



April 09, 2018

Ms. Lisa Gilchrist, EI
Division 5 Bridge Program Manager
1636 Goldstar Drive
Raleigh, NC 27607

Re: TIP Project: 17BP.5.R.79
Bridge No. 216
Wake County
Report of Water Well Testing

Dear Ms. Gilchrist,

Stewart has completed water testing for the water well located at 612 Old Battle Bridge Road in Wendell, NC. The sample was collected by Stewart from an outdoor water spigot located on the outside of the primary dwelling at the subject site. Approximately 3.5 liters of water was collected into sanitized bottles after approximately 5 gallons of water was run through the spigot. The collected sample was submitted to Pace Analytical Laboratories and was tested for total suspended solids (TSS), total dissolved solids (TDS), and turbidity. The results of the laboratory testing are shown in the attached documents. These laboratory results will serve as a baseline reading for the well. If you have any questions relating to this water test, please feel free to contact Kelly Plummer at (919) 380-8750.

Respectfully,

STEWART

DocuSigned by:

Kelly Plummer

0E6583B50A8B4AA

Kelly Plummer

Engineering Geologist, Geotechnical & Construction Services

April 02, 2018

KELLY PLUMMER
STEWART ENGINEERING

RE: Project: WW TESTING
Pace Project No.: 92378444


Dear KELLY PLUMMER:

Enclosed are the analytical results for sample(s) received by the laboratory on March 26, 2018. The results relate only to the samples included in this report.

Analyses were performed at the Pace Analytical Services location indicated on the sample analyte page for analysis unless otherwise footnoted.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Kristi Doss
kristi.doss@pacelabs.com
(336)623-8921
Project Coordinator

Enclosures

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
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CERTIFICATIONS

Project: WW TESTING

Pace Project No.: 92378444

Asheville Certification IDs

2225 Riverside Drive, Asheville, NC 28804

Florida/NELAP Certification #: E87648

Massachusetts Certification #: M-NC030

North Carolina Drinking Water Certification #: 37712

North Carolina Wastewater Certification #: 40

South Carolina Certification #: 99030001

Virginia/VELAP Certification #: 460222

Eden Certification IDs

205 East Meadow Road Suite A, Eden, NC 27288

North Carolina Drinking Water Certification #: 37738

North Carolina Wastewater Certification #: 633

Virginia/VELAP Certification #: 460025

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: WW TESTING

Pace Project No.: 92378444

Lab ID	Sample ID	Matrix	Date Collected	Date Received
92378444001	BUFFALO CREEK WENDELL	Water	03/26/18 13:40	03/26/18 14:20

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SAMPLE ANALYTE COUNT

Project: WW TESTING
Pace Project No.: 92378444

Lab ID	Sample ID	Method	Analysts	Analytes Reported
92378444001	BUFFALO CREEK WENDELL	SM 2540D	NMH	1
		EPA 180.1	KDF1	1
		SM 2540C	NAL	1

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ANALYTICAL RESULTS

Project: WW TESTING

Pace Project No.: 92378444

Sample: BUFFALO CREEK **Lab ID:** 92378444001 Collected: 03/26/18 13:40 Received: 03/26/18 14:20 Matrix: Water
WENDELL

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
2540D Total Suspended Solids	Analytical Method: SM 2540D							
Total Suspended Solids	ND	mg/L	2.5	1		03/28/18 14:59		
180.1 Turbidity	Analytical Method: EPA 180.1							
Turbidity	ND	NTU	1.0	1		03/28/18 12:08		
2540C Total Dissolved Solids	Analytical Method: SM 2540C							
Total Dissolved Solids	79.0	mg/L	25.0	1		03/29/18 16:15		

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QUALITY CONTROL DATA

Project: WW TESTING

Pace Project No.: 92378444

QC Batch: 403817	Analysis Method: EPA 180.1
QC Batch Method: EPA 180.1	Analysis Description: 180.1 Turbidity
Associated Lab Samples: 92378444001	

METHOD BLANK: 2240049 Matrix: Water
Associated Lab Samples: 92378444001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Turbidity	NTU	ND	1.0	03/28/18 12:08	

LABORATORY CONTROL SAMPLE: 2240050

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Turbidity	NTU	10	10	100	90-110	

SAMPLE DUPLICATE: 2240051

Parameter	Units	92378474001 Result	Dup Result	RPD	Max RPD	Qualifiers
Turbidity	NTU	ND	ND		10	

SAMPLE DUPLICATE: 2240052

Parameter	Units	92378468002 Result	Dup Result	RPD	Max RPD	Qualifiers
Turbidity	NTU	ND	ND		10	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: WW TESTING

Pace Project No.: 92378444

QC Batch: 404047

Analysis Method: SM 2540C

QC Batch Method: SM 2540C

Analysis Description: 2540C Total Dissolved Solids

Associated Lab Samples: 92378444001

METHOD BLANK: 2241638

Matrix: Water

Associated Lab Samples: 92378444001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Dissolved Solids	mg/L	ND	25.0	03/29/18 16:15	

LABORATORY CONTROL SAMPLE: 2241639

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Dissolved Solids	mg/L	250	246	98	90-110	

SAMPLE DUPLICATE: 2241640

Parameter	Units	92378302001 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	38.0	37.0	3	5	

SAMPLE DUPLICATE: 2241641

Parameter	Units	92378390006 Result	Dup Result	RPD	Max RPD	Qualifiers
Total Dissolved Solids	mg/L	144	135	6	5	D6

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

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QUALIFIERS

Project: WW TESTING

Pace Project No.: 92378444

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

Acid preservation may not be appropriate for 2 Chloroethylvinyl ether.

A separate vial preserved to a pH of 4-5 is recommended in SW846 Chapter 4 for the analysis of Acrolein and Acrylonitrile by EPA Method 8260.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

ANALYTE QUALIFIERS

D6 The precision between the sample and sample duplicate exceeded laboratory control limits.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: WW TESTING

Pace Project No.: 92378444

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
92378444001	BUFFALO CREEK WENDELL	SM 2540D	403881		
92378444001	BUFFALO CREEK WENDELL	EPA 180.1	403817		
92378444001	BUFFALO CREEK WENDELL	SM 2540C	404047		

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
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	Document Name: Sample Condition Upon Receipt (SCUR)	Document Revised: February 7, 2018 Page 1 of 2
	Document No.:	Issuing Authority:
	F-CAR-CS-033-Rev.06	Pace Carolinas Quality Office

Laboratory receiving samples:
 Asheville Eden Greenwood Huntersville

WO#: 92378444

Sample Condition Upon Receipt: _____ Client Name: Stewart Engineers Project #: _____

Courier: Fed Ex UPS USPS Other: _____ Client

Commercial Pace



Custody Seal Present? Yes No Seals Intact? Yes No

Date/Initials Person Examining Contents: JK

Packing Material: Bubble Wrap Bubble Bags None Other

Thermometer: _____ Type of Ice: Wet Blue None

Biological Tissue Frozen? Yes No N/A

IR Gun ID: IS-3492 Cooler Temp (°C): 1.01 Correction Factor: Add/Subtract (°C) -0.3

Cooler Temp Corrected (°C): 1.1

Temp should be above freezing to 6°C
 Samples out of temp criteria. Samples on ice, cooling process has begun

USDA Regulated Soil N/A, water sample
 Did samples originate in a quarantine zone within the United States: CA, NY, or SC (check maps)? Yes No

Did samples originate from a foreign source (Internationally, including Hawaii and Puerto Rico)? Yes No

Chain of Custody Present?	Yes	No	N/A	1.	Comments/Discrepancy:
Samples Arrived within Hold Time?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2.	
Short Hold Time Analysis (<72 hr.)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	3.	
Rush Turn Around Time Requested?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	4.	<u>Sturb</u>
Sufficient Volume?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	5.	
Correct Containers Used?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	6.	
-Pace Containers Used?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>		
Containers intact?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	7.	
Dissolved analysis: Samples Field Filtered?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	8.	
Sample Labels Match COC?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	9.	
-Includes Date/Time/ID/Analysis Matrix: <u>uu</u>					
Headspace in VOA Vials (>5.6mm)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	10.	
Trip Blank Present?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	11.	
Trip Blank Custody Seals Present?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>		

COMMENTS/SAMPLE DISCREPANCY

Field Data Required? Yes No

CLIENT NOTIFICATION/RESOLUTION

Lot ID of split containers:

Person contacted: _____ Date/Time: _____

Project Manager SCURF Review: KD Date: 3/27/18

Project Manager SRF Review: CM Date: 3-27-18



CHAIN-OF-CUSTODY / Analytical Request Document
 The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.


Section A Required Client Information: Company: STEWART ENGINEERING Address: Email To: KPLUMMER@STEWARTINC.COM Phone: 704-281-0418 Fax: Requested Due Date/TIME: 1 WEEK TUE		Section B Required Project Information: Report To: KELLY PLUMMER Copy To: Purchase Order No.: Project Name: BUFFALO CREEK WENDELL Project Number:		Section C Invoicing Information: Address: Company Name: P.O. Box: Reference: Invoice Profile #	
REGULATORY AGENCY <input type="checkbox"/> NPDES <input type="checkbox"/> GROUND WATER <input type="checkbox"/> DRINKING WATER <input type="checkbox"/> LUST <input type="checkbox"/> RCRA <input type="checkbox"/> OTHER		Site Location STATE: NC		Page: of	

ITEM #	Section D Requested Client Information	Valid Matrix Codes DOMESTIC WATER WASTE WATER WASTEWATER INDUSTRIAL OIL MILK MILK OTHER TSS/SL	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED		SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives	Requested Analysis Filtered (Y/N)	Residual Chlorine (Y/N)
					START	END					
1	BUFFALO CREEK WENDELL				DATE	TIME		3			
2											
3											
4											
5											
6											
7											
8											
9											
10											
11											
12											

ADDITIONAL COMMENTS RELINQUISHED BY / AFFILIATION: [Signature] DATE: 3/20/18 TIME: 11:00 AM ACCEPTED BY / AFFILIATION: [Signature] DATE: 3/20/18 TIME: 11:00 AM		SAMPLER NAME AND SIGNATURE PRINT Name of SAMPLER: David Conzone SIGNATURE of SAMPLER: [Signature] DATE Signed: 03/20/18	
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Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to the charges of 1.5% per month for any balances not paid within 30 days.

FALL-Q-020rev.08, 12-Oct-2007

	Document Name: Sample Condition Upon Receipt(SCUR)	Document Revised: February 7, 2018 Page 1 of 2
	Document No.: F-CAR-CS-033-Rev.06	Issuing Authority: Pace Carolinas Quality Office

*Check mark top half of box if pH and/or dechlorination is verified and within the acceptance range for preservation samples.

Exceptions: VOA, Coliform, TOC, Oil and Grease, DRD/8015 (water) DOC, LLHg

**Bottom half of box is to list number of bottle

WO# : 92378444

PM: KPD

Due Date: 04/04/18

CLIENT : 91-800139

Item#	Material	1	2	3	4	5	6	7	8	9	10	11	12
	BP4U-125 mL Plastic Unpreserved (N/A) (C-)												
	BP5U-250 mL Plastic Unpreserved (N/A)												
	BP2U-500 mL Plastic Unpreserved (N/A)												
	BP1U-1 liter Plastic Unpreserved (N/A)												
	BP4S-125 mL Plastic H2SO4 (pH < 2) (C-)												
	BP3M-250 mL plastic HNO3 (pH < 2)												
	BP4Z-125 mL Plastic ZN Acetate & NaOH (p>9)												
	BP4C-125 mL Plastic NaOH (pH > 12) (C-)												
	WGFLU-Wide-mouthed Glass Jar Unpreserved												
	AG2U-1 liter Amber Unpreserved (N/A) (C-)												
	AG3M-1 liter Amber HCl (pH < 2)												
	AG3U-250 mL Amber Unpreserved (N/A) (C-)												
	AG3S-1 liter Amber H2SO4 (pH < 2)												
	AG3S-250 mL Amber H2SO4 (pH < 2)												
	AG3A(DG3A)-250 mL Amber HCl (N/A)(C-)												
	DG9H-40 mL VOA HCl (N/A)												
	V69T-40 mL VOA Na2S2O3 (N/A)												
	V69U-40 mL VOA Unp (N/A)												
	D69P-40 mL VOA H3PO4 (N/A)												
	VOAK (6 vials per kit)-5035 kit (N/A)												
	V/6K (3 vials per kit)-YPH/Gas kit (N/A)												
	SP5T-125 mL Sterile Plastic (N/A - lab)												
	SP2T-250 mL Sterile Plastic (N/A - lab)												
	BP3A-250 mL Plastic (N/A) 2504 (3,3-9,7)												
	AG0U-100 mL Amber Unpreserved vial (N/A)												
	V69U-20 mL Scintillation vials (N/A)												
	D69U-40 mL Amber Unpreserved vials (N/A)												

Sample ID	Type of Preservative	pH upon receipt	Date preservation adjusted	Time preservation adjusted	Amount of Preservative added	Lot #

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. Out of hold, incorrect preservative, out of temp, incorrect containers).