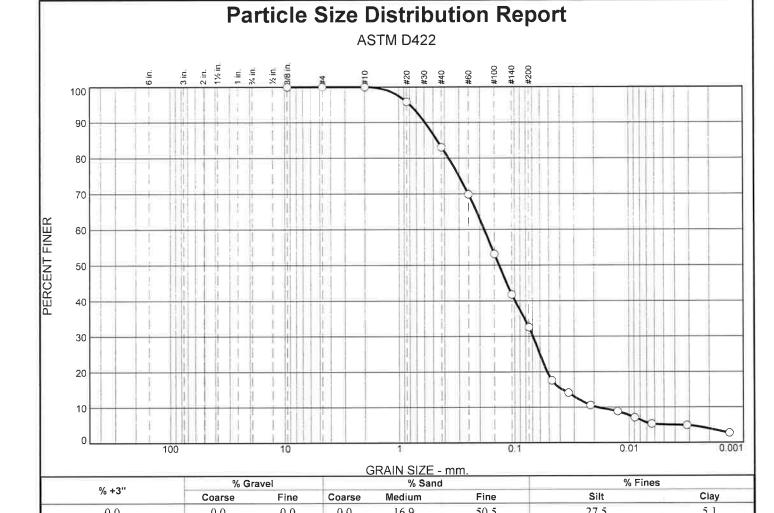
Project No: A24117.01899.000

Figure

Sample Date: 08-23-24

0.001

0.01



Sieve Size	Finer	Spec.*	Out of	Pct. of
or Diam. (mm.)	(%)	(%)	Spec. (%)	Fines
0.375	100.0			
#4	100.0			
#10	100.0			
#20	95.8			95.8
#40	83.1			83.1
#60	69.9			69.9
#100	53.2			53.2
#140	41.8		1	41.8
#200	32.6			32.6
0.0472 mm.	17.6		1	
0.0338 mm.	14.1			
0.0216 mm.	10.6			
0.0126 mm.	8.9			
0.0089 mm.	7.1			
0.0064 mm.	5.3			
0.0032 mm.	4.9			
0.0013 mm.	2.7			

0.0

0.0

0.0

16.9	50.5	5.1			
Material Description Dark-Brown Clayey, Silty Sand					
	PL=	Atterberg Limits	PI=		
	D ₉₀ = 0.5913 D ₅₀ = 0.1364 D ₁₀ = 0.0187	Coefficients D ₈₅ = 0.4644 D ₃₀ = 0.0692 C _u = 9.85	D ₆₀ = 0.1838 D ₁₅ = 0.0381 C _c = 1.40		
	USCS=	Classification AASHTO)=		
		Test Remarks			

(no specification provided)

0.0

Location: MW-39A, SS-3 @ 9'-10.5'



Client: HDR Engineering

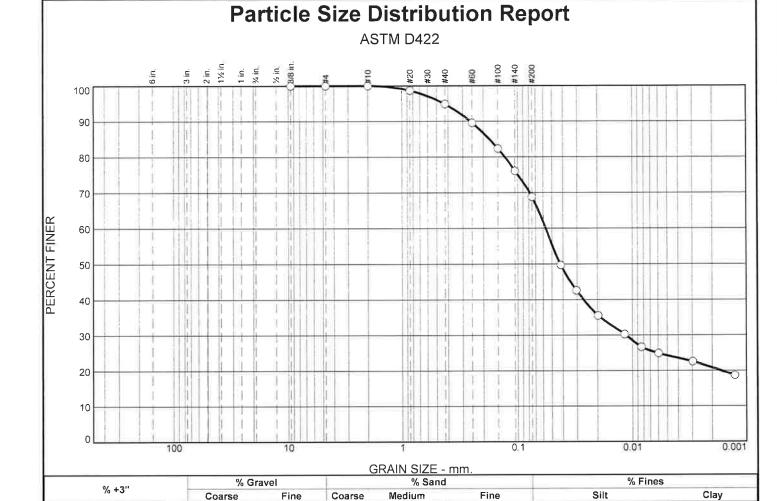
Project: Catawba Unit 4 Landfill Expansion

Project No: A24117.01899.000

Figure

Sample Date: 08-23-24

Checked By: MH Tested By: DG



1	Test Results (ASTM D422)			
Sieve Size or Diam. (mm.)	Finer (%)	Spec.* (%)	Out of Spec. (%)	Pct. of Fines
0.375	100.0			
#4	100.0			
#10	100.0			
#20	98.7			98.7
#40	94.9			94.9
#60	89.6			89.6
#100	82.4			82.4
#140	76.0			76.0
#200	68.8			68.8
0.0418 mm.	49.7			
0.0305 mm.	42.6			
0.0198 mm.	35.5			
0.0117 mm.	30.2			
0.0084 mm.	26.7			
0.0059 mm.	24.9		1	
0.0030 mm.	22.6			
0.0013 mm.	18.7			
(no specifica	ition provi	ded)		

0.0

0.0

0.0

5.l	26.1	44.5	24.3			
F	Material Description Orange-Brown Clayey. Sandy Silt					
	PL=	Atterberg Limits	PI=			
	D ₉₀ = 0.2595 D ₅₀ = 0.0423 D ₁₀ =	Coefficients D ₈₅ = 0.1779 D ₃₀ = 0.0114 C _u =	D ₆₀ = 0.0571 D ₁₅ = C _c =			
	USCS=	Classification AASHTO)=			
		Test Remarks				

Location: MW-40. SS-2 @ 5'-6.5'

0.0

Pineville, North Carolina

Client: HDR Engineering

Project: Catawba Unit 4 Landfill Expansion

Project No: A24117.01899.000

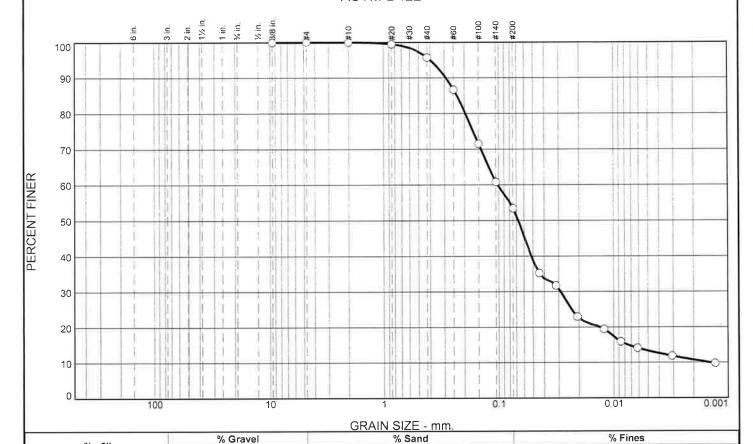
Figure

Sample Date: 08-23-24

Checked By: MH Tested By: DG

Particle Size Distribution Report

ASTM D422



Medium

Fine

Silt

Classification AASHTO=

Test Remarks

0.0		0.0	0.0)	0 4.3	42.3	40.1	
	Test Resu	ults (ASTM	D422)				Material Description	n
Sieve Size or Diam. (mm.)	Finer (%)	Spec.* (%)	Out of Spec. (%)	Pct. of Fines	0	range-Brown (Clayey. Silty Sand	
0.375 #4 #10 #20	100.0 100.0 100.0 99.5			99.5	P	L=	Atterberg Limits	PI=
#40 #60 #100 #140	95.7 86.7 71.5 60.8			95.7 86.7 71.5 60.8	D D D	990= 0.2918 950= 0.0674 910= 0.0014	Coefficients D ₈₅ = 0.2336 D ₃₀ = 0.0289 C _u = 71.56	D ₆₀ = 0.1025 D ₁₅ = 0.0075 C _c = 5.71

53.4

Coarse

(no specification provided)

% +3"

#200

0.0443 mm.

0.0318 mm.

0.0207 mm.

0.0121 mm.

0.0087 mm.

0.0062 mm.

0.0031 mm.

0.0013 mm.

Coarse

Fine

Location: MW-40, SS-8 @ 35'-36.5'

Sample Date: 08-23-24



53.4

35.2

31.7

23.0

19.5

15.9

14.1

11.9

9.8

Client: HDR Engineering

Project: Catawba Unit 4 Landfill Expansion

USCS=

Project No: A24117.01899.000

Figure

Clay

13.3

Checked By: MH Tested By: DG

Particle Size Distribution Report ASTM D422 100 90 80 80 80 30 20 10

				RAIN SIZE -	mm.		
	% Gravel			% Sand		% Fines	
% +3"	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	7.8	36.0	35.0	21.2

Test Results (ASTM D422)						
Sieve Size or Diam. (mm.)	Finer (%)	Spec.* (%)	Out of Spec. (%)	Pct. of Fines		
0.375	100.0					
#4	100.0					
#10	100.0					
#20	98.2			98.2		
#40	92.2			92.2		
#60	83.8			83.8		
#100	72.0			72.0		
#140	62.9			62.9		
#200	56.2			56.2		
0.0454 mm.	34.9					
0.0328 mm.	29.2					
0.0209 mm.	27.3					
0.0122 mm.	25.4					
0.0086 mm.	24.0					
0.0062 mm.	21.5					
0.0030 mm.	21.6					
0.0013 mm.	19.8					

100

Material Description Dark-Brown Clayey, Silty Sand					
PL=	Atterberg Limits	PI=			
D ₉₀ = 0.3606 D ₅₀ = 0.0642 D ₁₀ =	Coefficients D85= 0.2658 D30= 0.0351 Cu=	D ₆₀ = 0.0898 D ₁₅ = C _c =			
USCS=	Classification AASHT	O=			
	Test Remarks				

(no specification provided)

Location: MW-41, SS-3 @ 9.4'-10.9'

Tested By: DG

Client: HDR Engineering

Project: Catawba Unit 4 Landfill Expansion

Project No: A24117.01899.000

Figure

Sample Date: 08-23-24

0.001

	UES
Pi	neville, North Carolina

Particle Size Distribution Report ASTM D422 100 90 80 70 PERCENT FINER 60 50 40 30 20 10 0.001 100 0.1 0.01

GRAIN SIZE - mm

Medium

31.3

Coarse

0.0

% Sand

Fine

44.2

Test Results (ASTM D422)					
Sieve Size or Diam. (mm.)	Finer (%)	Spec.* (%)	Out of Spec. (%)	Pct. of Fines	
0.375	100.0				
#4	100.0				
#10	100.0				
#20	89.8			89.8	
#40	68.7			68.7	
#60	54.5			54.5	
#100	41.4			41.4	
#140	32.4			32.4	
#200	24.5			24.5	
0.0489 mm.	12.3				
0.0350 mm.	9.1				
0.0222 mm.	7.5				
0.0129 mm.	5.9				
0.0092 mm.	4.2				
0.0065 mm.	2.6				
0.0032 mm.	1.0				
0.0013 mm.	1.0				

% Gravel

Fine

0.0

Coarse

0.0

Material Description Yellow-Brown Slightly Clayey. Silty Sand					
PL=	Atterberg Limits	PI=			
D ₉₀ = 0.8569 D ₅₀ = 0.2104 D ₁₀ = 0.0403	Coefficients D85= 0.7054 D30= 0.0954 Cu= 7.68	D ₆₀ = 0.3090 D ₁₅ = 0.0547 C _c = 0.73			
USCS=	Classification AASHT	D=			
	Test Remarks				

(no specification provided)

% +3"

0.0

Location: MW-41. SS-4 @ 14.4'-15.9'

Sample Date: 08-23-24



Client: HDR Engineering

Project: Catawba Unit 4 Landfill Expansion

Project No: A24117.01899.000

Figure

% Fines

Clay

1.8

Silt

22,7

Particle Size Distribution Report ASTM D422 100 80 70 PERCENT FINER 60 50 40 30 20 10 100 0.01 0.001 GRAIN SIZE - mm.

% Sand

Fine

Medium

1	Test Resu				
Sieve Size or Diam. (mm.)	Finer (%)	Spec.* (%)	Out of Spec. (%)	Pct. of Fines	Orange
0.375	100.0	_			
#4	100.0				
#10	97.6				DI -
#20	93.6			95.9	PL=
#40	83.5			85.6	
#60	75.0			76.9	Dan=
#100	68.1			69.9	D ₉₀ = D ₅₀ = D ₁₀ =
#140	64.4			66.0	D ₁₀ =
#200	61.3			62.9	
0.0421 mm.	57.4				USCS
0.0300 mm.	55.4				0300
0.0192 mm.	51.6				
0.0112 mm.	49.6				

% Gravel

Fine

0.0

Coarse

2.4

Coarse

0.0

14.1	22.2	16.3	45.0
	Orange-Brown	Material Description	
	PL=	Atterberg Limits	PI=
	D ₉₀ = 0.6412 D ₅₀ = 0.0124 D ₁₀ =	Coefficients D ₈₅ = 0.4685 D ₃₀ = C _u =	D ₆₀ = 0.0629 D ₁₅ = C _c =
	USCS=	Classification AASHTC	=
		Test Remarks	

(no specification provided)

0.0080 mm.

0.0057 mm.

0.0028 mm. 0.0012 mm.

% +3"

0.0

Location: MW-42A. SS-2 @ 4.5'-6'



47.7

45.7 41.9

38.0

Client: HDR Engineering

Project: Catawba Unit 4 Landfill Expansion

Project No: A24117.01899.000

Figure

Sample Date: 08-23-24

% Fines

Clay

Silt

GRAIN SIZE - mm.

0/ . 20	% Gr	avel	% Sand			% Fines	
% +3"	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	0.0	22.5	39.4	29.9	8.2

1	Test Results (ASTM D422)						
Sieve Size or Diam. (mm.)	Finer (%)	Spec.* (%)	Out of Spec. (%)	Pct. of Fines			
0.375	100.0						
#4	100.0						
#10	100.0						
#20	93.4			93.4			
#40	77.5			77.5			
#60	64.6			64.6			
#100	52.8			52.8			
#140	44.7			44.7			
#200	38.1			38.1			
0.0468 mm.	25.9						
0.0335 mm.	24.0						
0.0215 mm.	18.9						
0.0125 mm.	15.3						
0.0090 mm.	11.8						
0.0064 mm.	10.0						
0.0032 mm.	4.7						
0.0013 mm.	1.1						

Material Description Orange-Brown Clayey, Silty Sand					
Ρ	L=	Atterberg Limits	PI=		
D D D	90= 0.7078 50= 0.1334 10= 0.0064	Coefficients D ₈₅ = 0.5727 D ₃₀ = 0.0560 C _U = 32.17	$D_{60} = 0.2053$ $D_{15} = 0.0121$ $C_{c} = 2.40$		
U	SCS=	Classification AASHTO:	=		
		Test Remarks			

0.001

0.01

* (no specification provided)

Tested By: DG

100

90

70

60

50

40

30

20

10

PERCENT FINER

Location: MW-42A. SS-4 @ 14.5'-16'

Sample Date: 08-23-24
Client: HDR Engineering

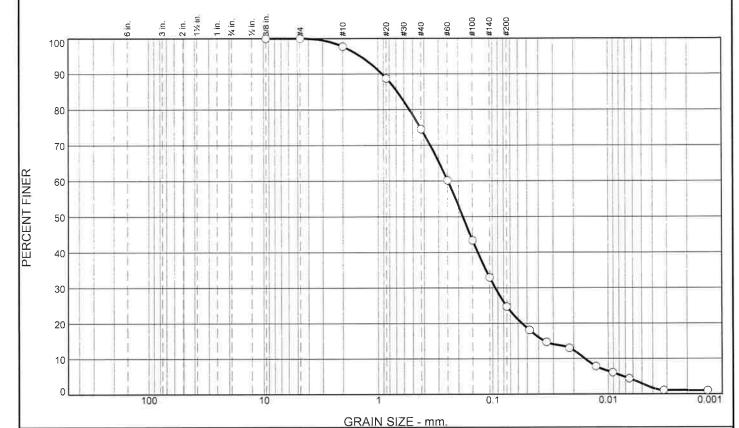
Project: Catawba Unit 4 Landfill Expansion

Project No: A24117.01899.000 **Figure**

Pineville, North Carolina

Particle Size Distribution Report

ASTM D422



0/ 13!!	% Gr	avel	% Sand			% Fines	
% +3"	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
0.0	0.0	0.0	2.3	23.2	49.8	21.8	2.9

1	Test Results (ASTM D422)						
Sieve Size or Diam. (mm.)	Finer (%)	Spec.* (%)	Out of Spec. (%)	Pct. of Fines			
0.375	100.0						
#4	100.0		1				
#10	97.7						
#20	88.8			90.8			
#40	74.5			76.2			
#60	60.2			61.6			
#100	43.4			44.4			
#140	33.0		1	33.7			
#200	24.7			25.3			
0.0479 mm.	18.1						
0.0342 mm.	14.7						
0.0218 mm.	13.0						
0.0128 mm.	7.9						
0.0091 mm.	6.1						
0.0065 mm.	4.4						
0.0032 mm.	1.1						
0.0013 mm.	1.1						

Material Description Dark-Brown Slightly Clayey. Silty Sand							
PL=	Atterberg Limits	e PI=					
D ₉₀ = 0.9241 D ₅₀ = 0.1832 D ₁₀ = 0.0160	Coefficients D ₈₅ = 0.6859 D ₃₀ = 0.0947 C _u = 15.54	D ₆₀ = 0.2482 D ₁₅ = 0.0355 C _c = 2.26					
USCS=	Classification AASHT	-O=					
	Test Remarks						

(no specification provided)

Location: MW-43. SS-3 @ 9'-10.5'

Sample Date: 08-23-24

Figure



Client: HDR Engineering

Project: Catawba Unit 4 Landfill Expansion

Project No: A24117.01899.000

Particle Size Distribution Report ASTM D422 100 90 80 70 PERCENT FINER 60 50 40 30 20 10 0.01 0.001 GRAIN SIZE - mm.

Т	Test Results (ASTM D422)						
Sieve Size or Diam. (mm.)	Finer (%)	Spec.* (%)	Out of Spec. (%)	Pct. of Fines			
0.375	100.0						
#4	100.0						
#10	97.9						
#20	85.4			87.3			
#40	65.1			66.5			
#60	51.7			52.8			
#100	39.2			40.1			
#140	31.2			31.8			
#200	23.4			24.0			
0.0477 mm.	17.1						
0.0341 mm.	13.6						
0.0218 mm.	10.0						
0.0127 mm.	8.2						
0.0090 mm.	6.4						
0.0064 mm.	4.6						
0.0032 mm.	2.9						
0.0013 mm.	1.1						

% Gravel

0.0

Coarse

2.1

Medium

32.8

Fine

41.7

Coarse

0.0

* (no specification provided)

% +3"

0.0

Location: MW-43, SS-5 @ 19'-20.5'



Client: HDR Engineering

Project: Catawba Unit 4 Landfill Expansion

Project No: A24117.01899.000

Figure

Sample Date: 08-23-24

% Fines

Clay

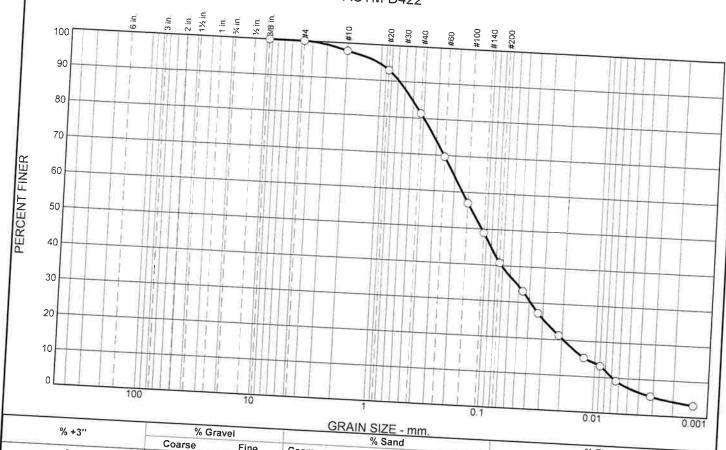
3.8

Silt

19.6

Particle Size Distribution Report

ASTM D422



Medium

Fine

Sieve Size or	Finer	ults (ASTM Spec.*	Out of	Pct.	
Diam. (mm.)	(%)	(%)	Spec.	of	
0.375	100.0		(%)	Fines	
#4	100.0				
#10	97.8		1 3		
#20	93.0			0	
#40	81.4			95.1	
#60	69.6		1 1	83.2	
#100	57.0			71.2	
#140	48.9			58.3	
#200	40.7			50.0	
0.0461 mm.	33.1			41.6	
0.0332 mm.	27.2	1	1		
0.0214 mm.	21.2	1			
0.0126 mm.	15.3	-			
0.0090 mm.	13.2		1		
0.0064 mm.	9.2	1	1		
.0032 mm.	5.3			1	
.0013 mm.	3.3			- 1	

0.0

Fine

Coarse

16.4		40.7		ilt	Clay
				.3	7.4
	Dark	-Brown Cla	Material Descrip ayey. Silty Sand	tion	
	PL=		Atterberg Limit	<u>s</u> PI=	
	U50=	0.6817 0.1110 0.0069	Coefficients D85= 0.5133 D30= 0.0389 Cu= 24.52	D ₆₀ = 0.1695 D ₁₅ = 0.0122 C _c = 1.29	5
	USCS	=	Classification AASHT		
1			Test Remarks		4
T					1

0.0

Location: MW-43, SS-8 @ 34'-35.5'

Sample Date: 08-23-24

Figure

% Fines

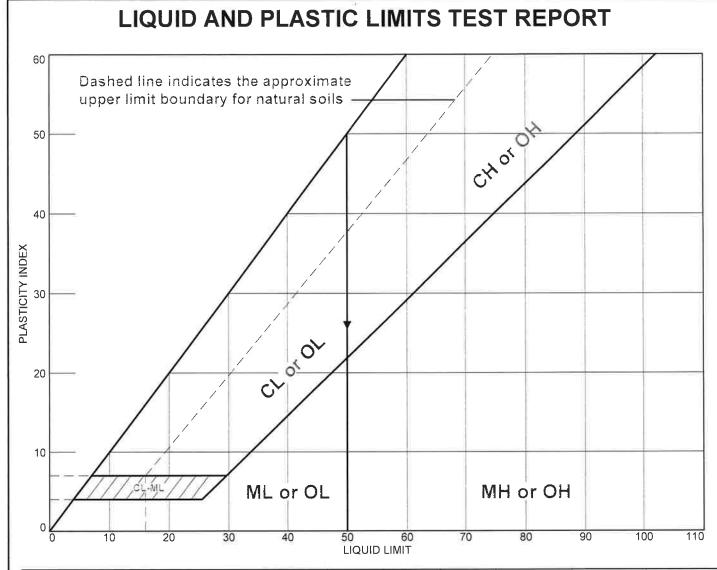
Silt

Pineville, North Carolina

Client: HDR Engineering

Project: Catawba Unit 4 Landfill Expansion

Project No: A24117.01899.000



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
•	Orange-Brown Silty Sand (Visual)	NP	NP	NP			
	Red-Brown Silty Sand (Visual)	NP	NP	NP			
A	Red-Brown Silty Sand (Visual)	NP	NP	NP			
•	Light-Brown Silty Sand (visual)	NP	NP	NP			
V	Orange-Brown Clayey Sand (visual)	50	24	26			

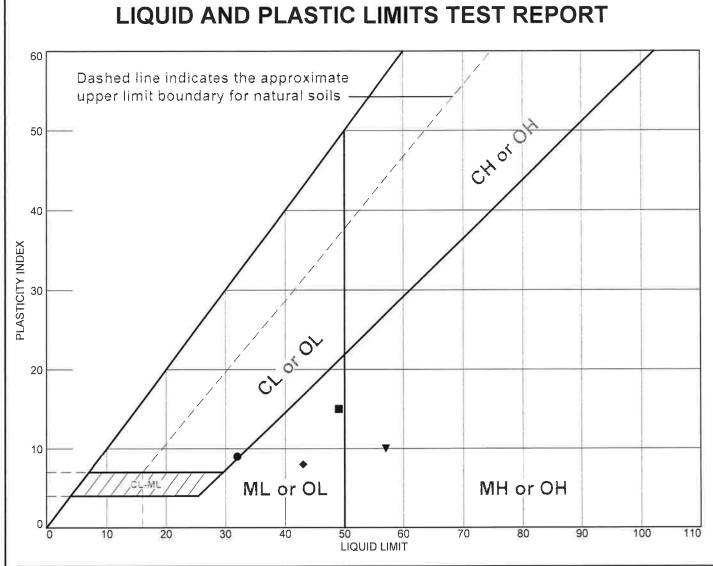
Project No. A24117 01899 000 Client: HDR Engineering Remarks:

Project: Catawba Unit 4 Landfill Expansion

● Location: PZ-210, SS-3 @ 9.4'-10.9' ■ Location: PZ-214, SS @ 9.4'-10.9' ▲ Location: PZ-215, SS-2 @ 4.5'-6' ◆ Location: PZ-216, SS-2 @ 4.4'-5.9' ▼ Location: PZ-220, SS-3 @ 9'-10.5'

UESWheneville North Carolina

Figure



	MATERIAL DESCRIPTION	LL	PL	PI	%<#40	%<#200	USCS
•	Grey-Brown Clayey Sand (Visual)	32	23	9			
•	Grey-Brown Sandy Silt (Visual)	49	34	15			
•	Orange-Brown Silty Sand (Visual)	NP	NP	NP			
•	Tan-Brown Sandy Silt (Visual)	43	35	8			
V	Red-Brown Sandy Elastic Silt (Visual)	57	47	10			

Project No. A24117 01899 000 Client: HDR Engineering

Project: Catawba Unit 4 Landfill Expansion

● Location: PZ-222, SS-2 @ 4'-5.5'
■ Location: PZ-222, SS-4 @ 14'-15.5'
▲ Location: PZ-223, SS-9 @ 39'-40.5'
◆ Location: MW-38, SS-2 @ 3'-4.5'
▼ Location: MW-41, SS-2 @ 4.4'-5.9'



Remarks:

Figure