

Monroe A. Miller Jr.
 2200 Camp Branch Road
 Waynesville, NC 28786

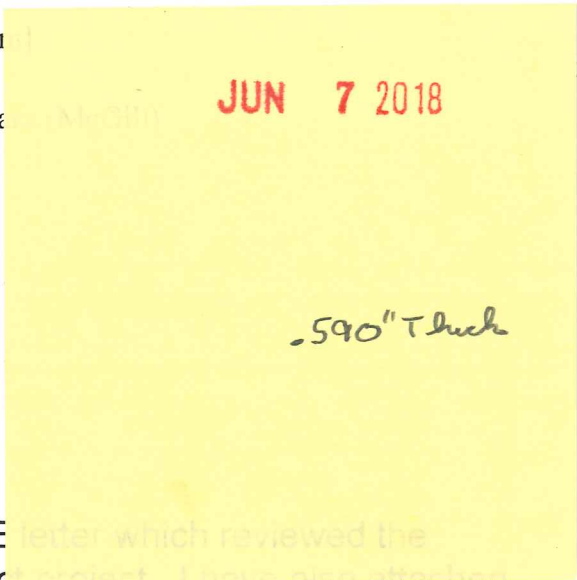
List of E-mails

JUN 7 2018

Date	Subject	BLE Emails		Tomlin
		5/17	5/21	
11/14/17	Green Grocers attach 1	✓		✓
	attach 2	✓		✓
		x		✓
12/1/17	J Creek Project attach 1	x		✓
		x		✓
3/6/18	Environ Test Soilshole attach 1	x		✓
		x		✓
3/6	Environ Test / McGill	x		✓
3/16	re:	✓		✓
3/16	Re:	x		✓
3/16	Re	x		✓
3	CO for J Creek attach	x		✓
		x		✓
3/23	Dennis Farm Road Borrow	x		✓
3/23	Dennis Farm Road	✓ (Censored)		✓
3/23	" " "	x		✓ (drawings not accessible) ✓
4/3	Dennis Hall (Farm Prop)	✓ (Censored)	✓ (Censored)	✓
4/5	Hall Property	x	x	✓
4/9	Change Order Site A	x	x	✓ Francis Cell Phone
4/16	Site A Soil Results	✓ (Censored)	x	✓
4/16	" " " "	x	x	✓ 3 pds. attachment missing.
4/19	" " " "	x	x	✓
4/19	" " " "	x	x	✓
4/19	" " " "	x	x	✓ Found here
4/20	Site A & B Contract Docs	✓ (Censored)	✓ (Censored)	✓
20		7	2	20
		.143" thick	.065"	.590" Thick



From: Andy Alexander [mailto:Andy.Alexander@blecorp.com]
Sent: Tuesday, November 14, 2017 10:51 AM
To: David Francis <DBFrancis@haywoodnc.net>; Cathey, Mark <mark.cathey@mcgillengineers.com>
Cc: Jesse Jacobson <Jesse.Jacobson@blecorp.com>
Subject: Project Green Grocery



Hello David and Mark,

Per David's text request I have attached the BLE letter which reviewed the Geotech report for the borrow soils for the subject project. I have also attached the Geotech report at no extra charge.

If you need BLE's help with anything on this project (I assume it's heating up, or cooling down as it's winter) please yell at Jesse, Sam, or me. Thanks, --Andy

Andrew W. Alexander, P.G., RSM
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BUNNELL-LAMMONS ENGINEERING, INC.
GEOTECHNICAL, ENVIRONMENTAL AND CONSTRUCTION MATERIALS CONSULTANTS

November 4, 2016

Office of the County Manager
215 N. Main Street
Waynesville, North Carolina 28786

Attention: Mr. David B. Francis
Solid Waste and Tax Administrator

Subject: **Response to Questions Regarding Proposed Fill Material
Project Green Grocery
Waynesville, North Carolina
BLE Job No: J16-11031-01**

Dear Mr. Francis:

As requested, Bunnell-Lammons Engineering (BLE) has reviewed the report of subsurface exploration performed by Kessel Engineering Group (KEG Project JA16-3085-01 dated April 11, 2016) with respect to the County obtaining borrow soil from the proposed Waynesville Retail Shopping Center. We understand that before the County agrees to take the soil, they would like BLE's professional opinion of the soil, based on our review of the previously performed geotechnical exploration and our experience with similar soil conditions.

Background and Review

We understand that the County may be able to obtain borrow soil from the proposed Waynesville Retail Shopping Center project when the grading commences. We understand the borrow soil is proposed to be utilized in the existing landfill and for raising the site grade of another County project site. Based on our correspondence, we understand that the borrow soil will be coming from two potential areas on the site; one location is the northern portion of the site, which is proposed to be lowered a significant amount. The second location is the western portion of the site, which is anticipated to be lowered around 8 to 10 feet.

Based on our review of the provided previously performed geotechnical exploration, soil test borings B-6 and B-7 were performed in the northern portion of the site and soil test boring B-1 was performed in the western portion of the site. Our review of the applicable soil test boring logs indicates that residual soils typical of the Blue Ridge Physiographic Province were encountered just underlying the surface materials (i.e. grass and asphalt pavement) and to the boring termination depths of 10 feet for soil test boring B-1 and 30 feet for soil test borings B-6 and B-7. The residual soil typically consisted of firm to dense silty sand. Partially weathered rock (PWR) was encountered in soil test borings B-6 at a depth of 22 feet below the existing ground surface. All three soil test borings were noted to be dry at the time of drilling.



Response to Questions Regarding Proposed Fill Material
Project Green Grocery

November 4, 2016
BLE Job No: J16-11031-01

Assessment

Based on our review of the applicable soil test boring logs and our experience with similar soils, the residual soils should be suitable for use as general fill soil. Representative samples of the on-site soils proposed for use as structural fill should be collected and tested to determine the compaction and classification characteristics prior to use. It should be noted that moisture contents on large grading projects will be dictated to some degree by the prevailing weather at the time of grading, which may cause the soils to have to be dried during periods of wet weather or wet during dry periods.

In addition, based on our review of publicly available aerial photography, the northern portion of the site is approximately 15 to 20 feet higher in elevation than the remainder of the property. There were no soil test borings performed above or on the embankment between the upper and lower parcels. Based on our experience with similar situation, it is possible that the embankment was created with fill soils. We recommend that additional testing, such as soil test boring or test pit excavations be performed to classify this soil. It is also possible that the widely-spaced borings may not fully represent the conditions across the subject site, unexpected conditions, such as buried debris, loose/soft soils or rock can be present.


We recommend that structural fill used for raising site grades be uniformly compacted in thin lifts. The soil to be used in the structural fill should contain no more than 3 percent organic matter by weight and should be free of roots, limbs, other deleterious material, rocks larger than 6-inches in diameter and any type of construction debris. The moisture content of the compacted soil fill should be maintained during placement and compaction within plus or minus 3 percent of the optimum moisture content as determined from the standard Proctor compaction test.


No guarantee or warranty, expressed or implied, is provided by this letter: BLE's services have been performed in accordance with generally accepted construction material quality assurance practices for specific application to this project. Our services are based on applicable standards of our practice in this geographic area at the time performed.

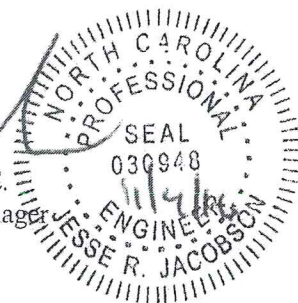
If you have any questions concerning this letter, please do not hesitate to contact us.

Sincerely,

BUNNELL-LAMMONS ENGINEERING, INC.

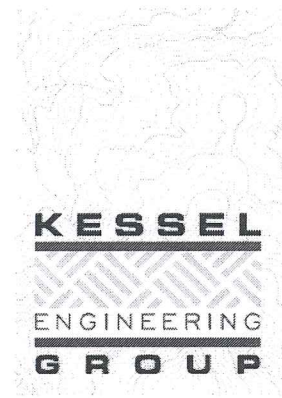

Sam C. Interlicchia
Project Manager


Jesse R. Jacobson, P.E.
Asheville Branch Manager
Registered, NC 30948



August 11, 2016

Mr. Don Warren
PM Environmental, Inc.
8320 University Executive Park Drive, Suite 106
Charlotte, NC 28262



**Revised Report of Preliminary Geotechnical Exploration
Waynesville Retail Shopping Center
Waynesville, North Carolina
KEG Project No. JA16-3085-01**

Mr. Warren:

Kessel Engineering Group, PLLC (KEG) is pleased to submit this report of preliminary geotechnical exploration for the proposed Waynesville Retail Shopping Center project in Waynesville, North Carolina. The purpose of this preliminary exploration was to explore the general subsurface conditions at the site and to provide preliminary geotechnical recommendations for the proposed project.

PROJECT INFORMATION

Project information was provided by Mr. Don Warren of PM Environmental, Inc. in various recent emails and during a July 20, 2016 on-site meeting with our Mr. Bernie Kessel, P.E. and Ms. Courtney King, P.E. We have also been provided with the following digital documents pertaining to the project:

- *4575.00 Frazier at Russ Waynesville-SK4-20150715-over topo.pdf*, showing the proposed site layout superimposed over existing topographic contours.
- *4575.00 Frazier at Russ Waynesville-SK4-20150715-over aerial.pdf*, showing the proposed site layout superimposed over existing aerial photography.
- An aerial of the site indicated the requested boring 9 boring locations and requested boring depths.

The project site is located in the mountains of Western North Carolina. The project site is roughly pie-shaped and is bound by US Highway 74, Russ Avenue and Frazier Street in Waynesville, North Carolina (reference attached *Site Location Plan*). The majority of the site consists of a relatively gently sloping, low lying area that is currently occupied by multiple buildings, paved areas and grassed areas. The northeast portion of the site is situated roughly 15 to 20 feet higher in elevation and is occupied by a hotel and associated pavements. The westernmost portion of the site consists of a grassed field which slopes downhill to the east and southeast toward the main portion of the site.

Project plans include the construction of a new 49,098 sf retail shopping center, a 7,200 sf outparcel building, and associated parking lots and infrastructure components at the project site. Detailed site grading plans have not been provided. Detailed foundation loading has not been provided; however, for the purpose of this exploration, we have assumed maximum individual column and continuous wall loads are on the order of 200 kips and 10 kips per linear foot, respectively.

FIELD EXPLORATION

The site was explored by performing 7 soil test borings and 2 hand auger borings at the approximate locations shown on the attached *Field Exploration Plan*. Soil test borings extended to depths of 10 to 30 feet beneath the existing ground surface or asphalt surface. Hand auger borings extended to refusal

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depths of 20 to 24 inches beneath the existing asphalt surface. Boring locations were determined in the field by our Ms. Courtney King, P.E. with the assistance of Mr. Don Warren by referencing the provided plans and identifiable site landmarks. The ground surface elevation at each boring location was estimated by referencing the 5 feet contour intervals shown on the provided plans.

Soil test borings were advanced by mechanically twisting a continuous flight steel hollow-stem auger into the ground. Soil sampling and penetration testing were performed in general accordance with ASTM D1586. At assigned intervals, soil samples were obtained using a standard 1.4-inch I.D., 2-inch O.D., split-tube sampler. The sampler was first seated 6 inches to penetrate loose cuttings and then driven an additional 12 inches with blows of a 140-pound hammer falling 30 inches. The number of hammer blows required to drive the sampler the final 12 inches was recorded and is designated the "standard penetration resistance." The penetration resistance, once properly evaluated, is an index to the strength of the soil and foundation supporting capability. Representative portions of the soil samples collected by the soil test borings were placed in sealed containers and transported to the laboratory where they were visually classified by a geotechnical engineer.

Hand auger borings extended through asphalt core holes and were advanced by manually twisting a sharpened steel auger into the subgrade. Asphalt cores were extracted using a rotary core drill with a 6-inch diameter core bit. The materials encountered were identified in the field from cuttings brought to the surface by the auger. Where auger refusal was encountered in aggregate base course materials, the bottom of the boring was advanced further downward with the assistance of a pry bar and hammer. Asphalt cores were collected and transported to our laboratory where they were measured to determine the average thickness of each core in accordance with ASTM D3549.

Soil test borings and hand auger borings were backfilled with soil cuttings at the completion of the field work. Borings that were advanced through asphalt were also capped relatively flush with the surrounding pavement with asphalt cold patch material. Soil descriptions and penetration resistance data are tabulated on the soil test boring logs (B-1, B-2, B-3, B-4, B-5, B-6 and B-7) and hand auger boring logs (HAB-1 and HAB-2) attached to this report.

SITE GEOLOGY

The project site is located in the Blue Ridge Physiographic Province. The bedrock in this region is a complex crystalline formation that has been faulted and contorted by past tectonic movements. The rock has weathered to residual soils which form the mantle for the hillsides and hilltops. The typical residual soil profile in areas not disturbed by erosion or grading consists of clayey soils near the surface where weathering is more advanced, underlain by sandy silts and silty sands.

The boundary between soil and rock is not sharply defined and there is often a transitional zone, termed "partially weathered rock" overlying the parent bedrock. Partially weathered rock (PWR) is defined, for engineering purposes, as residual material with a standard penetration resistance in excess of 100 blows per foot. Weathering is facilitated by fractures, joints, and the presence of less resistant rock types. Consequently, the profile of the partially weathered rock is irregular even over short horizontal distances. Also, it is not unusual to find lenses and boulders of hard rock and/or zones of partially weathered rock within the soil mantle, well above the general bedrock level.

Quite often, the upper soils along drainage features and in flood plain areas are water-deposited (alluvial) materials that have been eroded and washed down from adjacent higher ground. These alluvial soils are usually soft and compressible, having never been consolidated by pressures in excess of their present overburden.

SUBSURFACE CONDITIONS

The following descriptions provide a summary of the subsurface conditions encountered by the soil test borings and hand auger borings. The attached logs contain information recorded at each boring location. The lines designating the interfaces between various strata represent approximate boundaries and the transition between strata may be gradual. Subsurface conditions may vary between boring locations.

Soil Test Borings

Soil test borings B-1 and B-2 were performed in the field on the western side of the project site. With the exception of surficial fill at B-2, soil test borings B-1 and B-2 encountered residuum until their termination depths of 10 feet and 25 feet, respectively.

Soil test borings B-3, B-4 and B-5 were performed in proximity to existing buildings on the central portion of the project site. Soil test borings B-3, B-4 and B-5 encountered fill and alluvium to depths of 5½ to 12 feet underlain by residuum.

Soil test borings B-6 and B-7 were performed adjacent to the hotel on the (upper) northeastern portion of the project site. Soil test borings B-6 and B-7 encountered residuum from the ground surface to their termination depths of 30 feet beneath the existing ground surface. The subsurface conditions encountered by the soil test borings are summarized in the following table:

SUMMARY OF ENCOUNTERED SUBSURFACE CONDITIONS ENCOUNTERED BY SOIL TEST BORINGS (MEASURED IN FEET BELOW THE EXISTING GROUND SURFACE)			
Soil Test Boring	Fill and/or Alluvium	Residuum	Termination Depth
B-1	-	0 to 10	10
B-2	0 to 3	3 to 25	25
B-3	0 to 5½	5½ to 20	20
B-4	0 to 8	8 to 30	30
B-5	0 to 12	12 to 20	20
B-6	-	0 to 30	30
B-7	-	0 to 30	30

“-“ = material not encountered

At the time of drilling, groundwater was encountered by B-2 at 14 feet, by B-3 at 5½ feet, by B-4 at 8½ feet and by B-5 at 17 feet. Soil test borings B-3 and B-4 were left open until the end of the day and groundwater was re-measured at depths of 2 to 2½ feet beneath the existing ground surface. Immediately after the completion of drilling, B-1, B-5, B-6 and B-7 were caved and dry at depths of 3 feet, 12½ feet, 18 feet and 15½ feet, respectively. Borehole cave-in often occurs in the vicinity of the groundwater level. Ground water levels may fluctuate several feet with seasonal rainfall variations and with changes in the water level in drainage features. Normally, the highest groundwater levels occur in late winter and spring and the lowest levels occur in late summer and fall.

The fill encountered by the soil test borings consisted of very loose and loose silty sands some of which contained trace topsoil and fingerling roots. The alluvium consisted of firm to stiff sandy silts, loose clayey sands and loose silty sands. The alluvium encountered by B-4 and B-5 also contained trace fragments of rounded cobbles. The residuum consisted of soft to very stiff sandy silts, very loose to dense silty sands and partially weathered rock.

Hand Auger Borings

Hand auger borings HAB-1 and HAB-2 were performed on Frazier Street. Hand auger boring HAB-1 encountered 4¼ inches of asphalt underlain by at least 20 inches of aggregate base course materials. Hand auger boring HAB-2 encountered 4½ inches of asphalt underlain by at least 24 inches of aggregate base course materials. Hand auger borings were unable to penetrate the aggregate base course material.

PRELIMINARY CONCLUSIONS AND RECOMMENDATIONS

As noted previously, this exploration is preliminary and should be used for planning and to determine feasibility of the proposed project. However, assuming subsurface conditions encountered by the borings are representative of subsurface conditions elsewhere at the site, the following preliminary conclusions and recommendations should be applicable for this site.

Shallow Groundwater

The soil test borings performed for this exploration encountered shallow groundwater. As noted previously, groundwater was encountered by B-3 and B-4 at depths of 2 to 2½ feet beneath the existing ground surface. Additionally, B-1 was dry and caved at a depth of 3 feet which may be an indication of shallow groundwater. Shallow groundwater may be present elsewhere at the site at varying depths.

While site grading plans and building elevations have yet to be determined, we anticipate that groundwater control will be required in order to accommodate the proposed construction. Groundwater control can be accomplished by the installation of a subsurface system of French drains which capture and control groundwater to gravity flow into the site stormwater drainage system. Dewatering may also be accomplished by means of gravity ditches and pumping from gravel-lined cased sumps.

We recommend that groundwater be lowered to an elevation of at least 2 feet below the bearing elevation of proposed foundations and to an elevation of at least 4 feet below the proposed pavement surfaces. If areas containing shallow groundwater are to be raised with newly placed earthwork fills, dewatering will likely be required in order to accommodate the placement of engineered fill. In these areas, we recommend that groundwater be temporarily lowered to an elevation of at least 2 feet below the ground existing ground surface.

Existing Fill and Alluvium

The soil test borings performed for this exploration encountered existing fill and alluvium. As noted previously, existing fill and alluvium were encountered by B-2, B-3, B-4 and B-5 to depths of up to 3 to 12 feet beneath the existing ground surface. Existing fill and alluvium may be present elsewhere at the site at varying depths. The existing fill and alluvium encountered by the borings had N-values ranging from 4 to 11 blows per foot and contained some trace topsoil and fingerling roots.

While the majority of the existing fill and alluvium appears suitable to support the proposed construction, the type and consistency of these materials varies considerably. As such, we anticipate that some isolated areas of existing fill and alluvium will require remediation in order to accommodate the proposed construction.

Areas containing existing fill and alluvium which are to provide subgrade support for foundations, grade-slabs, pavements and newly placed earthwork fills may require remediation. Remediation will likely be limited to select undercutting to depths of 1 to 2 feet and replacement with engineered fill (described below in the *Engineered Fill* section of this report). However, it may be possible that additional remedial measures will be required such as additional undercutting, the installation of geogrid reinforcement or the placement of select backfill. Once project plans are more definitive, we recommend that the existing fill

and alluvium be further explored as discussed below in the *Supplemental Geotechnical Exploration* section of this report.

Foundations

While details regarding the exact location and elevation of the proposed buildings have yet to be finalized, soil test boring data indicates that the site is suitable to support the proposed buildings on shallow foundations. As noted in the preceding sections of this report, groundwater control and remediation of existing fill and alluvium will likely be required at the site. Assuming these items are addressed, foundations may be preliminarily designed for allowable soil bearing pressures of 2,000 to 3,000 psf depending on column location, load intensity, foundation depths, and locations. Based on our experience with similar soils, loading as described should produce settlements within tolerable limits for most conventional commercial buildings. At a minimum, we recommend that the minimum widths for individual column and continuous wall footings be 30 and 24 inches, respectively. The minimum widths are considered advisable to provide a margin of safety against a local or punching shear failure of the foundation soils. Additionally, footings should bear at least 36 inches below final grade to develop the recommended bearing pressures, provide frost protection, and provide protective embedment.

Floor Slabs and Pavements

Assuming the presence of shallow groundwater and the presence of exiting fill and alluvium are addressed, the on-site soils and newly placed engineered fill constructed atop the same will provide suitable subgrade support for properly designed floor slabs and pavement systems. The design of floor slabs and pavements should be based on testing of existing in-place soils or laboratory testing of proposed borrow soils which will provide direct subgrade support for the slabs and pavements. However, based on our experience on similar projects in this region, we offer the following preliminary recommendations for pavement section assuming a 15 to 20 year service life:

PRELIMINARY RECOMMENDATIONS FOR PAVEMENT SECTIONS			
Pavement Type	Layer	Material	Thickness (inches)
Flexible (Light Duty)	Surface	SF-9.5A or SF-9.5B Superpave	2.0
	Base	Aggregate Base Course	8.0
Flexible (Heavy Duty)	Surface	SF-9.5A or SF-9.5B Superpave	1.5
	Intermediate	I-19.0B Superpave	2.5
	Base	Aggregate Base Course	8.0

The asphalt surface and intermediate courses should conform to the North Carolina Department of Transportation (NCDOT) Standard Specification, Section 610, for Type SF-9.5A and I-19.0B Superpave mixtures. The base course material should be Aggregate Base Course conforming to NCDOT Standard Specification, Section 520. The base course should be compacted to at least 100 percent of the modified Proctor (ASTM D 1557) maximum dry density. Related civil design factors such as subgrade drainage, shoulder support, cross-sectional configurations, surface elevations, and environmental factors which will significantly affect the service life must be included in the preparation of the construction drawings and specifications. Normal periodic maintenance will be required.

Hand auger boring data indicates that new pavements planned along Frazier Street could be successfully constructed atop the existing pavement section with some remediation. We note that the existing pavements along Frazier Street contain isolated areas of distress which mostly appear to be associated

with the construction of underground utility lines. Once project plans are more definitive, we recommend that the existing pavements along Frazier Street be further explored as discussed below in the *Supplemental Geotechnical Exploration* section of this report.

Abandoning Existing Structures and Utilities

A number of existing site features such as buildings, pavements and sidewalks are to be demolished prior to construction. Existing utilities will also require relocation or abandonment. This work should include the removal of construction debris. Existing abandoned utilities should be removed and the resulting trenches filled with engineered fill or abandoned utilities should be plugged prior to construction. If pipes are not removed or plugged, they may serve as conduits for subsurface erosion resulting in settlement. Trench backfill over left-in-place utility lines may require densification or replacement.

Earthwork

The residual soils encountered by the soil test borings generally appear suitable for use as engineered fill. However, adjustments in moisture content may be required in order to achieve appropriate compaction. Earthwork should include proofrolling the existing soil subgrade prior to the placement of earthwork fills. Earthwork should also include proofrolling the resultant soil subgrade in the area of earthwork cuts prior to the installation of foundations, grade-slabs and pavements. Proofrolling will help identify any soft areas.

Engineered Fill

Engineered fill used for raising site grades should be uniformly compacted in thin (6-inch to 12-inch loose measure) lifts to at least 95 percent of the standard Proctor maximum dry density (ASTM D-698) and within 3 percent of optimum moisture content. In general, soils with a unit weight of less than 95 pcf and having a Plasticity Index (PI) greater than 30 (less than 15 is preferable) and should not be used for engineered fill. Borrow materials should be free of concentrated organics and organic debris.

Before filling operations begin, representative samples of each proposed fill material should be collected and tested to determine the compaction and classification characteristics and to verify its suitability for use as engineered fill. The maximum dry density and optimum moisture content should be determined. Once compaction begins, a sufficient number of density tests should be performed by an engineering technician working under the direction of the geotechnical engineer to measure the degree of compaction being obtained.

Retaining Walls (if planned)

Detailed grading plans have not yet been developed for this site. However, we anticipate that site retaining walls may be utilized to accommodate finished grades along the upper, northeastern portion of the site. The design of site retaining walls constructed on sloping sites is often governed by global stability. Sloping conditions and global stability should be considered during retaining wall design.

The following soil parameters are recommended for use in developing preliminary lateral earth pressures for retaining wall feasibility evaluation. For walls retaining undisturbed residuum, we recommend an angle of internal friction value of 30 degrees, a cohesion value of zero psf, and a soil unit weight of 120 pcf be utilized to develop preliminary lateral earth pressures. Depending on final site grading plans, it may be necessary to collect undisturbed field samples and perform triaxial shear laboratory testing in order to determine soil strength parameters for final design purposes.

Provision for drainage of water which collects behind retaining structures should be provided. The drainage system should have sufficient capacity to prevent the buildup of excess hydrostatic head behind retaining walls. The drainage system should incorporate appropriately graded sand and aggregate material or geotextile fabric to prevent the loss of fines which could be transported in the drainage system. Drain cleanouts should be provided.

Slopes

Confined excavations such as for utility installation should conform to OSHA regulations. Our experience suggests that permanent cut and fill slopes placed on a suitable foundation should be constructed at 2H:1V (Horizontal:Vertical) or flatter. Fill slopes should be adequately compacted. Cut and fill slope surfaces should be protected from erosion by grassing or other means. Permanent slopes of 3H:1V or flatter may be desirable for mowing.

Seismic Site Classification

As previously noted, building locations have not been provided at this time. However, based on the definitions of the North Carolina State Building Code and our experience in this area, the soil boring data gathered during this preliminary geotechnical exploration indicate this site will have a seismic site classification of "D." Seismic site classification for proposed structures should be determined after building locations have been finalized.

Additional Geotechnical Evaluation

This exploration is preliminary in nature and should be used for general site planning and feasibility evaluation only. Further exploration and evaluation will be required prior to design of the foundations, grade slabs and pavements. The scope of additional geotechnical work will depend on the proposed building locations, finished floor elevations, actual loading conditions, pavement plans along Frazer Street, etc. Additional subsurface exploration and evaluation would likely require additional borings, test pits, pavement analysis and laboratory testing. Once the project plans are more definite we will be pleased to discuss more specifically requirements of the next phase of the geotechnical exploration.

BASIS OF RECOMMENDATIONS


Our evaluation of the general foundation support conditions for this preliminary geotechnical exploration has been based on our understanding of the project information and the data obtained in our field exploration. The general subsurface conditions utilized in our evaluation of foundations are based on interpolation of subsurface data between the widely spaced borings. In evaluating the data obtained in this preliminary geotechnical exploration, we have examined previous correlations between penetration resistances and foundation bearing pressures observed in soil conditions similar to those at the site.

We appreciate the opportunity to offer our professional services on this project. If you have any questions concerning this report, please do not hesitate to contact us. We hope that you will give KEG consideration to providing additional geotechnical and construction materials testing services as this project enters the next phase.

Sincerely,

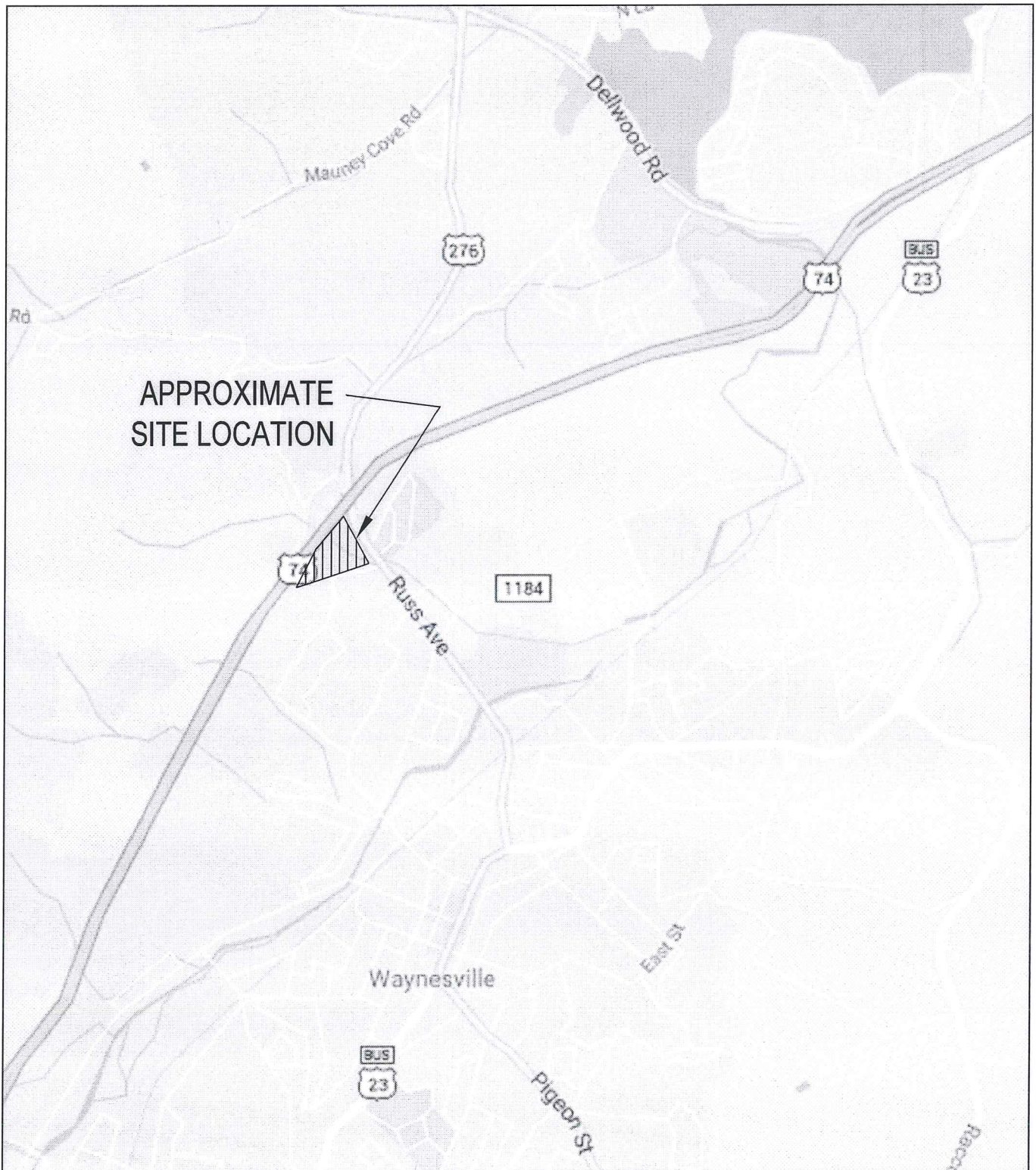
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Courtney A. King
Senior Engineer
Registered, North Carolina


Bernie Kessel, P.E.
Principal Engineer
Registered, North Carolina 21108

Attachments: Site Location Plan (Figure 1)
Field Exploration Plan (Figure 2)
Soil Test Borings Logs (B-1, B-2, B-3, B-4, B-5, B-6 and B-7)
Hand Auger Boring Logs (HAB-1 and HAB-2)
Key to Soil Classifications and Consistency Descriptions

Distribution: Mr. Don Warren of PM Environmental, Inc.; via email to warren@pmenv.com



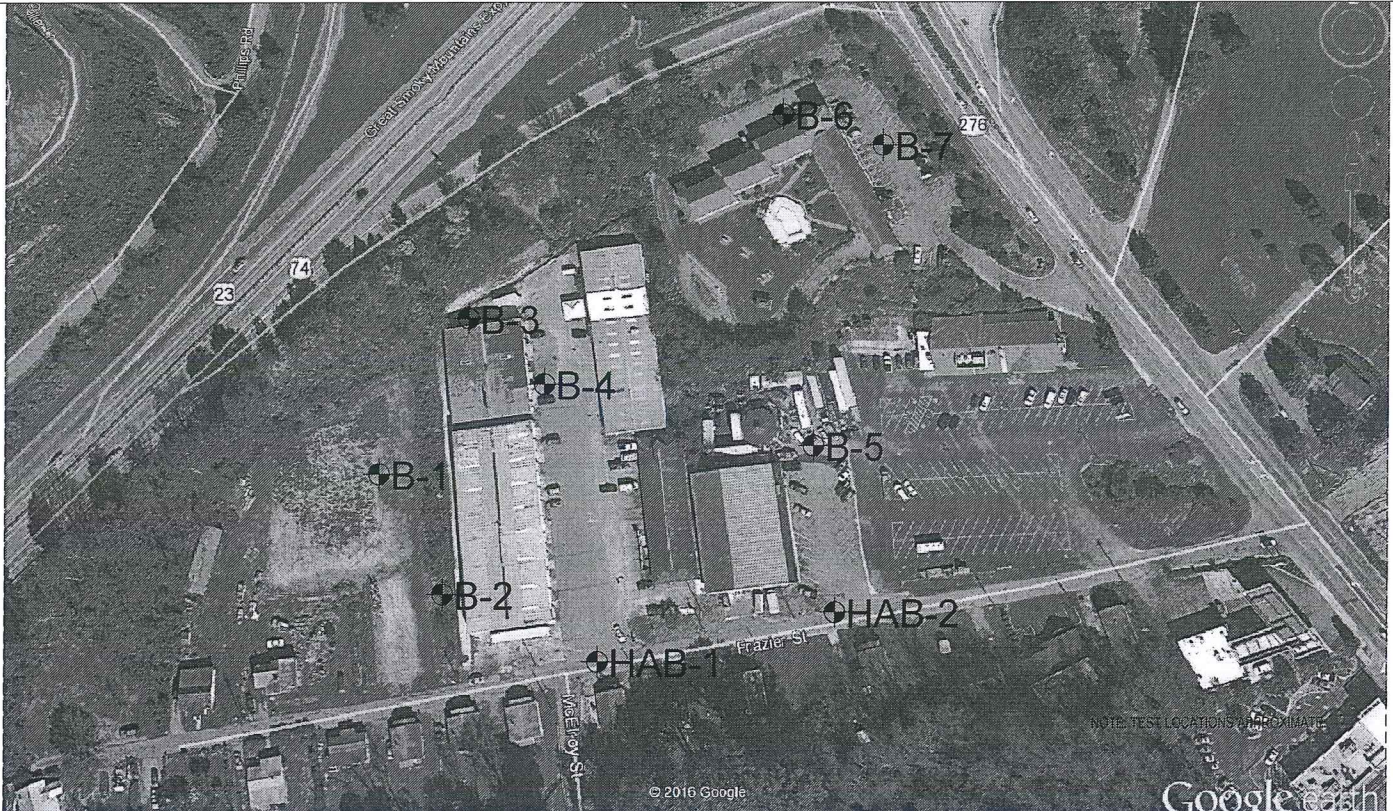
SITE LOCATION PLAN
 PROJECT NO. JA16-3085-01
 DATE: 08-09-2016

WAYNESVILLE RETAIL SHOPPING CENTER
 WAYNESVILLE, NORTH CAROLINA

FIGURE
1

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WAYNESVILLE RETAIL SHOPPING CENTER
 WAYNESVILLE, NORTH CAROLINA
 KEG PROJECT NO: JA16-3085-01

FIELD EXPLORATION PLAN DATE: 08-09-2016
 REFERENCE: Waynesville NC Parcel Map with Proposed Geo Borings - Revised
 2016-07-18.

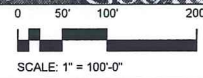
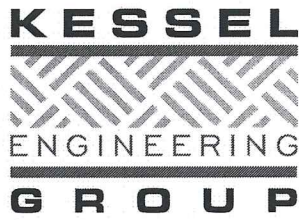


FIGURE
 2

KESSEL ENGINEERING GROUP
 582 HENDERSONVILLE ROAD SUITE ONE | ASHEVILLE NC 28603 | P:(828) 277-6351 | F:(828) 277-6355
 WWW.THEKESSELGROUP.COM

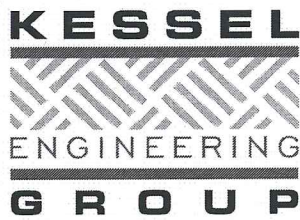


SOIL TEST BORING NO. B-1

PROJECT: Waynesville Retail Shopping Center PROJECT NO.: JA16-3085-01
 CLIENT: PM Environmental, Inc. DATE START: 7-24-16 END: 7-24-16
 LOCATION: See Figure 1 ELEVATION: 2715 (feet)
 DRILLER: Jordan Environmental LOGGED BY: C. King
 DRILLING METHOD: Hollow Stem Auger
 DEPTH TO - WATER> INITIAL: ∇ AFTER 24 HOURS: ∇ CAVING> 3 ft

ELEVATION/ DEPTH (FT)	DESCRIPTION	SOIL TYPE	SAMPLES	STANDARD PENETRATION RESULTS BLOWS/FOOT									
				2	5	10	20	30	40	50	70	90	
2710	Grass and Fingerling Roots Stiff and Very Stiff, Red, Reddish Orange and Gray, Slightly Clayey, Sandy SILT (Residuum)		4	N = 12									
			5										
			7										
5	Loose to Firm, Reddish Orange and Brown, Micaceous, Silty, Fine to Medium SAND		3	N = 20									
			6										
			14										
2705	Boring terminated at 10.0 feet. No groundwater encountered at time of boring. Borehole dry and caved at 3 feet at time of boring.		3	N = 9									
			4										
			5										
10			4	N = 16									
			7										
			9										
15													
20													
25													
30													

SOIL TEST BORING REVISED 3085-01 WAYNESVILLE RETAIL SHOPPING CENTER.GPJ KESSEL GROUP.GDT 8/2/16

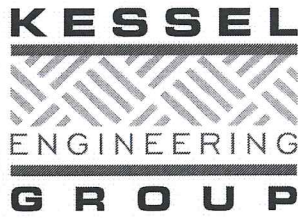


SOIL TEST BORING NO. B-2

PROJECT: Waynesville Retail Shopping Center PROJECT NO.: JA16-3085-01
 CLIENT: PM Environmental, Inc. DATE START: 7-24-16 END: 7-24-16
 LOCATION: See Figure 1 ELEVATION: 2710 (feet)
 DRILLER: Jordan Environmental LOGGED BY: C. King
 DRILLING METHOD: Hollow Stem Auger
 DEPTH TO - WATER> INITIAL: ∇ 14 ft AFTER 24 HOURS: ∇ _____ CAVING>

ELEVATION/ DEPTH (FT)	DESCRIPTION	SOIL TYPE	SAMPLES	STANDARD PENETRATION RESULTS BLOWS/FOOT																
				2	5	10	20	30	40	50	70	90								
2705 5	Grass and Fingerling Roots Loose, Brown and Gray, Silty, Fine SAND with Trace Topsoil (Fill)		4 5 6	N = 11			●													
	Stiff, Brown and Gray, Sandy SILT (Residuum)		5 6 7	N = 13				●												
	Firm to Soft, Tan and Gray, Moist, Micaceous, Sandy SILT		7 7 2	N = 9			●													
2700 10			1 2 4	N = 6			●													
	Loose, Brown, Tan and White, Wet, Micaceous, Silty, Fine SAND		1 2 4	N = 6			●													
2695 15			3 3 6	N = 9			●													
	Firm, Brown and White, Wet, Very Micaceous, Silty, Fine SAND		5 7 12	N = 19				●												
2685 25	Boring terminated at 25.0 feet. Groundwater encountered at 14 feet at time of boring.																			
2680 30																				

SOIL TEST BORING REVISED 3085-01 WAYNESVILLE RETAIL SHOPPING CENTER.GPJ KESSEL GROUP.GDT 8/2/16

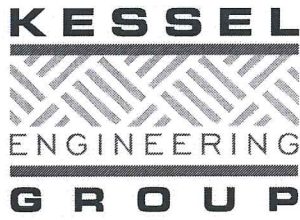


SOIL TEST BORING NO. B-3

PROJECT: Waynesville Retail Shopping Center PROJECT NO.: JA16-3085-01
 CLIENT: PM Environmental, Inc. DATE START: 7-24-16 END: 7-24-16
 LOCATION: See Figure 1 ELEVATION: 2710 (feet)
 DRILLER: Jordan Environmental LOGGED BY: C. King
 DRILLING METHOD: Hollow Stem Auger
 DEPTH TO - WATER> INITIAL: ▽ 5.5 ft AFTER 6 HOURS: ▽ 2 ft CAVING>

ELEVATION/ DEPTH (FT)	DESCRIPTION	SOIL TYPE	SAMPLES	STANDARD PENETRATION RESULTS BLOWS/FOOT																
				2	5	10	20	30	40	50	70	90								
2705	Grass and Fingerling Roots Very Loose, Brown, Slightly Micaceous, Silty, Fine to Medium SAND (Fill)		2 2 2	N = 4	●															
2705	Loose, Brown and Gray, Slightly Micaceous, Silty, Fine SAND with Trace Fingerling Roots (Fill or Alluvium)		4 2 3	N = 5	●															
2700	Loose to Firm, Brown, White and Tan, Wet, Very Micaceous, Silty, Fine to Coarse SAND (Residuum)		3 4 5	N = 9	●															
2700			2 2 3	N = 5	●															
2695			4 9 7	N = 16	●															
2690	Boring terminated at 20.0 feet. Groundwater encountered at 5.5 feet at time of boring and 2 feet 6 hours after drilling.		4 5 8	N = 13	●															
2685																				
2680																				

SOIL TEST BORING REVISED 3085-01 WAYNESVILLE RETAIL SHOPPING CENTER.GPJ KESSEL GROUP.GDT 8/2/16

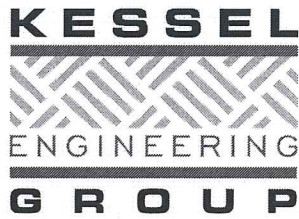


SOIL TEST BORING NO. B-4

PROJECT: Waynesville Retail Shopping Center PROJECT NO.: JA16-3085-01
 CLIENT: PM Environmental, Inc. DATE START: 7-24-16 END: 7-24-16
 LOCATION: See Figure 1 ELEVATION: 2710 (feet)
 DRILLER: Jordan Environmental LOGGED BY: C. King
 DRILLING METHOD: Hollow Stem Auger
 DEPTH TO - WATER> INITIAL: ∇ 8.5 ft AFTER 5 HOURS: ∇ 2.5 ft CAVING>

ELEVATION/ DEPTH (FT)	DESCRIPTION	SOIL TYPE	SAMPLES	STANDARD PENETRATION RESULTS BLOWS/FOOT																
				2	5	10	20	30	40	50	70	90								
	ASPHALT																			
	STONE BASE																			
	Loose, Orange and White, Slightly Micaceous, Silty, Fine SAND (Fill)		2 4 4	N = 8																
2705	Stiff, Brown and Gray, Wet, Sandy SILT (Alluvium)		8 8 6	N = 14																
	Firm, Brown, Wet, Sandy SILT with Fragments of Rounded Cobbles (Alluvium)		3 3 3	N = 6																
2700	Firm, Gray and Brown, Wet, Micaceous, Sandy SILT (Residuum)		2 3 2	N = 5																
	Loose, Brown and Gray, Wet, Very Micaceous, Silty, Fine to Medium SAND		3 3 3	N = 6																
2695			3 3 5	N = 8																
2690			3 3 5	N = 8																
2685			4 3 6	N = 9																
2680	Boring terminated at 30.0 feet. Groundwater encountered at 8.5 feet at time of boring and 2.5 feet 5 hours after drilling.																			

SOIL TEST BORING REVISED 3085-01 WAYNESVILLE RETAIL SHOPPING CENTER.GPJ KESSEL GROUP.GDT 8/2/16

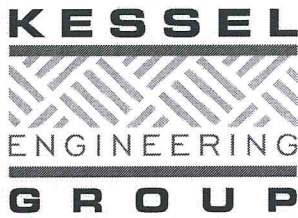


SOIL TEST BORING NO. B-5

PROJECT: Waynesville Retail Shopping Center PROJECT NO.: JA16-3085-01
 CLIENT: PM Environmental, Inc. DATE START: 7-24-16 END: 7-24-16
 LOCATION: See Figure 1 ELEVATION: 2695 (feet)
 DRILLER: Jordan Environmental LOGGED BY: C. King
 DRILLING METHOD: Hollow Stem Auger
 DEPTH TO - WATER> INITIAL: ▽ 17 ft AFTER 24 HOURS: ▽ _____ CAVING> 12.5 ft

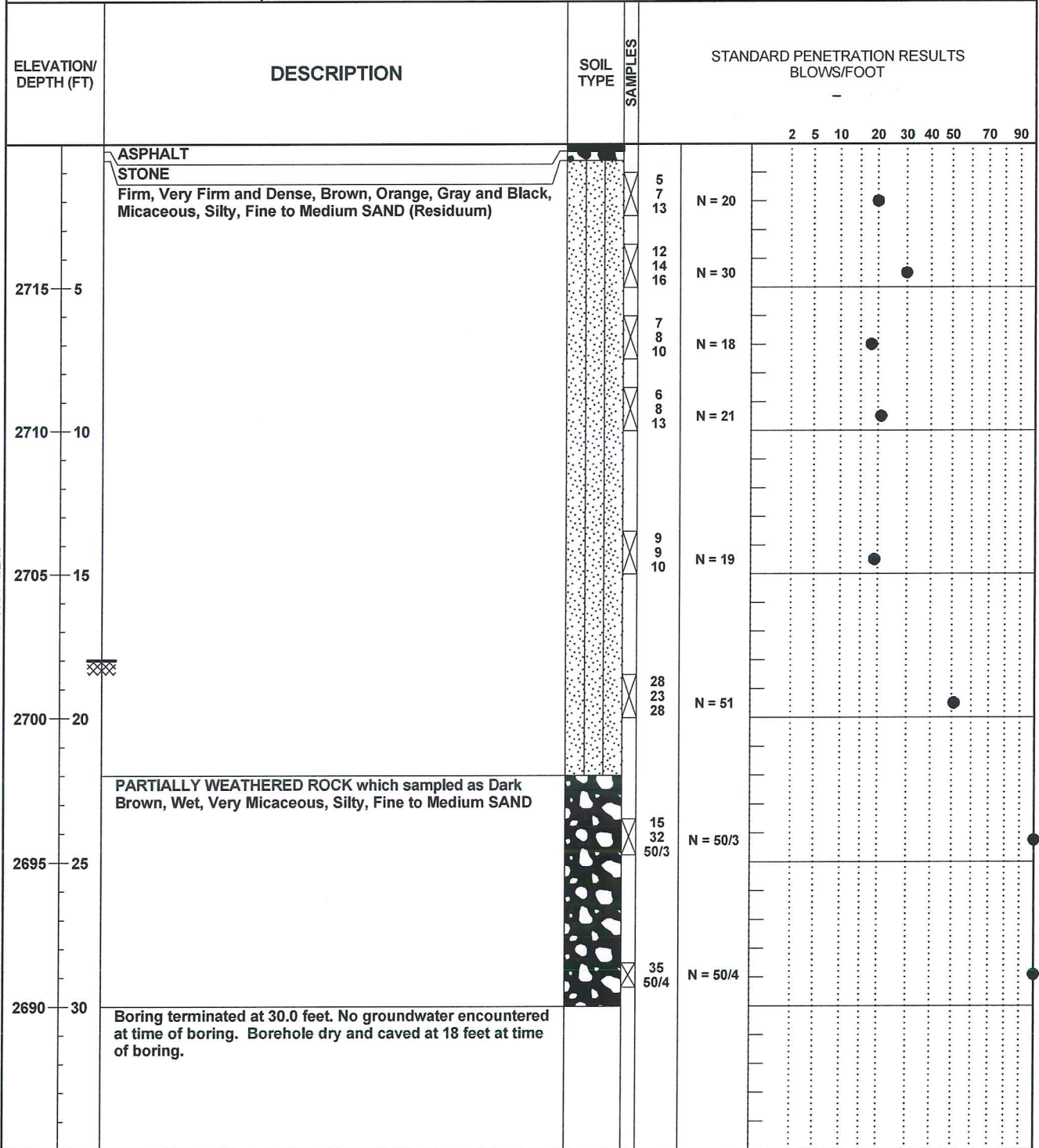
ELEVATION/ DEPTH (FT)	DESCRIPTION	SOIL TYPE	SAMPLES	STANDARD PENETRATION RESULTS BLOWS/FOOT								
				2	5	10	20	30	40	50	70	90
2690 - 5	GRAVEL		3 4 4	N = 8								
	Loose, Brown, Micaceous, Silty, Fine to Medium SAND (Fill)											
	Loose, Brown, Micaceous, Silty, Fine to Medium SAND with Trace Topsoil and Fingerling Roots (Fill)											
2685 - 10	Loose, Gray, Clayey SAND with Trace Fragments of Rounded Cobbles (Alluvium)		5 5 4	N = 9								
	Very Loose, Gray, Brown and White, Wet, Micaceous, Silty SAND (Residuum)											
2680 - 15	Loose, Gray, Brown and White, Wet, Micaceous, Silty SAND (Residuum)		2 2 2	N = 4								
	Loose, Gray, Brown and White, Wet, Micaceous, Silty SAND (Residuum)											
2675 - 20	Boring terminated at 20.0 feet. Groundwater encountered at 17 feet at time of boring. Borehole dry and caved at 12.5 feet at time of boring.		2 3 5	N = 8								
2670 - 25												
2665 - 30												

SOIL TEST BORING REVISED 3085-01 WAYNESVILLE RETAIL SHOPPING CENTER.GPJ KESSEL GROUP.GDT 8/2/16

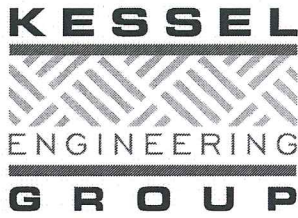


SOIL TEST BORING NO. B-6

PROJECT: Waynesville Retail Shopping Center PROJECT NO.: JA16-3085-01
 CLIENT: PM Environmental, Inc. DATE START: 7-24-16 END: 7-24-16
 LOCATION: See Figure 1 ELEVATION: 2720 (feet)
 DRILLER: Jordan Environmental LOGGED BY: C. King
 DRILLING METHOD: Hollow Stem Auger
 DEPTH TO - WATER> INITIAL: ∇ AFTER 24 HOURS: ∇ CAVING> 18 ft



SOIL TEST BORING REVISED 3085-01 WAYNESVILLE RETAIL SHOPPING CENTER.GPJ KESSEL GROUP.GDT 8/2/16

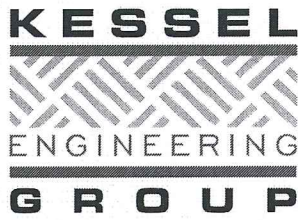


SOIL TEST BORING NO. B-7

PROJECT: Waynesville Retail Shopping Center PROJECT NO.: JA16-3085-01
 CLIENT: PM Environmental, Inc. DATE START: 7-24-16 END: 7-24-16
 LOCATION: See Figure 1 ELEVATION: 2720 (feet)
 DRILLER: Jordan Environmental LOGGED BY: C. King
 DRILLING METHOD: Hollow Stem Auger
 DEPTH TO - WATER> INITIAL: ∇ AFTER 24 HOURS: ∇ CAVING> 15.5 ft


ELEVATION/ DEPTH (FT)	DESCRIPTION	SOIL TYPE	SAMPLES	STANDARD PENETRATION RESULTS BLOWS/FOOT														
				2	5	10	20	30	40	50	70	90						
	ASPHALT STONE																	
	Very Firm, Tan and Brown, Micaceous, Silty, Fine to Medium SAND (Residuum)		7 10 12	N = 22														
2715	5		7 9 16	N = 25														
			4 5 13	N = 18														
2710	10		11 11 13	N = 24														
	Very Firm, Dark Brown, Orange and White, Very Micaceous, Silty, Fine to Coarse SAND		9 12 16	N = 28														
2705	15		5 9 13	N = 22														
2700	20		8 10 15	N = 25														
2695	25		12 16 27	N = 43														
2690	30																	
	Boring terminated at 30.0 feet. No groundwater encountered at time of boring. Borehole dry and caved at 15.5 feet at time of boring.																	

SOIL TEST BORING REVISED 3085-01 WAYNESVILLE RETAIL SHOPPING CENTER.GPJ KESSEL GROUP.GDT 8/2/16



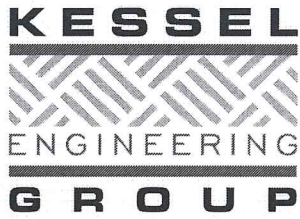
HAND AUGER BORING NO. HAB-1

PROJECT: Waynesville Retail Shopping Center PROJECT NO.: JA16-3085-01
 CLIENT: PM Environmental, Inc. DATE START: 7-26-16 END: 7-26-16
 LOCATION: See Figure 1 ELEVATION: 2705 (feet)
 PERFORMED BY: KEG Representatives LOGGED BY: L. Barnhill
 DRILLING EQUIPMENT: Hand Auger
 DEPTH TO - WATER> INITIAL: ∇ AFTER 24 HOURS: ∇ CAVING> ⊗

ELEVATION/ DEPTH (FT)	DESCRIPTION	SOIL TYPE	SAMPLES
2704	4.25 Inches ASPHALT		
2702	20-Inches AGGREGATE BASE COURSE		
2	Hand auger refusal encountered at 2.1 feet. No groundwater encountered at time of boring.		

HAND AUGER BORING 3085-01 WAYNESVILLE RETAIL SHOPPING CENTER.GPJ KESSEL GROUP.GDT 8/4/16

Below a depth of 12 inches hole was explored by pry bar and hammer. HAND AUGER BORING NO. HAB-1
Sheet 1 of 1



HAND AUGER BORING NO. HAB-2

PROJECT: Waynesville Retail Shopping Center PROJECT NO.: JA16-3085-01
 CLIENT: PM Environmental, Inc. DATE START: 7-26-16 END: 7-26-16
 LOCATION: See Figure 1 ELEVATION: 2690 (feet)
 PERFORMED BY: KEG Representatives LOGGED BY: L. Barnhill
 DRILLING EQUIPMENT: Hand Auger
 DEPTH TO - WATER> INITIAL: ∇ AFTER 24 HOURS: ∇ CAVING> ☒

ELEVATION/ DEPTH (FT)	DESCRIPTION	SOIL TYPE	SAMPLES
<div style="display: flex; flex-direction: column; align-items: center;"> <div style="margin-bottom: 10px;">2688 — 2</div> <div style="margin-bottom: 10px;">2686 — 4</div> <div style="margin-bottom: 10px;">2684 — 6</div> <div style="margin-bottom: 10px;">2682 — 8</div> <div style="margin-bottom: 10px;">2680 — 10</div> <div style="margin-bottom: 10px;">2678 — 12</div> </div>	<p>4.5 Inches ASPHALT</p> <hr/> <p>24-Inches AGGREGATE BASE COURSE</p> <hr/> <p>Hand auger refusal encountered at 2.5 feet. No groundwater encountered at time of boring.</p>		

HAND AUGER BORING - 3085-01 WAYNESVILLE RETAIL SHOPPING CENTER.GPJ KESSEL GROUP.GDT 8/4/16

Below a depth of 12 inches hole was explored by pry bar and hammer.

KEY TO SOIL CLASSIFICATIONS AND CONSISTENCY DESCRIPTIONS

**Penetration Resistance*
Blows per Foot**

0 to 4
5 to 10
11 to 20
21 to 30
31 to 50
over 50

SANDS

**Relative
Density**

Very Loose
Loose
Firm
Very Firm
Dense
Very Dense

Particle Size Identification

Boulder: Greater than 300 mm
Cobble: 75 to 300 mm
Gravel:
Coarse - 19 to 75 mm
Fine - 4.75 to 19 mm
Sand:
Coarse - 2 to 75 mm
Medium - 0.425 to 2 mm
Fine - 0.075 to 0.425 mm
Silt & Clay: Less than 0.075 mm

**Penetration Resistance*
Blows per Foot**

0 to 2
3 to 4
5 to 8
9 to 15
16 to 30
31 to 50
over 50

SILTS and CLAYS

Consistency

Very Soft
Soft
Firm
Stiff
Very Stiff
Hard
Very Hard

* ASTM D 1586

KEY TO DRILLING SYMBOLS



Grab Sample



Split Spoon Sample



Undisturbed Sample



Groundwater Table at Time of Drilling



Groundwater Table 24 Hours after Completion of Drilling

KEY TO SOIL CLASSIFICATIONS



Well-graded Gravel
GW



Low Plasticity Clay
CL



Clayey Silt
MH



Silty Sand
SM



Poorly-graded Gravel
GP



Sandy Clay
CLS



Sandy Silt
MLS



Topsoil
TOPSOIL



Partially Weathered
Rock
BLDRCBBL



Silty Clay
CL-ML



Sand
SW



Bedrock
BEDROCK



High Plasticity Clay
CH



Silt
ML



Clayey Sand
SC



Concrete
AS

From: Andy Alexander [mailto:Andy.Alexander@blecorp.com]
Sent: Friday, December 01, 2017 1:39 PM
To: David Francis <DBFrancis@haywoodnc.net>
Cc: Sam Interlicchia <Sam.Interlicchia@blecorp.com>; Jesse Jacobson <Jesse.Jacobson@blecorp.com>; Cathey, Mark (McGill) <mark.cathey@mcgillengineers.com>; scott.burwell@mcgillengineers.com
Subject: Jonathan Creek Project BLE CMT Services Contract

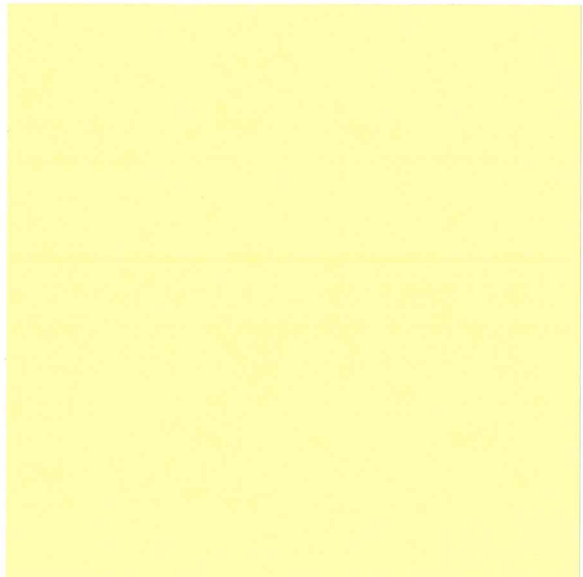
Hello David,

Thanks for your call a little while ago. I also called Scott. We are all on the same page, geotechnical, etc.

Understand that the project trajectory is a bit dynamic at the moment. I have issued the BLE contact for CMT services (attached) as we discussed. We can make changes if needed before your meeting on Tuesday.

Thanks, --Andy

Andrew W. Alexander, P.G., RSM
Bunnell-Lammons Engineering, Inc. (BLE)
6004 Ponders Court
Greenville, South Carolina 29615
(864) 288-1265 (voice)
(864) 288-4430 (fax)
(864) 201-5530 (cell)
andy@blecorp.com
www.blecorp.com



This electronic transmission contains information from the consulting firm of Bunnell-Lammons Engineering, Inc., that may be confidential or



BUNNELL-LAMMONS ENGINEERING, INC.
GEOTECHNICAL, ENVIRONMENTAL AND CONSTRUCTION MATERIALS CONSULTANTS

December 1, 2017

Office of the County Manager
215 N. Main Street
Waynesville, NC 28786

Attention: Mr. David B. Francis
Program Administrator

Subject: **Contract for Construction Materials Testing Services**
Jonathan Creek Soil Reclamation Project
Haywood County, North Carolina
BLE Contract Number P17-1060

Dear Mr. Francis:

Bunnell-Lammons Engineering, Inc. (BLE) is pleased to submit this contract to Haywood County to provide construction material testing services for the subject project. The following sections describe the construction materials testing services that we are able to perform at your request; as well as compensation, scheduling, and authorization information. Project information is based on a correspondence with McGill Associates personnel and a review of the provided project plans.

PROJECT INFORMATION

We understand that Haywood County will obtain excess soil from the proposed Publix retail store site located in Waynesville, North Carolina. Based on our correspondence, 25,000 to 35,000 cubic yards of excess soil will be removed from the site. The excess soil will be hauled to the subject site and a grading contractor hired by Haywood County will be responsible for spreading and compacting the imported soil to the proposed subgrade elevation.

We understand that you would like BLE to perform engineering observations and testing during the proposed grading activities. We also understand that the project has a 60-day duration.

SCOPE OF SERVICES

We understand the general scope of work will include construction materials testing and inspection services, including site preparation, proofrolling observations, soil density testing and, geotechnical engineering consulting during the project. Our scope of services is based on periodic, on-call testing and observation. The following reporting and testing services are expected to be needed on this project during their phase of construction:



Site Reconnaissance / Soil Compaction

- Perform an initial site reconnaissance to evaluate and collect potential borrow soils prior to the commencement of grading activities.
- Provide geotechnical engineering consulting services for various geotechnical related issues as they arise during the project.
- Observe the exposed subgrade soils once the existing topsoil/root mat is removed to locate any areas which may be soft and require additional excavation and/or rework.
- Conduct laboratory compaction tests on representative fill soils in accordance with ASTM D 698 and the project specifications.
- Conduct field density tests to measure the percent compaction.
- Report daily soils testing and observations activities to your representative.

Our team is committed to meeting our client's requirements and assisting in successful project completion. An integral aspect of successful project completion is timely and accurate communication. It is our policy to keep both the owners' representative and contractor apprised of all test results. To accomplish this scope of services, we will assign Mr. Sam C. Interlicchia to direct BLE's work on the project. He will provide properly trained personnel as requested by your representative, and will review the daily observations, test results and reports prepared by our engineering technicians.

COMPENSATION AND SCHEDULING

Based on our correspondence, we understand that the duration of the grading activities is scheduled to last 60 days. However, based on our experience with similar projects, the grading activities that would involve BLE's proposed scope of services is anticipated to last approximately 40 days. Based on this anticipated time, BLE estimates the fees to provide the scope of services outlined above to be approximately **\$14,799** as indicated on the attached **Budget Estimate** worksheet. Costs associated with construction materials testing are dependent on, among other things, the contractor's schedule, the quantity of materials, the weather and the owner's intentions. As such, our total fees may vary from the estimate depending on the actual working schedule. Itemized fees for services are shown on the attached fee schedule. Items not reported on this estimate can be quoted separately upon request.

Please keep in mind that we only intend to bill for the actual time and equipment used on the project based on the attached fee schedule.

We will provide BLE personnel for this project at the request of your representative. We request 24 hours' notice prior to providing on-call personnel to enable us to schedule the work efficiently. We also request a full set of the project plans and specifications so that we can provide services that are responsive to the project requirements and so that we will have reference for reporting the locations and elevations of our field-testing.



Contract for Construction Materials Testing Services
Jonathan Creek Soil Reclamation Project, Haywood County, North Carolina

December 1, 2017
BLE Contract Number P17-1060


AUTHORIZATION

As our written authorization for the above scope of services, please execute the attached acceptance sheet and return the acceptance copy of this contract to BLE.

Any exceptions to this contract or special requirements not covered in the contract should be attached to the returned acceptance copy for the mutual consideration of both parties. Please note that the Terms and Conditions are a part of this contract. Any Purchase Order issued to authorize this project should reference this document (P17-1060).

We appreciate the opportunity to serve as your geotechnical consultant at this site. If you have any questions, please do not hesitate contacting us at (828) 277-0100.

Sincerely,
BUNNELL-LAMMONS ENGINEERING, INC.


Jesse R. Jacobson, P.E.
Asheville Branch Manager


Sam C. Interlicchia
Project Manager

CC: Mr. Mark Cathey, P.E. -- McGill Associates, PA

Attachments: Budget Estimate
Fee Schedule
Contract Terms and Conditions

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Jonathan Creek Soil Reclamation Project
Waynesville, North Carolina
Construction Material Testing Budget Estimate
P17-1060
December 1, 2017

I. Part Time Senior Technician:

1. Engineering Technician I (regular time)	\$57.00 /hr x	4 hrs/day x	40 days	=\$	9,120.00
2. Mileage	\$0.68 / mile x	40 miles x	40 trips	=\$	1,088.00
3. Expendable Supplies	\$10.00 /day x	40 days	=\$	400.00	
					Subtotal \$	10,608.00

II. Laboratory Testing:

1. Standard Proctor	\$100.00 /Proctor x	6 Proctors	=\$	600.00	
					Subtotal \$	600.00

III. Project Management and Reporting:

1. Staff Manager	\$103.00 /hr x	24 hrs	=\$	2,472.00	
2. Senior Engineer	\$139.00 /hr x	5 hrs	=\$	695.00	
3. Admin Support	\$53.00 /hr x	8 hrs	=\$	424.00	
					Subtotal \$	3,591.00

Total \$ 14,799.00

Notes:

1. Cost estimate is based on the units assumed above. Invoicing will occur on a time and materials basis.
2. Estimate may be re-evaluated if detailed construction schedule is provided or if the scope is altered
3. Cost estimate is defined as work performed on Monday through Friday with no overtime or work on weekends, holidays, or night work.

FEE SCHEDULE

2017 Schedule of Fees
Bunnell-Lammons Engineering, Inc.

Personnel	Hourly Rate
Engineering/Environmental Technician I.....	\$57.00
Engineering/Environmental Technician II.....	\$63.00
Engineering/Environmental Technician III	\$69.00
Staff Engineer/Geologist/Scientist/Manager	\$103.00
Project Engineer/Geologist/Scientist/Manager.....	\$127.00
Senior Engineer/Geologist/Scientist/Manager.....	\$139.00
Chief Engineer/Geologist/Scientist.....	\$162.00
Principal Engineer/Geologist/Scientist	\$175.00
Administrative Support.....	\$53.00
Drafting.....	\$66.00

Expense and Subcontract	Rate
Mileage	\$0.68 per mile*
Truck/Equipment charge, per visit.....	\$10.00
Miscellaneous Expenses (shipping, printing, consumable supplies, etc.)	Cost plus 15%
Standard Proctor Compaction Test (ASTM D-698), each.....	\$100.00
Modified Proctor Compaction Test (ASTM D-1557), each	\$115.00
Compressive Strength of Cylinders (ASTM C-39), each	\$9.00
Compressive Strength of Masonry Mortar Cubes, each	\$10.00
Compressive Strength of Masonry Grout Prisms, each.....	\$15.00
Nuclear Gauge, per day	\$20.00
Water Level Meter, per day	\$25.00
Turbidity Meter, per day	\$35.00
pH Test Equipment / Supplies, per day	\$25.00
Conductivity / Temperature Probe, per day.....	\$25.00
Product Interface Probe, per day.....	\$50.00
Organic Meter (PID or FID), per day	\$100.00

*Subcontracts (drilling, laboratory and analysis, etc.).....Cost plus 15%

*Unit rates for items not listed will be billed on a per project basis.

*Mileage charges may be adjusted based on fuel costs.

The hourly rates for technicians and engineers apply for all time for testing and observations as well as all travel, loadup, and report time. Charges will be based on the position level of the individual performing the services and apply to BLE Employees and subcontract personnel.

Overtime is defined as all time over 8 hours per day and time on Saturdays, Sundays, holidays, or night work.

**ACCEPTANCE SHEET WITH
TERMS AND CONDITIONS**



BUNNELL-LAMMONS ENGINEERING, INC.

6004 Ponders Court
Greenville, South Carolina 29615

Phone (864) 288-1265
Fax (864) 288-4430

ACCEPTANCE SHEET

The purpose of this sheet is to obtain your written authorization for our services and confirm the terms and conditions under which these services are provided as shown below.

Compensation for services rendered will be based on the attached schedule of fees (or as otherwise indicated below) which are part of this work authorization. If we are requested to modify the scope of work at your request or determine during the execution of the work that a modification of scope is required, we will promptly seek and confirm in writing a mutually agreeable revision of the scope of work and associated charges. All testing will be performed in accordance with the applicable specifications unless otherwise noted and test results apply only to the materials actually tested.

Project Name and Proposal Number: Contract for Construction Materials Testing Services
BLE Contract No. P17-1060

Project Location: Jonathan Creek Soil Reclamation Project
Haywood County, North Carolina

FOR PAYMENT OF CHARGES: (to the account of)

Firm: _____ Attention: _____

Address: _____

City, State: _____ Zip Code: _____ Phone Number: _____

Fax Number: _____

WORK AUTHORIZED BY:

Signature _____ Date _____

Print Name and Title - *Signatory warrants his/her authority to bind the entity represented here.*

Company Name _____

Address _____

City _____ State _____ Zip Code _____

SPECIAL INSTRUCTIONS: _____



TERMS AND CONDITIONS

WHEREAS, CLIENT is seeking engineering and/or environmental or other consulting services in regards to services associated with a property or properties ("Subject Property") and/or services associated with a specific activity or activities; and Bunnell-Lammons Engineering, Inc., (hereinafter "BLE") is an independent consultant. Therefore, CLIENT and BLE (collectively, the "Parties") agree as follows (the "Agreement").

1. SERVICES TO BE PROVIDED. BLE through and by its officers, employees and subcontractors, is an independent consultant and agrees to provide Client, for its sole benefit and exclusive use, consulting services set forth in BLE's proposal. No third party beneficiaries are intended by this agreement.

2. PAYMENT TERMS. Client agrees to pay BLE's invoice upon receipt. If payment is not received within 30 days from the Client's receipt of invoice, Client agrees to pay a service charge on the past due amount at the greater of 1.5% per month or the allowable legal rate, including attorney's fees and expenses if BLE's fee is collected through an attorney. No deduction shall be made from invoice on account of liquidated damages unless expressly included in the Agreement. BLE may suspend services until paid on any project where payment of invoiced amounts not reasonably in dispute is not received by BLE within 60 days of Client's receipt of BLE's invoice. Invoices will be sent approximately monthly for the services performed.

3. STANDARD OF CARE. BLE will perform its services using that degree of care and skill ordinarily exercised under similar conditions by reputable members of BLE's profession practicing in the same or similar locality at the time of service. NO OTHER WARRANTY, EXPRESS OR IMPLIED, IS MADE OR INTENDED BY BLE'S PROPOSAL OR BY BLE'S ORAL OR WRITTEN REPORTS. Nothing in this agreement or in the services provided by BLE is intended to create, nor shall it be construed to create a fiduciary relationship owed by either party to one another.

4. INSURANCE. BLE maintains insurance coverage as follows:

- a. Worker's Compensation Insurance.
- b. Employers Liability Insurance.
- c. Commercial General Liability Insurance.
- d. Professional Errors and Omission.

Certificates of Insurance can be provided upon acceptance of this agreement and upon request.

5. PROFESSIONAL LIABILITY. FOR ADDITIONAL CONSIDERATION FROM BLE OF \$10,000, RECEIPT OF WHICH IS HEREBY ACKNOWLEDGED, CLIENT AGREES THAT BLE'S LIABILITY, AND THAT OF ITS OFFICERS, DIRECTORS, EMPLOYEES, AGENTS AND SUBCONTRACTORS, TO CLIENT OR ANY THIRD PARTY DUE TO ANY NEGLIGENT PROFESSIONAL ACTS, ERRORS OR OMISSIONS OR BREACH OF CONTRACT BY BLE WILL BE LIMITED TO AN AGGREGATE OF \$50,000 OR BLE'S TOTAL CHARGES, WHICHEVER IS GREATER. IF CLIENT PREFERENCES TO HAVE HIGHER LIMITS OF PROFESSIONAL LIABILITY, BLE AGREES TO INCREASE THE AGGREGATE LIMIT, UP TO A MAXIMUM OF \$100,000, UPON CLIENT'S WRITTEN REQUEST AT THE TIME OF ACCEPTING BLE'S PROPOSAL, PROVIDED CLIENT AGREES TO PAY AN ADDITIONAL CONSIDERATION OF 5% OF TOTAL CHARGES, OR \$500, WHICHEVER IS GREATER. THE ADDITIONAL CHARGE FOR THE HIGHER LIABILITY LIMIT IS BECAUSE OF THE GREATER RISK ASSUMED BY BLE AND IS NOT A CHARGE FOR ADDITIONAL PROFESSIONAL LIABILITY INSURANCE. IN ADDITION, CLIENT FURTHER AGREES THAT NEITHER BLE NOR ITS MEMBERS, OFFICERS, DIRECTORS, EMPLOYEES, AGENTS AND/OR SUBCONTRACTORS SHALL BE LIABLE TO CLIENT FOR SPECIAL, INDIRECT, OR CONSEQUENTIAL DAMAGES ARISING OUT OF THIS AGREEMENT OR OTHERWISE. THE LIMITATIONS SET OUT HEREIN SHALL NOT APPLY TO THE EXTENT PROHIBITED BY LAW.

6. SITE OPERATIONS. Client will arrange for right-of-entry to the property for the purpose of performing project management, studies, tests and evaluations pursuant to the agreed services. Client represents that it possesses necessary permits and licenses required for its activities at the site.

BLE's field personnel are trained to initiate field testing, drilling and/or sampling within a reasonable distance of each designated location. BLE's field personnel will avoid hazards or utilities which are visible to them at the site. If BLE is advised in writing of the presence or potential presence of underground or above ground obstructions, such as utilities, BLE will give special instructions to BLE's field personnel. BLE is not responsible for any damage or loss due to undisclosed or unknown surface or subsurface conditions owned by Client or third parties, except to the extent such damage or loss is a result of BLE's negligence. Otherwise, Client agrees for the additional consideration of \$1,000, to indemnify and hold BLE, its directors, officers, employees, agents and subcontractors harmless, from any such claims, suits or losses, including related reasonable attorney's fees.

BLE will take reasonable precautions to minimize damage to the property caused by its operations. Unless otherwise stated in BLE's proposal, BLE's charges do not include cost

of restoration due to any related damage which may result. If Client requests BLE to repair such damage, BLE will do so at an appropriate additional cost.

Field tests or boring locations described in BLE's report or shown on sketches are based on specific information furnished by others or estimates made in the field by BLE personnel. Such dimensions, depths or elevations should be considered as approximations unless otherwise stated in BLE's proposal or report.

7. FIELD REPRESENTATIVE. The presence of BLE or its subcontractor's field personnel, either full-time or part-time, may be for the purpose of providing project administration, assessment, observation and/or field testing of specific aspects of the project as authorized by Client. Should a contractor(s) not retained by BLE be involved in the project, Client will advise such contractor(s) that BLE's services do not include supervision or direction of the means, methods or actual work of the contractor(s), its employees or agents. Client will also inform contractor that the presence of BLE's field representative for project administration, assessment, observation or testing will not relieve the contractor of its responsibilities for performing the work in accordance with the plans and specifications.

If a contractor (not a subcontractor of BLE) is involved in the project, Client agrees, in accordance with generally accepted construction practices, that the contractor will be solely and completely responsible for working conditions on the job site, including security and safety of all persons and property during performance of the work, and compliance with all Client safety requirements and OSHA regulations. These requirements will apply continuously and will not be limited to normal working hours. It is agreed that BLE will not be responsible for job or site safety or security on the project, other than for BLE's employees and subcontractors, and that BLE does not have the duty or right to stop the work of the contractor or other third parties.

8. UNFORESEEN CONDITIONS OR OCCURRENCES. It is possible that unforeseen conditions or occurrences may be encountered at the site which could substantially alter the necessary services or the risks involved in completing BLE's services. If this occurs, BLE will promptly notify and consult with Client, but will act based on BLE's sole judgment where risk to BLE personnel is involved. Possible actions could include:

a. Complete the original Scope of Services in accordance with the procedures originally intended in BLE's proposal, if practicable in BLE's judgment;

b. Agree with Client to modify the Scope of Services and the estimate of charges to include study of the unforeseen conditions or occurrences, with such revision agreed to in writing;

c. Terminate the services effective on the date specified by BLE in writing.

9. SAMPLE DISPOSAL. Test specimens or samples generally are consumed or substantially altered during testing and any remnants are disposed of immediately upon completion of tests. Remaining drilling samples and other specimens are disposed of 30 days after submission of BLE's report. In the event that test samples contain toxic or hazardous constituents as defined by applicable law, upon completion of any testing and temporary storage by BLE and per Client's stated preference, BLE will return such samples to Client for proper disposal.

10. WASTE DISPOSAL. If Client requests BLE to containerize drilling wastes and/or fluids produced by BLE's activity ("Wastes"), Client will provide a secure temporary storage location at or near the project site to prevent tampering with such containerized Wastes. Non-hazardous Wastes will be disposed of by BLE for an additional charge at an appropriately licensed facility. Any hazardous Wastes will be disposed of under manifest executed by Client at any properly licensed facility selected by Client with BLE's assistance. At no time will BLE take title to such hazardous Wastes.

11. *CLIENT DISCLOSURE. Client agrees to advise BLE upon execution of this Agreement of any hazardous substance or any condition, known or that reasonably should be known by Client, existing in, on, or near the site that presents a potential danger to human health, the environment, or BLE's equipment. Client agrees to provide BLE continuing related information as it becomes available to the Client. By virtue of entering into this Agreement or providing services hereunder, BLE does not assume control of or responsibility as an operator or otherwise for the site or the person(s) in charge of the site, or undertake responsibility for reporting to any federal, state or local public agencies any conditions at the site that may present a potential danger to public health, safety or the environment. Client agrees under advice of its counsel to notify the appropriate federal, state or local public agencies as required by law; or otherwise to disclose, in a timely manner, any information that may be necessary to prevent damage to human health, safety, or the environment.

12. *ENVIRONMENTAL INDEMNITY. In connection with toxic or hazardous substances or constituents and to the maximum extent permitted by law, for separate and valuable consideration of \$1,000, Client agrees to defend, hold harmless and indemnify BLE from and against any and all claims, liabilities, or judgments, except to the extent finally determined as being caused by BLE's negligence or willful misconduct, resulting from:



a. Client's violation of any federal, state, or local statute, regulation or ordinance relating to the management or disposal of toxic or hazardous substances or constituents;

b. Client's undertaking of or arrangement for the handling, removal, treatment, storage, transportation or disposal of toxic or hazardous substances or constituents found or identified at the site;

c. Toxic or hazardous substances or constituents introduced at the site by Client or third persons before, during or after the completion of BLE's services;

d. Allegations that BLE is a handler, generator, operator, treater, storer, transporter, or disposer unless expressly retained by Client for such services under the Resource Conservation and Recovery Act of 1976 as amended or any other similar federal, state or local regulation or law due to the BLE's services; or,

e. Any third party suit or claim for damages against BLE alleging strict liability, personal injury (including death) or property damage from exposure to or release of toxic or hazardous substances or constituents at or from the project site before, during or after completion of BLE's services under this Agreement.

~~13. **EQUIPMENT CONTAMINATION.** BLE will endeavor to clean its laboratory and field equipment which may become contaminated in the conduct of BLE's services. Occasionally, such equipment cannot be completely decontaminated because of the type of hazards encountered. If this occurs, it will be necessary to dispose of the equipment in a manner similar to that indicated for hazardous samples or waste and to charge Client for the loss. Client agrees to pay the fair market value of any such equipment and reasonable disposal costs.~~

14. **DOCUMENTS.** BLE will furnish Client the agreed upon number of written reports and supporting documents. These instruments of services are furnished for Client's exclusive internal use and reliance, use of Client's counsel, use of Client's qualified bidders (design services only) and for regulatory submittal in connection with the project or services provided for in this Agreement, but not for advertising or other type of distribution, and are subject to the following:

a. All documents generated by BLE under this Agreement shall remain the sole property of BLE. Any unauthorized use or distribution of BLE's work shall be at Client's and recipient's sole risk and without liability to BLE. BLE may retain a confidential file copy of its work product and related documents.

b. If Client desires to release, or for BLE to provide, BLE's report(s) to a third party not described above for that party's reliance, BLE will agree to such release provided we receive written acceptance from such third party to be bound by acceptable terms and conditions similar to this Agreement (e.g. Secondary Client Agreement). Reports provided for disclosure of information only will not require separate agreement. Client acknowledges and agrees to inform such third party that BLE's report(s) reflects conditions only at the time of the study and may not reflect conditions at a later time. Client further acknowledges that such request for release creates a potential conflict of interest for BLE and by this request Client waives any such claim if BLE complies with the request.

c. Client agrees that all documents furnished to Client or Client's agents or designees, if not paid for, will be returned upon demand and will not be used by Client or any other entity for any purpose whatsoever. Client further agrees that documents produced by BLE pursuant to this Agreement will not be used for any project not expressly provided for in this Agreement without BLE's prior written approval.

d. Client shall furnish documents or information reasonably within Client's control and deemed necessary by BLE for proper performance of BLE's services. BLE may rely upon Client-provided documents in performing the services required under this Agreement; however, BLE assumes no responsibility or liability for their accuracy. Client-provided documents will remain the property of Client, but BLE may retain one confidential file copy as needed to support its report.

e. Upon Client's request, BLE's work product may be provided on magnetic media. By such request, Client agrees that the written copy retained by BLE in its files, with at least one written copy provided to Client, shall be the official base document. BLE makes no warranty or representation to Client that the magnetic copy is accurate or complete, but will correct in good faith any omissions or errors brought to BLE's attention by Client. Any modifications of such magnetic copy by Client shall be at Client's risk and without liability to BLE. Such magnetic copy is subject to all other conditions of this Agreement.

15. **CLAIMS.** The parties agree to attempt to resolve any dispute without resort to litigation, including use of mediation, prior to filing of any suit, including use of mediation, prior to filing of any suit. However, in the event that a claim results in litigation, then the prevailing party shall be entitled to recover from the non-prevailing party the prevailing party's reasonable legal fees and expenses associated with such litigation. EACH OF THE PARTIES HERETO IRREVOCABLY WAIVES ANY AND ALL

RIGHT TO TRIAL BY JURY IN ANY LEGAL PROCEEDING ARISING OUT OF OR RELATING TO THIS AGREEMENT OR THE TRANSACTIONS CONTEMPLATED HEREBY.

16. **OPINIONS OF COST.** If requested, BLE will use its best efforts and experience on similar projects to provide realistic opinions or estimates of costs for remediation or construction as appropriate based on reasonably available data, BLE's designs or BLE's recommendations. However, such opinions are intended primarily to provide information on the order of magnitude or scale of such costs and are not intended for use in firm budgeting or negotiation unless specifically agreed otherwise, in writing with BLE. Client understands actual costs of such work depend heavily on regional economics, local construction practices, material availability, site conditions, weather conditions, contractor skills, and many other factors beyond BLE's control.

17. **TESTIMONY.** Should BLE or any BLE employee be compelled by law to provide testimony or other evidence by any party, whether at deposition, hearing, or trial, in relation to services provided under this Agreement, and BLE is not a party in the dispute, then BLE shall be compensated by Client for the associated reasonable expenses and labor for BLE's preparations and testimony at appropriate unit rates. To the extent the party compelling the testimony ultimately provides BLE such compensation, Client will receive a credit or refund on any related double payments to BLE.

18. **CONFIDENTIALITY.** BLE will maintain as confidential any documents or information provided by Client and will not release, distribute or publish same to any third party without prior permission from Client, unless compelled by law or order of a court or regulatory body of competent jurisdiction. Such release will occur only after prior notice to Client.

19. **GOVERNING LAW.** This Agreement shall be governed in all respects by the laws of the State of North Carolina.

20. **PRIORITY OVER FORM AGREEMENT/PURCHASE ORDERS.** The Parties agree that the provisions of these terms and conditions shall control over and not be superseded by any provisions of any other documents or writings and may be amended only by written instrument signed by both Client and BLE. Client may issue purchase orders to BLE to satisfy Client's purchasing requirements. It is agreed that the terms and conditions included in such purchase orders shall be considered deleted in their entirety and such terms and conditions shall be void.

21. **SURVIVAL.** All provisions of this Agreement for indemnity or allocation of responsibility or liability between Client and BLE shall survive the completion of the services and the termination of this Agreement.

22. **SEVERABILITY.** In the event that any provision of this Agreement is found to be unenforceable under law, the remaining provisions shall continue in full force and effect.

23. **ASSIGNMENT.** This Agreement may not be assigned by either party without the prior permission of the other.

24. **CONSIDERATION.** The parties agree that the charges for BLE's services are sufficiently adjusted to include any specific consideration payable to Client under these terms and conditions.

25. **INTEGRATION.** This Agreement, the attached documents and those incorporated herein constitute the entire Agreement between the parties and cannot be changed except by a written instrument signed by both parties.

26. **FORCE MAJEURE.** Any failure of performance under this Agreement shall not constitute breach if said failure of performance is due to an event or events beyond the reasonable control of the Parties or either of them; such events of force majeure shall include, but not be limited to, acts of God, natural disasters, war and strikes.

If an event of force majeure occurs, BLE shall notify CLIENT, identify the event of force majeure and specify the anticipated time when the Work can be continued. Timely notification of an event of force majeure shall extend the completion date of this Agreement for a time equal to the continuation of the force majeure plus any reasonable time necessary to resume Work. CLIENT agrees to pay BLE for all reasonable costs incurred associated with labor and equipment, including subcontractor services, necessary to resume Work.

27. **CONFIDENTIALITY.** BLE and CLIENT recognize that each of them may encounter written or unwritten confidential information regarding the other Party during the course of the services set forth in the Proposal. Confidential information means all technical, economic, financial, pricing, marketing or other information that has not been published and/or is not otherwise available to members of the public and includes, without limitation, trade secrets, proprietary information, customer lists, scientific, technical and business studies, analyses, processes, methods, procedures, policies and information. The Party receiving such confidential information agrees to hold as confidential and not to disclose such information. Each Party shall make its employees having access to said



information aware of this obligation of confidentiality and bind said employees under similar obligations of confidence.

All drawings, specifications, technical documents of any nature, and copies thereof, prepared pursuant to this Agreement shall be the property of BLE and are to be treated as confidential. They are not to be disclosed to others without BLE prior written approval. BLE shall treat as confidential all documents and records (the "Documents") belonging to CLIENT or a third party that BLE reviews during the performance of services set forth in the Proposal. BLE shall not disclose the Documents to any third party without the prior written consent of the Documents' owner or owners. No articles, papers or treatises related to or in any way associated with the services set forth in the Proposal shall be submitted for publication without BLE's prior written consent. BLE may retain copies of all such documents for archival purposes and to support or defend its work.

The confidentiality restrictions herein shall not apply to information that: (1) the Parties had in their possession prior to disclosure; (2) becomes public knowledge through no act or fault of the receiving Party; (3) the receiving Party lawfully acquires from a third party which does not have a confidentiality obligation to the Party to which the information pertains; (4) is independently developed by the receiving Party; or (5) is required to be disclosed by law. Without the express written consent of BLE, this Agreement creates no duties or liabilities of BLE to third parties who may rely on the Work provided or the documents delivered hereunder. The Parties agree that although CLIENT may provide copies of BLE's reports to prospective property purchasers and their agents, no party other than CLIENT, its counsel or appropriate regulatory bodies may rely on the contents of BLE's reports.

28. **INDEMNITY.** If CLIENT or any of its directors, officers, shareholders, employees, agents, attorneys, successors, assigns and affiliates (collectively, the "CLIENT Affiliates") become subject to any liabilities, obligations, claims, losses, damages, penalties, actions, judgments, suits, costs and expenses (including, without limitation, fees and disbursements of attorneys and consultants) (collectively, "Claims"), arising from, related to or in connection with:

- a. the negligence, gross negligence or willful misconduct of BLE or its directors, officers, employees, subcontractors, agents and affiliates (collectively, the "Representatives");
- b. a violation of a statute or regulation by BLE or its Representatives; and/or
- c. a breach of this Agreement by BLE or its Representatives;

BLE shall indemnify and hold harmless CLIENT and its Affiliates from and against any and all Claims. For purposes of the preceding sentence, "negligence" shall be deemed to include both negligent acts and omissions, but this indemnification shall only extend to the proportional extent of BLE's negligent, wrongful or willful acts or omissions.

If BLE or any of its directors, officers, employees, agents, attorneys, successors, assigns and affiliates (collectively, the "BLE Affiliates") become subject to any liabilities, obligations, claims, losses, damages, penalties, actions, judgments, suits, costs and expenses (including, without limitation, fees and disbursements of attorneys and consultants) (collectively, "Claims"), arising from, related to or in connection with:

- a. the negligence, gross negligence or willful misconduct of CLIENT or its directors, officers, shareholders, employees, subcontractors, agents and affiliates (collectively, the "Representatives");
- b. a violation of a statute or regulation by CLIENT or its Representatives; and/or
- c. a breach of this Agreement by CLIENT or its Representatives;

CLIENT shall indemnify and hold harmless BLE and its Affiliates from and against any and all Claims. For purposes of the preceding sentence, "negligence" shall be deemed to include both negligent acts and omissions, but this indemnification shall only extend to the proportional extent of CLIENT's negligent, wrongful or willful acts or omissions.

29. **NON-EXCLUSIVITY.** BLE recognizes and agrees that its services hereunder are to be provided on a non-exclusive basis.

30. **WAIVER.** Waiver by either Party of any term, provision or condition of this Agreement shall not constitute a precedent or bind either party to a waiver of any succeeding breach of the same or any other term, provision or condition of this Agreement.

31. **TERMINATION.** This Agreement terminates automatically when BLE completes the services set forth in the Proposal. Either Party may terminate this Agreement without cause upon 30 days written notice to the other Party. In the event CLIENT requests termination prior to completion, CLIENT agrees to pay BLE for all reasonable costs incurred to date and reasonable charges associated with termination of its services.

NOTES:

*Applies only if toxic or hazardous substances or constituents are anticipated or encountered.

For work in the State of Georgia, delete the words "or any third party" as such words appear in Paragraph 5

END OF DOCUMENT

PAS revision 7.0 – 10/20/15

From: Andy Alexander [mailto:Andy.Alexander@blecorp.com]
Sent: Tuesday, March 06, 2018 8:19 AM
To: David Francis <david.francis@haywoodcountync.gov>
Cc: Cathey, Mark (McGill) <mark.cathey@mcgillengineers.com>; Kris Boyd <Kris.Boyd@haywoodcountync.gov>
Subject: Environmental Testing of Soils Lab Cost Only Table

Hello David,

I have attached the subject table. I talked to Mark yesterday but was not able to reach you.

I understand that you want to collect and analyze some soils from Green Grocery.

There are 5 options on the table for testing of soils. Need to discuss this and other project specifics.

Please let me know when I may call you and/or Kris to discuss. Thanks, --Andy

Andrew W. Alexander, P.G., RSM
Bunnell-Lammons Engineering, Inc. (BLE)
6004 Ponders Court
Greenville, South Carolina 29615
(864) 288-1265 (voice)
(864) 288-4430 (fax)
(864) 201-5530 (cell)
andy@blecorp.com
www.blecorp.com

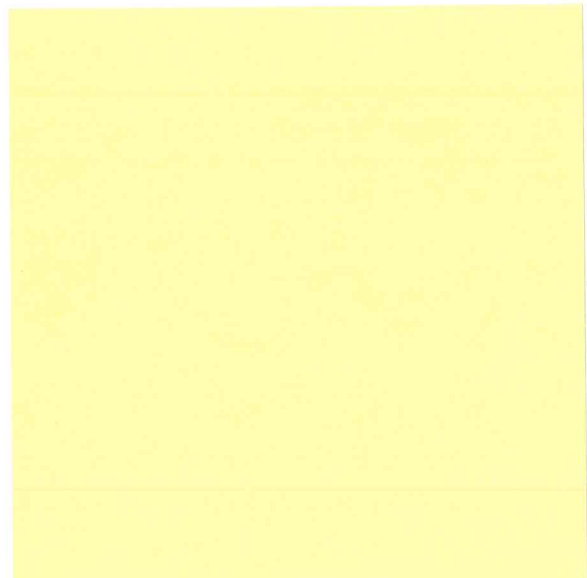


Table 2
Approved Methods for Soil Analyses during Advanced Phases of Petroleum UST Release Investigations

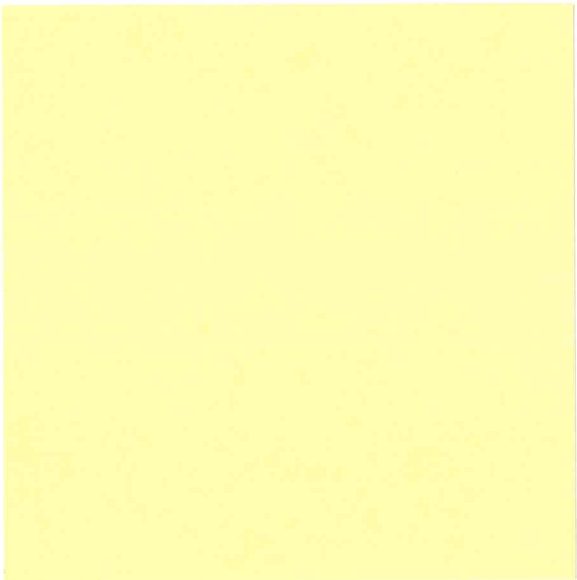
Suspected Contaminant	LSA 1 Soil Sampling ^a	Comprehensive Site Assessment and Monitoring Soil Sampling ^{b f}	Final Site Closure Soil Sampling
1. Low Boiling Point Fuels: gasoline, aviation gasoline, ethanol-gasoline blends, etc.	For the first sample collected below land/excavation surface and the last sample prior to saturated zone use: EPA 8260B with IPE & MTBE and MADEP VPH For all other samples, analyze only by: MADEP VPH	Analyze all samples from each vertical boring by EPA 8260B with IPE & MTBE and EPA 8015C (TPH GRO) Then analyze the sample from each boring with the highest TPH-GRO value by MADEP VPH ^d	EPA 8260B with IPE & MTBE and MADEP VPH ② \$ 165
2. Medium/High Boiling Point Fuels: jet fuels, kerosene, diesel, naphtha, fuel oil #2, etc. Varsol, mineral spirits, naphtha.	For the first sample collected below land/excavation surface and the last sample prior to saturated zone use: EPA 8260B, EPA 8270D, MADEP VPH, and MADEP EPH For all other samples, analyze only by: MADEP VPH, and MADEP EPH	Analyze all samples from each vertical boring by EPA 8260B, EPA 8270D, EPA 8015C (TPH GRO) and EPA 8015C (TPH DRO) Then analyze the sample from each boring with the highest TPH-GRO value by MADEP VPH ^d and Then analyze the sample from each boring with the highest TPH-DRO value by MADEP VPH and MADEP EPH ^d	EPA 8260B, EPA 8270D, MADEP VPH, and MADEP EPH ③ \$ 460
3. Heavy Fuels: #4, #5, #6 fuel oils; motor oil; hydraulic fluid; etc. Mineral oil ^e	For the first sample collected below land/excavation surface and the last sample prior to saturated zone use: EPA 8270D and MADEP EPH For all other samples, analyze only by: MADEP EPH	Analyze all samples from each vertical boring by EPA 8270D and EPA 8015C (TPH DRO) Then analyze the sample from each boring with the highest TPH-DRO value by MADEP EPH ^d	EPA 8270D and MADEP EPH ④ \$ 265
4. Used / Waste Oil	For the first sample collected below land/excavation surface and the last sample prior to saturated zone use: EPA 8260B, EPA 8270D, MADEP VPH, MADEP EPH, EPA 3050B or 3051A Prep: Total Metals (Cr and Pb), EPA 8081B (pesticides), and EPA 8082A (PCBs) ^c For all other samples, analyze only by: MADEP VPH, and MADEP EPH	Analyze all samples from each vertical boring by EPA 8260B, EPA 8270D, EPA 3050B or 3051A Prep: Total Metals (Cr and Pb), EPA 8081B (pesticides), and EPA 8082A (PCBs). Then analyze the sample from each boring with the highest TPH-GRO value by MADEP VPH and Then analyze the sample from each boring with the highest TPH-DRO value by MADEP VPH and MADEP EPH ^d	EPA 8260B, EPA 8270D, MADEP VPH, MADEP EPH, EPA 3050B or 3051A Prep: Total Metals (Cr and Pb), EPA 8081B (pesticides), and EPA 8082A (PCBs) ^c ⑤ \$ 1,835

EPA 8260B ①
EPA 8270D \$ 275

From: Andy Alexander [mailto:Andy.Alexander@blecorp.com]
Sent: Tuesday, March 06, 2018 9:26 AM
To: Mark Cathey <Mark.Cathey@Mcgillengineers.Com>; David Francis <david.francis@haywoodcountync.gov>
Cc: Kris Boyd <Kris.Boyd@haywoodcountync.gov>
Subject: RE: Environmental Testing of Soils Lab Cost Only Table

You are a completely different kind of nerd but your input is still appreciated.
--Andy

Andrew W. Alexander, P.G., RSM
Bunnell-Lammons Engineering, Inc. (BLE)
6004 Ponders Court
Greenville, South Carolina 29615
(864) 288-1265 (voice)
(864) 288-4430 (fax)
(864) 201-5530 (cell)
andy@blecorp.com
www.blecorp.com



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From: Mark Cathey <Mark.Cathey@Mcgillengineers.Com>
Sent: Tuesday, March 06, 2018 8:49 AM
To: Andy Alexander <Andy.Alexander@blecorp.com>; Francis, David (Haywood County) <DBFrancis@haywoodnc.net>
Cc: Kris Boyd <KBoyd@haywoodnc.net>
Subject: RE: Environmental Testing of Soils Lab Cost Only Table

I would go with Option 3 based on these descriptions, but I am not the environmental nerd, so you guys

need to talk and decide.

From: Andy Alexander [<mailto:Andy.Alexander@blecorp.com>]
Sent: Tuesday, March 6, 2018 8:19 AM
To: Francis, David (Haywood County) <DBFrancis@haywoodnc.net>
Cc: Mark Cathey <Mark.Cathey@Mcgillengineers.Com>; Kris Boyd <KBoyd@haywoodnc.net>
Subject: Environmental Testing of Soils Lab Cost Only Table

Hello David,

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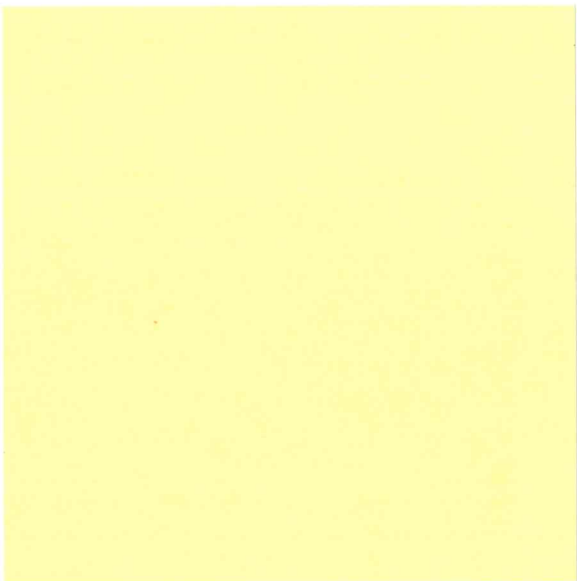
Andrew W. Alexander, P.G., RSM
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6004 Ponders Court
Greenville, South Carolina 29615
(864) 288-1265 (voice)
(864) 288-4430 (fax)
(864) 201-5530 (cell)
andy@blecorp.com
www.blecorp.com

From: Andy Alexander [mailto:Andy.Alexander@blecorp.com]
Sent: Friday, March 16, 2018 7:27 AM
To: David Francis <david.francis@haywoodcountync.gov>; Mark Cathey (mark.cathey@mcgillengineers.com) <mark.cathey@mcgillengineers.com>; Scott Burwell <Scott.Burwell@Mcgillengineers.Com>
Subject: RE:

David,

Sam should be calling you so setup testing for next week. I forwarded the map to him too. Thanks, --Andy

Andrew W. Alexander, P.G., RSM
Bunnell-Lammons Engineering, Inc. (BLE)
6004 Ponders Court
Greenville, South Carolina 29615
(864) 288-1265 (voice)
(864) 288-4430 (fax)
(864) 201-5530 (cell)
andy@blecorp.com
www.blecorp.com



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From: David Francis <david.francis@haywoodcountync.gov>
Sent: Thursday, March 15, 2018 3:48 PM
To: Mark Cathey (mark.cathey@mcgillengineers.com) <mark.cathey@mcgillengineers.com>; Andy Alexander <Andy.Alexander@blecorp.com>; Scott Burwell <Scott.Burwell@Mcgillengineers.Com>
Subject:

I will follow up with you...

David B Francis

Haywood County Program Administrator

215 N Main Street

Waynesville, NC 28786

828 452 6625 Office

828 356 2602 Direct Line

828 452 6715 Fax Line

www.haywoodnc.net/

Pursuant to North Carolina General Statutes Chapter 132, Public Records, this electronic mail message and any attachments hereto, as well as any electronic mail message(s) sent in response to it, may be considered public record and as such are subject to request and review by anyone at any time.

From: David Francis
Sent: Friday, March 16, 2018 10:19 AM
To: 'Andy Alexander' <Andy.Alexander@blecorp.com>; Mark Cathey (mark.cathey@mcgillengineers.com) <mark.cathey@mcgillengineers.com>; Scott Burwell <Scott.Burwell@Mcgillengineers.Com>
Subject: RE:

To the northwest.

Haywood County Parcel # 8507-35-8845

David B Francis
Haywood County Program Administrator
215 N Main Street
Waynesville, NC 28786
828 452 6625 Office
828 356 2602 Direct Line
828 452 6715 Fax Line
www.haywoodnc.net/

From: Andy Alexander [<mailto:Andy.Alexander@blecorp.com>]
Sent: Friday, March 16, 2018 9:24 AM
To: David Francis <david.francis@haywoodcountync.gov>; Mark Cathey (mark.cathey@mcgillengineers.com) <mark.cathey@mcgillengineers.com>; Scott Burwell <Scott.Burwell@Mcgillengineers.Com>
Subject: RE:

Hey,

Is the hill they want to take down the wooded area I have circled or the grassy knoll to the north-northeast of the circle? --Andy



Andrew W. Alexander, P.G., RSM
 Bunnell-Lammons Engineering, Inc. (BLE)
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Subject:

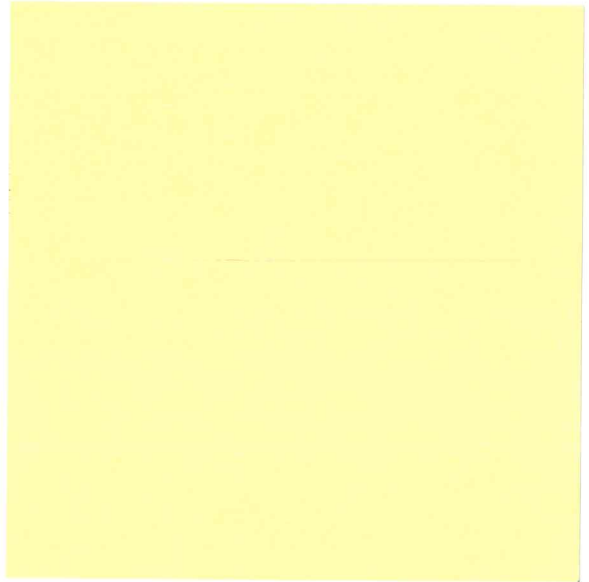
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 828 452 6625 Office
 828 356 2602 Direct Line

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Sent: Friday, March 16, 2018 10:36 AM
To: David Francis <david.francis@haywoodcountync.gov>; Mark Cathey
(mark.cathey@mcgillengineers.com) <mark.cathey@mcgillengineers.com>; Scott Burwell
<Scott.Burwell@Mcgillengineers.Com>
Subject: RE:

Got it, thanks, --Andy

Andrew W. Alexander, P.G., RSM
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From: Andy Alexander [mailto:Andy.Alexander@blecorp.com]
Sent: Tuesday, March 20, 2018 3:04 PM
To: David Francis <david.francis@haywoodcountync.gov>
Cc: Sam Interlicchia <Sam.Interlicchia@blecorp.com>; Jesse Jacobson <Jesse.Jacobson@blecorp.com>
Subject: Change Order for Jonathan Creek Project -- Dennis Farm Road Property

Hello David,

We have prepared the attached change order for the Jonathan Creek project. The change order includes the effort we have expended on the "soils issues" and those services needed to evaluate the soils on the Dennis Farm Road Property. Sam will contact you to schedule the work. Hopefully the weather will cooperate. Thanks, --Andy

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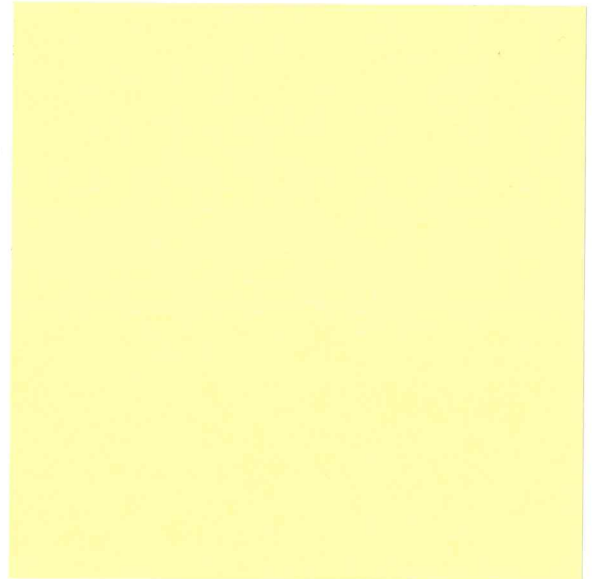


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Cc: Mark Cathey <Mark.Cathey@Mcgillengineers.Com>; Sam Interlicchia <Sam.Interlicchia@blecorp.com>; Nathan Sawyer <nathan.sawyer@mcgillengineers.com>
Subject: RE: Dennis Farm Road Borrow Site

Can we do it after 1:30? --Andy

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Subject: RE: Dennis Farm Road Borrow Site

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Thanks!

Scott Burwell, PE

Project Manager



55 Broad Street | Asheville, NC 28801

Phone: 828.252.0575 | Mobile: 828.707.6749 | Fax: 828.252.2518

Email: scott.burwell@mcgillengineers.com | Website: www.mcgillengineers.com

From: Andy Alexander [<mailto:Andy.Alexander@blecorp.com>]

Sent: Thursday, March 22, 2018 2:37 PM

To: Scott Burwell <Scott.Burwell@Mcgillengineers.Com>; Kris Boyd <KBoyd@haywoodnc.net>; David Francis <david.francis@haywoodcountync.gov>

Cc: Mark Cathey <Mark.Cathey@Mcgillengineers.Com>; Sam Interlicchia <Sam.Interlicchia@blecorp.com>

Subject: RE: Dennis Farm Road Borrow Site

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Kris/David,

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Project Manager



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Phone: 828.252.0575 | Mobile: 828.707.6749 | Fax: 828.252.2518

Email: scott.burwell@mcgillengineers.com | Website: www.mcgillengineers.com

From: Nathan Sawyer
Sent: Wednesday, March 21, 2018 11:12 AM
To: Scott Burwell <Scott.Burwell@Mcgillengineers.Com>
Subject: Dennis Farm Road Borrow Site

Scott,

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Thanks,

Nate Sawyer, EI

Engineering Associate II



55 Broad Street | Asheville, NC 28801

Phone: 828.252.0575 | Fax: 828.252.2518

nathan.sawyer@mcgillengineers.com | www.mcgillengineers.com

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Cc: Mark Cathey <Mark.Cathey@McGillEngineers.Com>; Sam Interlicchia <Sam.Interlicchia@blecorp.com>; Nathan Sawyer <nathan.sawyer@mcgillengineers.com>
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Project Manager



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Cc: Mark Cathey <Mark.Cathey@McGillEngineers.Com>; Sam Interlicchia <Sam.Interlicchia@blecorp.com>
Subject: RE: Dennis Farm Road Borrow Site

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Subject: FW: Dennis Farm Road Borrow Site

Kris/David,

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Thanks!

Scott Burwell, PE

Project Manager

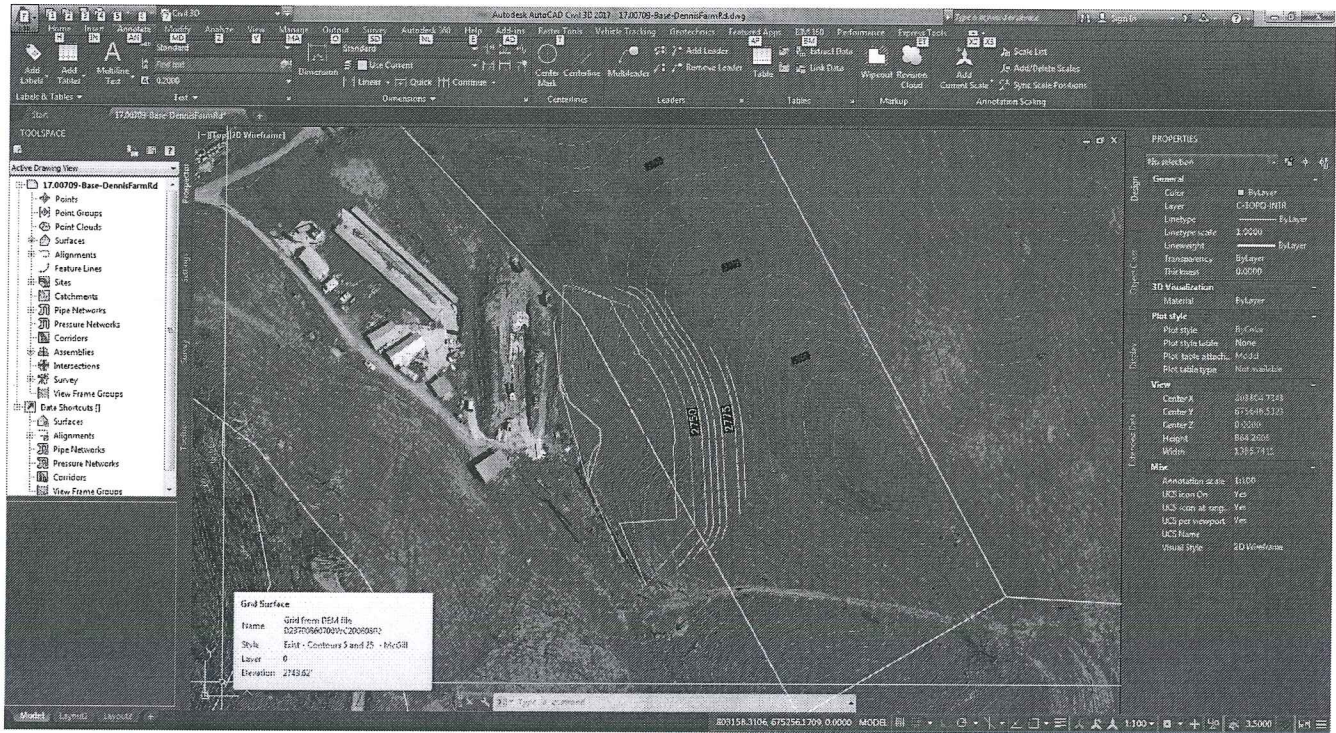


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Phone: 828.252.0575 | Mobile: 828.707.6749 | Fax: 828.252.2518
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From: Nathan Sawyer
Sent: Wednesday, March 21, 2018 11:12 AM
To: Scott Burwell <Scott.Burwell@mcgillengineers.com>
Subject: Dennis Farm Road Borrow Site

Scott,

See screenshot below. This is showing 35,000cy of cut without any considerations for topsoil removal. Maximum vertical cut is approximately 17 feet. "Flat" area is graded at 5% slope, then 2:1 cut slope to tie to existing.



Thanks,

Nate Sawyer, EI

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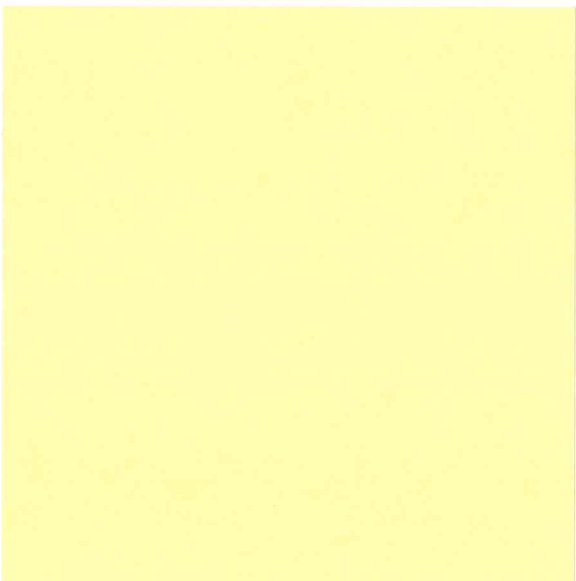
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Subject: RE: Dennis Farm Road Borrow Site

Let's shoot for 2:30 please. --Andy

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Sent: Friday, March 23, 2018 10:09 AM
To: 'Scott Burwell' <Scott.Burwell@Mcgillengineers.Com>; Andy Alexander <Andy.Alexander@blecorp.com>
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Subject: RE: Dennis Farm Road Borrow Site

1:30 or 2:30 for me

David B Francis
Haywood County Program Administrator
215 N Main Street
Waynesville, NC 28786
828 452 6625 Office
828 356 2602 Direct Line
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Sent: Friday, March 23, 2018 9:18 AM
To: Andy Alexander <Andy.Alexander@blecorp.com>
Cc: Kris Boyd <Kris.Boyd@haywoodcountync.gov>; David Francis <david.francis@haywoodcountync.gov>; Mark Cathey <Mark.Cathey@Mcgillengineers.Com>; Sam Interlicchia <Sam.Interlicchia@blecorp.com>; Nathan Sawyer <nathan.sawyer@mcgillengineers.com>
Subject: Re: Dennis Farm Road Borrow Site

1:30 and 2:30 works for me as well.

Scott Burwell, PE
Project Manager
McGill Associates, PA
55 Broad Street
Asheville, NC 28801
Office: 828-252-0575
Fax: 828-252-2518
Mobile: 828-707-6749

scott.burwell@mcgillengineers.com

On Mar 23, 2018, at 9:16 AM, Andy Alexander <Andy.Alexander@blecorp.com> wrote:

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[<cid:image005.png@01D3C287.C3372160>]

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www.mcgillengineers.com<<http://www.mcgillengineers.com/>>

<image002.jpg>

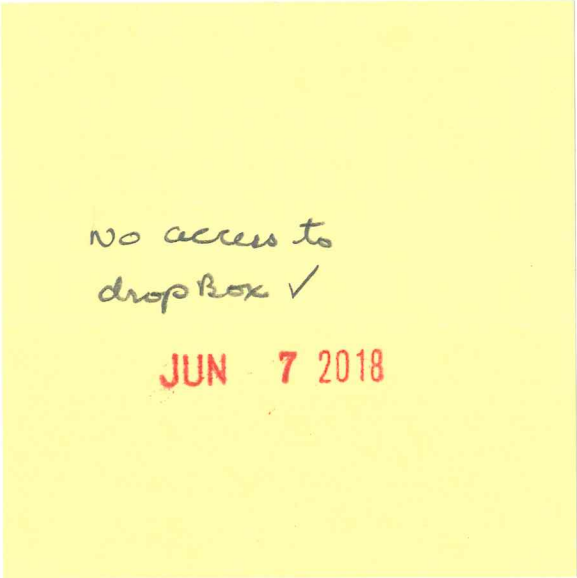
<image004.jpg>

<image005.png>

From: Andy Alexander [mailto:Andy.Alexander@blecorp.com]
Sent: Friday, March 23, 2018 3:11 PM
To: Nathan Sawyer <nathan.sawyer@mcgillengineers.com>; David Francis <david.francis@haywoodcountync.gov>; Kris Boyd <Kris.Boyd@haywoodcountync.gov>; Sam Interlicchia <Sam.Interlicchia@blecorp.com>
Cc: Scott Burwell <Scott.Burwell@Mcgillengineers.Com>
Subject: RE: Dennis Farm Road Borrow Site

Thanks Nate. --Andy

Andrew W. Alexander, P.G., RSM
 Bunnell-Lammons Engineering, Inc. (BLE)
 6004 Ponders Court
 Greenville, South Carolina 29615
 (864) 288-1265 (voice)
 (864) 288-4430 (fax)
 (864) 201-5530 (cell)
andy@blecorp.com
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From: Nathan Sawyer <nathan.sawyer@mcgillengineers.com>
Sent: Friday, March 23, 2018 3:06 PM
To: Andy Alexander <Andy.Alexander@blecorp.com>; david.francis@haywoodcountync.gov; kris.boyd@haywoodcountync.gov; Sam Interlicchia <Sam.Interlicchia@blecorp.com>
Cc: Scott Burwell <Scott.Burwell@Mcgillengineers.Com>
Subject: Dennis Farm Road Borrow Site

Gentlemen,

Attached are the two PDF grading scenarios we discussed on the phone earlier. The “35k” option will generate approximately 35,000cy with a 5% pad and 3:1 cut slopes. The “75k” option will generate approximately 75,000cy with a slightly larger 5% pad and 4:1 cut slopes.

Below is the link to our CAD files for both scenarios and associated aerial imagery:

<https://www.dropbox.com/s/koeeq38kme8o8te/DennisFarmRoad-CAD.zip?dl=0>

not accessible

Have a good weekend!

Thanks,

Nate Sawyer, EI

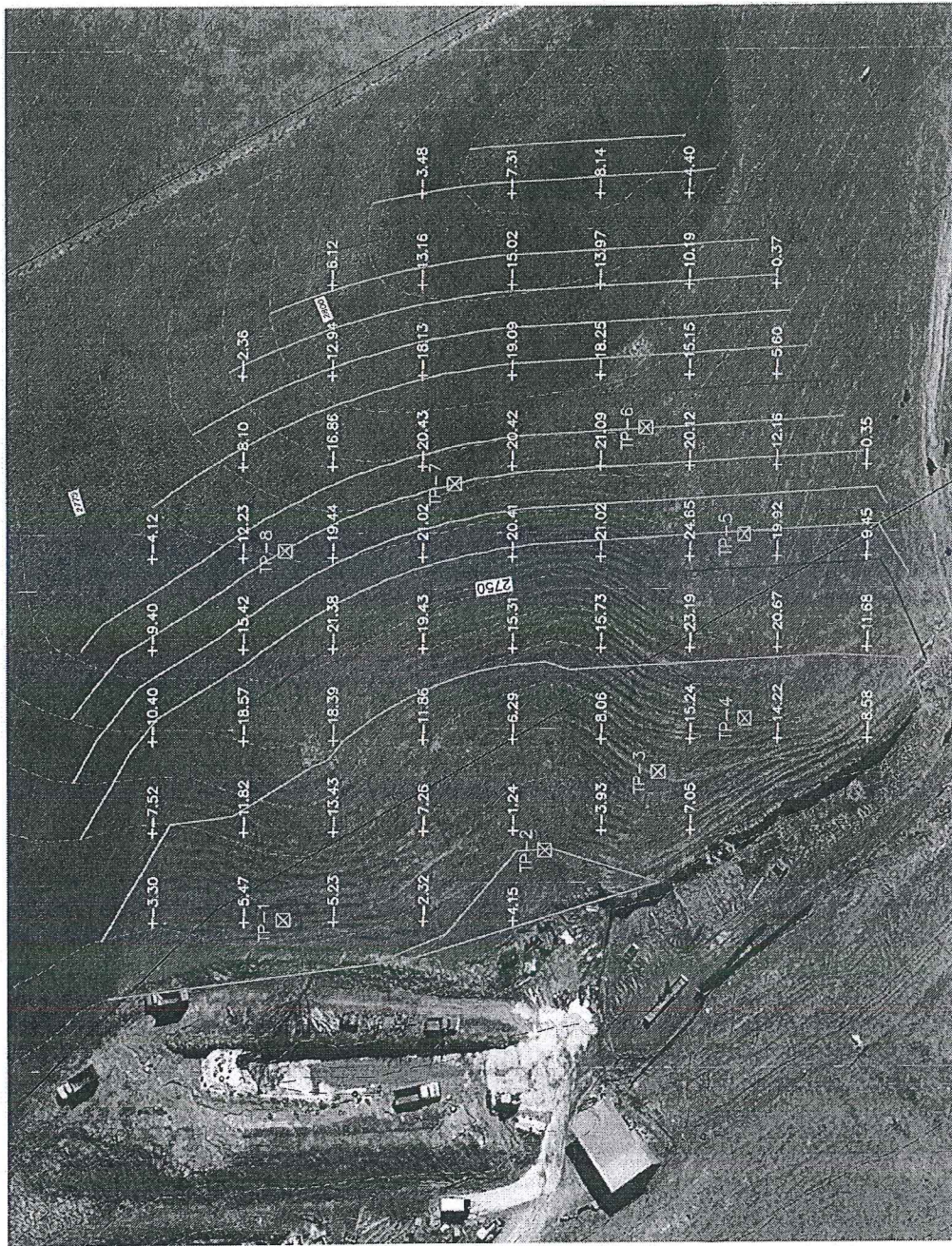
Engineering Associate II



55 Broad Street | Asheville, NC 28801

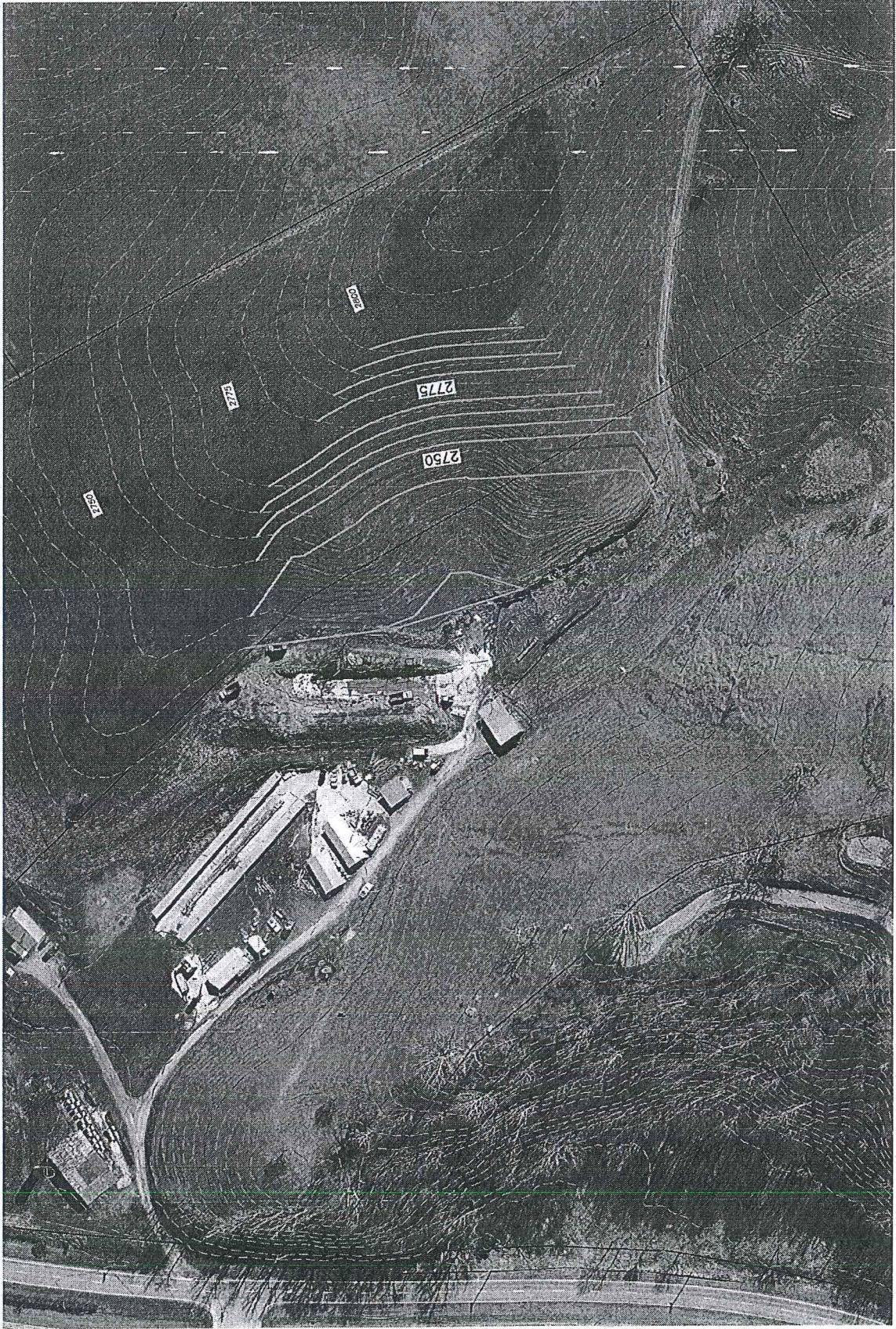
Phone: 828.252.0575 | Fax: 828.252.2518

nathan.sawyer@mcgillengineers.com | www.mcgillengineers.com



Dennis Farm Site - 75k CY yield. Drawing is 1"= 60'. Earthwork ticks at every 50' in both directions.





From: Andy Alexander [mailto:Andy.Alexander@blecorp.com]
Sent: Tuesday, April 03, 2018 3:56 PM
To: David Francis <david.francis@haywoodcountync.gov>; Kris Boyd <Kris.Boyd@haywoodcountync.gov>
Cc: Shellie Warshawsky <Shellie.Warshawsky@blecorp.com>; Sam Interlicchia <Sam.Interlicchia@blecorp.com>; Jesse Jacobson <Jesse.Jacobson@blecorp.com>
Subject: Dennis Hall (Farm Property)

Hello David and Kris,

Our Dan Anthony (609-970-3838) is available to collect bulk samples from the test pits on the Dennis Hall Property on Dennis Farm Road. We understand that you will coordinate the work with the property owner who will provide the excavator and that the approximate limits of exploration will be the 75,000-yard option (attached). Up to 12 bulk samples will be collected for testing for Standard Proctor.

We will perform this services as part of the Jonathan Creek project (BLE Project No. 12047-01). Please sign and return the change order I emailed you last week (also attached).

Please contact Dan to schedule the work. He should be available this week depending on when you call to schedule and the weather, etc. If you need anything, please contact me or Jesse Jacobson 828-575-4224. Sam is on vacation. Thanks, --Andy

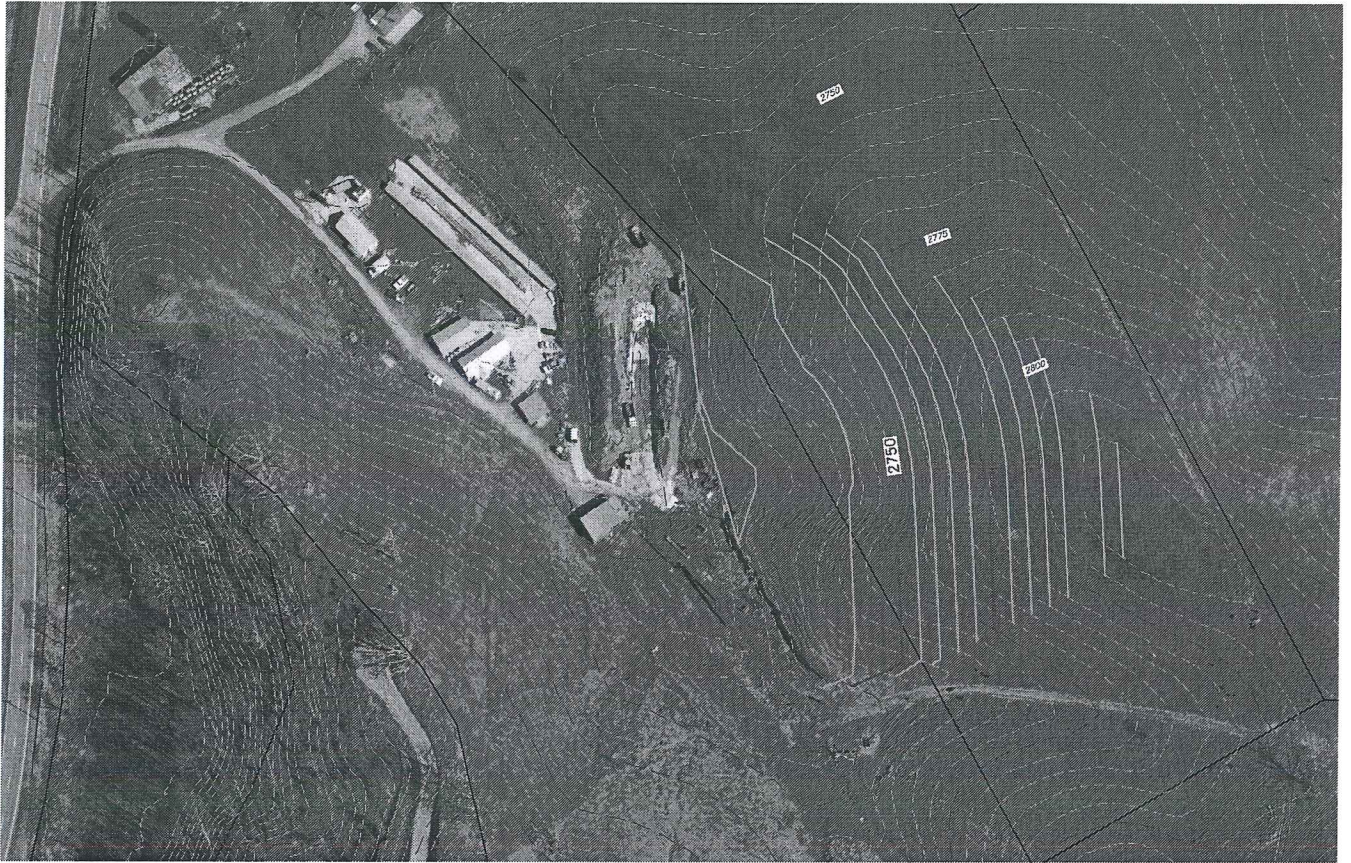
Andrew W. Alexander, P.G., RSM
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CHANGE ORDER
Between
HAYWOOD COUNTY, NORTH CAROLINA
and
BUNNELL-LAMMONS ENGINEERING, INC.

DATE	<u>March 20, 2018</u>
PROJECT NAME	<u>Jonathan Creek Soil Reclamation Project</u>
Haywood County PO #	<u></u>
BLE CONTRACT # / DATE	<u>P17-1060 / December 1, 2017</u>
BLE Project #	<u>J18-12047-01</u>
CHANGE ORDER # [Title]	<u>1 [Dennis Farm Road Property Soils Consulting and Evaluation]</u>
CURRENT CONTRACT FEES	<u>\$14,799</u>
CHANGE ORDER FEES	<u>\$5,500</u>
REVISED TOTAL PROJECT FEES	<u>\$20,299</u>

DESCRIPTION OF CHANGE(S): BLE has reviewed documents related to the former source of borrow soils for the subject site and provided consulting services for geotechnical and environmental issues related to the contact. BLE has participated telephone and email communications with Haywood County and McGill to plan for the evaluation of alternative sources of borrow soils for the Jonathan Creek site. BLE will provide the services of geotechnical personnel to collect samples from test pits (performed by others) on the Dennis Farm Road property site for testing in BLE's laboratory for potential suitability as structural fill soils. We have assumed that the scope of services will include one day of test pit observation, analysis of up to 12 samples for standard Proctor, and preparation of a report of the findings. Based on our efforts expended to date and those required in the future, we recommend that Haywood County allot **\$5,500** for these services.

The work covered by this Change Order will be performed under and governed by the terms of BLE Contract No. P17-1060 between Haywood County and Bunnell-Lammons Engineering, Inc. dated December 1, 2017. The services described herein shall be incorporated into and become part of the Scope of Services upon approval and execution by authorized representatives below.

BLE Approved	(Print)	<u>Andrew W. Alexander, P.G.</u>
	Title	<u>Senior Hydrogeologist</u>
	Signature	<u><i>AW Alexander</i></u>
	Date	<u>3/20/2018</u>

Client Approved	(Print)	<u></u>
	Title	<u></u>
	Signature	<u></u>
	Date	<u></u>

From: Andy Alexander [mailto:Andy.Alexander@blecorp.com]
Sent: Thursday, April 05, 2018 9:27 AM
To: David Francis <david.francis@haywoodcountync.gov>
Cc: Sam Interlicchia <Sam.Interlicchia@blecorp.com>; Jesse Jacobson <Jesse.Jacobson@blecorp.com>; Shellie Warshawsky <Shellie.Warshawsky@blecorp.com>
Subject: RE: Hall Property

Hello David,

Thanks for your email. We acknowledge Chairman Kirkpatrick's approval of Change Order No. 1 for the Jonathan Creek project (BLE Project No. 12047-01). We will proceed with work on the project per approval. Please email the signed change order document when executed on the 16th. Thanks, --Andy

Andrew W. Alexander, P.G., RSM
Bunnell-Lammons Engineering, Inc. (BLE)
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(864) 288-4430 (fax)
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andy@blecorp.com
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-----Original Message-----

From: David Francis <david.francis@haywoodcountync.gov>
Sent: Thursday, April 05, 2018 9:19 AM
To: Andy Alexander <Andy.Alexander@blecorp.com>
Subject: Hall Property

Just received the go ahead from Chairman, Kirkpatrick. We will have the change order approved on the 16th.

David

Sent from my iPhone

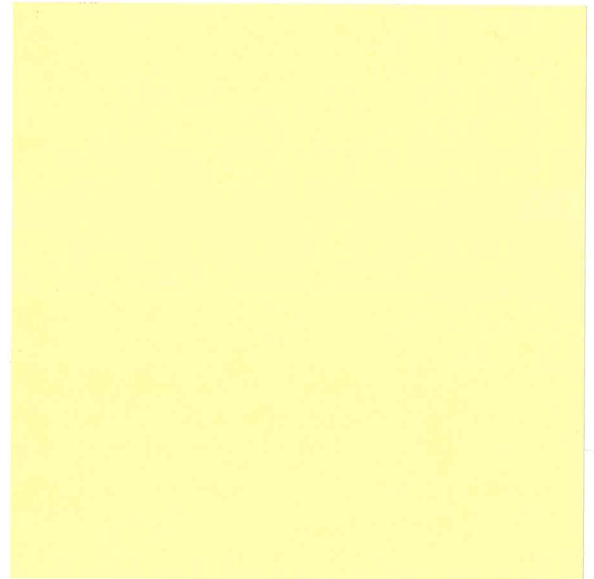


From: Andy Alexander [mailto:Andy.Alexander@blecorp.com]
Sent: Monday, April 09, 2018 9:07 AM
To: David Francis <david.francis@haywoodcountync.gov>
Subject: Change Order for Site A

Hello David,

I have attached the Change Order for Site A for the Jonathan Creek Project.
Thanks, --Andy

Andrew W. Alexander, P.G., RSM
Bunnell-Lammons Engineering, Inc. (BLE)
6004 Ponders Court
Greenville, South Carolina 29615
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(864) 288-4430 (fax)
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andy@blecorp.com
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Pursuant to North Carolina General Statutes Chapter 132, Public Records, this electronic mail message and any attachments hereto, as well as any electronic mail message(s) sent in response to it, may be considered public record and as such are subject to request and review by anyone at any time.

From: Andy Alexander [mailto:Andy.Alexander@blecorp.com]
Sent: Monday, April 16, 2018 2:50 PM
To: David Francis <david.francis@haywoodcountync.gov>
Cc: Sam Interlicchia <Sam.Interlicchia@blecorp.com>; Jesse Jacobson <Jesse.Jacobson@blecorp.com>
Subject: Site A Soils Results

David,

The results for Site A are attached. I have attached a test pit plan. Sam has not seen this data yet. Hot of the press, seconds ago.

I'm providing as preliminary draft for your information only. Test pits could only be advanced to less than 10 feet (most 7 to 8 feet) with the equipment used. **Materials deeper than the explorations are unknown.**

Some clayey material at the surface around TP-1 and TP-2. Some rocks present at the bottom of TP-2. You will want to selectively control uptake of large rocks and too much clay.

Where soils were similar they were composited as shown on the assignment sheet. Based on these results, the soils appear to be sufficient for use as structural fill. Note our limitations on sampling depth!

Sam will issue a report with more details. Thanks, --Andy

Andrew W. Alexander, P.G., RSM
Bunnell-Lammons Engineering, Inc. (BLE)
6004 Ponders Court

Greenville, South Carolina 29615

(864) 288-1265 (voice)

(864) 288-4430 (fax)

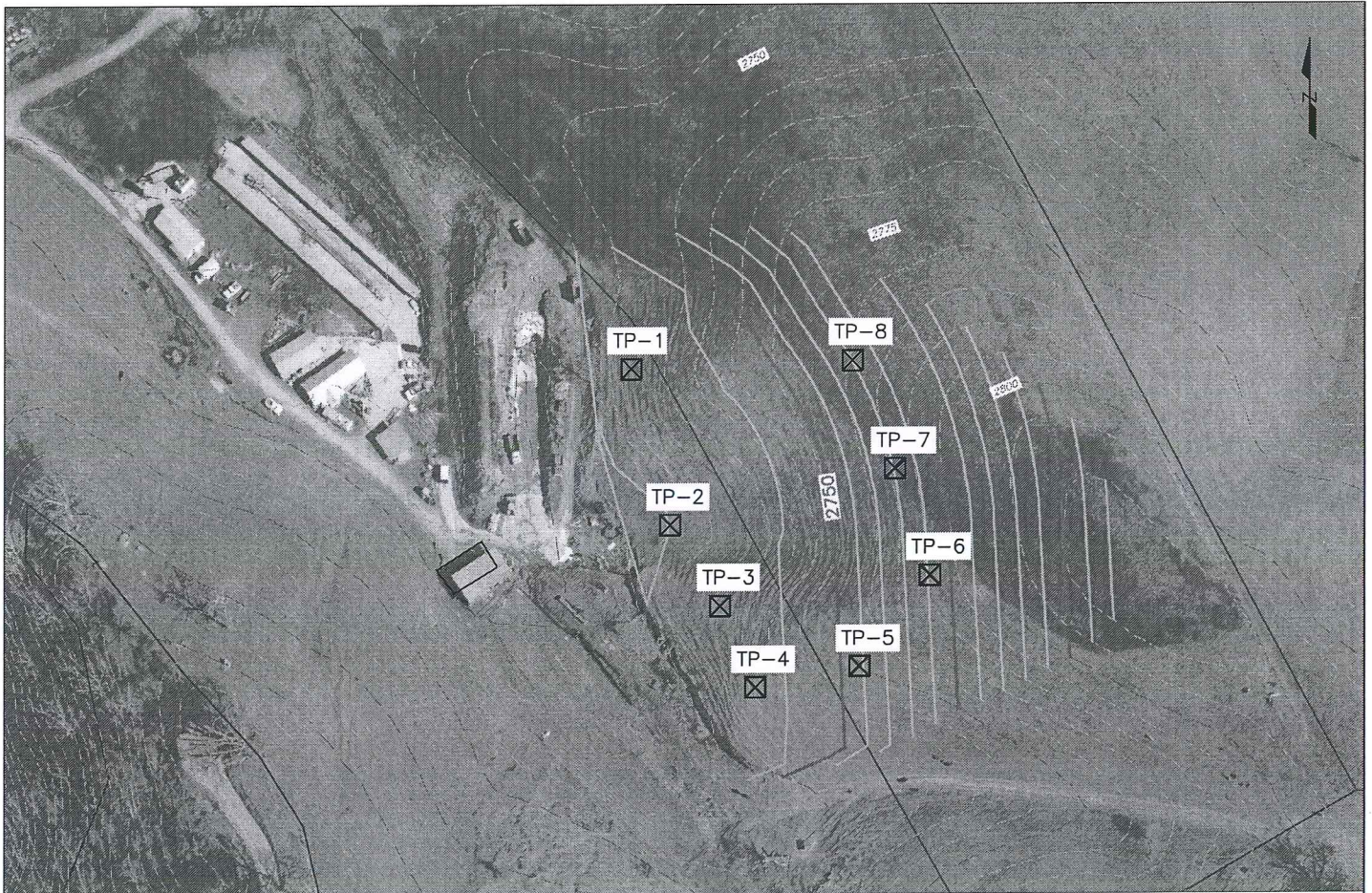
(864) 201-5530 (cell)

andy@blecorp.com

www.blecorp.com



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LEGEND

☒ APPROXIMATE LOCATION OF SOIL TEST PIT

DRAWN: DJA	DATE: 04-06-18
CHECKED:	SCALE: 1"=20'
APPROVED:	JOB NO: J18-12047-01

IBLE INC.
 BUNNELL-LAMMONS ENGINEERING, INC.
 130 OVAL ROAD, SUITE 200
 ARDEN, NORTH CAROLINA 28704
 PHONE: (828)277-0100 FAX: (828)277-0110

TEST PIT LOCATION PLAN
 JONATHAN CREEK SOIL RECLAMATION
 HAYWOOD COUNTY, NORTH CAROLINA

FIGURE

1

BUNNELL-LAMMONS ENGINEERING, INC.
 6004 PONDERS COURT
 GREENVILLE, SOUTH CAROLINA 29615
 PHONE: (864) 288 - 1265 FAX: (864) 288 - 4430

SOIL LABORATORY TEST ASSIGNMENT

PAGE 1 OF 1

ASSIGNMENT NUMBER 6716

PROJECT NAME: JONATHAN CREEK SOIL RECLAMATION
 BLE PROJECT NO.: J18-12047-01
 BLE PROJ. MANAGER: SAM INTERLICCHIA

SAMPLES RECEIVED BY: PY III DATE: 4/10/2018
INITIALS
 TESTING ASSIGNED BY: AA DATE: 4/10/2018
INITIALS
 REQUESTED COMPLETION DATE: 4/14/2018
 ASSIGNMENT COMPLETE: PY DATE: 4/16/2018
INITIALS

OTHER LABORATORY
COMPANY LOCATION
 SHIPPED BY: _____
SHIPPING AGENCY DATE

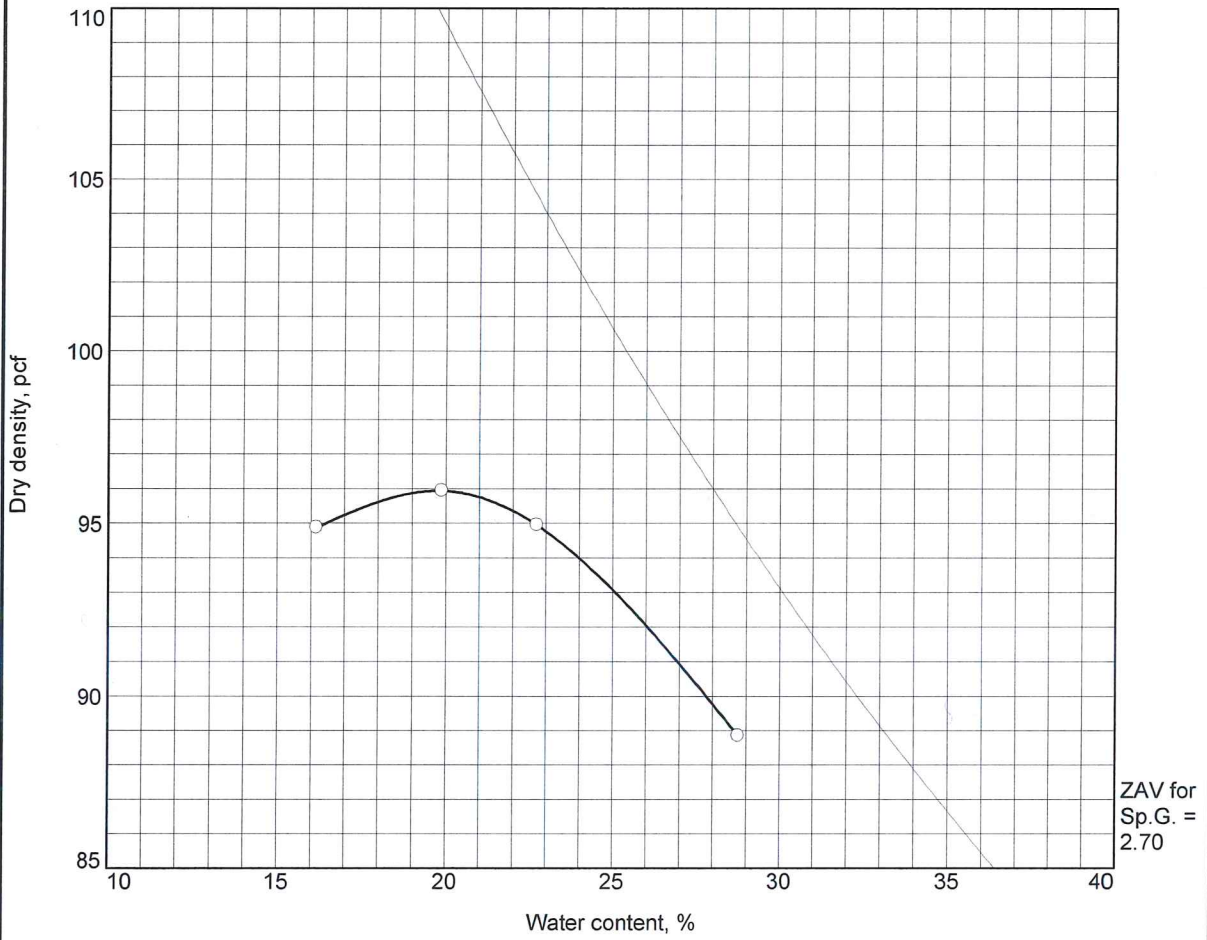
SAMPLE DESIGNATION	MOISTURE CONTENT		PI (LL-PL)	PARTICLE SIZE ANALYSIS			PROCTOR		PERMEABILITY		TRIAxIAL		UCC		CONSOL.		DIR SH D-3000	CBR D-1883	OGC D-2974	UNIT WEIGHT	SG D-854	pH D-4972	RESIS. G-187	CEC D-4319	FML	GEOFAB UW
	DEPTH IN FEET FROM	TO		TYPE	SIEVES ONLY	WITH HYDROMETER	% FINER NO. 200	STD. D-698	MOD. D-1557	UD.	RMLD.	UD.	RMLD.	UD.	RMLD.	UD.										
		D-2216	D-4318		D-422	D-1140			D-5084	CH (RW) D-2434	D-4767	D-2166	D-2435													
TP-1	0.5	7.0	BK				X																			
TP-2	3.0	7.0	BK				X																			
TP-2	8.0	9.0	BK				X																			
COMP-1			BK	TP-3, 3.0-7.0; TP-5, 6.0-7.5			X																			
COMP-2			BK	TP-4, 3.0-7.0; TP-5, 0.5-6.0			X																			
COMP-3			BK	TP-6, 3.0-7.5; TP-7, 3.0-8.0; TP-8, 3.0-8.0			X																			

Comments: _____

ASSIGN TESTING WITH AN X. SAMPLE TYPE: JAR=J, BAGGIE=BG, UD. TUBE=UD, BULK=BK

NOTE: ALL TEST PROCEDURES ARE ASTM UNLESS OTHERWISE SPECIFIED

COMPACTION TEST REPORT

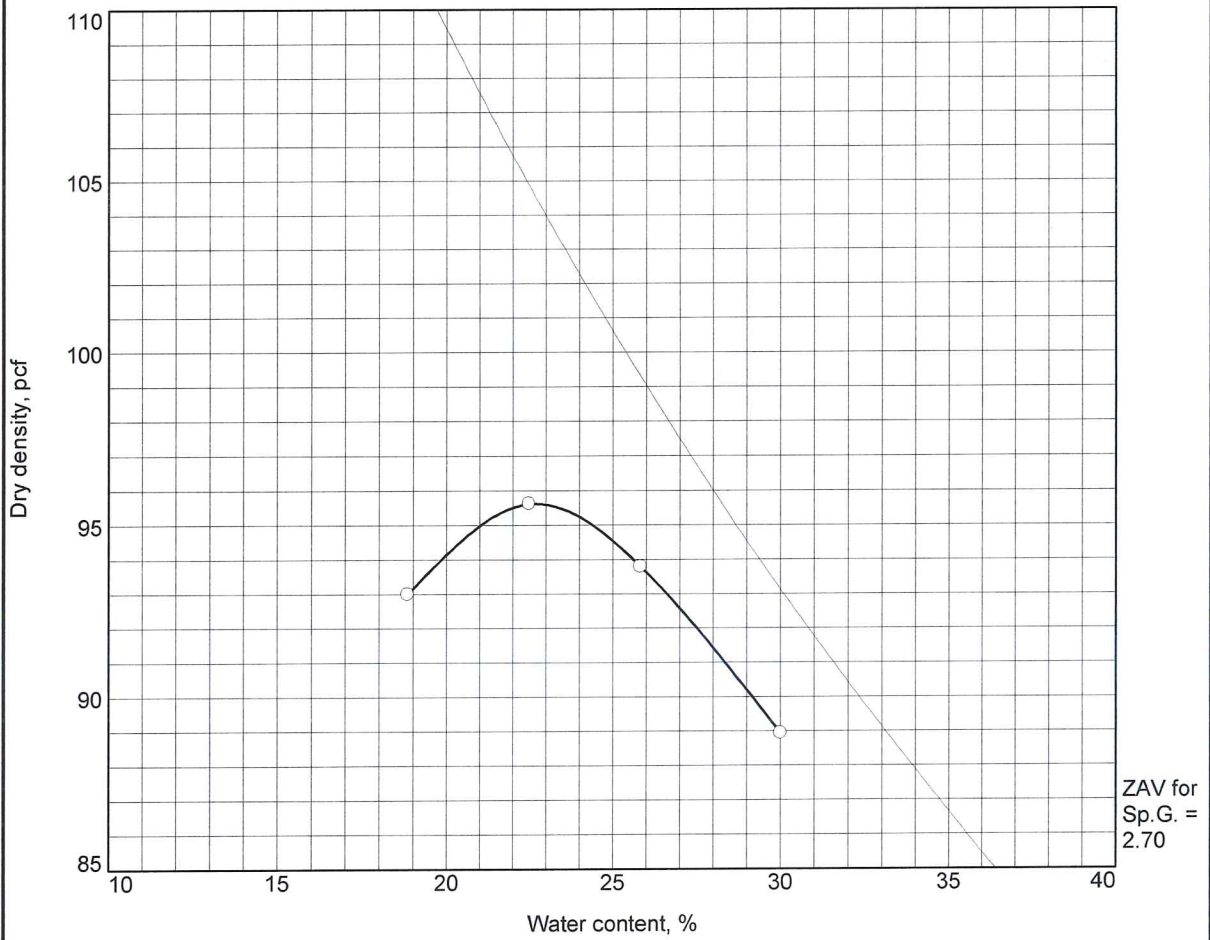


Test specification: ASTM D 698-07 Method A Standard

Elev/ Depth	Classification		Nat. Moist.	Sp.G.	LL	PI	% > #4	% < No.200
	USCS	AASHTO						

TEST RESULTS	MATERIAL DESCRIPTION
Maximum dry density = 95.9 pcf Optimum moisture = 19.8 %	Brown fi. sandy SILT
Project No. 12047-01 Client: Haywood County Project: Jonathan Creek Soil Reclamation Source of Sample: Test Pit Sample Number: COMP-1 Bunnell Lammons Engineering, Inc. Greenville, SC	Remarks: Compoiste of: TP-3, 3.0-7.0'; TP-5, 6.0-7.5' Figure

COMPACTION TEST REPORT

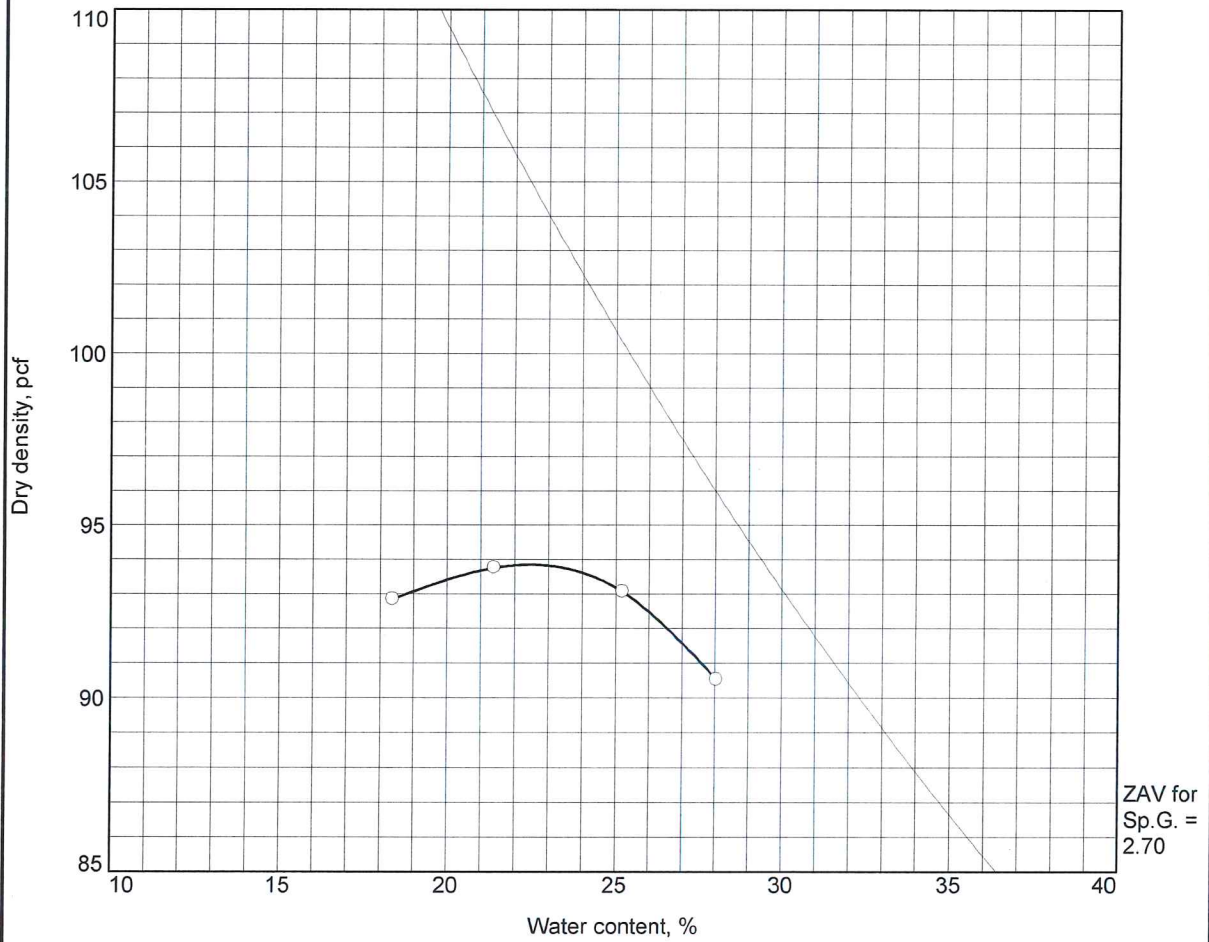


Test specification: ASTM D 698-07 Method A Standard

Elev/ Depth	Classification		Nat. Moist.	Sp.G.	LL	PI	% > #4	% < No.200
	USCS	AASHTO						

TEST RESULTS	MATERIAL DESCRIPTION
Maximum dry density = 95.6 pcf Optimum moisture = 22.7 %	Reddish brown fi. sandy SILT
Project No. 12047-01 Client: Haywood County Project: Jonathan Creek Soil Reclamation <input type="radio"/> Source of Sample: Test Pit Sample Number: COMP-2 Bunnell Lammons Engineering, Inc. Greenville, SC	Remarks: Composite of: TP-4, 3.0-7.0'; TP-5, 0.5-6.0'
	Figure

COMPACTION TEST REPORT



Test specification: ASTM D 698-07 Method A Standard

Elev/ Depth	Classification		Nat. Moist.	Sp.G.	LL	PI	% > #4	% < No.200
	USCS	AASHTO						

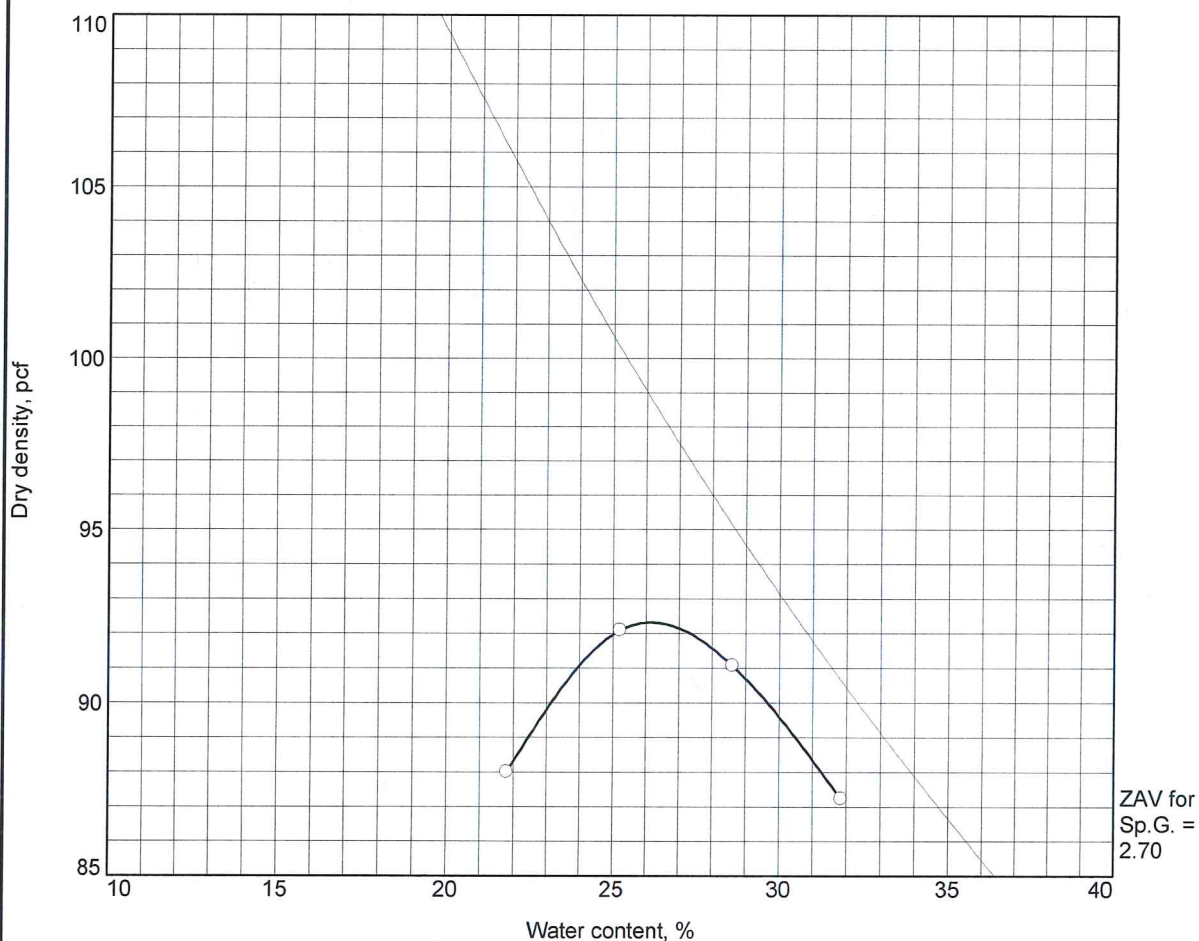
TEST RESULTS	MATERIAL DESCRIPTION
--------------	----------------------

Maximum dry density = 93.8 pcf Optimum moisture = 22.5 %	Brown fi. sandy SILT
---	----------------------

Project No. 12047-01 Client: Haywood County Project: Jonathan Creek Soil Reclamation <input type="checkbox"/> Source of Sample: Test Pit Sample Number: COMP-3	Remarks: Composite of: TP-6, 3.0-7.5'; TP-7, 3.0-8.0'; TP-8, 3.0-8.0'
---	---

Bunnell Lammons Engineering, Inc. Greenville, SC	Figure
---	---------------

COMPACTION TEST REPORT



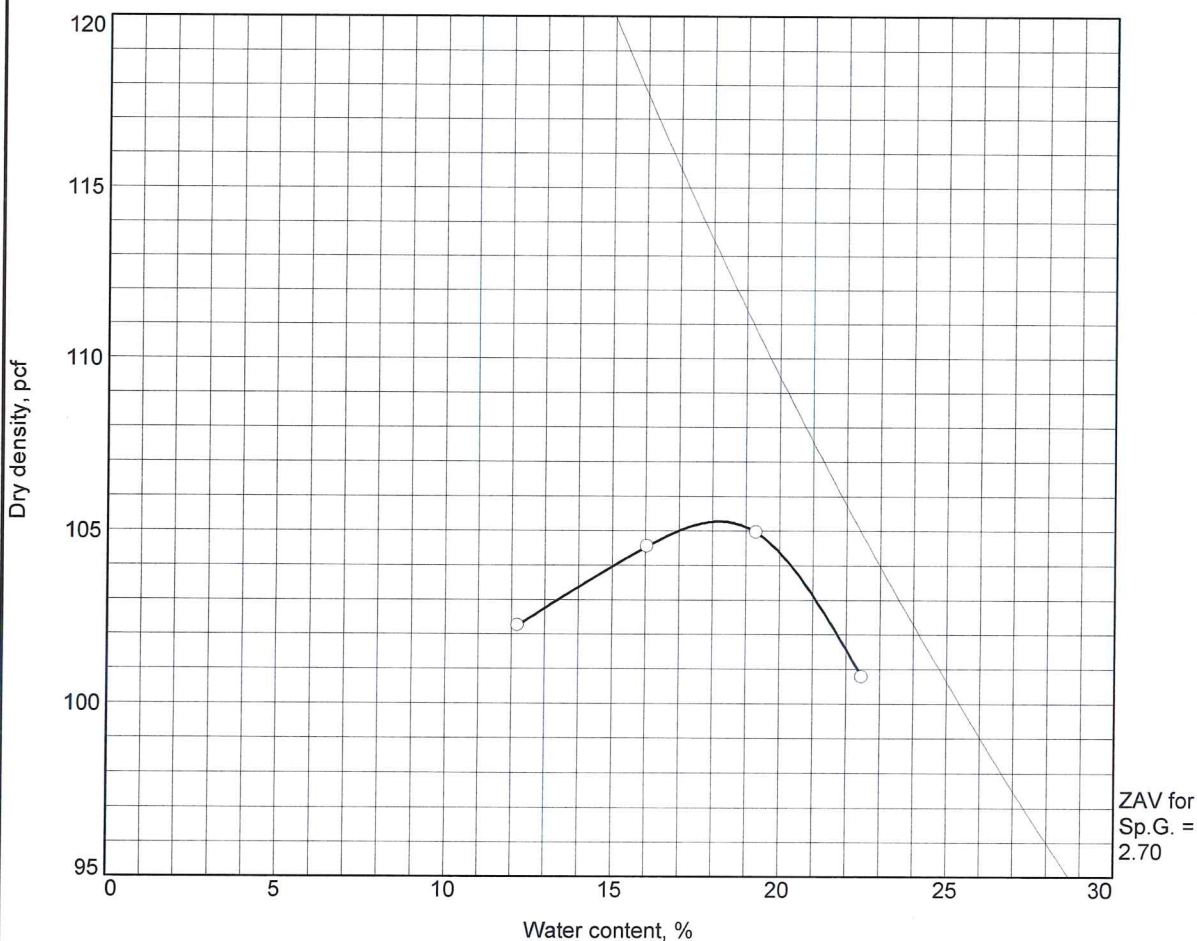
Test specification: ASTM D 698-07 Method A Standard

Elev/ Depth	Classification		Nat. Moist.	Sp.G.	LL	PI	% > #4	% < No.200
	USCS	AASHTO						
5.0-7.0								

TEST RESULTS	MATERIAL DESCRIPTION
Maximum dry density = 92.3 pcf Optimum moisture = 26.2 %	Brown fi. sandy CLAY
Project No. 12047-01 Client: Haywood County Project: Jonathan Creek Soil Reclamation <input type="checkbox"/> Source of Sample: Test Pit Sample Number: TP-1	Remarks:
Bunnell Lammons Engineering, Inc. Greenville, SC	

Figure

COMPACTION TEST REPORT



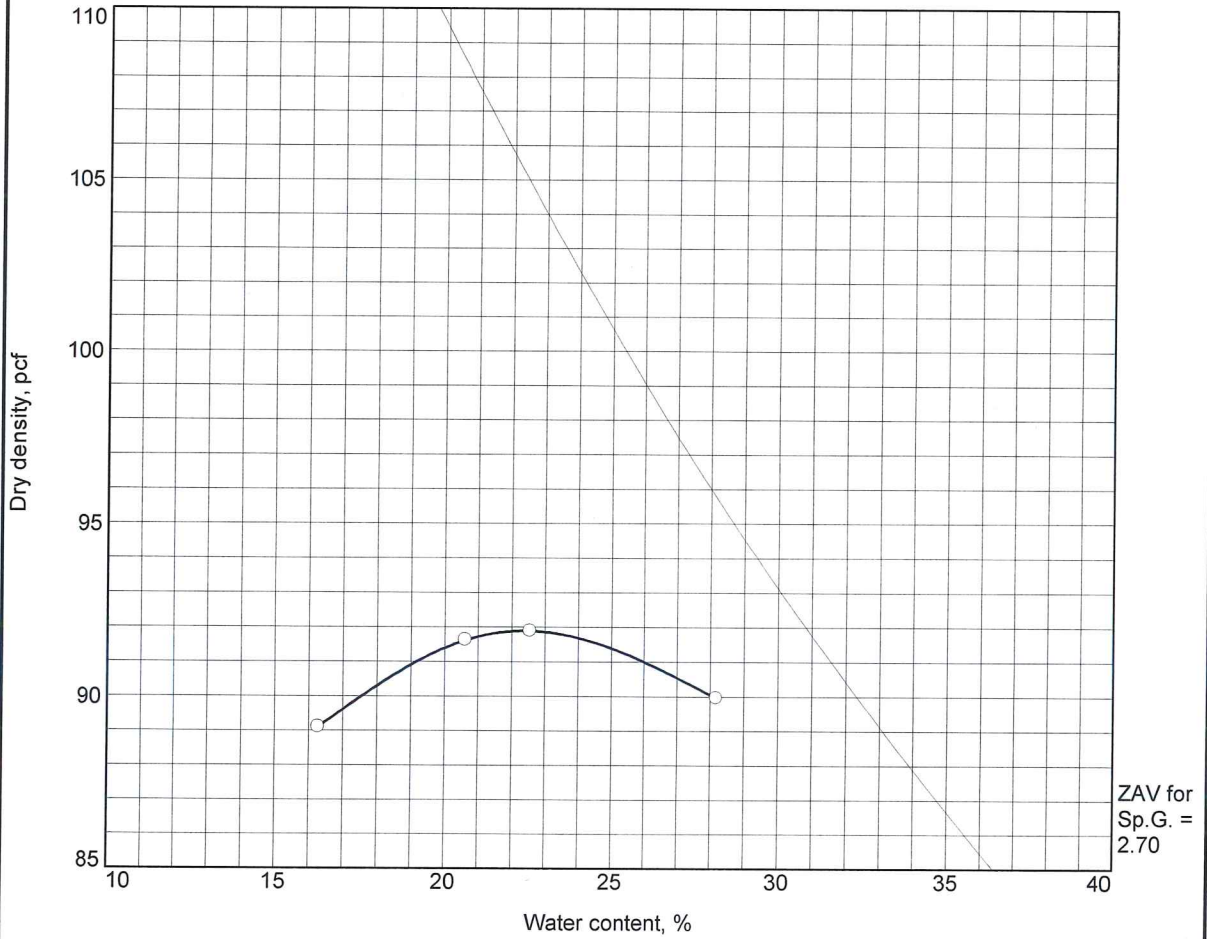
Test specification: ASTM D 698-07 Method A Standard

Elev/ Depth	Classification		Nat. Moist.	Sp.G.	LL	PI	% > #4	% < No.200
	USCS	AASHTO						
3.0-7.0								

TEST RESULTS	MATERIAL DESCRIPTION
Maximum dry density = 105.3 pcf Optimum moisture = 18.2 %	Brown silty fi.-med. SAND
Project No. 12047-01 Client: Haywood County Project: Jonathan Creek Soil Reclamation	Remarks:
<input type="radio"/> Source of Sample: Test Pit Sample Number: TP-2 Bunnell Lammons Engineering, Inc.	
Greenville, SC	

Figure

COMPACTION TEST REPORT



Test specification: ASTM D 698-07 Method A Standard

Elev/ Depth	Classification		Nat. Moist.	Sp.G.	LL	PI	% > #4	% < No.200
	USCS	AASHTO						
8.0-9.0								

TEST RESULTS	MATERIAL DESCRIPTION
Maximum dry density = 91.9 pcf Optimum moisture = 22.4 %	Brown fi. sandy SILT
Project No. 12047-01 Client: Haywood County Project: Jonathan Creek Soil Reclamation ○ Source of Sample: Test Pit Sample Number: TP-2 Bunnell Lammons Engineering, Inc. Greenville, SC	Remarks: <div style="text-align: right;">Figure</div>