Quible

Quible & Associates, P.C. ENGINEERING • ENVIRONMENTAL SCIENCES • PLANNING • SURVEYING SINCE 1959

April 25, 2024

Mr. Jason Litteral **Currituck County Planning & Community Development** 153 Courthouse Road, Suite 110 Currituck, North Carolina 27949

Re: Major Site Plan Application **RPP Holdings Group, LLC – 4510 Caratoke Hwy** Barco, Currituck County, North Carolina

Mr. Litteral,

On behalf of RPP Holdings Group LLC, Quible & Associates, P.C. hereby submits for your review the enclosed digital Major Site Plan application package for the subject referenced project located at 4510 Caratoke Hwy, Barco, Currituck County.

The following digital documents are included and shall be considered part of this submittal package:

- 1. A review fee of \$750 (7,500 sf x \$0.10 per sf) made payable to "Currituck County";
- 2. A stormwater review escrow fee of \$5,500 made payable to "Currituck County";
- 3. One (1) copy of the signed Major Site Plan Application with Major Site Plan Submittal Checklist;
- 4. One (1) Copy of the Stormwater SW-002 Form;
- 5. One (1) copy of the Site Plan, including Landscaping;
- 6. One (1) copy of Lighting Plan, including cut sheets;
- 7. One (1) copy of the Architectural Elevations;
- 8. One (1) copy of the Site Narrative and associated calculations;
- 9. One (1) copy of the ARHS site Evaluation;
- 10. One (1) copy of the DRAFT NCDEQ Stormwater Application;
- 11. One (1) copy of the DRAFT NCDEQ SESC Application;
- 12. One (1) copy of the DRAFT NCDOT Application;
- 13. One (1) CD containing digital copies of all the documents and plans.

At your earliest convenience, please review and do not hesitate to contact me at (252) 491-8147 or csaunders@quible.com should you have any questions or require any additional information.

Sincerely, Quible & Associates, P.C. UMSent

Cathleen M. Saunders, P.E

Encl.: as stated Cc: RPP Group Holdings, LLC P.O. Drawer 870 Kitty Hawk, NC 27949 Phone: 252-491-8147 Fax: 252-491-8146 web: quible.com



Major Site Plan

Application

OFFICIAL USE ONL	Y:
Case Number:	_N/A
Date Filed:	4/26
Gate Keeper:	_Che
Amount Paid:	\$750
	¢ E E

N/A 4/26/2024 Cheri Grego \$750.00 \$5,500 SW Fee

Contact Informe	ation		
APPLICANT:	RPP HOLDINGS GROUP, LLC.	PROPERTY OW	NER:
Name:	c/o Joe Gaca	Name:	SAME
Address:	917 Burnside Road	Address:	
	Manteo, NC 27954		
Telephone:	252-473-2167	Telephone:	
E-Mail Address	joeg@kelloggsupplyco.com	E-Mail Address:	
LEGAL RELATIO	NSHIP OF APPLICANT TO PROPERTY O	WNER: <u>SAME</u>	
Property Inform	nation		
Physical Street	Address: 4510 CARATOKE HWY		
Location: BAR	CO, CURRITUCK COUNTY		
Parcel Identific	ation Number(s): <u>8996-40-4911</u>		
Total Parcel(s)	Acreage: 12.02 ACRES TOTAL (3	.26 AC GB ANI	D REMAINING ZONED AG)
Existing Land L	se of Property. EX. BUILDING FOR	BUILDING SU	PPLES W/ GRAVEL PARKING
Request			
Project Name:	KELLOGG SUPPLY CO.		
Proposed Use of	of the Property: <u>RETAIL BUILDING</u>	W/ 7,500 SQ F	T OUTDOOR STORAGE SHED
Deed Book/Pa	ge Number and/or Plat Cabinet/Slide N	lumber: <u>8996-40</u>)-4911
Total square fo	otage of land disturbance activity: <u>2.9</u>	ACRE	
Total lot coverc	age: <u>75,946 sf</u>	Total vehicular u	use area:44,311 sf
Existing gross f	loor area: 7,133 SF ENCLOSED RETAIL	Proposed gross	floor area: 7,133 SF ENCLOSED RETAIL 7,500 OUTSIDE STORAGE
l hereby author All information	rize county officials to enter my property submitted and required as part of this p	for purposes of d rocess shall becom	letermining zoning compliance. ne public record.
A 1	0 H		
Hartos	Lakea.		4-22-2024
Poperty Owne	r(s)/Applicant*		Date

*NOTE: Form must be signed by the owner(s) of record, contract purchaser(s), or other person(s) having a recognized property interest. If there are multiple property owners/applicants a signature is required for each.

Major Site Plan Application Updated 9/2022 Page 3 of 6 Major Site Plan Design Standards Checklist

The table below depicts the design standards of the major site plan application. Please make sure to include all applicable listed items to ensure all appropriate standards are reviewed.

Major Site Plan

Design Standards Checklist

Date Received: _____4/25/2024

TRC Date: _____

Project Name: <u>RPP Holdings Group, LLC - 4510 Caratoke Hwy</u>

Applicant/Property Owner: <u>RPP Holdings Group, LLC</u>

	General	
1	Property owner name, address, phone number, and e-mail address.	X
2	Site address and parcel identification number.	X
3	North arrow and scale to be 1" = 100' or larger.	X
4	Vicinity map showing property's general location in relation to streets, railroads, and waterways.	X
5	Existing zoning classification and zoning setback lines of the property.	X
6	Scaled drawing showing existing and proposed site features: Property lines, acreage, adjacent use types, streets (right-of-ways), easements, buildings and accessory structures (including square feet and use), parking layout, vehicular use areas, driveways (including opposing driveways), loading spaces, refuse collection facilities (dumpsters), outdoor storage areas, ground based utility equipment, fences and walls, and sidewalks and pedestrian circulation. And location and size of existing and proposed infrastructure: Water mains (including and water taps), water meter details, backflow prevention details, wells, sewer mains or on-site septic systems (including repair area), electrical service, fire hydrants, detail of fire apparatus access to buildings, and any other public utility within all adjacent public right-of-ways and easements.	x
7	Approximate location of all designated Areas of Environmental Concern or other such areas which are environmentally sensitive on the property, such as Maritime Forest, CAMA, 404, or 401 wetlands as defined by the appropriate agency.	X
8	Sight distance triangles.	2
9	Proposed common areas, open space set-asides, and required buffers.	Z
	Landscape Plan	1
10	All existing and proposed planting areas and vegetation that will be used to comply with the landscaping requirements, including the species, caliper, and spacing of all vegetation.	X
11	Existing and proposed physical barriers to be used to comply with the bufferyard and screening requirements.	X
12	Heritage tree inventory and proposed tree protection zones.	X
13	Adjoining property lines, zoning, and names and address of adjoining property owners.	X
	Exterior Lighting Plan	12
14	Location, height, and type of all proposed exterior lighting including but not limited to site, street, building, and security lighting.	X
15	Footcandle measurements of the entire site including lot lines, or light fixture documentation when minimal lighting is proposed.	X
a di	Major Stormwater Management Plan	
_		

Page 4 of 6

	Architectural Elevations	E Mar
17	Architectural drawings and/or sketches illustrating the design, character, height, and materials of the proposed buildings.	X
	Flood Damage Prevention, if Applicable	
18	Proposed elevation of all structures and utilities.	X
19	Location, dimensions, and use of: Development and disturbance, existing and proposed structures and utility systems grading and pavement areas, fill materials, storage areas, drainage facilities, and other development.	X
20	Boundary of Special Flood Hazard Area (SFHA), floodway, Coastal Barrier Resource System (CBRS) Area, water course relocation, or a statement that the entire lot is within a specific SFHA.	n/a
21	Flood zone designation as determined on the County's Flood Insurance Rate Maps (FIRM).	X
22	Design Flood Elevation (Base Flood Elevation plus one foot freeboard).	X
23	Plans and/or details for the protection of public facilities and utilities (sewer, gas, electrical, and water systems) from inundation of flood waters up to Design Flood Elevation.	X
24	Water course alteration or relocation: Description of alteration or relocation, report on effects of proposed project on the flood carrying capacity of the water course, and effects to properties located up and downstream.	n/a
25	Fill – plans for non-structural fill (if being utilized in VE zone).	n/a

Major Site Plan Submittal Checklist

Staff will use the following checklist to determine the completeness of your application within ten business days of submittal. Please make sure all of the listed items are included. Staff shall not process an application for further review until it is determined to be complete.

Major Site Plan

Submittal Checklist

Date Received:	4/25/2024	TRC Date:	5/8/2024	
Project Name:	RPP Holdings Group, LLC - 4510 Caratoke Hwy			

Applicant/Property Owner: <u>RPP Holdings Group, LLC</u>

Maj	or Site Plan Submittal Checklist	
1	Complete Major Site Plan application	Χ
2	Application fee (\$.10 per square foot of gross floor area or \$400 minimum)	Х
3	Site plan	Х
4	Landscape plan	Χ
5	Exterior Lighting plan	Х
6	Major Stormwater Management plan and Form SW-002	Х
7	Architectural elevations, if applicable	Χ
8	ARHS site evaluation(s) OR if connecting to existing wastewater system, a letter of commitment from owner of centralized sewer provider and letter from DWQ indicating the existing plant has sufficient capacity to serve the development at the time of site plan approval.	X
9	NCDEQ stormwater permit application (if 10,000sf or more of built upon area).	Χ
10	NCDEQ Erosion and Sedimentation Control permit application (if one acre or more of land disturbance).	X
11	NCDOT Street and Driveway Access Permit Application and Encroachment Agreement	Χ
12	2 copies of plans	n/a
13	2 hard copies of ALL documents	n/a
14	1 PDF digital copy of all plans AND documents (ex. Compact Disk – e-mail not acceptable)	X

For	Staff	Only
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Pre-application Conference

Pre-application Conference was held on <u>4/22/2024</u> and the following people were present: see attached pre application notes

Comments

see attached pre application notes

Major Site Plan Application Updated 9/2022 Page 6 of 6

From:	Jennie Turner
То:	Cathleen Saunders; Mike Strader
Cc:	Jason Litteral; Jovita Hood; Anna Cherry
Subject:	Kellogg"s Pre-Application Conference
Date:	Monday, April 22, 2024 2:47:00 PM

Good afternoon,

Attached are the notes from our pre-app conference this afternoon.

Kellogg Supply Major Site Plan

April 22, 2024 2 PM

Attendees: Cathleen Saunders, Michael Strader, Joe Gaca, Richie Palmer, Bill Newns, Rick Godsey, Jo Hood, Anna Cherry, Jennie Turner

- Round down the parking spaces for retail to 26 and the storage to 3 for a total of 29 required.
- UDO Section 5.8.3 requires no more than 50% of required parking be located between the primary façade and the street.
- Section 8.6.5 A and B may require full compliance with off-street parking, landscaping, buffers, screening and signage. Including streetscape landscaping.
- An 8-foot-wide sidewalk is required along Caratoke Highway.
- Building elevations are needed to review for compliance with design standards.
- SW escrow fee \$5500 required with submittal.
- Provide parking lot cross-access easements and improvements to the property line for both adjacent parcels.
- Heritage tree ordinance applies.
- There appears to be proposed fill in the 10-foot setback in the SW corner that is not part of stormwater conveyance.
- An As-Built survey is required due to proximity of proposed building to the setback.

Thank you, Jennie Turner Assistant Planning Director Currituck County Phone: 252-232-6031 Email: jennie.turner@currituckcountync.gov Website: www.currituckgovernment.com



Major Stormwater Plan Form SW-002

APPLICANT:			PROPERTY OW	/NER:				
Name:	RPP Holdings Group, LLC.		Name:	same				
Address	917 Burnside Road		Address					
Address:	Manteo, NC 27954		Address:					
Telephone	252-473-2167		Telephone					
E-Mail Addres	s: joeg@kelloggsupplyco.c	com	E-Mail Address	:				
Property Infor	mation							
Physical Stree	t Address: 4510 Caratoke	Hwy						
Parcal Identifi	cation Number(s), 8996-40-	4911						
FEMA Flood Z	one Designation: Varies - see	e plan						
FEMA Flood Z Request	one Designation: <u>varies - sec</u>	e plan						
FEMA Flood Z Request Project Descri	one Designation: <u>varies - sec</u>	e plan						
FEMA Flood Z Request Project Descri Total land dis	one Designation: <u>varies - sec</u> ption: <u>Kellogg's Supply Co.</u> turbance activity: <u>126,324</u>	e plansf	Calculated volu	ume of BMPs: 24,085	sf			
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Property Owner(s)/Applicant ONK

4-22-20 a4

OFFICIAL USE ONLY: Permit Number: _____ Date Filed: _____ Date Approved: _____

Date

Major Stormwater Plan SW-002 Page 2 of 4 Major Stormwater Plan Design Standards Checklist

The table below depicts the design standards of the major stormwater plan application. Please make sure to include all applicable listed items to ensure all appropriate standards are reviewed.

Major Stormwater Plan

Design Standards Checklist

Date Received: _____

Project Name: <u>RPP Holdings Group, LLC - 4510 Caratoke Hwy</u>

Applicant/Property Owner: <u>RPP Holdings Group, LLC</u>

Min	or Stormwater Plan Design Standards Checklist	
1492	General	
1	Property owner name and address.	X
2	Site address and parcel identification number.	√
3	North arrow and scale to be 1" = 100' or larger.	X
	Site Features	State Sta
4	Scaled drawing showing existing and proposed site features: Property lines with dimensions, acreage, streets, easements, structures (dimensions and square footage), fences, bulkheads, septic area (active and repair), utilities, vehicular use areas, driveways, and sidewalks.	X
5	Approximate location of all designated Areas of Environmental Concern (AEC) or other such areas which are environmentally sensitive on the property, such as Maritime Forest, CAMA, 404, or 401 wetlands as defined by the appropriate agency.	X
6	Existing and proposed ground elevations shown in one foot intervals. All elevation changes within the past six months shall be shown on the plan.	X
8	Limits of all proposed fill, including the toe of fill slope and purpose of fill.	X
9	Square footage of all existing and proposed impervious areas (structures, sidewalks, walkways, vehicular use areas regardless of surface material), including a description of surface materials.	X
10	Existing and proposed drainage patterns, including direction of flow.	X
11	Location, capacity, design plans (detention, retention, infiltration), and design discharge of existing and proposed stormwater management features.	X
12	Elevation of the seasonal high water level as determined by a licensed soil scientist.	X
13	Plant selection.	X
	Permits and Other Documentation	Aller 18
14	NCDENR stormwater permit application (if 10,000sf or more of built upon area).	X
15	NCDENR erosion and sedimentation control permit application (if one acre or more of land disturbance).	X
16	NCDENR coastal area management act permit application, if applicable.	n/a
17	Stormwater management narrative with supporting calculations.	X
18	Rational Method Form SW-003 or NRCS Method Form SW-004	X
19	Alternative stormwater runoff storage analysis and/or downstream drainage capacity analysis, if applicable	n/a
20	Design spreadsheets for all BMPs (Appendix F – Currituck County Stormwater Manual). See na	rrative
21	Detailed maintenance plan for all proposed BMPs.	X

22 The major stormwater plan shall contain the following certificate:

I, <u>Joseph T Goca</u> owner/agent hereby certify the information included on this and attached pages is true and correct to the best of my knowledge.

Certificate

On the plan entitled <u>Kellogg Supply Co</u>, stormwater drainage improvements shall be installed according to these plans and specifications and approved by Currituck County. Yearly inspections are required as part of the stormwater plan. The owner is responsible for all maintenance required. Currituck County assumes no responsibility for the design, maintenance, or performance of the stormwater improvements. Date: <u>4-24-2024</u> Owner/Agent: <u>Jank</u>

Major Stormwater Plan Submittal Checklist

Staff will use the following checklist to determine the completeness of your application. Please make sure all of the listed items are included. Staff shall not process an application for further review until it is determined to be complete.

Major Stormwater Plan Form SW-002

Submittal Checklist

Date Received: ___

Project Name: <u>RPP Holdings Group, LLC - 4510 Caratoke Hwy</u>

Applicant/Property Owner: <u>RPP Holdings Group, LLC</u>

Major Stormwater Plan Form SW-002 Submittal Checklist						
1	Completed Major Stormwater Plan Form SW-002	X				
2	Completed Rational Method Form SW-003 or NRCS Method Form SW-004	Χ				
3	Stormwater plan	Χ				
4	NCDENR permit applications, if applicable DRAFT included	Χ				
5	3 copies of plans	n/a				
6	3 hard copies of ALL documents	n/a				
7	1 PDF digital copy of all plans AND documents (ex. Compact Disk – e-mail not acceptable)	X				

Comments

Major Stormwater Plan SW-002 Page 4 of 4



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0.1 0.1 0.2		Sym		Giy			Single			Watts	12120		
0.1				3	MRM-LED-12L-SIL-F1-40-70CF		Single	1.000	85	85	13138	25	
				8	AWL	<il< td=""><td>Single</td><td>0.900</td><td>135</td><td>135</td><td>1500</td><td>15</td><td></td></il<>	Single	0.900	135	135	1500	15	
Calculation Summary										7			
Label	CalcType	Units	Avg Ma	c Min	Avg/Min	Max/Min	PtSpcLr	PtSpcTb	Grid Z	_			
Lot Prop Line	Illuminance Illuminance	Fc Fc	1.25.10.21.7	0.0	N.A. N.A.	N.A. N.A.	10 10	10 N.A.	0 N.A.	_			
				I						_			
													Page 1 of 1



Prepared By : _____

Project : __

Date : _

AWL All-Weather Wallpack - Low Profile



OVERVIEW							
Lumen Range	1500						
ССТ	4000K						
Wattage	15						
Efficacy (LPW)	100						
Weight lbs (kg)	3.7 lbs (EP model 4.5 lbs.)						

FEATURES & SPECIFICATIONS

Construction

- Die-cast aluminum housing
- Available in Bronze, White, Black, and Silver

Optical

- UV-resistant, high-impact polycarbonate lens
- Minimum CRI of 70

Electrical

- Standard Universal Voltage 120/277VAC dual primary at 60Hz
- Emergency Package (EP) option draws and additional 17W and includes self-test/selfdiagnostic and a heater for cold weather operation to -25°C (-13°F)
- Standard photocontrol sensor for use in dusk to dawn applications that can be disabled

A \ A / I

to be used as and always on or switchable fixture.

 Optional PIR motion sensor (PIR) with up to 10' of detection and operational dusk to dawn. The light will activate when motion is detected in AC mode only and turn off after two minutes of inactivity.

Battery

- Maintenance-free NiCad Battery
- Operating temperatures: -25°C to 50°C (-13°F to 122°F)

Installation

- Universal pattern backplate provides 3" or 4" J-box mounting pattern with keyhole slots
- Can be surface mounted using the ½" conduit entry point at top of housing



Warranty

• 5 year warranty on all electronics and housing

Listings

- UL 924
- cULus Listed for Wet Locations
- IP65 rated
- State of California Title 24
- NFPA 101
- NFPA 70
- NEC
- UL Listed 90 minute emergency run time, 24 hour recharge time

ORDERING GUIDE

TYPICAL ORDER EXAMPLE: AWL BR EP		
Prefix	Housing Color	Controls
AWL - All-Weather Wallpack Low Profile	BR - Bronze	EP1 - Emergency Package
	WH - White	PIR ² - PIR motion sensor
	BK - Black	
	SL - Silver	

1 - EP option includes self-test/self-diagnostic and a heater for cold weather operation to -25°C (-13°F)

2 - PIR option adds a PIR motion sensor and removes photocontrol

PRODUCT DIMENSIONS



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Project : ___

Type:.

Date : _

Mirada Medium (MRM)

Outdoor LED Area Light

MANUFACTURED	TITLE 24 COMPLIANT	CULUSTED US			ROHS	IP66	IK08	
--------------	--------------------------	-------------	--	--	------	------	------	--

OVERVIEW							
Lumen Package	7,000 - 55,000						
Wattage Range	48 - 438						
Efficacy Range (LPW)	115 - 162						
Weight lbs(kg)	30 (13.6)						
Control Options	IMSBT, ALB, ALS, 7-Pin, PCI						

FEATURES & SPECIFICATIONS

Construction

- Rugged die-cast aluminum housing contains factory prewired driver and optical unit. Cast aluminum wiring access door located underneath.
- Designed to mount to square or round poles.
- Fixtures are finished with LSI's DuraGrip* polyester powder coat finishing process. The DuraGrip finish withstands extreme weather changes without cracking or peeling. Other standard LSI finishes available. Consult factory.
- Shipping weight: 37 lbs in carton.

Optical System

- State-of-the-Art one piece silicone optic sheet delivers industry leading optical control with an integrated gasket to provide IP66 rated sealed optical chamber in 1 component.
- Proprietary silicone refractor optics provide exceptional coverage and uniformity in IES Types 2, 3, 4, 5W, FT, FTA, AM, and LC/RC.
- Silicone optical material does not yellow or crack with age and provides a typical light transmittance of 93-95%.
- Zero uplight.
- Available in 5000K, 4000K, and 3000K color temperatures per ANSI C78.377. Also Available in Phosphor Converted Amber with Peak intensity at 610nm.
- Minimum CRI of 70.
- Integral louver (IL) and integral half louver (IH) options available for enhanced backlight control.

Electrical

QUICK LINKS

Ordering Guide

 High-performance programmable driver features over-voltage, under-voltage, shortcircuit and over temperature protection. Custom lumen and wattage packages available.

Performance

- 0-10V dimming (10% 100%) standard.
- Standard Universal Voltage (120-277 Vac) Input 50/60 Hz or optional High Voltage (347-480 Vac).
- L80 Calculated Life: >100k Hours (See Lumen Maintenance chart)
- Total harmonic distortion: <20%
- Operating temperature: -40°C to +50°C (-40°F to +122°F). 42L and 48L lumen packages rated to +40°C. 55L lumen package rate to +35°C.
- Power factor: >.90
- Input power stays constant over life.
- Field replaceable 10kV surge protection device meets a minimum Category C Low operation (per ANSI/IEEE C62.41.2).
- High-efficacy LEDs mounted to metal-core circuit board to maximize heat dissipation
- Components are fully encased in potting material for moisture resistance. Driver complies with FCC standards. Driver and key electronic components can easily be accessed.

Controls

- Optional integral passive infrared Bluetooth™ motion. Fixtures operate independently and can be commissioned via iOS or Android configuration app
- LSI's AirLink[™] wireless control system options reduce energy and maintenance

costs while optimizing light quality 24/7. (see controls section for more details).

Dimensions

Installation

Photometrics

- Designed to mount to square or round poles.
- A single fastener secures the hinged door, underneath the housing and provides quick & easy access to the electrical compartment.
- Included terminal block accepts up to 12 ga. wire.
- Utilizes LSI's traditional 3" drill pattern B3 for easy fastening of LSI products.

Warranty

• LSI LED Fixtures carry a 5-year warranty.

Listings

- Listed to UL 1598 and UL 8750.
- Meets Buy American Act requirements.
- IDA compliant; with 3000K color temperature selection.
- Title 24 Compliant; see local ordinance for qualification information.
- RoHS compliant
- Suitable for wet Locations.
- IP66 rated Luminaire per IEC 60598.
- 3G rated for ANSI C136.31 high vibration applications are qualified.
- DesignLights Consortium® (DLC) qualified product. Not all versions of this product may be DLC qualified. Please check the DLC Qualified Products List at <u>www.designlights.</u> <u>org/QPL</u> to confirm which versions are qualified.
- Patented Silicone Optics (US Patent NO. 10,816,165 B2)
- IK08 rated luminiare per IEC 66262 mechanical impact code

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ORDERING GUIDE

Back to Quick Links

TYPICAL ORDER EX	KAMPLE: MRM	I LED 36L SIL FTA UN	/ DIM 50	70CRI ALSCSO4 BRZ IL				
Prefix	Light Source	Lumen Package	Lens	Distribution	Orientation ²		Voltage	Driver
MRM - Mirada Medium Area Light	LED	7L - 7,000 Ims, 48W 9L - 9,000 Ims, 62W 12L - 12,000 Ims, 85W 18L - 18,000 Ims, 135W 24L - 24,000 Ims, 176W 30L - 30,000 Ims, 232W 36L - 36,000 Ims, 288W 42L - 42,000 Ims, 314W 48L - 48,000 Ims, 401W 55L - 55,000 Ims, 438W Custom Lumen Packages ¹	SIL - Silicone	2 - Type 2 3 - Type 3 4 - Type 4 5W - Type 5 Wide FT - Forward Throw FTA - Forward Throw Automotive AM - Automotive Merchandise LC - Left Corner RC - Right Corner	(blank) - standa L- Optics rotated R - Optics rotated	ard 1 left 90° kd right 90°	UNV - Universal Voltage (120-277V) HV - High Voltage (347-480V)	DIM - 0-10V Dimming (0-10%)
Color Temp		Color Rendering	Finish			Options		
50 - 5,000 CCT		70CRI - 70 CRI	BLK - Bla	ck MSV – Metallic Si	lver	(Blank) - Non	16	

				- Frank
50 - 5,000 CCT 40 - 4,000 CCT	70CRI - 70 CRI	BLK – Black BRZ – Dark Bronze	MSV – Metallic Silver PLP – Platinum Plus	(Blank) - None
30 - 3,000 CCT AMB - Phosphor Converted Amber ¹²		GMG – Gun Metal Gray GPT – Graphite	SVG – Satin Verde Green WHT – White	IH – Integral Half Louver (Moderate Spill Light Cutoff) ² IL – Integral Louver (Sharp Spill Light Cutoff) ²

Controls (Choose One)

(Blank) - None

Wireless Controls System

ALSC - AirLink Synapse Control System¹³

- ALSCS02 AirLink Synapse Control System with 12-20' Motion Sensor¹³
- ALSCS04 AirLink Synapse Control System with 20-40' Motion Sensor¹³
- ALBCS1 AirLink Blue Wireless Motion & Photo Sensor Controller (8-24' mounting height) 5

Need more information?

Click here for our glossary

ALBCS2 - AirLink Blue Wireless Motion & Photo Sensor Controller (25-40' mounting height) 5

Stand-Alone Controls

EXT - 0-10v Dimming leads extended to housing exterior CR7P - 7 Pin Control Receptacle ANSI C136.41⁶ IMSBTL1- Integral Bluetooth™ Motion and Photocell Sensor (8-24' MH)⁵ IMSBTL2- Integral Bluetooth™ Motion and Photocell Sensor (25-40' MH)⁵ **Button Type Photocells** PC1120 - 120V PC1208-277 - 208 -277V PC1347 - 347V

Have additional questions? Call us at (800) 436-7800



ACCESSORY ORDERING INFORMATION⁷

CONTROLS ACCESSORIES	
Description	Order Number
PC120 Photocell for use with CR7P option (120V) ⁸	122514
PC208-277 Photocell for use with CR7P option (208V, 240V, 277V) ⁸	122515
Twist Lock Photocell (347V) for use with CR7P ⁸	122516
Twist Lock Photocell (480V) for use with CR7P ⁸	1225180
AirLink 5 Pin Twist Lock Controller (120-277V Only) ⁸	661409
AirLink 7 Pin Twist Lock Controller (120-277V Only) ⁸	661410
AirLink 7 Pin Twist Lock Controller (347-480V)	679948
Shorting Cap for use with CR7P	149328

	FUSING OPTIONS ¹¹		SHIELDING OPTIO	NS
	Single Fusing (120V)		Mirada Small	
	Single Eucing (2771/)		Mirada Medium	
-		See Fusing	Mirada Large	See Shielding
_	Double Fusing (208V, 240V)	Accessory	Zone Medium	Guide
	Double Fusing (480V)	Guide	Zone Large	
	Double Fusing (347V)		Slice Medium	
		·,		

Custom lumen and wattage packages available, consult factory. Values are within industry standard tolerances but not DLC listed.
 Not available with SW distribution

- Not available with 5W distribution
 Consult Factory for availability.
- 5. Consult ractory for ave
- 4. Not available in HV.
- Motion sensors are field configurable via an app that can be downloaded from your smartphone's native app store. See controls section for more details.
- 6. Control device or shorting cap must be ordered separately. See Accessory Ordering Information.

- 7. Accessories are shipped separately and field installed.
- 8. Factory installed CR7P option required. See Options.
- 9. "CLR" denotes finish. See Finish options.
- 10. Only available with ALSC/ALSCH control options.
- 11. Fusing must be located in hand hole of pole. See Fusing Accessory Guide for compatability.
- 12. Only available in 9L, 12L, 18L and 24L Lumen Packages. Consult factory for lead time and availability.
- 13. Not available with 55L Lumen Package.

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ACCESSORIES

MO	JNTING ACCESSORIES		SHIELDING, POLES & MISC. ACCESSORIES				
	Universal Mounting Bracket Mounts to ≥ 3" square or round (tapered/straight) poles with (2) mounting hole spaces between 3.5" to 5" Part Number: BKA UMB CLR			Integral Louver Field Install Integral Louver provides maximum backlight control by shiedling each individual row of LEDS Part Number: 690981			
Side Arm	Quick Mount Plate True one person installation to existing/new contruction poles with hole spaces beteen 2.4 to 4.6" Part Number: BKS PQM B3B5 XX CLR		Shielding	Integral Half Louver Field Install Integral Half Louver provides great backlight control without impacting front side distribution. Part Number: 743415			
	15° Tilt Quick Mount Plate True one person installation to existing/new contruction poles with hole spaces beteen 2.4 to 4.6" Part Number: BKS P015 B3B5 XX CLR			External Shield External shield blocks view of light source from anyside of luminaire, additional shielding configurations available Part Number: 783607BLK (3") / 776538BLK (6")			
	Adjustable Slipfitter Mounts onto a 2" (51mm) IP, 2.375" (60mm) 0.D. tenon and provides 180° of tilt (max 45° above horizontal) Part Number: BKA ASF CLR			Square Poles 14 - 39' steel and aluminum poles in 4", 5" and 6" sizes for retrofit and new construction Part Number: 4SQ/SSQ/6SQ			
Tenon / Slipfitter	Square Tenon Top Mounts onto a 2" (51mm) IP, 2.375" (60mm) 0.D. tenon and allows for mounting up to 4 luminaires Part Number: BKA XNM *		Poles	Round Poles 10 - 30' steel and aluminum poles in 4" and 5" sizes for retrofit and new construction Part Number: 4RP/5RP			
	Square Internal Slipfitter Mounts inside 4" or 5" square pole and allows for mounting up to 4 lumianires Part Number: BKA X_ISF * CLR			Tapered Poles 20' - 39' steel and aluminum poles for retrofit and new construction Part Number: RTP			
/ Wood Pole	Wall Mount Bracket Mounts onto vertical wall surface (hardware/anchors not included) Part Number: BKS XBO WM CLR	• • •	Misc.	Bird Spikes 10' Linear Bird Spike Kit, 4' recommended per luminaire, includes silcone adhesive and application tool Spike Part Number: 751631 Adhesive Part Number: 751632 Caulk Gun Part Number: 751636	<u>VANAMANAN NANA</u>		
Wall Mount	Wood Pole Bracket Mounts onto wooden poles (6" minimum OD, hardware/anchors not inlcuded) Part Number: BKS XBO WP CLR		Repla Repla Repla Repla Repla	ce CLR with paint finish description ree X with: 3 ree XX with SQ for square pole or RD for round pole (≥3" OD) ree * with SQ Single), D180 (Double @180°), D90 (Double @90°), T90 (Triple), Q90 (Quad) ree _ with 4 (4" square pole) or 5 (5" square pole)			

OPTICS ROTATION



Integral Louver (IL) and House-Side Shield (IH)

Integral louver (IL) and half louver (IH) accessory shields available for improved backlight control without sacrificing street side performance. LSI's Integral Louver (IL) and Integral House-Side Shield (IH) options deliver backlight control that significantly reduces spill light behind the poles for applications with pole locations close to adjacent properties. The design maximizes forward reflected light while reducing glare, maintaining the optical distribution selected, and most importantly eliminating light trespass. Both options rotate

Louver (IL)

Luminaire Shown with Integral

7 Pin Photoelectric Control

ACCESSORIES/OPTIONS

7-pin ANSI C136.41-2013 control receptacle option available for twist lock photocontrols or wireless control modules. Control accessories sold separately. Dimming leads from the receptacle will be connected to the driver dimming leads (Consult factory for alternate wiring).



IMSBTL

Luminaire Shown with

IMSBTL Option

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PERFORMANCE

Back to Quick Links

DELIVERED LUME	NS*												
			3000K CCT			40	OOK CCT		5	000K CCT			
Lumen Package	Distribution	CRI	Delivered Lumens	Efficacy	BUG Rating	Delivered Lumens	Efficacy	BUG Rating	Delivered Lumens	Efficacy	BUG Rating	Wattage	
	2		9853	159	B2-U0-G2	9853	159	B2-U0-G2	9853	159	B2-U0-G2		
	3		9926	160	B2-U0-G2	9926	160	B2-U0-G2	9926	160	B2-U0-G2]	
9L	4		9178	148	B2-U0-G3	9713	157	B2-U0-G3	9498	153	B2-U0-G3]	
	5W	70	9504	153	B3-U0-G2	9504	153	B3-U0-G2	9504	153	B3-U0-G2	62	
91	FT	/0	9856	159	B2-U0-G3	9856	159	B2-U0-G3	9856	159	B2-U0-G3	02	
	FTA		9900	160	B2-U0-G2	9900	160	B2-U0-G2	9900	160	B2-U0-G2]	
	AM		10019	162	B2-U0-G1	10019	162	B2-U0-G1	10019	162	B2-U0-G1]	
	LC/RC		9008	145	B2-U0-G3	9533	154	B2-U0-G3	9321	150	B2-U0-G3		
	2		13135	155	B3-U0-G2	13135	155	B3-U0-G2	13135	155	B3-U0-G2		
	3]	13232	156	B2-U0-G2	13232	156	B2-U0-G2	13232	156	B2-U0-G2]	
12L	4		12223	144	B2-U0-G3	12935	152	B2-U0-G4	12648	149	B2-U0-G4]	
	5W	70	12669	149	B4-U0-G2	12669	149	B4-U0-G2	12669	149	B4-U0-G2		
	121	FT	70	13138	155	B2-U0-G3	13138	155	B2-U0-G3	13138	155	B2-U0-G3	85
		FTA	1	13196	155	B2-U0-G2	13196	155	B2-U0-G2	13196	155	B2-U0-G2]
	AM	1	13355	157	B2-U0-G2	13355	157	B2-U0-G2	13355	157	B2-U0-G2		
	LC/RC		11996	141	B2-U0-G3	12695	149	B2-U0-G3	12414	146	B2-U0-G3	1	
	2	-	19318	143	B3-U0-G3	19318	143	B3-U0-G3	19318	143	B3-U0-G3		
	3		19461	144	B3-U0-G3	19461	144	B3-U0-G3	19461	144	B3-U0-G3]	
	4		18013	133	B2-U0-G4	19063	141	B3-U0-G5	18640	138	B3-U0-G5		
101	5W	70	18633	138	B4-U0-G2	18633	138	B4-U0-G2	18633	138	B4-U0-G2	175	
ISL	FT	70	19324	143	B3-U0-G3	19324	143	B3-U0-G3	19324	143	B3-U0-G3	135	
	FTA]	19408	144	B3-U0-G3	19408	144	B3-U0-G3	19408	144	B3-U0-G3]	
	AM]	19641	145	B3-U0-G2	19641	145	B3-U0-G2	19641	145	B3-U0-G2]	
	LC/RC	1	17679	131	B2-U0-G3	18710	139	B2-U0-G3	18295	136	B2-U0-G3]	
	2		24142	147	B4-U0-G3	25957	147	B4-U0-G3	25957	147	B4-U0-G3		
	3	1	25001	149	B3-U0-G3	26149	149	B3-U0-G3	26149	149	B3-U0-G3	1	
	4	1	24396	152	B3-U0-G5	25600	160	B3-U0-G5	25457	159	B3-U0-G5	1	
241	5W	70	24327	142	B5-U0-G3	25037	142	B5-U0-G3	25037	142	B5-U0-G3	170	
24L	FT	70	24994	148	B3-U0-G3	25964	148	B3-U0-G3	25964	148	B3-U0-G3	1/0	
	FTA]	24171	148	B3-U0-G3	26077	148	B4-U0-G3	26077	148	B4-U0-G3]	
	AM]	24939	150	B3-U0-G2	26393	150	B3-U0-G2	26393	150	B3-U0-G2]	
	LC/RC	1	25884	162	B3-U0-G4	25884	162	B3-U0-G4	25310	158	B3-U0-G4]	
	2		30171	140	B4-U0-G3	32417	140	B4-U0-G3	32417	140	B4-U0-G3		
	3		31243	141	B3-U0-G4	32656	141	B3-U0-G4	32656	141	B3-U0-G4	1	
	4	1	30631	144	B3-U0-G5	32141	151	B3-U0-G5	31961	150	B3-U0-G5		
701	5W	70	30402	135	B5-U0-G3	31267	135	B5-U0-G3	31267	135	B5-U0-G3	272	
SUL	FT	//	31233	140	B4-U0-G4	32424	140	B4-U0-G4	32424	140	B4-U0-G4	252	
	FTA]	30207	140	B4-U0-G4	32566	140	B4-U0-G4	32566	140	B4-U0-G4]	
	AM]	3116	142	B4-U0-G3	32960	142	B4-U0-G3	32960	142	B4-U0-G3]	
	LC/RC]	32498	153	B3-U0-G5	32498	153	B3-U0-G5	31777	149	B3-U0-G5]	

*LEDs are frequently updated therefore values are nominal.



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PERFORMANCE (CONT.)

П

			3	OOOK CCT		40	OOK CCT		5000K CCT			
Lumen Package	Distribution	CRI	Delivered Lumens	Efficacy	BUG Rating	Delivered Lumens	Efficacy	BUG Rating	Delivered Lumens	Efficacy	BUG Rating	Wattage
	2		35357	133	B4-U0-G3	38275	133	B4-U0-G3	38275	133	B4-U0-G3	
	3	1	36614	134	B4-U0-G4	38557	134	B4-U0-G4	38557	134	B4-U0-G4	
	4	1	35402	139	B3-U0-G5	37148	146	B4-U0-G5	36940	145	B4-U0-G5	
70	5W	70	35627	128	B5-U0-G4	36917	128	B5-U0-G4	36917	128	B5-U0-G4	200
36L	FT	1 /0	36602	133	B4-U0-G4	38283	133	B4-U0-G4	38283	133	B4-U0-G4	288
	FTA	1	35399	134	B4-U0-G4	38450	134	B4-U0-G4	38450	134	B4-U0-G4	
	AM	1	36524	135	B4-U0-G3	38916	135	B4-U0-G3	38916	135	B4-U0-G3	
	LC/RC	1	37561	147	B3-U0-G5	37561	147	B3-U0-G5	36727	144	B3-U0-G5	
	2		41035	131	B5-U0-G4	42602	136	B5-U0-G4	42542	135	B5-U0-G4	
	3]	42493	135	B4-U0-G5	44115	140	B4-U0-G5	44053	140	B4-U0-G5	
	4	1	41453	132	B4-U0-G5	43497	138	B4-U0-G5	43254	138	B4-U0-G5	
421	5W	70	41349	132	B5-U0-G4	42927	134	B5-U0-G4	42866	137	B5-U0-G4	314
421	FT		42481	135	B4-U0-G4	44103	140	B4-U0-G4	44040	140	B4-U0-G4	
	FTA		41083	131	B4-U0-G4	42652	136	B5-U0-G4	42591	136	B5-U0-G4	
	AM		42389	135	B4-U0-G3	44007	140	B4-U0-G3	43944	140	B4-U0-G3	
	LC/RC]	43980	140	B3-U0-G5	43980	140	B3-U0-G5	43004	137	B3-U0-G5	
	2		45133	123	B5-U0-G4	46856	128	B5-U0-G4	46789	128	B5-U0-G4	
	3]	46737	128	B4-U0-G5	48521	133	B4-U0-G5	48452	132	B4-U0-G5	
	4]	46006	126	B4-U0-G5	48275	132	B4-U0-G5	48005	131	B4-U0-G5	
401	5W	070	45478	124	B5-U0-G4	47214	129	B5-U0-G4	47147	129	B5-U0-G4	401
48L	FT	1 /0	46723	128	B4-U0-G5	48507	133	B4-U0-G5	48438	132	B4-U0-G5	401
	FTA		45187	123	B5-U0-G4	46912	128	B5-U0-G4	46845	128	B5-U0-G4	
	AM]	4662	127	B4-U0-G3	48402	132	B4-U0-G3	48333	132	B4-U0-G3	
	LC/RC		48811	133	B4-U0-G5	48811	133	B4-U0-G5	47728	130	B4-U0-G5	
	2		50179	115	B5-U0-G4	52095	119	B5-U0-G4	52021	119	B5-U0-G4	
	3		51963	119	B4-U0-G5	53947	123	B4-U0-G5	53870	123	B4-U0-G5	
	4		51635	119	B4-U0-G5	54181	125	B4-U0-G5	53878	124	B4-U0-G5	
	5W	70	50563	115	B5-U0-G4	52493	120	B5-U0-G4	52418	120	B5-U0-G4	438
22L	FT	/0	50539	115	B4-U0-G5	52468	120	B4-U0-G5	52394	120	B4-U0-G5	
	FTA		50239	115	B5-U0-G4	52157	119	B5-U0-G4	52082	119	B5-U0-G4	
	AM		52223	119	B4-U0-G3	54216	124	B4-U0-G3	54139	124	B4-U0-G3	
	LC/RC		54113	124	B4-U0-G5	54113	124	B4-U0-G5	52912	121	B4-U0-G5	

*LEDs are frequently updated therefore values are nominal.



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PERFORMANCE (CONT.)

ELECTRICAL DATA (AMPS)*													
Lumens	120V	208V	240V	277V	347V	480V							
9L	0.52	0.30	0.26	0.22	0.18	0.13							
12L	0.71	0.41	0.35	0.31	0.24	0.18							
18L	1.13	0.65	0.56	0.49	0.39	0.28							
24L	1.33	0.77	0.67	0.58	0.46	0.33							
30L	1.78	1.02	0.89	0.77	0.61	0.44							
36L	2.12	1.22	1.06	0.92	0.73	0.53							
42L	2.62	1.51	1.31	1.13	0.90	0.65							
48L	3.05	1.76	1.53	1.32	1.05	0.76							
55L	3.65	2.11	1.83	1.58	1.26	0.91							

RECOMMENDED	LUMEN MAINTEN	ANCE' (0-25°C)			·	
Ambient	Intial ²	25h ²	50hr ²	75hr²	100hr ²	
9L - 18L	100%	97%	93%	90%	86%	
24L - 48L	100%	95%	89%	84%	79%	
55L	100%	91%	82%	74%	67%	
DECOMMENDED						
KELUMIMENDED	LUMEN MAINTEN	ANCE (40 °C)		1	1	
Ambient	Intial ²	25h ²	50hr ²	75hr ²	100hr ²	
9L - 18L	100%	97%	92%	88%	84%	
24L - 48L	100%	94%	87%	80%	74%	
RECOMMENDED LUMEN MAINTENANCE ¹ (50°C)						
Ambient	Intial ²	25h ²	50hr ²	75hr ²	100hr ²	
01 101 C						

DELIVERED LUMENS*					
	N ¹ 1 1	Phosphor Convert			
Lumen Package	Distribution	Delivered Lumens	Efficacy	BUG Rating	Wattage
	2	5848	80	B2-U0-G2	
	3	6018	82	B1-U0-G2	
0	5W	5471	74	B3-U0-G1	74
91	FT	5801	79	B1-U0-G2	/4
	FTA	5924	81	B1-U0-G1	
	AM	5995	81	B1-U0-G1	
	2	7530	74	B2-U0-G2	
	3	7749	76	B1-U0-G2	
101	5W	7045	69	B3-U0-G2	102
121	FT	7470	73	B2-U0-G2	
	FTA	7628	75	B2-U0-G2	
	AM	7720	76	B1-U0-G1	
	2	9311	69	B2-U0-G2	
	3	9582	71	B2-U0-G2	
101	5W	8712	65	B3-U0-G2	170
IOL	FT	9237	68	B2-U0-G2	CCI
	FTA	9433	70	B2-U0-G2	
	AM	9546	71	B2-U0-G1	
	2	10955	63	B2-U0-G2	-
24	3	11273	64	B2-U0-G2	
	5W	10249	59	B3-U0-G2	170
24L	FT	10867	62	B2-U0-G2	1/5
	FTA	11097	63	B2-U0-G2	
	AM	11230	64	B2-U0-G1	

*Electrical data at 25°C (77°F). Actual wattage may differ by +/-10%

1. Lumen maintenance values at 25C are calculated per TM-21 based on LM-80 data and in-situ testing.

2. In accordance with IESNA TM-21-11, Projected Values represent interpolated value based on time durations that are within six times the IESNA LM-80-08 total test duration for the device under testing.

 In accordance with IESNA TM-21-11, Calculated Values represent time durations that exceed six times the IESNA LM-80-08 total test duration for the device under testing.

ELECTRICAL DATA - PHOSPHOR CONVERTED AMBER (AMPS)*

LEETRICAL DATA - FILOSFILOR CONTENTED ATIDER (ATT 5)						
Lumens	120V	208V	240V	277V	347V	480V
9L	0.62	0.36	0.31	0.27	0.21	0.15
12L	0.85	0.50	0.43	0.38	0.30	0.22
18L	1.13	0.65	0.56	0.49	0.39	0.28
24L	1.47	0.85	0.73	0.64	0.51	0.37

*LEDs are frequently updated therefore values are nominal.

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PHOTOMETRICS

Luminaire photometry has been conducted by a NVLAP accredited testing laboratory in accordance with IESNA LM-79-08. As specified by IESNA LM-79-08 the entire luminaire is tested as the source resulting in a luminaire efficiency of 100%.

See the individual product page on https://www.lsicorp.com/ for detailed photometric data.

MRM-LED-30L-SIL-2-40-70CRI

Luminaire Data	
Type 2 Distribution	
Description	4000 Kelvin, 70 CRI
Delivered Lumens	32,416
Watts	232
Efficacy	140
IES Type	Type II - Short
BUG Rating	B4-U0-G3
	•

Zonal Lumen Summary			
Zone	Lumens	% Luminaire	
Low (0-30°)	4796	15%	
Medium (30-60°)	19811	61%	
High (60-80°)	7474	23%	
Very High (80–90°)	335	1%	
Uplight (90-180°)	0	0%	
Total Flux	32416	100%	





MRM-LED-30L-SIL-3-40-70CRI

Luminaire Data	
Type 3 Distribution	
Description	4000 Kelvin, 70 CRI
Delivered Lumens	32,656
Watts	232
Efficacy	141
IES Type	Type III - Short
BUG Rating	B3-U0-G4

Zonal Lumen Summary			
Zone	Lumens	% Luminaire	
Low (0-30°)	3385	10%	
Medium (30-60°)	16250	50%	
High (60-80°)	12430	38%	
Very High (80-90°)	591	2%	
Uplight (90-180°)	0	0%	
Total Flux	32656	100%	

25' Mounting Height / 25' Grid Spacing SFC 22FC 1FC 0.5 FC



MRM-LED-30L-SIL-FT-40-70CRI

Luminaire Data			
Type FT Distribution			
Description	4000 Kelvin, 70 CRI		
Delivered Lumens	32,424		
Watts	232		
Efficacy	140		
IES Type	Type IV - Short		
BUG Rating	B3-U0-G4		

Zonal Lumen Summary			
Zone	Lumens	% Luminaire	
Low (0-30°)	3952	12%	
Medium (30-60°)	15505	48%	
High (60-80°)	12279	38%	
Very High (80–90°)	688	2%	
Uplight (90-180°)	0	0%	
Total Flux	32424	100%	





Type : ____

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PHOTOMETRICS (CONT)

MRM-LED-30L-SIL-4-40-70CRI

Luminaire Data	
Type 4 Distribution	
Description	4000 Kelvin, 70 CRI
Delivered Lumens	32,141
Watts	213
Efficacy	151
IES Type	Type IV - Very Short
BUG Rating	B3-U0-G5

Zonal Lumen Summary				
Zone	Lumens	% Luminaire		
Low (0-30°)	3119	10%		
Medium (30-60°)	13569	42%		
High (60-80°)	13649	42%		
Very High (80-90°)	1804	6%		
Uplight (90-180°)	0	0%		
Total Flux	32141	100%		





MRM-LED-30L-SIL-5W-40-70CRI

Luminaire Data	
Type 5W Distribution	
Description	4000 Kelvin, 70 CRI
Delivered Lumens	31,267
Watts	232
Efficacy	135
IES Type	Type VS - Short
BUG Rating	B5-U0-G3

Zonal Lumen Summary				
Zone	Lumens	% Luminaire		
Low (0-30°)	3138	10%		
Medium (30-60°)	13193	42%		
High (60-80°)	14641	47%		
Very High (80–90°)	296	1%		
Uplight (90-180°)	0	0%		
Total Flux	31267	100%		





MRM-LED-30L-SIL-FTA-40-70CRI

Luminaire Data	
Type FTA Distribution	
Description	4000 Kelvin, 70 CRI
Delivered Lumens	32,566
Watts	232
Efficacy	140
IES Type	Type VS - Short
BUG Rating	B4-U0-G3

Zonal Lumen Summary				
Zone	Lumens	% Luminaire		
Low (0-30°)	6986	21%		
Medium (30-60°)	19172	59%		
High (60-80°)	5875	18%		
Very High (80-90°)	534	2%		
Uplight (90-180°)	0	0%		
Total Flux	32566	100%		







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PHOTOMETRICS (CONT)

MRM-LED-30L-SIL-AM-40-70CRI

Luminaire Data			
Type AM Distribution			
Description	4000 Kelvin, 70 CRI		
Delivered Lumens	32,960		
Watts	232		
Efficacy	142		
IES Type	Type III - Very Short		
BUG Rating	B3-U0-G3		
Zonal Lumon Summary			

Zonal Lumen Summary					
Zone	Lumens	% Luminaire			
Low (0-30°)	6363	19%			
Medium (30-60°)	22026	67%			
High (60-80°)	4192	13%			
Very High (80–90°)	379	1%			
Uplight (90-180°)	0	0%			
Total Flux	32960	100%			





MRM-LED-30L-SIL-LC-40-70CRI

Luminaire Data			ISO Footcandle	Polar Curve
Left Corner Distribution			+	28379
Description	4000 Kelvin	, 70 CRI		21284
Delivered Lumens	32,498			
Watts	213			4490
Efficacy	153			
IES Type	N/A			1095
BUG Rating	B3-U0-G5			
Zonal Lumen Summ	nary			
Zone	Lumens	% Luminaire		
Low (0-30°)	5083	16%	+	
Medium (30-60°)	14808	46%		$ \times / + + + \times$
High (60-80°)	11603	36%	+	
Very High (80–90°)	1005	3%	25' Mounting Height / 25' Grid Spacing	
Uplight (90-180°)	0	0%	5 FC 7 FC 1 FC 0.5 FC	Vertical Plane Horizontal Cone

MRM-LED-30L-SIL-RC-40-70CRI

32498

100%

Luminaire Data			
Right Corner Distribution			
Description	4000 Kelvin, 70 CRI		
Delivered Lumens	32,498		
Watts	213		
Efficacy	153		
IES Type	N/A		
BUG Rating	B3-U0-G5		

Zonal Lumen Summary					
Zone	Lumens	% Luminaire			
Low (0-30°)	5083	16%			
Medium (30-60°)	14808	46%			
High (60-80°)	11603	36%			
Very High (80–90°)	1005	3%			
Uplight (90-180°)	0	0%			
Total Flux	32498	100%			







Total Flux

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PRODUCT DIMENSIONS



Luminai	Luminaire EPA Chart					
Tilt Degr	ee	0°	15°	30 °	45°	
-	Single	0.5	1.0	1.5	1.9	
	D180°	1.0	1.5	1.5	1.9	
۳	D90°	0.8	1.8	1.9	2.3	
 ?	T90°	1.0	4.0	2.5	2.8	
**	TN120°	1.0	2.9	3.3	3.9	
•**	Q90°	1.0	4.0	2.5	2.8	

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CONTROLS

Integral Bluetooth[™] Motion and Photocell Sensor (IMSBTxL)

Slim low profile sensor provides multi-level control based on motion and/or daylight. Sensor controls 0-10 VDC LED drivers and is IP66 rated for cold and wet locations (-40°F to 167°F). Two unique PIR lenses are available and used based on fixture mounting height. All control parameters are adjustable via an iOS or Android App capable of storing and transmitting sensor profiles.

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Wireless Bluetooth Mesh Outdoor Lighting Control System that provides energy savings, code compliance and enhanced safety/security for parking lots and parking garages. Three key components; Bluetooth wireless radio/sensor controller, Time Keeper and an iOS App. Capable of grouping multiple fixtures and sensors as well as scheduling time-based events by zone. Radio/Sensor Controller is factory integrated into Area/ Site, Wall Mounted, Parking Garage and Canopy luminaires.

Click here to learn more details about AirLink Blue



AirLink Blue App Apple

Sensor Sequence of Operations

Standard Programming	On Event	Off Event	On Light Level	Dim Light Level	Daylight Harvesting	Delay To Off	Sensitivity
OMSBTxL/IMSBTxL	Motion	No Motion	100%	N/A	On; Auto Calibration	20 minutes	High
OMS	Motion	No Motion	N/A	N/A	N/A	30 seconds	Auto

Operation	Description
On Event	Trigger that activates lights to turn on; either automatic via motion detected or manually activated via push of button.
Off Event	Trigger that activates lights to turn off; either automatic via no motion detected or manually activated via push of button.
On Light Level	The light level that the fixtures will turn on to when ON EVENT occurs.
Dim Light Level	The light level that the fixtures will dim down to when no motion is detected.
Delay to Dim	The amount of time after which no motion is detected that the fixtures will be triggered to dim down. This sequence is optional, and sensor can be programmed to only trigger the fixture to turn off by entering 100% in this field.
Delay to Off	The amount of time after which no motion is detected that the fixtures will be triggered to turn off. If delay to dim is part of the programmed functionality, this is the amount of time after which no motion is detected after the fixture have already dimmed down.
Sensitivity	The sensitivity can be set to high, medium, low, or auto where applicable. High will detect smaller, simple motions. Low will only detect larger more complex motions. Auto temperature calibration adjusts the PIR sensitivity as ambient temperature rises to increase detection of heat movement through the field of view





SITE PLAN NARRATIVE RPP Holdings Group, LLC Kellogg's Supply Co. – 4510 Caratoke Hwy Barco, Currituck County, North Carolina

Prepared for: RPP Holdings Group, LLC 917 Burnside Rd. Manteo, NC 27954

Prepared by: Quible & Associates, P.C. PO Drawer 870 Kitty Hawk, NC 27949

> April 25, 2024 P23058



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Appendices

Appendix A – On-site Soils Report and Memo
Appendix B - Stormwater Calculations
Appendix C - NOAA Precipitation Intensity (Currituck County)

Major Site Plan RPP Holdings Group, LLC Kellogg's Supply Co. 4510 Caratoke Highway April 25, 2024

Overview

The subject property is located at 4510 Caratoke Highway approximately 8,300 feet north of Waterlily Rd (SR #1142) and Caratoke Highway (U.S. 158) intersection. The property is located along the west side of Caratoke Highway in Currituck County at the previously used by JJ Hayman & Son Building Supplies.

The site development proposes the construction of a 7,500 sq. ft. three-sided shed for storage. The existing building will be retained for retail sales. The project development will include the associated parking, drainage, water, and wastewater improvements for the development of the 12.02 acre lot. The following narrative, application, and calculations will demonstrate the parameters of the proposed design, which will illustrate an effective stormwater management system in compliance with all State regulations. The site is zoned general business (GB) and retail is a permitted use within this district.

Access

The development is proposed to be accessed from two existing entrances on US 168, a public right-of-way. At the entrance to the development 10 ft by 70 ft. sight triangles are provided on the plan sheets to demonstrate visibility at the proposed intersection. The proposed access will provide a minimum 20' wide drive aisle around the rear and side of the building. This will allow for fire apparatus to come within 150' of all portions of the structure. The proposed gravel section is capable of withstanding 75,000 lbs. The existing fire hydrant placement has been reviewed to confirm hose length can reach within 400-ft of all parts of the existing and proposed structure.

A loading and unloading zone is required per Currituck County UDO, Section 5.1.8. A 12 ft. by 30 ft. loading area has been provided and shown on Sheet 2 of the plan set at the rear of the storage shed.

Parking

The number of proposed parking spaces for the site development is 29. The existing building is 8,036 sq. ft. of enclosed area with 7,133 sq. ft. of actual retail space. Parking requirements are calculated using retail at 1 space per 300 sq ft of retail, equaling 23.8 spaces for the retail building. The storage area is 7,500 sq. ft and is parked at a rate of 1 space per 2,000 sq. ft. 3.8 spaces are required for the storage area and a total of 26 spaces are required and 29 spaces have been provided (including 2 ADA accessible parking spaces).

Signage will be provided within the parking area to notify employees and visitors that the drive aisle is a provided fire lane. Security lighting will be provided at the building and a lighting plan has been provided to address the expected footcandles at the property lines.

Stormwater Management Plan

Per 15A NCAC 02H.1005 (a) (3) (B) High Density Coastal Development is required to meet particular criteria. This development is proposed to have 65.0% of impervious coverage within the associated drainage area boundary at full build-out. The proposed wet detention basin onsite is designed in accordance with NCDEQ Requirements and is designed to store, control, and treat the stormwater runoff from all surfaces generated by the one and one-half inch of

Major Site Plan RPP Holdings Group, LLC Kellogg's Supply Co. 4510 Caratoke Highway April 25, 2024 rainfall. In addition to these requirements, a minimum 50' vegetative buffer from surface waters is provided.

The proposed wet basin has also been sized to allow for a local requirement of routing the 5year post developed condition back to the 2-year predeveloped wooded condition. This storage capacity is in excess of the State required 1.5 inch and provides approximately 3.1" inches of storage within the basin. The storage required to completely capture the first 1.5 inch of rainfall is 11,300 cf. The proposed wet detention basin will have a temporary storage capacity of 24,085 cf. The temporary storage capacity has been calculated between the permanent pool elevation and the overflow spillway invert. It should be noted that the wet detention basin has been sized for build out, but only a portion of that impervious coverage is to be constructed at this time.

Collection

Runoff from the proposed access drive will be directed into a flowline in the center of the parking area. This flowline coincides with the stormwater network, which collects and discharges into the wet retention basin forebay. Runoff from the southern portion of the proposed building will be collected into a grass swale which overflows into the stormwater network. The stormwater network continues to flow toward the forebay. The parking and vehicular area is to also be collected and conveyed to the proposed wet detention basin via sheet flow whereby the parking area drains to the centralized flowline and stormwater network prior to being directed into the forebay.

<u>Treatment</u>

The proposed system will offer several methods of treatment prior to release.

Runoff from vehicular areas will be directed to the wet detention basin via stormwater piping. The stormwater structures will be designed to have sumps to settle out sediment prior to discharge into the wet detention basin.

The primary treatment of runoff will be provided within the wet detention basin. The wet basin is designed with a forebay which initially receives incoming runoff from multiple directions to allow for energy dissipation and initial settling prior to entering the main pond. The entire wet retention basin is designed to have vegetative shelving and a depth adequate to allow for some sedimentation. The overall depth of the basin allows for water quality treatment.

The basin bottom and side slopes will be grassed according to general seeding specifications. The runoff will undergo filtration of fine particulates and pollutants by the vegetation within the basin. The filtration by vegetation is considered the primary method of treatment. A secondary method of treatment is also available when stormwater runoff infiltrates into the subsurface. The soil particles between the basin bottom and the season high water table (SHWT) will offer additional filtration and/or absorption of particulates and pollutants prior to reaching the water table. The season high water table (SWHT) is at an elevation of +/- 5.28'.

<u>Storage</u>

The majority of the stormwater storage volume is provided within the proposed wet detention basin. The temporary storage volume is computed within the basin above the main pool elevation of 5.0'. The County stormwater storage volume requirement based upon routing the 5-year post-development rainfall event to the 2-year pre-development wooded condition is approximately 21,300 CF. The proposed wet detention basin provided storage volume is approximately 24,085 CF, equivalent to the 3.18-inch rainfall event.

For NCDEQ calculations, the permanent pool and surface areas referenced in the application documents and attached calculations are at elevation 5.0 ft. elevation, which is within 6" of the anticipated SHWT elevation of 5.28'. Utilizing Equation 3 (see NCDEQ Stormwater Calculations in **Appendix B**) provides an average depth of 3.6'. When utilizing SA/DA Table 2 of the NCDEQ Stormwater BMP Manual and a percent impervious cover of 65%, these items were applied to obtain a Surface Area to Drainage Area Ratio of 4.2. This is the SA/DA ratio to achieve the required pollutant removal in the Coastal Region. Using this SA/DA ratio, the area required for the permanent pool is 5,977 sq. ft., while the area provided for the permanent pool is 6,227 sq. ft. within the main permanent pool.

The season high water table (SHWT) is at an elevation of +/-5.28' ft., per the attached soils analysis in **Appendix A**.

<u>Disposal</u>

The wet detention basin's primary mode of disposal for elevations between 5 and 7.75 ft. is through a 2" drawdown orifice on a structure located inside of the main pool. The invert elevation of the 2" drawdown orifice is proposed to be at an elevation of 5.0 ft. Elevations between 7.75 and 10.0 feet will utilize a grate on top of this structure as well as the 2" drawdown orifice. The invert elevation of the grate is proposed to be 7.75 feet in elevation. The total drawdown time from an elevation of 7.75 ft. is 2.77 days. Supporting calculations for the drawdown time and storage of the proposed wet pond have been provided within **Appendix B**.

The basin's 6 foot wide, 6:1 vegetated shelf is specified to be constructed between the elevations of 4.5 ft. and 5.5 ft.; the lower half of the shelf will be approximately at the season high water table.

Soils

The USDA NRCS Soil Survey lists the soil in the vicinity of the stormwater wet detention basin as described below. Geotechnical reports for the site indicate the seasonal high-water table is approximately at elevation 3.7. A copy of the NRCS soils survey is provided within Appendix B.

- BoA Bojac Loamy Sand; This soil typically has 0 to 3 percent slopes. Bojac Loamy Sand typically has a very low runoff rate and is well drained. This soil is categorized in Hydrologic Soil Group: A
- At Augusta fine sandy loam; This soil typically has 0 to 2 percent slopes. Augusta fine sandy loam typically has a very high runoff rate and is poorly drained. This soil is

categorized in Hydrologic Soil Group: B/D

• To – Tomotley fine sandy loam; This soil typically has 0 to 2 percent slopes. Tomotley fine sandy loam typically has a very high runoff rate and is poorly drained. This soil is categorized in Hydrologic Soil Group: B/D

Quible and Associates conducted a soil boing test in the vicinity of the wet detention basin. The soils observed were consistent with the NRCS soil description. The results of the infiltration test are available in **Appendix A**.

Utilities

The site has an existing service that will continue to be used for the renovated retail building. The proposed outdoor storage shed will not require an additional water service. The existing water supply is provided by Currituck County, the existing service size will be reviewed and confirmed during design of the building plans to determine an adequate size. Changes to the existing waterline within the right-of-way is not proposed, therefore, a permit to construct from NC DEQ Public Water Supply is not required. The existing hydrant can come within 400' of all portions of the existing retail building and proposed 7,500 sf storage shed.

The site has an existing septic field that will be relocated to the rear. The wastewater capacity will be increased to 900 GPD and the onsite septic design will be permitted through ARHS. An onsite evaluation has been performed and the site is suitable with an LTAR of 0.25.

Buffers and Site Vegetation

A streetscape landscape buffer is required adjacent Caratoke Highway (U.S. 168) and a 30' wide landscape buffer is required at 8 ACI per 100 LF canopy trees, 4.5 ACI per 100 LF understory trees, and 10 shrubs per 100 LF of frontage. 28 ACI canopy, 15 ACI understory, and 34 shrubs are proposed along the street frontage to meet this buffer requirement. Additional buffers are not required adjacent to properties to the north, south or east as the adjacent zoning is general business (GB).

A minimum 5 ft landscaping buffer around the proposed parking lot is required and will be installed in accordance with Chapter 5.2 of the Currituck County Unified Development Ordinance and canopy trees are provided within 60' of all parking spaces.

Appendices

Appendix A - On-site Soils Map and Data

MEMORANDUM



To: Cathleen M. Saunders, P.E., Quible & Associates From: Brian Rubino, P.G.

Date: 04/24/24

Re: P23058 Soil and Groundwater Investigation Kellogg Supply, Currituck County, NC

On Tuesday, April 2, 2024, representatives from Quible visited the Site to conduct shallow soil borings in the location of a potential future stormwater collection basin or infiltration area. The purpose of our evaluation was to understand lithologic conditions, to determine the depth and elevation of the Static Water Table (WT), Season High Water Table (SHWT), and to measure infiltration rates for Stormwater Management System design.

Soils generally consisted of:

- 0.0'-2.0' bgs: dry, sandy loam (10 YR 3/3)
- 2.0'-4.3' bgs: poorly sorted sand (10 YR 4/3)
- 4.3'-5.0' bgs: fine sand (10 YR 5/3)

A summary of elevation data collected and observed is as follows:

Soil Boring	Ground Elevation (ft); (NAVD 88)	Groundwater Elevation (ft); (NAVD 88)	Approx. Elevation of SHWT (ft); (NAVD 88)	
SB-1	6.95'	5.08'	5.28'	

Ground elevation data was collected on the date of the soil borings using an RTK GPS system. A temporary piezometer, using a two-inch .010 slot pvc well screen was installed at boring location SB-1 (same location as T-1 infiltration test) and was allowed to recover for a period of at least 1 hour before the depth to groundwater was measured using an electronic water level checker.

Infiltration rate field testing of the in-situ soils was conducted using the Modified Philip Dunne (MPD) method to test and calculate saturated hydraulic conductivity (Ksat) at the proposed stormwater collection and treatment location. The infiltration test location is referred to as T-1 (see location on the attached report). This procedure measures the natural downward movement of water to the groundwater table which can be relied upon to design site stormwater collection, storage and treatment systems in the area tested. The infiltration test was done in the soil unit near the surface.

The measured infiltration rates was: T-1 = 3.61 in/hr. Moderate infiltration such as this is expected for loamy sand soils with no significant confining units. See accompanying MPD infiltration reports.



Infiltration Report



Quible & Associates, P.C. T1 - Currituck County, NC

K_{sat} best-fit site average: 92 mm/hr or 3.61 in/hr

GPS Infiltration Test Site Map



Map Pin #	Test #	Test Name	Ksat (mm/hr)	Ksat (in/hr)	C (mm)	RMS Error of Regression (s)	Norma lized RMS
1	1	T1	92	3.61	-62.0	1.9	0.1%

*** Site Average could not be calculated from only 1 viable test



Infiltration Report



Quible & Associates, P.C.

T1 - Currituck County, NC

This report summarizes the results of a set of Modified Philip Dunne (MPD) Infiltrometer tests performed at the above referenced site. Quible & Associates, P.C. personnel performed the field tests. The software used to compute saturated hydraulic conductivity (K_{sat}) and generate this report assumes that the field personnel used infiltrometers manufactured by Upstream Technologies Inc. and followed the procedures outlined in "Manual – Modified Philip - Dunne Infiltrometer" by Ahmed, Gulliver, and Nieber.

The following paragraphs describe the individual tests, input values used in the analysis, and methods used to compute the K_{sat} value.

After individual K_{sat} values were calculated, the method used to determine the overall site K_{sat} value ($K_{best-fit}$) is described in "Effective Saturated Hydraulic Conductivity of an Infiltration-Based Stormwater Control Measure" by Weiss and Gulliver 2015, "A relationship to more consistently and accurately predict the best-fit value of saturated hydraulic conductivity used a weighted sum of 0.32 times the arithmetic mean and 0.68 times the geometric mean."

METHOD USED TO COMPUTE K_{sat}

The MPD Infiltrometer software uses the following procedure described in "The Comparison of Infiltration Devices and Modification of the Philip-Dunne Permeameter for the Assessment of Rain Gardens" by Rebecca Nestigen, University of Minnesota, November 2007.

The steps are as follows:

1. For each measurement of head, use the following equation to find the corresponding distance to the sharp wetting front.

$$[H_0 - H(t)]r_1^2 = rac{ heta_1 - heta_2}{3}[2[R(t)]^3 + 3[R(t)]^2L_{max} - L_{max}^3 - 4r_0^3]$$

2. Estimate the change in head with respect to time and the change in wetting front distance with respect to time by using the backward difference for all values of R(t) equal to or greater than the distance

$$\sqrt{r_1^2 + L_{max}^2}$$

3. Make initial guesses for K and C.

4. Solve the following equations for $\Delta P(t)$ at each incremental value of t.

$$\Delta P(t) = rac{\pi^2}{8} \left\{ heta_1 - heta_0 rac{[R(t)^2] + [R(t)]L_{max}}{K} rac{dr}{dt} - 2r_0^2
ight\} rac{ln[rac{R(t)r_0 + L_{max}}{r_0[R(t) + L_{max}}]}{L_{max}} \Delta P(t) = C - H(t) - L_{max} + rac{L_{max}}{K} rac{dh}{dt}$$

5. Minimize the absolute difference between the two solutions found in Step 4 by adjusting the values of K and C.



Parameters for Equations

 Θ_0 = volumetric water content of soil before MPD test Θ_1 = volumetric water content of soil after MPD test



Infiltration Report

Quible & Associates, P.C. T1 - Currituck County, NC



T1

11	
Date	4/2/2024
Time	2:51 PM
Latitude	36.353754
Longitude	-75.961069
Initial Volumetric Moisture	15.00 %
Final Volumetric Moisture	80.00 %
Cylinder Size	3 Liter

T1 Results

Map Pin #	1
Test Number	1
Ksat - mm/hr	92
Ksat - in/hr	3.61
Capillary Pressure C mm	-62.0
RMS Error of Regression	1.9
Normalized RMS	0.1%

Readings

#	Time	Head	#	Time	Head	#	Time	Head
1	0 s	35.06 cm	26	750 s	23.2 cm	51	1500 s	15.42 cm
2	30 s	34.36 cm	27	780 s	22.84 cm	52	1530 s	15.16 cm
3	60 s	33.76 cm	28	810 s	22.48 cm	53	1560 s	14.9 cm
4	90 s	33.19 cm	29	840 s	22.12 cm	54	1590 s	14.64 cm
5	120 s	32.63 cm	30	870 s	21.75 cm	55	1620 s	14.38 cm
6	150 s	32.07 cm	31	900 s	21.4 cm	56	1650 s	14.13 cm
7	180 s	31.53 cm	32	930 s	21.06 cm	57	1680 s	13.87 cm
8	210 s	31.0 cm	33	960 s	20.73 cm	58	1710 s	13.63 cm
9	240 s	30.48 cm	34	990 s	20.41 cm	59	1740 s	13.38 cm
10	270 s	29.97 cm	35	1020 s	20.09 cm	60	1770 s	13.15 cm
11	300 s	29.48 cm	36	1050 s	19.79 cm	61	1800 s	12.91 cm
12	330 s	29.01 cm	37	1080 s	19.48 cm	62	1830 s	12.67 cm
13	360 s	28.53 cm	38	1110 s	19.18 cm	63	1860 s	12.45 cm
14	390 s	28.07 cm	39	1140 s	18.88 cm	64	1890 s	12.21 cm
15	420 s	27.62 cm	40	1170 s	18.57 cm	65	1920 s	11.99 cm
16	450 s	27.17 cm	41	1200 s	18.26 cm	66	1950 s	11.76 cm
17	480 s	26.75 cm	42	1230 s	17.95 cm	67	1980 s	11.55 cm
18	510 s	26.33 cm	43	1260 s	17.65 cm	68	2010 s	11.33 cm
19	540 s	25.92 cm	44	1290 s	17.37 cm	69	2040 s	11.1 cm
20	570 s	25.51 cm	45	1320 s	17.08 cm	70	2070 s	10.89 cm
21	600 s	25.11 cm	46	1350 s	16.8 cm	71	2100 s	10.67 cm
22	630 s	24.73 cm	47	1380 s	16.51 cm	72	2130 s	10.45 cm
23	660 s	24.33 cm	48	1410 s	16.24 cm	73	2160 s	10.24 cm
24	690 s	23.95 cm	49	1440 s	15.96 cm	74	2190 s	10.03 cm
25	720 s	23.58 cm	50	1470 s	15.69 cm			



United States Department of Agriculture

Natural Resources Conservation

Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Currituck County, North Carolina



Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/? cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.



	MAP L	EGEND		MAP INFORMATION
Area of In	terest (AOI) Area of Interest (AOI)	8	Spoil Area Stony Spot	The soil surveys that comprise your AOI were mapped at 1:20,000.
Soils	Soil Map Unit Polygons Soil Map Unit Lines	¢	Very Stony Spot Wet Spot	Warning: Soil Map may not be valid at this scale. Enlargement of maps beyond the scale of mapping can cause
Special	Soil Map Unit Points Point Features Blowout	A ••• Water Fea	Special Line Features	misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.
⊠ ×	Borrow Pit Clay Spot Closed Depression	Transport	ation Rails	Please rely on the bar scale on each map sheet for map measurements.
*	Gravel Pit Gravelly Spot	~ ~	Interstate Highways US Routes Major Roads	Source of Map: Natural Resources Conservation Service Web Soil Survey URL: Coordinate System: Web Mercator (EPSG:3857)
© ۸. بلد	Landfill Lava Flow Marsh or swamp	Backgrou	Local Roads nd Aerial Photography	Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more
* 0 0	Mine or Quarry Miscellaneous Water Perennial Water			This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.
× + 	Rock Outcrop Saline Spot Sandy Spot			Soil Survey Area: Currituck County, North Carolina Survey Area Data: Version 23, Sep 13, 2023
	Severely Eroded Spot			Date(s) aerial images were photographed: May 18, 2022—May
\$ Ø	Sodic Spot			The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

	1		
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
At	Augusta fine sandy loam	1.3	23.2%
ВоА	Bojac loamy sand, 0 to 3 percent slopes	1.5	26.5%
Pt	Portsmouth fine sandy loam	0.0	0.3%
То	Tomotley fine sandy loam	2.9	49.9%
Totals for Area of Interest		5.7	100.0%

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The

delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Currituck County, North Carolina

At—Augusta fine sandy loam

Map Unit Setting

National map unit symbol: 3rn8 Elevation: 0 to 30 feet Mean annual precipitation: 42 to 58 inches Mean annual air temperature: 61 to 64 degrees F Frost-free period: 190 to 270 days Farmland classification: Prime farmland if drained

Map Unit Composition

Augusta, drained, and similar soils: 80 percent Augusta, undrained, and similar soils: 10 percent Minor components: 10 percent Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Augusta, Drained

Setting

Landform: Flats on marine terraces, depressions on marine terraces Down-slope shape: Linear Across-slope shape: Linear Parent material: Sandy and loamy fluviomarine deposits and/or marine deposits

Typical profile

Ap - 0 to 5 inches: fine sandy loam Bt - 5 to 23 inches: loam BCg - 23 to 31 inches: sandy loam Cg - 31 to 80 inches: loamy sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: About 12 to 24 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 8.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified Land capability classification (nonirrigated): 2w Hydrologic Soil Group: B/D Ecological site: F153AY040NC - Moist Loamy Rises and Flats, F153BY040NC -Moist Loamy Rises and Flats Hydric soil rating: No

.

Description of Augusta, Undrained

Setting

Landform: Flats on marine terraces, depressions on marine terraces

Down-slope shape: Linear *Across-slope shape:* Linear *Parent material:* Sandy and loamy fluviomarine deposits and/or marine deposits

Typical profile

A - 0 to 5 inches: fine sandy loam Bt - 5 to 23 inches: loam BCg - 23 to 31 inches: sandy loam Cg - 31 to 80 inches: loamy sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: About 12 to 24 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 8.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified Land capability classification (nonirrigated): 3w Hydrologic Soil Group: B/D Ecological site: F153AY040NC - Moist Loamy Rises and Flats, F153BY040NC -Moist Loamy Rises and Flats Hydric soil rating: No

Minor Components

Tetotum

Percent of map unit: 5 percent Landform: Flats on marine terraces Landform position (two-dimensional): Summit Down-slope shape: Linear Across-slope shape: Linear Ecological site: F153AY040NC - Moist Loamy Rises and Flats, F153BY040NC -Moist Loamy Rises and Flats Hydric soil rating: No

Tomotley, undrained

Percent of map unit: 5 percent Landform: Depressions on stream terraces, flats on marine terraces Down-slope shape: Linear Across-slope shape: Linear Ecological site: F153BY060NC - Wet Loamy Flats and Depressions, F153AY090NC - Flooded Mineral Soil Floodplains and Terraces Hydric soil rating: Yes

BoA—Bojac loamy sand, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: 3rnb Elevation: 0 to 30 feet Mean annual precipitation: 42 to 58 inches Mean annual air temperature: 61 to 64 degrees F Frost-free period: 190 to 270 days Farmland classification: Farmland of statewide importance

Map Unit Composition

Bojac and similar soils: 90 percent *Minor components:* 10 percent *Estimates are based on observations, descriptions, and transects of the mapunit.*

Description of Bojac

Setting

Landform: Ridges on marine terraces Down-slope shape: Convex Across-slope shape: Linear Parent material: Loamy and sandy fluviomarine deposits

Typical profile

Ap - 0 to 8 inches: loamy fine sand *Bt - 8 to 47 inches:* fine sandy loam *C - 47 to 85 inches:* loamy fine sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): High (1.98 to 5.95 in/hr)
Depth to water table: About 48 to 72 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 6.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified Land capability classification (nonirrigated): 2s Hydrologic Soil Group: A Ecological site: F153BY030NC - Dry Loamy Rises and Flats Hydric soil rating: No

Minor Components

Conetoe

Percent of map unit: 4 percent Landform: Ridges on stream terraces, ridges on marine terraces Landform position (two-dimensional): Summit, shoulder Landform position (three-dimensional): Crest Down-slope shape: Convex Across-slope shape: Convex Ecological site: F153BY030NC - Dry Loamy Rises and Flats Hydric soil rating: No

Seabrook

Percent of map unit: 3 percent Landform: Depressions on marine terraces Down-slope shape: Concave Across-slope shape: Linear Ecological site: F153BY020NC - Moist Sands Hydric soil rating: No

Munden

Percent of map unit: 3 percent Landform: Marine terraces Down-slope shape: Linear Across-slope shape: Convex Ecological site: F153BY040NC - Moist Loamy Rises and Flats Hydric soil rating: No

Pt—Portsmouth fine sandy loam

Map Unit Setting

National map unit symbol: 3rp0 Elevation: 0 to 30 feet Mean annual precipitation: 42 to 58 inches Mean annual air temperature: 61 to 64 degrees F Frost-free period: 190 to 270 days Farmland classification: Prime farmland if drained

Map Unit Composition

Portsmouth, drained, and similar soils: 75 percent Portsmouth, undrained, and similar soils: 10 percent Minor components: 7 percent Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Portsmouth, Drained

Setting

Landform: Flats on marine terraces, depressions on marine terraces Down-slope shape: Linear Across-slope shape: Linear Parent material: Loamy fluviomarine deposits over sandy fluviomarine deposits

Typical profile

Ap - 0 to 12 inches: fine sandy loam Eg - 12 to 19 inches: fine sandy loam Btg - 19 to 35 inches: sandy clay loam BCg - 35 to 38 inches: sandy loam 2Cg - 38 to 80 inches: loamy sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: 20 to 40 inches to strongly contrasting textural stratification
Drainage class: Very poorly drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: About 0 to 12 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 5.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified Land capability classification (nonirrigated): 3w Hydrologic Soil Group: B/D Ecological site: F153BY060NC - Wet Loamy Flats and Depressions Hydric soil rating: Yes

Description of Portsmouth, Undrained

Setting

Landform: Depressions on marine terraces, flats on marine terraces Down-slope shape: Linear Across-slope shape: Linear Parent material: Loamy fluviomarine deposits over sandy fluviomarine deposits

Typical profile

A - 0 to 12 inches: fine sandy loam Eg - 12 to 19 inches: fine sandy loam Btg - 19 to 35 inches: sandy clay loam BCg - 35 to 38 inches: sandy loam 2Cg - 38 to 80 inches: loamy sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: 20 to 40 inches to strongly contrasting textural stratification
Drainage class: Very poorly drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: About 0 to 12 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 5.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified Land capability classification (nonirrigated): 6w Hydrologic Soil Group: B/D Ecological site: F153BY060NC - Wet Loamy Flats and Depressions Hydric soil rating: Yes

Minor Components

Cape lookout, undrained

Percent of map unit: 4 percent Landform: Depressions, pocosins, flats Down-slope shape: Linear Across-slope shape: Concave Ecological site: F153BY065NC - Wet Clay Flats and Depressions Hydric soil rating: Yes

Portsmouth, undrained

Percent of map unit: 3 percent Landform: Depressions on marine terraces, flats on marine terraces Down-slope shape: Linear Across-slope shape: Linear Ecological site: F153BY060NC - Wet Loamy Flats and Depressions Hydric soil rating: Yes

To—Tomotley fine sandy loam

Map Unit Setting

National map unit symbol: 3rp4 Elevation: 0 to 30 feet Mean annual precipitation: 42 to 58 inches Mean annual air temperature: 61 to 64 degrees F Frost-free period: 190 to 270 days Farmland classification: Prime farmland if drained

Map Unit Composition

Tomotley, drained, and similar soils: 75 percent *Tomotley, undrained, and similar soils:* 10 percent *Minor components:* 7 percent *Estimates are based on observations, descriptions, and transects of the mapunit.*

Description of Tomotley, Drained

Setting

Landform: Flats on marine terraces, depressions on stream terraces Down-slope shape: Linear Across-slope shape: Linear Parent material: Sandy and loamy fluviomarine deposits and/or marine deposits

Typical profile

Ap - 0 to 7 inches: fine sandy loam Btg1 - 7 to 12 inches: fine sandy loam Btg2 - 12 to 42 inches: sandy clay loam BCg - 42 to 50 inches: sandy loam Cg - 50 to 80 inches: loamy sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.20 to 1.98 in/hr)
Depth to water table: About 0 to 12 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 8.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified Land capability classification (nonirrigated): 3w Hydrologic Soil Group: B/D Ecological site: F153BY060NC - Wet Loamy Flats and Depressions, F153AY090NC - Flooded Mineral Soil Floodplains and Terraces Hydric soil rating: Yes

Description of Tomotley, Undrained

Setting

Landform: Depressions on stream terraces, flats on marine terraces Down-slope shape: Linear Across-slope shape: Linear Parent material: Sandy and loamy fluviomarine deposits and/or marine deposits

Typical profile

A - 0 to 7 inches: fine sandy loam Btg1 - 7 to 12 inches: fine sandy loam Btg2 - 12 to 42 inches: sandy clay loam BCg - 42 to 50 inches: sandy loam Cg - 50 to 80 inches: loamy sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.20 to 1.98 in/hr)
Depth to water table: About 0 to 12 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 8.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified Land capability classification (nonirrigated): 4w

Hydrologic Soil Group: B/D

Ecological site: F153BY060NC - Wet Loamy Flats and Depressions, F153AY090NC - Flooded Mineral Soil Floodplains and Terraces *Hydric soil rating:* Yes

Minor Components

Nimmo, undrained

Percent of map unit: 3 percent Landform: Depressions on marine terraces, flats on marine terraces Down-slope shape: Concave Across-slope shape: Linear Ecological site: F153BY060NC - Wet Loamy Flats and Depressions, F153AY060NC - Wet Loamy Flats and Depressions Hydric soil rating: Yes

Arapahoe, undrained

Percent of map unit: 3 percent Landform: Flats, depressions Down-slope shape: Linear Across-slope shape: Concave Ecological site: F153BY060NC - Wet Loamy Flats and Depressions, F153AY090NC - Flooded Mineral Soil Floodplains and Terraces Hydric soil rating: Yes

Dragston, undrained

Percent of map unit: 1 percent Landform: Marine terraces Down-slope shape: Linear Across-slope shape: Linear Ecological site: F153AY040NC - Moist Loamy Rises and Flats, F153BY040NC -Moist Loamy Rises and Flats Hydric soil rating: No

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Appendix B - Stormwater Calculations

Project Name:	Kellogg's
Quible Project Number:	P23058
Date:	4/5/2024

Currituck County Stormwater Calculations (In Lieu of Forms SW-002 and SW-003) 142,310.50 square feet Step 1: Drainage Area **3.27** acres Step 2: **Determine Runoff Coefficient** C = 0.20 Step 3: **Determine Time of Concentration Sheet Flow** $Tc_1 = 0.42(nL)^{0.8}$ $P^{0.5}S^{0.4}$ n = 0.1 (woods) 300 feet L = P = 4 inch 0.030 ft/ft S = Tc₁= 13.0 mins **Shallow Concentrated Flow** L = 120 feet S = 0.03 ft/ft unpaved 151.54 fpm V_{unpaved} = 0.8 mins Tc2= **Channel Flow** (n/a) Tc = Tc1 + Tc213.8 mins Tc = Step 4: **Determine Peak Rainfall Intensity** Time of Concentration T (yrs) 5 mins 10 mins 15 mins 30 mins 1 hr 2 hr 3 hr 2 6.06 4.84 4.06 1.76 2.8 1.03 0.731 5 6.82 5.46 4.6 3.27 2.1 1.26 0.897 10 7.82 6.26 5.28 3.82 2.49 1.51 1.09 4.25 in/hr 1 = Interpolation Formula = Х γ 1 10 4.84 $y_2 = \frac{(x_2 - x_1)(y_3 - y_1)}{(x_3 - x_1)} + y_1$ 2 13.77 3 15 4.06 y₂= 4.25 Step 5: Determine the 2-year Pre-Development peak discharge, Q

Q = CIA

Q 2= 2.78 cfs



Step 9: Determine the 5-year Post-Development peak discharge, Q

Q = CIA Q5 = **15.71** cfs Step 10:Determine the weighted curve number, CN, for the post-development conditions.Hydrologic Soil Type:B & A/D(From NRCS Soils Report)

Hydrologic	Hydrologic Soil Type:		(From
Land Use	CN	Area	_
Impervious Area	84	92,501.83	
Open Space	49	49,808.68	_
	Total =	142,310.50	
	CN _W =	71.75	

Step 11: Determine the 5-year post-development runoff depth, Q



Step 12: Determine the Runoff Volume, V_r

$$V_r = \frac{Q}{12} * A$$

 $Q = \frac{2.18 \text{ in}}{3.27 \text{ acres}}$
 $V_r = 0.59 \text{ ac-ft}$

Step 13: Determine the Required Storage Volume, V_s

$$V_{s} = 1613.33^{*}V_{r}^{*}(1 - \frac{Q_{2 \ pre}}{Q_{10_post}})$$

$$V_{r} = 0.59 \text{ ac-ft}$$

$$Q_{2-pre} = 2.78 \text{ cfs}$$

$$Q_{5-post} = 15.71 \text{ cfs}$$

$$V_{s} = 787.21 \text{ CY}$$

$$21,254.58 \text{ CF}$$



Rational Method Peak Flow Form SW-003

Project Information	
4510 Caratoke	HWY
	Ja Jau
Parcel Identification Number(s): 8996 -	40 - 4711
Drainage area: (192, 310. 5051) 3.21	ac
Average Slope: 3.0	%
	£1.
Maximum Slope Length:	

Calculations

*The Rational Method may only be used where development will impact less than 10 acres

	Pre-	Post-	
Sheet Flow			
Manning's roughness, n (Table 2-4)	0.1	Cardina and the	
2-year, 24-hour Rainfall, P	4.0	6.0	in
Slope, S	0.03		
Length of Sheet Flow, L (<=300 feet)	300		††
Total Time for Sheet Flow	13		min
Shallow Concentrated Flow			
Surface Paved (P) or Unpaved (U)	0		
Length of flow, L	120	-	f1
Slope, S	0.05		
Average Velocity, V (Table 2-3)	151.5		ft/min
Total Time for Shallow Concentrated Flow	0-8		min
Channel Flow	1		
Pipe (P) or Channel (C)	N/A		
If pipe: Diameter, D			in
If channel: Bottom Width, w			ft
If channel: side slope 1 (:1)			
If channel: side slope 2 (:1)			so ft
Cross sectional flow area, A			54 II f+
Wetted perimeter, Wp			11
Hydraulic radius, R = A/Wp	V		

	Pre-	Post-	
Channel slope, S	1		ft/ft
Manning's roughness, n (Table 2-4)	<u> </u>		
Channel velocity			ft/sec
Length of Flow, L			ft/sec
Total Time for Channel Flow	-		min

Pre-development Conditions			
Land Use Description	С	Area (acres)	C*A
Woods	0.2	3.27	0.654
Total			0.654

Intensity for 2-year, 24-hour storm (Table 2-5)

4.25 in/hr

2.78 cfs

Pre-development peak flow, Q = CiA

Post-development Conditions С Land Use Description Area (acres) C*A 0.95 2.014 IMPERVIOUS 2.12 0.285 0.75 OPEN 3.27 2.299 Totals

Area-weighted C:

Intensity for 10-year, 24-hour storm (Table 2-5)

0.7

<u>6.82</u> in/hr

Post-development peak flow, Q = CiA

(5,71 cfs

Minimum Storage Volume Required - Refer to Section 2.4.4 for Volume Calculations

Storage Volume, Vs

21,254 ft³

KELLOGGS

Applicant

<u>4/24/24</u> Date

Rational Method Peak Flow SW-003 Page 2 of 2 Drainage Area = Open Space Roadway/Parking =

Concrete/Display = Future Removal = Future Coverage = Impervious =

Building=

Kellogg's Wet Detention Basin NCDEQ Stormwater Calculations

Drainage Area Calculations

Combined	l Drainage Area
(sq.ft.)	(acre)
142,310.50	3.27
49,858.01	1.14
44,311.90	1.02
18,143.35	0.42
13,491.04	0.31
31,050.00	0.71
47,556.20	1.09
92,452.49	2.12

Runoff generated by 1.5" Rainfall Event (NCDEQ Simplified Method)

la = Impervious Percentage = Impervious Area/Drainage Area Rv= Runoff Coefficient, 0.05+0.9Ia Rd= Rain fall depth (1.5 in.)

V= Runoff Volume, 3630*Rd*Rv*A

v –	Runon volume	, '
	Area 1	
la =	65.0%	
Rv=	0.64	
Rd (in.)=	1.5	
A (ac.) =	3.27	
V (cf.)=	11296	

Total Storage Required by NCDEQ =	11,300.00	cf
Total Storage Required by Currituck County =	21,300.00	cf

Permanent pool Storage Provided In Wet Detention Basin 1

Elev	Area (sf)	Avg area (sf)	Volume (cf)	Cum Vol. (cf)
0	2021.5			0
		3031	9093	
3	4040.5			9093
		4450.75	4451	
4	4861			13544
		5544	5544	
5	6227			19088

Total Storage (cf.) Provided in Basin 1: **19088**

P23058 RPP Holdings Group, LLC Kellogg's Supply Co. - Barco, NC

4/25/2024 Above Permanent Pool Storage Provided In Wet Detention Basin 1

Elev	Area (sf)	Avg area (sf)	Volume (cf)	Cum Vol. (cf)			
5	6227			0			
		6985	6985				
6	7743			6985			
		8960.5	8961				
7	10178			15946			
		10852.5	8139				
7.75	11527			24085			
Total Storage (cf.) Provided in Basin 1: 2408							

Total Storage (cf.) Provided in Basin 1:

3.18

Volume in Forebay for Basin 1

Elev	Area (sf)	Avg area (sf)	Volume (cf)	Cum Vol. (cf)		
2	162			0		
		310.5	621			
3	295			621		
		472	944			
4	459			1565		
		554	554			
5	649			2119		
		815	815			
6	981			2934		
Total Storage (cf.) Provided in Basin 1: 29						

Total Storage (cf.) Provided in Basin 1:

15.4%

P23058						
RPP Holdings Group, LLC						
Kellogg's Supply Co Barco 4/25/2024	, NC A _{bot_shelf} =	5298	sf			
7/23/2024	A _{perm_pool} =	6227	sf			
	A _{bot_pond} =	2021.5	sf			
	V _{perm_pool} =	19088	cf			
	V _{shelf} =	222.75	cf			
	Depth =	=	5			
Equation 2	Dav -	- 31		foot		4 20
Equation 2	Dav	0.1			DA =	142,310.50
					Req'd SA =	5,977.04
Equation 3	Dav =	= 3.6		feet		

Wet Detention Basin Supplement Calculations

Orifice Draw Down Calculations Basin 1

Q = CA(2gH)^0.5 H=Driving Head = D/3 = C = orific coefficient =	0.92 ft. 0.6	
Try orifice diameter = A = Area = 3.14*(d^2)/4 = Q = CA(2gH)^0.5 =	2 in 0.022 sf 0.101 cfs	
Required Storage Volume =		11300.0 cf

Drawdown = Storage Volume / Q =

2.77 days

Appendix C - NOAA Precipitation Intensity (Currituck County)

Precipitation Frequency Data Server



NOAA Atlas 14, Volume 2, Version 3 Location name: Coinjock, North Carolina, USA* Latitude: 36.4199°, Longitude: -75.9258° Elevation: 10 ft** * source: ESRI Maps ** source: USGS



POINT PRECIPITATION FREQUENCY ESTIMATES

G.M. Bonnin, D. Martin, B. Lin, T. Parzybok, M.Yekta, and D. Riley

NOAA, National Weather Service, Silver Spring, Maryland

PF_tabular | PF_graphical | Maps_&_aerials

PF tabular

PDS-b	PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches/hour) ¹									
Duration				Avera	ge recurren	ce interval (years)			
Duration	1	2	5	10	25	50	100	200	500	1000
5-min	5.24 (4.76-5.78)	6.11 (5.53-6.76)	6.83 (6.19-7.56)	7.90 (7.13-8.74)	8.89 (7.99-9.82)	9.83 (8.81-10.8)	10.6 (9.50-11.7)	11.4 (10.2-12.6)	12.4 (10.9-13.7)	13.4 (11.7-14.8)
10-min	4.19	4.88	5.47	6.32	7.08	7.82	8.46	9.08	9.81	10.5
	(3.80-4.62)	(4.42-5.40)	(4.96-6.05)	(5.69-6.98)	(6.37-7.82)	(7.01-8.63)	(7.55-9.34)	(8.05-10.0)	(8.63-10.8)	(9.19-11.7)
15-min	3.49	4.09	4.61	5.32	5.98	6.60	7.13	7.64	8.23	8.81
	(3.17-3.85)	(3.70-4.52)	(4.18-5.10)	(4.80-5.89)	(5.38-6.61)	(5.92-7.29)	(6.36-7.87)	(6.78-8.43)	(7.24-9.10)	(7.69-9.76)
30-min	2.39	2.82	3.28	3.86	4.43	4.97	5.46	5.94	6.55	7.13
	(2.17-2.64)	(2.56-3.12)	(2.97-3.63)	(3.48-4.27)	(3.98-4.89)	(4.46-5.49)	(4.87-6.03)	(5.27-6.56)	(5.76-7.24)	(6.23-7.90)
60-min	1.49	1.77	2.10	2.51	2.95	3.37	3.76	4.17	4.70	5.20
	(1.35-1.64)	(1.60-1.96)	(1.90-2.32)	(2.27-2.78)	(2.65-3.26)	(3.02-3.72)	(3.35-4.15)	(3.70-4.60)	(4.13-5.19)	(4.54-5.77)
2-hr	0.872	1.04	1.26	1.53	1.83	2.13	2.42	2.72	3.13	3.52
	(0.786-0.969)	(0.934-1.16)	(1.13-1.39)	(1.37-1.69)	(1.64-2.03)	(1.90-2.36)	(2.14-2.68)	(2.40-3.02)	(2.73-3.47)	(3.05-3.91)
3-hr	0.619 (0.557-0.693)	0.737 (0.662-0.825)	0.893 (0.802-0.999)	1.09 (0.980-1.22)	1.33 (1.18-1.48)	1.56 (1.38-1.73)	1.79 (1.57-1.99)	2.04 (1.78-2.26)	2.37 (2.05-2.63)	2.71 (2.32-3.00)
6-hr	0.368	0.437	0.530	0.650	0.791	0.934	1.07	1.23	1.44	1.65
	(0.331-0.411)	(0.392-0.489)	(0.475-0.594)	(0.581-0.728)	(0.703-0.883)	(0.825-1.04)	(0.943-1.19)	(1.07-1.36)	(1.24-1.59)	(1.40-1.82)
12-hr	0.215	0.256	0.311	0.384	0.471	0.560	0.649	0.748	0.884	1.02
	(0.194-0.242)	(0.228-0.288)	(0.278-0.350)	(0.341-0.431)	(0.416-0.527)	(0.491-0.624)	(0.564-0.723)	(0.643-0.832)	(0.750-0.983)	(0.855-1.14)
24-hr	0.128	0.156	0.202	0.240	0.297	0.345	0.398	0.457	0.545	0.619
	(0.118-0.140)	(0.143-0.171)	(0.185-0.221)	(0.219-0.262)	(0.269-0.324)	(0.310-0.376)	(0.355-0.434)	(0.403-0.498)	(0.472-0.596)	(0.529-0.680)
2-day	0.074	0.090	0.115	0.137	0.170	0.198	0.230	0.265	0.319	0.364
	(0.068-0.081)	(0.082-0.098)	(0.106-0.126)	(0.125-0.150)	(0.154-0.185)	(0.178-0.216)	(0.204-0.251)	(0.233-0.290)	(0.274-0.350)	(0.308-0.402)
3-day	0.052	0.063	0.081	0.096	0.118	0.137	0.157	0.180	0.214	0.245
	(0.048-0.057)	(0.058-0.069)	(0.075-0.088)	(0.088-0.105)	(0.107-0.128)	(0.123-0.149)	(0.141-0.171)	(0.159-0.196)	(0.186-0.235)	(0.209-0.270)
4-day	0.041	0.050	0.064	0.075	0.092	0.106	0.121	0.138	0.162	0.185
	(0.038-0.045)	(0.046-0.055)	(0.059-0.070)	(0.069-0.082)	(0.084-0.100)	(0.096-0.115)	(0.109-0.131)	(0.122-0.149)	(0.141-0.177)	(0.159-0.204)
7-day	0.027	0.033	0.042	0.049	0.059	0.068	0.077	0.087	0.101	0.113
	(0.025-0.030)	(0.031-0.036)	(0.039-0.045)	(0.045-0.053)	(0.054-0.064)	(0.062-0.073)	(0.069-0.083)	(0.077-0.094)	(0.089-0.110)	(0.098-0.124)
10-day	0.021	0.026	0.032	0.037	0.045	0.051	0.058	0.065	0.075	0.083
	(0.020-0.023)	(0.024-0.028)	(0.030-0.035)	(0.035-0.040)	(0.041-0.048)	(0.047-0.055)	(0.052-0.062)	(0.058-0.069)	(0.066-0.081)	(0.073-0.090)
20-day	0.014	0.017	0.021	0.024	0.029	0.032	0.036	0.040	0.046	0.051
	(0.014-0.015)	(0.016-0.019)	(0.020-0.023)	(0.023-0.026)	(0.027-0.031)	(0.030-0.035)	(0.033-0.039)	(0.037-0.043)	(0.041-0.050)	(0.045-0.055)
30-day	0.012	0.014	0.017	0.019	0.023	0.025	0.028	0.031	0.034	0.037
	(0.011-0.013)	(0.013-0.015)	(0.016-0.018)	(0.018-0.021)	(0.021-0.024)	(0.023-0.027)	(0.026-0.030)	(0.028-0.033)	(0.031-0.037)	(0.034-0.040)
45-day	0.010	0.011	0.014	0.016	0.018	0.021	0.023	0.025	0.029	0.031
	(0.009-0.010)	(0.011-0.012)	(0.013-0.015)	(0.015-0.017)	(0.017-0.020)	(0.019-0.022)	(0.021-0.024)	(0.023-0.027)	(0.026-0.031)	(0.028-0.034)
60-day	0.009	0.010	0.012	0.014	0.016	0.018	0.019	0.021	0.023	0.025
	(0.008-0.009)	(0.010-0.011)	(0.011-0.013)	(0.013-0.015)	(0.015-0.017)	(0.016-0.019)	(0.018-0.020)	(0.019-0.022)	(0.021-0.025)	(0.023-0.027)

¹ Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

Please refer to NOAA Atlas 14 document for more information.

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PF graphical





Average recurrence interval (years)
<u> </u>
2
5
<u> </u>
25
50
<u> </u>
- 200
500
- 1000

Duration							
5-min	— 2-day						
— 10-min	— 3-day						
15-min	— 4-day						
— 30-min	— 7-day						
60-min	— 10-day						
— 2-hr	— 20-day						
— 3-hr	— 30-day						
— 6-hr	— 45-day						
12-hr	— 60-day						
24-hr							

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Precipitation Frequency Data Server



NOAA Atlas 14, Volume 2, Version 3 Location name: Coinjock, North Carolina, USA* Latitude: 36.4199°, Longitude: -75.9258° Elevation: 10 ft** * source: ESRI Maps ** source: USGS



POINT PRECIPITATION FREQUENCY ESTIMATES

G.M. Bonnin, D. Martin, B. Lin, T. Parzybok, M.Yekta, and D. Riley

NOAA, National Weather Service, Silver Spring, Maryland

PF_tabular | PF_graphical | Maps_&_aerials

PF tabular

PDS	PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches) ¹									
Duration				Average	e recurrence	e interval (y	ears)			
Duration	1	2	5	10	25	50	100	200	500	1000
5-min	0.437 (0.397-0.482)	0.509 (0.461-0.563)	0.569 (0.516-0.630)	0.658 (0.594-0.728)	0.741 (0.666-0.818)	0.819 (0.734-0.903)	0.887 (0.792-0.979)	0.954 (0.847-1.05)	1.03 (0.909-1.14)	1.11 (0.973-1.23)
10-min	0.698 (0.634-0.770)	0.813 (0.737-0.900)	0.912 (0.826-1.01)	1.05 (0.949-1.16)	1.18 (1.06-1.30)	1.30 (1.17-1.44)	1.41 (1.26-1.56)	1.51 (1.34-1.67)	1.64 (1.44-1.81)	1.75 (1.53-1.94)
15-min	0.873 (0.792-0.962)	1.02 (0.926-1.13)	1.15 (1.04-1.28)	1.33 (1.20-1.47)	1.50 (1.34-1.65)	1.65 (1.48-1.82)	1.78 (1.59-1.97)	1.91 (1.69-2.11)	2.06 (1.81-2.28)	2.20 (1.92-2.44)
30-min	1.20 (1.09-1.32)	1.41 (1.28-1.56)	1.64 (1.48-1.81)	1.93 (1.74-2.13)	2.22 (1.99-2.45)	2.49 (2.23-2.74)	2.73 (2.44-3.01)	2.97 (2.64-3.28)	3.27 (2.88-3.62)	3.56 (3.11-3.95)
60-min	1.49 (1.35-1.64)	1.77 (1.60-1.96)	2.10 (1.90-2.32)	2.51 (2.27-2.78)	2.95 (2.65-3.26)	3.37 (3.02-3.72)	3.76 (3.35-4.15)	4.17 (3.70-4.60)	4.70 (4.13-5.19)	5.20 (4.54-5.77)
2-hr	1.74 (1.57-1.94)	2.08 (1.87-2.31)	2.51 (2.26-2.79)	3.06 (2.74-3.39)	3.66 (3.28-4.06)	4.26 (3.79-4.71)	4.83 (4.28-5.35)	5.44 (4.79-6.03)	6.26 (5.46-6.94)	7.05 (6.09-7.81)
3-hr	1.86 (1.67-2.08)	2.21 (1.99-2.48)	2.68 (2.41-3.00)	3.29 (2.94-3.68)	3.99 (3.55-4.44)	4.69 (4.14-5.21)	5.37 (4.72-5.96)	6.12 (5.34-6.78)	7.13 (6.16-7.91)	8.13 (6.96-9.02)
6-hr	2.20 (1.99-2.46)	2.62 (2.35-2.93)	3.18 (2.85-3.56)	3.90 (3.48-4.36)	4.74 (4.21-5.29)	5.59 (4.94-6.22)	6.44 (5.65-7.14)	7.36 (6.40-8.15)	8.62 (7.41-9.54)	9.87 (8.39-10.9)
12-hr	2.60 (2.34-2.92)	3.09 (2.76-3.48)	3.76 (3.35-4.22)	4.63 (4.12-5.20)	5.68 (5.02-6.35)	6.75 (5.92-7.53)	7.82 (6.80-8.72)	9.01 (7.76-10.0)	10.7 (9.04-11.9)	12.3 (10.3-13.7)
24-hr	3.09 (2.83-3.38)	3.76 (3.45-4.12)	4.85 (4.44-5.32)	5.77 (5.27-6.31)	7.13 (6.46-7.78)	8.30 (7.46-9.05)	9.57 (8.53-10.4)	11.0 (9.68-12.0)	13.1 (11.3-14.3)	14.9 (12.7-16.3)
2-day	3.57 (3.28-3.92)	4.33 (3.98-4.75)	5.55 (5.10-6.08)	6.60 (6.03-7.22)	8.18 (7.41-8.93)	9.55 (8.58-10.4)	11.1 (9.84-12.1)	12.8 (11.2-14.0)	15.3 (13.2-16.8)	17.5 (14.8-19.3)
3-day	3.79 (3.50-4.14)	4.59 (4.24-5.02)	5.87 (5.40-6.40)	6.94 (6.37-7.56)	8.53 (7.76-9.28)	9.89 (8.92-10.7)	11.4 (10.2-12.4)	13.0 (11.5-14.2)	15.5 (13.4-16.9)	17.7 (15.1-19.5)
4-day	4.01 (3.72-4.37)	4.86 (4.50-5.29)	6.19 (5.71-6.72)	7.29 (6.70-7.90)	8.88 (8.11-9.63)	10.2 (9.27-11.1)	11.7 (10.5-12.7)	13.2 (11.8-14.4)	15.6 (13.6-17.0)	17.8 (15.4-19.6)
7-day	4.69 (4.36-5.09)	5.66 (5.25-6.14)	7.11 (6.58-7.70)	8.30 (7.66-8.98)	10.0 (9.20-10.8)	11.5 (10.4-12.4)	13.0 (11.7-14.1)	14.6 (13.1-15.9)	17.0 (15.0-18.6)	19.0 (16.5-20.8)
10-day	5.28 (4.93-5.67)	6.32 (5.91-6.79)	7.83 (7.30-8.40)	9.07 (8.44-9.73)	10.9 (10.0-11.6)	12.3 (11.3-13.2)	13.9 (12.7-15.0)	15.6 (14.1-16.8)	18.0 (16.0-19.5)	20.0 (17.5-21.8)
20-day	7.18 (6.73-7.66)	8.54 (8.03-9.12)	10.4 (9.75-11.1)	11.9 (11.1-12.7)	14.0 (13.1-15.0)	15.8 (14.6-16.9)	17.6 (16.2-18.9)	19.6 (17.8-21.0)	22.3 (20.0-24.1)	24.5 (21.7-26.6)
30-day	8.83 (8.33-9.39)	10.5 (9.90-11.2)	12.6 (11.9-13.4)	14.3 (13.5-15.2)	16.7 (15.6-17.7)	18.5 (17.3-19.7)	20.5 (18.9-21.8)	22.4 (20.6-24.0)	25.1 (22.8-27.0)	27.2 (24.6-29.4)
45-day	10.9 (10.3-11.6)	12.9 (12.2-13.8)	15.4 (14.5-16.4)	17.5 (16.5-18.6)	20.5 (19.1-21.8)	22.8 (21.2-24.3)	25.3 (23.4-27.0)	27.9 (25.6-29.8)	31.5 (28.6-33.8)	34.4 (30.8-37.0)
60-day	13.1 (12.4-13.9)	15.5 (14.6-16.4)	18.3 (17.2-19.3)	20.5 (19.3-21.7)	23.6 (22.2-25.0)	26.0 (24.3-27.6)	28.5 (26.5-30.2)	31.0 (28.7-33.0)	34.4 (31.5-36.8)	37.0 (33.6-39.7)

¹ Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

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PF graphical





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— 3-hr	— 30-day						
— 6-hr	— 45-day						
12-hr	— 60-day						
24-hr							

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US Department of Commerce National Oceanic and Atmospheric Administration National Weather Service National Water Center 1325 East West Highway Silver Spring, MD 20910 Questions?: HDSC.Questions@noaa.gov

Disclaimer
ALBEMARLE REGIONAL HEALTH SERVICES

Applicant:

Quible & Associates P.C. PO Box 870 Kitty Hawk, NC 27949 Owner: RPP Holdings Group LLC 917 Burnside Rd Manteo, NC 27954

Site Location:

4510 Caratoke Hwy Barco, NC 27917

3PD: 90	LTAR: 0.250 Classification	Suitable
---------	----------------------------	----------

If unsuitable, the site may be reclassified to provisionally suitable with the following modification(s):

To obtain an Authorization to Construct:

- * Submit a plat or scale drawing of the lot, showing location and dimensions of all property lines, proposed structures and driveways
- * Submit a copy of deed or contract to purchase
- * Sign legal documents agreeing to the inspection and maintenance requirements of the Albemarle Regional Health Services Management Entity
- * Pay permit fee of \$1000
- **2 Full sets of plans of plans will be needed for review and permitting
 ** 100% repair area is needed to be shown on final plans

Comments:

**Loading rate is based on LPP (Low Pressure Pipe) design (.5 LTAR Conventional)

**Proposed septic area is to be flagged off to prevent vehicular traffic from compromising existing soil conditions (soil compaction)

- **Seasonal Soil Wetness 30"
- **Area evaluated based on submitted plans, Project # P23058, Dated: 4/10/24

EHS:

Carver, Kevin

Date: 04/22/2024

THIS APPROVAL WILL BECOME VOID AFTER 12 MONTHS AND A NEW APPLICATION WILL BE NECESSARY.

April 24, 2024

Carl Dunn, P.E. Environmental Engineer Division of Energy, Mineral, and Land Resources Land Quality Section – Washington Regional Office North Carolina Department of Environmental Quality 943 Washington Square Mall Washington, North Carolina 27889

Re: Stormwater Management Plan (High Density Application) **RPP Holdings Group, LLC** Barco, Currituck County, North Carolina

Dear Mr. Dunn,

On behalf of RPP Holdings Group, LLC, Quible & Associates, P.C. hereby submits for your review and approval a High-Density Stormwater Management Permit package for the above referenced project located at 4510 Caratoke Highway in Currituck County. The enclosed narrative will explain in detail the stormwater management of this site.

The following items are included and shall be considered part of this submittal package:

- 1. Stormwater Review Fee Check in the amount of \$1,500;
- 2. One (1) original and one (1) copy of the Stormwater Management Permit Application Form (SWU-101);
- 3. One (1) original of the Operation & Maintenance Agreement for the Proposed Wet Detention Basin;
- 4. One (1) original of the Wet Detention Basin Supplement Form for the Wet Detention Basin;
- 5. One (1) copy of the Stormwater Narrative and associated soils data;
- 6. One (1) copy of Property Deed 1766 Page 331, plat S slide 115;
- 7. One (1) USGS map with site location identified;
- 8. One (1) copy of the NC SOS Documentation;
- 9. Two (2) full size copies of the Plan Set pages 1, 4, 6, & 7.

Please do not hesitate to contact me at 252.491.8147 should you have any questions and/or concerns. Thank you for your attention to this project.

Sincerely, **Quible & Associates, P.C.**

Nadeen Dashti, E.I. Encl: As stated Cc: RPP Holdings Group, LLC

	Data Pacaiwad	DEMLR USE ONLY	Powmit Number		
		רפר דמוט			
Ap (sel	plicable Rules: □ Coastal SW – lect all that apply) □ Non-Coastal □ Other WQ M	1995 □ Coastal SW – 2008 SW- HQW/ORW Waters □ Univer gmt Plan:	□ Ph II - Post Construction rsal Stormwater Management Plan		
	State of North Carolina Department of Environment and Natural Resources Division of Energy, Mineral and Land Resources				
	STORMWATER N This	MANAGEMENT PERMIT AP	PLICATION FORM		
I.	GENERAL INFORMATION	I			
1.	Project Name (subdivision, facilit specifications, letters, operation a	y, or establishment name - should be nd maintenance agreements, etc.):	consistent with project name on plans,		
	RPP Group Holdings, LLC				
2.	Location of Project (street address	5):			
	4510 Caratoke Hwy				
	City: <u>Barco</u>	County: <u>Currituck</u>	Zip: <u>27917</u>		
3.	Directions to project (from neares	t major intersection):			
	Located to the west of caratoke hi	ighway appriximately 0.338 miles sou	th of Coinjock Village Drive		
4.	Latitude: <u>36° 21′ 13″ N</u>	_ Longitude: <u>75° 57′ 36″ W</u>	of the main entrance to the project.		
II.	PERMIT INFORMATION:		_		
1.a	. Specify whether project is (check	one): New Modification [†] Renewals with modifications also require	n		
ł	D. If this application is being submit permit number construction:	ted as the result of a modification to , its issue date (if known) Partially Completed* Compl	an existing permit, list the existing , and the status of eted* *provide a designer's certification		
2.	Specify the type of project (check Low Density High Density	one): ity Drains to an Offsite Stormwa	iter System Other		
3.	If this application is being submit DEMLR requesting a state storm if assigned, proposed,	ted as the result of a previously return water management permit applicati and the previous name of the pro	rned application or a letter from on, list the stormwater project number, ject, if different than currently 		
4. a	Additional Project Requirements obtained by contacting the Custo	(check applicable blanks; informatior mer Service Center at 1-877-623-6748)	n on required state permits can be :		
	CAMA Major	Sedimentation/Erosion Contro	ol: <u>2.79</u> ac of Disturbed Area		
	NPDES Industrial Stormwater	404/401 Permit: Proposed Imp	acts		
ł	b. If any of these permits have already been acquired please provide the Project Name, Project/Permit Number, issue date and the type of each permit:				
Б	Is the project leasted within E mil	∞ of a multiplic simplify $\sum_{i=1}^{n} \sum_{j=1}^{n} \sum_{i=1}^{n} \sum_{i=1}^{n} \sum_{i=1}^{n} \sum_{j=1}^{n} \sum_{i=1}^{n} \sum_{j=1}^{n} \sum_{i=1}^{n} \sum_{j=1}^{n} \sum_{i=1}^{n} \sum_{j=1}^{n} \sum_{i=1}^{n} \sum_{j=1}^{n} \sum_{i=1}^{n} \sum_{i=1}^{n} \sum_{i=1}^{n} \sum_{j=1}^{n} \sum_{i=1}^{n} $			

5. Is the project located within 5 miles of a public airport? No Yes *If yes, see S.L. 2012-200, Part VI:* <u>http://portal.ncdenr.org/web/lr/rules-and-regulations</u>

III. CONTACT INFORMATION

1. a. Print Applicant / Signing Official's name and t designated government official, individual, etc	itle (specifically the dev , who owns the project):	eloper, p	property owner, lessee,
Applicant/Organization:RPP Holdings Group. L	LC		
Signing Official & Title:Joseph J Gaca, Owner M	lanager		
b.Contact information for person listed in item 1	a above:		
Street Address:917 Burnside Road			
City:Manteo	State:NC		Zip:27954
Mailing Address (<i>if annlicable</i>):PO Box 99			I
City:Manteo	State:NC		Zip:27954
Phone: (252) 473-2167	Fax: ()	_ I
Email:joeg@kelloggsupplyco.com	<u>,</u>		
 The property owner (Skip to Contact Inform Lessee* (Attach a copy of the lease agreeme Purchaser* (Attach a copy of the pending sa 2b below) Developer* (Complete Contact Information 	nation, item 3a) nt and complete Contac iles agreement and comj , item 2a and 2b below.)	t Inform plete Co	ation, item 2a and 2b below) ntact Information, item 2a and
2. a. Print Property Owner's name and title below, i person who owns the property that the project	f you are the lessee, pur is located on):	chaser o	r developer. (This is the
Property Owner/Organization:			
Signing Official & Title:			
b. Contact information for person listed in item 2a	a above:		
Street Address:			
City:	State:		_ Zip:
Mailing Address (<i>if applicable</i>):			
City:	State:		_ Zip:
Phone: ()	Fax: <u>(</u>)	
Email:			
3. a. (Optional) Print the name and title of another operations who can answer questions about the product of the Contact Person/Organization:	contact such as the proje oject:	ect's cons	struction supervisor or other
Signing Official & Title:			
b. Contact information for person listed in item 3a	a above:		
Mailing Address:			
City:	State:		_ Zip:
Phone: ()	Fax: ()	
Email:			
4. Local jurisdiction for building permits: <u>Curritu</u>	ck County		
Point of Contact: <u>Bill Newns</u>	Phone #: <u>(252</u>	2)	202.5398

IV. PROJECT INFORMATION

1. In the space provided below, <u>briefly</u> summarize how the stormwater runoff will be treated.

The runoff will be treated onsite via a wet detention basin.

2. a. If claiming vested rights, identify the supporting documents provided and the date they were approved:
Approval of a Site Specific Development Plan or PUD
Valid Building Permit
Other:
Date:

b. **If claiming vested rights**, identify the regulation(s) the project has been designed in accordance with: Coastal SW – 1995 Ph II – Post Construction

3.	Stormwater runoff from this project drains to the <u>Pasquotank</u>	River basin.

- 4. Total Property Area: <u>12.02</u> acres
- Total Coastal Wetlands Area: <u>5.16</u> acres
 Total Surface Water Area: acres
- 7. Total Property Area (4) Total Coastal Wetlands Area (5) Total Surface Water Area (6) = Total Project Area⁺: <u>6.86</u> acres
 - * Total project area shall be calculated to exclude the following: the normal pool of impounded structures, the area between the banks of streams and rivers, the area below the Normal High Water (NHW) line or Mean High Water (MHW) line, and coastal wetlands landward from the NHW (or MHW) line. The resultant project area is used to calculate overall percent built upon area (BUA). Non-coastal wetlands landward of the NHW (or MHW) line may be included in the total project area.
- 8. Project percent of impervious area: (Total Impervious Area / Total Project Area) X 100 = 57.07
- _%
- 9. How many drainage areas does the project have?<u>1</u> (For high density, count 1 for each proposed engineered stormwater BMP. For low density and other projects, use 1 for the whole property area)
- 10. Complete the following information for each drainage area identified in Project Information item 9. If there are more than four drainage areas in the project, attach an additional sheet with the information for each area provided in the same format as below.

Basin Information	Drainage Area <u>1</u>	Drainage Area	Drainage Area	Drainage Area
Receiving Stream Name	Intracoastal			
	Waterway			
Stream Class *	SC			
Stream Index Number *	30-2-5-1			
Total Drainage Area (sf)	142,310.5			
On-site Drainage Area (sf)	142,310.5			
Off-site Drainage Area (sf)	0			
Proposed Impervious Area ^{**} (sf)	92,452.49			
% Impervious Area ^{**} (total)	%65			

Impervious** Surface Area	Drainage Area <u>1</u>	Drainage Area	Drainage Area	Drainage Area
On-site Buildings/Lots (sf)	18,143.35			
On-site Streets (sf)	0			
On-site Parking (sf)	44,311.9			
On-site Sidewalks (sf)	13,491.04			
Other on-site (sf)	0			
Future (sf)	16,506			
Off-site (sf)	0			
Existing BUA*** (sf)				
Total (sf):	92,452.49			

* Stream Class and Index Number can be determined at: <u>http://portal.ncdenr.org/web/wq/ps/csu/classifications</u>

** Impervious area is defined as the built upon area including, but not limited to, buildings, roads, parking areas, sidewalks, gravel areas, etc.

- *** Report only that amount of existing BUA that will <u>remain</u> after development. Do not report any existing BUA that is to be removed and which will be replaced by new BUA.
- 11. How was the off-site impervious area listed above determined? Provide documentation.

<u>**Projects in Union County:**</u> Contact DEMLR Central Office staff to check if the project is located within a Threatened & Endangered Species watershed that may be subject to more stringent stormwater requirements as per 15A NCAC 02B .0600.

V. SUPPLEMENT AND O&M FORMS

The applicable state stormwater management permit supplement and operation and maintenance (O&M) forms must be submitted for each BMP specified for this project. The latest versions of the forms can be downloaded from http://portal.ncdenr.org/web/wq/ws/su/bmp-manual.

VI. SUBMITTAL REQUIREMENTS

Only complete application packages will be accepted and reviewed by the Division of Energy, Mineral and Land Resources (DEMLR). A complete package includes all of the items listed below. A detailed application instruction sheet and BMP checklists are available from

<u>http://portal.ncdenr.org/web/wq/ws/su/statesw/forms_docs</u>. The complete application package should be submitted to the appropriate DEMLR Office. (The appropriate office may be found by locating project on the interactive online map at <u>http://portal.ncdenr.org/web/wq/ws/su/maps</u>.)

Please **indicate that the following required information have been provided by initialing** in the space provided for each item. All original documents MUST be signed and initialed in **blue ink**. **Download the latest versions for each submitted application package** from <u>http://portal.ncdenr.org/web/wq/ws/su/statesw/forms_docs</u>.

		Initials
1.	Original and one copy of the Stormwater Management Permit Application Form.	
2.	<i>Original and one copy</i> of the signed and notarized Deed Restrictions & Protective Covenants Form. <i>(if required as per Part VII below)</i>	
3.	<i>Original</i> of the applicable Supplement Form(s) (<u>sealed, signed and dated</u>) and O&M agreement(s) for <u>each</u> BMP.	
4.	Permit application processing fee of \$505 <i>payable to NCDENR</i> . (For an Express review, refer to <u>http://www.envhelp.org/pages/onestopexpress.html</u> for information on the Express program and the associated fees. Contact the appropriate regional office Express Permit Coordinator for additional information and to schedule the required application meeting.)	
5.	A detailed narrative (one to two pages) describing the stormwater treatment/management	for
6.	A USGS map identifying the site location. If the receiving stream is reported as class SA or the receiving stream drains to class SA waters within $\frac{1}{2}$ mile of the site boundary, include the $\frac{1}{2}$ mile radius on the map.	
7.	Sealed, signed and dated calculations (one copy).	
0.	 a. Development/Project name. b. Engineer and firm. c. Location map with named streets and NCSR numbers. d. Legend. e. North arrow. f. Scale. 	
	 g. Revision number and dates. h. Identify all surface waters on the plans by delineating the normal pool elevation of impounded structures, the banks of streams and rivers, the MHW or NHW line of tidal waters, and any coastal wetlands landward of the MHW or NHW lines. Delineate the vegetated buffer landward from the normal pool elevation of impounded structures, the banks of streams or rivers, and the MHW (or NHW) of tidal waters. 	
	i. Dimensioned property/project boundary with bearings & distances.j. Site Layout with all BUA identified and dimensioned.	
	k. Existing contours, proposed contours, spot elevations, finished floor elevations.	
	 Details of roads, drainage features, collection systems, and stormwater control measures. m. Wetlands delineated, or a note on the plans that none exist. (Must be delineated by a qualified person. Provide documentation of qualifications and identify the person who made the determination on the plans. 	
	n. Existing drainage (including off-site), drainage easements, pipe sizes, runoff calculations.	
	o. Drainage areas delineated (included in the main set of plans, not as a separate document).	

p. Vegetated buffers (where required).

- 9. Copy of any applicable soils report with the associated SHWT elevations (Please identify elevations in addition to depths) as well as a map of the boring locations with the existing elevations and boring logs. Include an 8.5" x11" copy of the NRCS County Soils map with the project area clearly delineated. For projects with infiltration BMPs, the report should also include the soil type, expected infiltration rate, and the method of determining the infiltration rate. (Infiltration Devices submitted to WiRO: Schedule a site visit for DEMLR to verify the SHWT prior to submittal, (910) 796-7378.)
- 10. A copy of the most current property deed. Deed book: 1766 Page No: 331
- 11. For corporations and limited liability corporations (LLC): Provide documentation from the NC Secretary of State or other official documentation, which supports the titles and positions held by the persons listed in Contact Information, item 1a, 2a, and/or 3a per 15A NCAC 2H.1003(e). The corporation or LLC must be listed as an active corporation in good standing with the NC Secretary of State, otherwise the application will be returned. http://www.secretary.state.nc.us/Corporations/CSearch.aspx

VII. DEED RESTRICTIONS AND PROTECTIVE COVENANTS

For all subdivisions, outparcels, and future development, the appropriate property restrictions and protective covenants are required to be recorded prior to the sale of any lot. If lot sizes vary significantly or the proposed BUA allocations vary, a table listing each lot number, lot size, and the allowable built-upon area must be provided as an attachment to the completed and notarized deed restriction form. The appropriate deed restrictions and protective covenants forms can be downloaded from http://portal.ncdenr.org/web/lr/statestormwater-forms_docs. Download the latest versions for each submittal.

In the instances where the applicant is different than the property owner, it is the responsibility of the property owner to sign the deed restrictions and protective covenants form while the applicant is responsible for ensuring that the deed restrictions are recorded.

By the notarized signature(s) below, the permit holder(s) certify that the recorded property restrictions and protective covenants for this project, if required, shall include all the items required in the permit and listed on the forms available on the website, that the covenants will be binding on all parties and persons claiming under them, that they will run with the land, that the required covenants cannot be changed or deleted without concurrence from the NC DEMLR, and that they will be recorded prior to the sale of any lot.

VIII. CONSULTANT INFORMATION AND AUTHORIZATION

Applicant: Complete this section if you wish to designate authority to another individual and/or firm (such as a consulting engineer and/or firm) so that they may provide information on your behalf for this project (such as addressing requests for additional information).

Consulting Engineer: Cathleen M. Saunders		
Consulting Firm: Quible & Associates, P.C.		
Mailing Address: <u>PO Drawer 870</u>		
City: <u>Kitty Hawk</u>	State: <u>NC</u>	Zip:27949
Phone: (252) 491-8147	Fax: ()	

Email:csaunders@quible.com

IX. PROPERTY OWNER AUTHORIZATION (if Contact Information, item 2 has been filled out, complete this section)

I, (print or type name of person listed in Contact Inform	mation, item 2a), certify that I			
own the property identified in this permit applica	tion, and thus give permission to (print or type name of person			
listed in Contact Information, item 1a)	with (print or type name of organization listed in			
Contact Information, item 1a)	to develop the project as currently proposed. A copy of			
the lease agreement or pending property sales contract has been provided with the submittal, which indicates the				
party responsible for the operation and maintenance of the stormwater system.				

As the legal property owner I acknowledge, understand, and agree by my signature below, that if my designated agent (entity listed in Contact Information, item 1) dissolves their company and/or cancels or defaults on their lease agreement, or pending sale, responsibility for compliance with the DEMLR Stormwater permit reverts back to me, the property owner. As the property owner, it is my responsibility to notify DEMLR immediately and submit a completed Name/Ownership Change Form within 30 days; otherwise I will be operating a stormwater treatment facility without a valid permit. I understand that the operation of a stormwater treatment facility without a valid permit is a violation of NC General Statue 143-215.1 and may result in appropriate enforcement action including the assessment of civil penalties of up to \$25,000 per day, pursuant to NCGS 143-215.6.

Signature:		Date:
I,	, a Notary Public for the State of	, County of
, do hereby certif	y that	personally appeared
before me this day of	,, and acknowledge the due e	xecution of the application for
a stormwater permit. Witness my hand	and official seal,	
	SEAL	
	My commission expires	

X. APPLICANT'S CERTIFICATION

I, (print or type name of person listed in Contact Information, item 1a) _______, certify that the information included on this permit application form is, to the best of my knowledge, correct and that the project will be constructed in conformance with the approved plans, that the required deed restrictions and protective covenants will be recorded, and that the proposed project complies with the requirements of the applicable stormwater rules under 15A NCAC 2H .1000 and any other applicable state stormwater requirements.

Signature:		Date:
I,	, a Notary Public for the State of	, County of
, do hereby certif	y that	personally appeared
before me this day of	,, and acknowledge the due	execution of the application for
a stormwater permit. Witness my hand	and official seal,	
	SEAL	
	My commission expires	

Operation & Maintenance Agreement

Project Name: RPP Holdings Group, LLC

Project Location: 917 Burnside Road, Manteo NC, 27954

Cover Page

Maintenance records shall be kept on the following SCM(s). This maintenance record shall be kept in a log in a known set location. Any deficient SCM elements noted in the inspection will be corrected, repaired, or replaced immediately. These deficiencies can affect the integrity of structures, safety of the public, and the pollutant removal efficiency of the SCM(s).

The SCM(s) on this project include (check all that apply & corresponding O&M sheets will be added automatically):

Infiltration Basin	Quantity:		Location(s):	
Infiltration Trench	Quantity:		Location(s):	
Bioretention Cell	Quantity:		Location(s):	
Wet Pond	Quantity:	1	Location(s):	southwest of the property adj to wetlands
Stormwater Wetland	Quantity:		Location(s):	
Permeable Pavement	Quantity:		Location(s):	
Sand Filter	Quantity:		Location(s):	
Rainwater Harvesting	Quantity:		Location(s):	
Green Roof	Quantity:		Location(s):	
Level Spreader - Filter Strip	Quantity:		Location(s):	
Proprietary System	Quantity:		Location(s):	
Treatment Swale	Quantity:		Location(s):	
Dry Pond	Quantity:		Location(s):	
Disconnected Impervious Surface	Present:	No	Location(s):	
User Defined SCM	Present:	No	Location(s):	
Low Density	Present:	No	Tvpe:	

I acknowledge and agree by my signature below that I am responsible for the performance of the maintenance procedures listed for each SCM above, and attached O&M tables. I agree to notify NCDEQ of any problems with the system or prior to any changes to the system or responsible party.

	Responsible Party: Joseph J G Title & Organization: Owner Ma Street address: 917 Burns City, state, zip: Manteo NC, Phone number(s): 252.473.216 Email: joeg@kello	aca nager - RPP Holdings Group, LLC ide Road 27954 7 gsupplyco.com			
Signature:			Date:		
l,		, a Notary Public for the State of	of		
County of		, do hereby certify that			
personally appear	ed before me this	day of		and	
acknowledge the o	due execution of the Operations a	nd Maintenance Agreement .			
Witness my hand a	and official seal,				
Seal STORM-EZ	My commission expire	:S			4/19/20

Version 1.5

Wet Pond Maintenance Requirements

Important operation and maintenance procedures:

- Immediately after the wet detention basin is established, the plants on the vegetated shelf and
- perimeter of the basin should be watered twice weekly if needed, until the plants become established (commonly six weeks).
- No portion of the wet pond should be fertilized after the initial fertilization that is required to establish the plants on the vegetated shelf.
- Stable groundcover will be maintained in the drainage area to reduce the sediment load to the wet pond.
- If the pond must be drained for an emergency or to perform maintenance, the flushing of sediment through the emergency drain will be minimized as much as possible.
- At least once annually, a dam safety expert will inspect the embankment. Any problems that are found will be repaired immediately.
- The measuring device used to determine the sediment elevation shall be such that it will give an accurate depth reading and not readily penetrate into accumulated sediments.

After the wet pond is established, it will be inspected **quarterly and within 24 hours after every storm event greater than 1.0 inches (or 1.5 inches if in a Coastal County)**. Records of operation and maintenance shall be kept in a known set location and shall be available upon request.

Inspection activities shall be performed as follows. Any problems that are found shall be repaired immediately.

SCM element:	Potential problem:	How to remediate the problem:
The entire wet pond	Trash/debris is present.	Remove the trash/debris.
The perimeter of the wet pond	Areas of bare soil and/or erosive gullies have formed.	Regrade the soil if necessary to remove the gully, plant ground cover and water until it is established. Provide lime and a one-time fertilizer application.
	The inlet pipe is clogged (if applicable).	Unclog the pipe. Dispose of the sediment off-site.
The inlet device	The inlet pipe is cracked or otherwise damaged (if applicable).	Repair or replace the pipe.
	Erosion is occurring in the swale (if applicable).	Regrade the swale if necessary and provide erosion control devices such as reinforced turf matting or riprap to avoid future problems with erosion.
T I - fear base	Sediment has accumulated to a depth greater than the original design depth for sediment storage.	Search for the source of the sediment and remedy the problem if possible. Remove the sediment and dispose of it in a location where it will not cause impacts to streams or the SCM.
The forebay	Erosion has occurred.	Provide additional erosion protection such as reinforced turf matting or riprap if needed to prevent future erosion problems.
	Weeds are present.	Remove the weeds, preferably by hand. If pesticide is used, wipe it on the plants rather than spraying.

Wet Pond Maintenance Requirements (Continued)				
SCM element:	Potential problem:	How to remediate the problem:		
	Sediment has accumulated to a depth greater than the original design sediment storage depth.	Search for the source of the sediment and remedy the problem if possible. Remove the sediment and dispose of it in a location where it will not cause impacts to streams or the SCM.		
The main treatment area	Algal growth covers over 50% of the area.	Consult a professional to remove and control the algal growth.		
	Cattails, phragmites or other invasive plants cover 50% of the basin surface.	Remove the plants by wiping them with pesticide (do not spray).		
	Best professional practices show that pruning is needed to maintain optimal plant health.	Prune according to best professional practices.		
The vegetated shelf	Plants are dead, diseased or dying.	Determine the source of the problem: soils, hydrology, disease, etc. Remedy the problem and replace plants. Provide a one- time fertilizer application to establish the ground cover if a soil test indicates it is necessary.		
	Weeds are present.	Remove the weeds, preferably by hand. If pesticide is used, wipe it on the plants rather than spraying.		
	Shrubs have started to grow on the embankment.	Remove shrubs immediately.		
	Evidence of muskrat or beaver activity is present.	Consult a professional to remove muskrats or beavers and repair any holes or erosion.		
The embankment	A tree has started to grow on the embankment.	Consult a dam safety specialist to remove the tree.		
	An annual inspection by an appropriate professional shows that the embankment needs repair.	Make all needed repairs immediately.		
The outlet device	Clogging has occurred.	Clean out the outlet device and dispose of any sediment in a location where it will not cause impacts to streams or the SCM.		
	The outlet device is damaged.	Repair or replace the outlet device.		
Electing wotland island	Weeds or volunteer trees are growing on the mat.	Remove the weeds or trees.		
(if applicable)	The anchor cable is damaged, disconnected or missing.	Restore the anchor cable to its design state.		

Wet Pond Maintenance Requirements (Continued)			
SCM element:	Potential problem:	How to remediate the problem:	
	Erosion or other signs of damage have occurred at the outlet.	Repair the damage and improve the flow dissipation structure.	
The receiving water	Discharges from the wet pond are causing erosion or sedimentation in the receiving water.	Contact the local NCDEQ Regional Office.	



ATTACH ADDITIONAL SHEETS IF NECESSARY

SUPPLEMENT-EZ COVER PAGE

FORMS LOADED

PROJECT INFORMATION			
1	Project Name	RPP Group Holdings, LLC	
2	Project Area (ac)	12.02	
3	Coastal Wetland Area (ac)	5.16	
4	Surface Water Area (ac)	0	
5	Is this project High or Low Density?	High	
6	Does this project use an off-site SCM?	No	

COMF	COMPLIANCE WITH 02H .1003(4)			
7	Width of vegetated setbacks provided (feet)	>50'		
8	Will the vegetated setback remain vegetated?	Yes		
9	If BUA is proposed in the setback, does it meet NCAC 02H.1003(4)(c-d)?	N/A		
10	Is streambank stabilization proposed on this project?	No		

NUMB	NUMBER AND TYPE OF SCMs:			
11	Infiltration System			
12	Bioretention Cell			
13	Wet Pond	1		
14	Stormwater Wetland			
15	Permeable Pavement			
16	Sand Filter			
17	Rainwater Harvesting (RWH)			
18	Green Roof			
19	Level Spreader-Filter Strip (LS-FS)			
20	Disconnected Impervious Surface (DIS)			
21	Treatment Swale			
22	Dry Pond			
23	StormFilter			
24	Silva Cell			
25	Bayfilter			
26	Filterra			

FORMS LOADED

DESIGNER CERTIFICATION		
27	Name and Title:	Cathleen M. Saunders
28	Organization:	Quible & Associates, PC.
29	Street address:	8466 Caratoke Highway, Bldg 400
30	City, State, Zip:	Powells Point, NC 27966
31	Phone number(s):	252-202-7112
32	Email:	csaunders@quible.com

Certification Statement:

I certify, under penalty of law that this Supplement-EZ form and all supporting information were prepared under my direction or supervision; that the information provided in the form is, to the best of my knowledge and belief, true, accurate, and complete; and that the engineering plans, specifications, operation and maintenance agreements and other supporting information are consistent with the information provided here.

<u>Designer</u>

	Signature of Designer

DRAINAGE AREAS

1	Is this a high density project?	Yes
2	If so, number of drainage areas/SCMs	1
3	Does this project have low density areas?	No
4	If so, number of low density drainage areas	0
	Is all/part of this project subject to previous rule	
5	versions?	No

FORMS LOADED

DRAI	NAGE AREA INFORMATION	Entire Site	1
4	Type of SCM		Wet Pond
5	Total drainage area (sq ft)		142,311
6	Onsite drainage area (sq ft)		142,311
7	Offsite drainage area (sq ft)		0
8	Total BUA in project (sq ft)		92452 sf
	New BUA on subdivided lots (subject to permitting)		
9	(sq ft)		
	New BUA not on subdivided lots (subject to		
10	permitting) (sf)		92452 sf
11	Offsite BUA (sq ft)		sf
12	Breakdown of new BUA not on subdivided lots:		
	- Parking (sq ft)		44312 sf
	- Sidewalk (sq ft)		
	- Roof (sq ft)		18143 sf
	- Roadway (sq ft)		
	- Future (sq ft)		16506 sf
	- Other, please specify in the comment box		
	below (sq ft)		
	New infiltrating permeable pavement on subdivided		
13	lots (sq ft)		sf
	New infiltrating permeable pavement not on		
14	subdivided lots (sq ft)		sf
	Existing BUA that will remain (not subject to		
15	permitting) (sq ft)		sf
16	Existing BUA that is already permitted (sq ft)		sf
17	Existing BUA that will be removed (sq ft)		sf
18	Percent BUA		65%
19	Design storm (inches)		1.5 in
20	Design volume of SCM (cu ft)		24085 cf
21	Calculation method for design volume		SA/DA
ADDI	TIONAL INFORMATION		
	Please use this space to provide any additional info	rmation about the	
22	drainage area(s):		

WET POND

1	Drainage area number	1
2	Minimum required treatment volume (cu ft)	11300 cf
GENER	AL MDC FROM 02H .1050	11000 01
3	Is the SCM sized to treat the SW from all surfaces at build-out?	Ves
4	Is the SCM located away from contaminated soils?	Yes
5	What are the side slopes of the SCM (H:V)?	3.1
- 0	Does the SCM have retaining walls, gabion walls or other	0.1
6	engineered side slopes?	No
-	Are the inlets, outlets, and receiving stream protected from erosion	N/
1	(10-year storm)?	res
8	Is there an overflow or bypass for inflow volume in excess of the	Ves
	design volume?	105
9	What is the method for dewatering the SCM for maintenance?	Pump (preferred)
10	If applicable, will the SCM be cleaned out after construction?	Yes
11	Does the maintenance access comply with General MDC (8)?	Yes
12	Does the drainage easement comply with General MDC (9)?	N/A
13	If the SCM is on a single family lot, does (will?) the plat comply with General MDC (10)?	N/A
14	Is there an O&M Agreement that complies with General MDC (11)?	Yes
15	Is there an O&M Plan that complies with General MDC (12)?	Yes
16	Does the SCM follow the device specific MDC?	Yes
17	Was the SCM designed by an NC licensed professional?	Yes
WET PC	DND MDC FROM 02H .1053	
18	Sizing method used	SA/DA
19	Has a stage/storage table been provided in the calculations?	Yes
	Elevation of the excavated main pool depth (bottom of sediment	0.00
20	removal) (fmsl)	0.00
21	Elevation of the main peak bettern (ten of addiment removal) (fmal)	0.50
21		0.50
22	Elevation of the bottom of the vegetated shelf (fmsl)	3.00
23	Elevation of the permanent pool (fmsl)	3.50
24	Elevation of the top of the vegetated shelf (fmsl)	8.00
25	Elevation of the temporary pool (fmsl)	7.75
26	Surface area of the main permanent pool (square feet)	6227
27	Volume of the main permanent pool (cubic feet)	19088 cf
28	Average depth of the main pool (feet)	4.60 ft
29	Average depth equation used	Equation 2
30	If using equation 3, main pool perimeter (feet)	
31	If using equation 3, width of submerged veg. shell (reet)	2024 of
32	Is this 15 20% of the volume in the main pool?	2934 CI
3/	Clean-out denth for forebay (inches)	8/1 in
35	Design volume of SCM (cu ft)	78452 cf
36	Is the outlet an orifice or a weir?	Orifice
37	If orifice orifice diameter (inches)	2 in
38	If weir weir height (inches)	n/a
39	If weir, weir length (inches)	n/a
40	Drawdown time for the temporary pool (days)	2.77
	Are the inlet(s) and outlet located in a manner that avoids short-	N.
41	circuiting?	Yes
42	Are berms or baffles provided to improve the flow path?	No
43	Depth of forebay at entrance (inches)	32 in
44	Depth of forebay at exit (inches)	12 in
45	Does water flow out of the forebay in a non-erosive manner?	Yes
46	Width of the vegetated shelf (feet)	6 ft
47	Slope of vegetated shelt (H:V)	3:1
48	Does the ortifice drawdown from below the top surface of the	Yes
	permanent poor?	
49	vr. 24-hr storm?	Yes
	Are fountains proposed? (If Y. please provide documentation that	
50	MDC(9) is met.)	No
E 4	le a track rack or other device provided to protect the evitet and an	Vaa
51	is a trash rack of other device provided to protect the outlet system?	Tes
52	Are the dam and embankment planted in non-clumping turf grass?	Yes
		100
53	Species of turf that will be used on the dam and embankment	Bermuda
54	Has a planting plan been provided for the vegetated shelf?	Yes
ADDIT		
55	the wet pend(a):	



STORMWATER NARRATIVE RPP Holdings Group, LLC 4510 Caratoke Hwy Currituck County, North Carolina

Prepared for: RPP Holdings Group, LLC 917 Burnside Road Manteo, NC 27954

Prepared by: Quible & Associates, P.C. PO Drawer 870 Kitty Hawk, NC 27949

> April 22, 2024 P23058

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Appendices

Appendix A – Stormwater Calculations Appendix B - On-site Soils and Infiltration Reports Appendix C - NOAA Precipitation Intensity (Currituck County)

Overview

The subject property is located at 4510 Caratoke Hwy, Barco, NC in Currituck County. The site development proposes the construction of a 18,143 sq. ft. retail building. The project development will include the associated drainage improvements for the development of a portion of the 12.02-acre lot. The site is zoned General Business (GB) and Remaining Agricultural (AG). Retail is a permitted use for this zoning.

Stormwater Management Plan

Per 15A NCAC 02H.1005 (a) (3) (B) High Density Coastal Development is required to meet particular criteria. This development is proposed to have 57.07% of impervious coverage within the associated drainage area boundary. The proposed wet detention basin onsite is designed in accordance with NCDEQ Requirements and is designed to store, control, and treat the stormwater runoff from all surfaces generated by the one and one-half inch of rainfall. In addition to these requirements, a minimum 50' vegetative buffer from surface waters is provided.

Collection

Runoff from the proposed access drive will be directed into a flowline in the center of the parking area. This flowline coincides with the stormwater network, which collects and discharges into the wet retention basin forebay. Runoff from the southern portion of the proposed building will be collected into a grass swale which overflows into the stormwater network. The stormwater network continues to flow toward the forebay. The parking and vehicular area is to also be collected and conveyed to the proposed wet detention basin via sheet flow whereby the parking area drains to the centralized flowline and stormwater network prior to being directed into the forebay.

<u>Treatment</u>

The proposed system will offer several methods of treatment prior to release.

Runoff from vehicular areas will be directed to the wet detention basin via stormwater piping. The stormwater structures will be designed to have sumps to settle out sediment prior to discharge into the wet detention basin.

The primary treatment of runoff will be provided within the wet detention basin. The wet basin is designed with a forebay which initially receives incoming runoff from multiple directions to allow for energy dissipation and initial settling prior to entering the main pond. The entire wet retention basin is designed to have vegetative shelving and a depth adequate to allow for some sedimentation. The overall depth of the basin allows for water quality treatment.

The basin bottom and side slopes will be grassed according to general seeding specifications. The runoff will undergo filtration of fine particulates and pollutants by the vegetation within the basin. The filtration by vegetation is considered the primary method of treatment. A secondary method of treatment is also available when stormwater runoff infiltrates into the subsurface. The soil particles between the basin bottom and the season high water table (SHWT) will offer additional filtration and/or absorption of particulates and pollutants prior to reaching the water table. The season high water table (SWHT) is at an elevation of +/- 5.3'. Separation of greater

than 2' between the seasonal high-water table and the bottom of the basin has been provided.

<u>Storage</u>

The majority of the stormwater storage volume is provided within the proposed wet detention basin. The temporary storage volume is computed within the basin above the main pool elevation of 5.0'. The County stormwater storage volume requirement based upon routing the 5-year post-development rainfall event to the 2-year pre-development wooded condition is approximately 22,400 CF. The proposed wet detention basin provided storage volume is approximately 24,085 CF, equivalent to the 3.18 inch rainfall event.

The season high water table (SHWT) is at an elevation of +/-5.3' ft., per the attached soils analysis in **Appendix B**.

Disposal

The wet detention basin's primary mode of disposal for elevations between 5 and 7.75 ft. is through a 2" drawdown orifice on a structure located inside of the main pool. The invert elevation of the 2" drawdown orifice is proposed to be at an elevation of 3.5 ft. Elevations between 7.75 and 10.0 feet will utilize a grate on top of this structure as well as the 2" drawdown orifice. The invert elevation of the grate is proposed to be 7.75 feet in elevation. The total drawdown time from an elevation of 7.75 ft. is 2.77 days. Supporting calculations for the drawdown time and storage of the proposed wet pond have been provided within **Appendix C**.

Appendix A - Stormwater Calculations

Project Name:	Kellogg's
Quible Project Number:	P23058
Date:	4/5/2024

Currituck County Stormwater Calculations (In Lieu of Forms SW-002 and SW-003) 142,310.50 square feet Step 1: Drainage Area **3.27** acres Step 2: **Determine Runoff Coefficient** C = 0.15 Step 3: **Determine Time of Concentration Sheet Flow** $Tc_1 = 0.42(nL)^{0.8}$ $P^{0.5}S^{0.4}$ n = 0.1 (woods) 300 feet L = P = 4 inch 0.030 ft/ft S = Tc₁= 13.0 mins **Shallow Concentrated Flow** L = 120 feet S = 0.03 ft/ft unpaved 151.54 fpm V_{unpaved} = 0.8 mins Tc2= **Channel Flow** (n/a) Tc = Tc1 + Tc213.8 mins Tc = Step 4: **Determine Peak Rainfall Intensity** Time of Concentration T (yrs) 5 mins 10 mins 15 mins 30 mins 1 hr 2 hr 3 hr 2 6.06 4.84 4.06 1.76 1.03 2.8 0.731 5 4.6 6.82 3.27 1.26 0.897 5.46 2.1 7.82 10 6.26 5.28 3.82 2.49 1.51 1.09 4.25 in/hr 1 = Interpolation Formula = Х γ 1 10 4.84 $y_2 = \frac{(x_2 - x_1)(y_3 - y_1)}{(x_3 - x_1)} + y_1$ 2 13.77 3 15 4.06 *y*₂= 4.25 Step 5: Determine the 2-year Pre-Development peak discharge, Q

Q = CIA

Q 2= 2.08 cfs



Step 9: Determine the 5-year Post-Development peak discharge, Q

Q = CIA Q5 = **15.71** cfs Step 10:Determine the weighted curve number, CN, for the post-development conditions.Hydrologic Soil Type:B & A/D(From NRCS Soils Report)

Hydrologic	Soil Type:	B & A/D	(From
Land Use	CN	Area	_
Impervious Area	84	92,501.83	
Open Space	49	49,808.68	
	Total =	142,310.50	
	CN _W =	71.75	

Step 11: Determine the 5-year post-development runoff depth, Q



Step 12: Determine the Runoff Volume, V_r

$$V_r = \frac{Q}{12} * A$$

 $Q = \frac{2.18 \text{ in}}{3.27 \text{ acres}}$
 $V_r = 0.59 \text{ ac-ft}$

Step 13: Determine the Required Storage Volume, V_s

$$V_{s} = 1613.33*V_{r}*(1 - \frac{Q_{2 \text{ pre}}}{Q_{10_{post}}})$$

$$V_{r} = 0.59 \text{ ac-ft}$$

$$Q_{2\text{-pre}} = 2.08 \text{ cfs}$$

$$Q_{5\text{-post}} = 15.71 \text{ cfs}$$

$$V_{s} = 829.50 \text{ CY}$$

$$22,396.51 \text{ CF}$$

P20034 Tractor Supply Co. - Moyock, NC 4/24/2024

Drainage Area = Open Space Roadway/Parking =

Concrete/Display =

Future Removal = Future Coverage = Impervious =

Building=

Kellogg's Wet Detention Basin NCDEQ Stormwater Calculations

Drainage Area Calculations

Combine	d Drainage Area	
(sq.ft.)	(acre)	
142,310.50	3.27	
49,858.01	1.14	
44,311.90	1.02	
18,143.35	0.42	
13,491.04	0.31	75,946
31,050.00	0.71	
47,556.20	1.09	
92,452.49	2.12	75946.29
		-

0.534

Runoff generated by 1.5" Rainfall Event (NCDEQ Simplified Method)

Rv= Runoff Coefficient, 0.05+0.9la

Ia = Impervious Percentage = Impervious Area/Drainage Area

Rd=	Rd= Rain fall depth (1.5 in.)							
V=	V= Runoff Volume, 3630*Rd*Rv*A							
	Area 1							
la =	65.0%							
Rv=	0.64							
Rd (in.)=	1.5							
A (ac.) =	3.27							
V (cf.)=	11296							

Total Storage Required by NCDEQ =	11,300.00	cf
Total Storage Required by Currituck County =	22,400.00	cf

Permanent pool Storage Provided In Wet Detention Basin 1

Elev	Area (sf)	Avg area (sf)	Volume (cf)	Cum Vol. (cf)
0	2021.5			0
		3031	9093	
3	4040.5			9093
		4450.75	4451	
4	4861			13544
		5544	5544	
5	6227			19088

Total Storage (cf.) Provided in Basin 1: 19088

Above Permanent Pool Storage Provided In Wet Detention Basin 1

Elev	Area (sf)	Avg area (sf)	Volume (cf)	Cum Vol. (cf)
5	6227			0
		6985	6985	
6	7743			6985
		8960.5	8961	
7	10178			15946
		10852.5	8139	
7.75	11527			24085
Total Storage (cf.) Provided in Ba	isin 1:		24085

Total Storage (cf.) Provided in Basin 1:

3.18

Volume in Forebay for Basin 1

Elev	Area (sf)	Avg area (sf) Volume (cf)		Cum Vol. (cf)
2	162			0
		310.5	621	
3	295			621
		472	944	
4	459			1565
		554	554	
5	649			2119
		815	815	
6	981			2934
Total Storage (cf.) Provided in Ba	isin 1:		2934

Total Storage (cf.) Provided in Basin 1:

15.4%

P20034						
Tractor Supply Co Moy	ock, NC					
4/24/2024	• –	5000	- 4			
	A _{bot_shelf} =	5298	ST			
	A _{perm_pool} =	6227	sf			
	A _{bot_pond} =	2021.5	sf			
	V _{perm_pool} =	19088	cf			
	V _{shelf} =	222.75	cf			
	Depth	=	5			
	_			- .		
Equation 2	Dav	= 3.	.1	feet	SA/DA	= 4.20
					DA =	142,310.50
					Req'd	SA = 5,977.04
Equation 3	Dav	= 3.	.6	feet		

Wet Detention Basin Supplement Calculations

Orifice Draw Down Calculations Basin 1

$Q = CA(2gH)^{0.5}$		
H=Driving Head = D/3 =	0.92 ft.	
C = orific coefficient =	0.6	
Try orifice diameter =	2 in	
A = Area = 3.14*(d^2)/4 =	0.022 sf	
Q = CA(2gH)^0.5 =	0.101 cfs	
Required Storage Volume =		11300.0 cf

Drawdown = Storage Volume / Q = 2.77 days

Appendix B - On-site Soils and Infiltration Reports



Infiltration Report



Quible & Associates, P.C. T1 - Currituck County, NC

K_{sat} best-fit site average: 92 mm/hr or 3.61 in/hr

GPS Infiltration Test Site Map



Map Pin #	Test #	Test Name	Ksat (mm/hr)	Ksat (in/hr)	C (mm)	RMS Error of Regression (s)	Norma lized RMS
1	1	T1	92	3.61	-62.0	1.9	0.1%

*** Site Average could not be calculated from only 1 viable test



Infiltration Report



Quible & Associates, P.C.

T1 - Currituck County, NC

This report summarizes the results of a set of Modified Philip Dunne (MPD) Infiltrometer tests performed at the above referenced site. Quible & Associates, P.C. personnel performed the field tests. The software used to compute saturated hydraulic conductivity (K_{sat}) and generate this report assumes that the field personnel used infiltrometers manufactured by Upstream Technologies Inc. and followed the procedures outlined in "Manual – Modified Philip - Dunne Infiltrometer" by Ahmed, Gulliver, and Nieber.

The following paragraphs describe the individual tests, input values used in the analysis, and methods used to compute the K_{sat} value.

After individual K_{sat} values were calculated, the method used to determine the overall site K_{sat} value ($K_{best-fit}$) is described in "Effective Saturated Hydraulic Conductivity of an Infiltration-Based Stormwater Control Measure" by Weiss and Gulliver 2015, "A relationship to more consistently and accurately predict the best-fit value of saturated hydraulic conductivity used a weighted sum of 0.32 times the arithmetic mean and 0.68 times the geometric mean."

METHOD USED TO COMPUTE K_{sat}

The MPD Infiltrometer software uses the following procedure described in "The Comparison of Infiltration Devices and Modification of the Philip-Dunne Permeameter for the Assessment of Rain Gardens" by Rebecca Nestigen, University of Minnesota, November 2007.

The steps are as follows:

1. For each measurement of head, use the following equation to find the corresponding distance to the sharp wetting front.

$$[H_0 - H(t)]r_1^2 = rac{ heta_1 - heta_2}{3}[2[R(t)]^3 + 3[R(t)]^2L_{max} - L_{max}^3 - 4r_0^3]$$

2. Estimate the change in head with respect to time and the change in wetting front distance with respect to time by using the backward difference for all values of R(t) equal to or greater than the distance

$$\sqrt{r_1^2 + L_{max}^2}$$

3. Make initial guesses for K and C.

4. Solve the following equations for $\Delta P(t)$ at each incremental value of t.

$$\Delta P(t) = rac{\pi^2}{8} \left\{ heta_1 - heta_0 rac{[R(t)^2] + [R(t)]L_{max}}{K} rac{dr}{dt} - 2r_0^2
ight\} rac{ln[rac{R(t)r_0 + L_{max}}{r_0[R(t) + L_{max}]}}{L_{max}} \Delta P(t) = C - H(t) - L_{max} + rac{L_{max}}{K} rac{dh}{dt}$$

5. Minimize the absolute difference between the two solutions found in Step 4 by adjusting the values of K and C.



Parameters for Equations

 Θ_0 = volumetric water content of soil before MPD test Θ_1 = volumetric water content of soil after MPD test



Infiltration Report

Quible & Associates, P.C. T1 - Currituck County, NC



T1

11			
Date	4/2/2024		
Time	2:51 PM		
Latitude	36.353754		
Longitude	-75.961069		
Initial Volumetric Moisture	15.00 %		
Final Volumetric Moisture	80.00 %		
Cylinder Size	3 Liter		

T1 Results

Map Pin #	1
Test Number	1
Ksat - mm/hr	92
Ksat - in/hr	3.61
Capillary Pressure C mm	-62.0
RMS Error of Regression	1.9
Normalized RMS	0.1%

Readings

#	Time	Head	#	Time	Head	#	Time	Head
1	0 s	35.06 cm	26	750 s	23.2 cm	51	1500 s	15.42 cm
2	30 s	34.36 cm	27	780 s	22.84 cm	52	1530 s	15.16 cm
3	60 s	33.76 cm	28	810 s	22.48 cm	53	1560 s	14.9 cm
4	90 s	33.19 cm	29	840 s	22.12 cm	54	1590 s	14.64 cm
5	120 s	32.63 cm	30	870 s	21.75 cm	55	1620 s	14.38 cm
6	150 s	32.07 cm	31	900 s	21.4 cm	56	1650 s	14.13 cm
7	180 s	31.53 cm	32	930 s	21.06 cm	57	1680 s	13.87 cm
8	210 s	31.0 cm	33	960 s	20.73 cm	58	1710 s	13.63 cm
9	240 s	30.48 cm	34	990 s	20.41 cm	59	1740 s	13.38 cm
10	270 s	29.97 cm	35	1020 s	20.09 cm	60	1770 s	13.15 cm
11	300 s	29.48 cm	36	1050 s	19.79 cm	61	1800 s	12.91 cm
12	330 s	29.01 cm	37	1080 s	19.48 cm	62	1830 s	12.67 cm
13	360 s	28.53 cm	38	1110 s	19.18 cm	63	1860 s	12.45 cm
14	390 s	28.07 cm	39	1140 s	18.88 cm	64	1890 s	12.21 cm
15	420 s	27.62 cm	40	1170 s	18.57 cm	65	1920 s	11.99 cm
16	450 s	27.17 cm	41	1200 s	18.26 cm	66	1950 s	11.76 cm
17	480 s	26.75 cm	42	1230 s	17.95 cm	67	1980 s	11.55 cm
18	510 s	26.33 cm	43	1260 s	17.65 cm	68	2010 s	11.33 cm
19	540 s	25.92 cm	44	1290 s	17.37 cm	69	2040 s	11.1 cm
20	570 s	25.51 cm	45	1320 s	17.08 cm	70	2070 s	10.89 cm
21	600 s	25.11 cm	46	1350 s	16.8 cm	71	2100 s	10.67 cm
22	630 s	24.73 cm	47	1380 s	16.51 cm	72	2130 s	10.45 cm
23	660 s	24.33 cm	48	1410 s	16.24 cm	73	2160 s	10.24 cm
24	690 s	23.95 cm	49	1440 s	15.96 cm	74	2190 s	10.03 cm
25	720 s	23.58 cm	50	1470 s	15.69 cm			



United States Department of Agriculture

NRCS

Natural Resources Conservation Service A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Currituck County, North Carolina



Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/? cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil
scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.



	MAP L	EGEND		MAP INFORMATION		
Area of Ini	erest (AOI) Area of Interest (AOI)	₩ ¢	Spoil Area Stony Spot	The soil surveys that comprise your AOI were mapped at 1:20,000.		
	Soil Map Unit Polygons	25 V	Very Stony Spot Wet Spot	Warning: Soil Map may not be valid at this scale.		
ĩ	Soil Map Unit Points	^ ••	Other Special Line Features	Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of		
Special	Blowout	Water Fea	tures Streams and Canals	contrasting soils that could have been shown at a more detailed scale.		
24 X	Borrow Pit Clay Spot	Transport : : :	ation Rails	Please rely on the bar scale on each map sheet for map measurements.		
े X	 Closed Depression Gravel Pit 	Interstate Highw US Routes Major Roads	Interstate Highways US Routes	Source of Map: Natural Resources Conservation Service Web Soil Survey URL:		
 89	Gravelly Spot Landfill		Major Roads Local Roads	Coordinate System: Web Mercator (EPSG:3857)		
Å. sti	Lava Flow Marsh or swamp	Backgrou	nd Aerial Photography	projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal area conic projection, should be used if more		
T T	Mine or Quarry			accurate calculations of distance or area are required.		
69 (*)	Perennial Water			This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.		
~ +	Rock Outcrop Saline Spot			Soil Survey Area: Currituck County, North Carolina Survey Area Data: Version 23, Sep 13, 2023		
). A	Sandy Spot Severely Eroded Spot			Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.		
0 0 1	Sinkhole			Date(s) aerial images were photographed: May 18, 2022—May 31, 2022		
<u>1</u> 2	Sodic Spot			The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.		

Map Unit Legend

	1		
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
At	Augusta fine sandy loam	1.3	23.2%
ВоА	Bojac loamy sand, 0 to 3 percent slopes	1.5	26.5%
Pt	Portsmouth fine sandy loam	0.0	0.3%
То	Tomotley fine sandy loam	2.9	49.9%
Totals for Area of Interest	·	5.7	100.0%

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The

delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Currituck County, North Carolina

At—Augusta fine sandy loam

Map Unit Setting

National map unit symbol: 3rn8 Elevation: 0 to 30 feet Mean annual precipitation: 42 to 58 inches Mean annual air temperature: 61 to 64 degrees F Frost-free period: 190 to 270 days Farmland classification: Prime farmland if drained

Map Unit Composition

Augusta, drained, and similar soils: 80 percent Augusta, undrained, and similar soils: 10 percent Minor components: 10 percent Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Augusta, Drained

Setting

Landform: Flats on marine terraces, depressions on marine terraces Down-slope shape: Linear Across-slope shape: Linear Parent material: Sandy and loamy fluviomarine deposits and/or marine deposits

Typical profile

Ap - 0 to 5 inches: fine sandy loam Bt - 5 to 23 inches: loam BCg - 23 to 31 inches: sandy loam Cg - 31 to 80 inches: loamy sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: About 12 to 24 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 8.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified Land capability classification (nonirrigated): 2w Hydrologic Soil Group: B/D Ecological site: F153AY040NC - Moist Loamy Rises and Flats, F153BY040NC -Moist Loamy Rises and Flats Hydric soil rating: No

.

Description of Augusta, Undrained

Setting

Landform: Flats on marine terraces, depressions on marine terraces

Down-slope shape: Linear *Across-slope shape:* Linear *Parent material:* Sandy and loamy fluviomarine deposits and/or marine deposits

Typical profile

A - 0 to 5 inches: fine sandy loam Bt - 5 to 23 inches: loam BCg - 23 to 31 inches: sandy loam Cg - 31 to 80 inches: loamy sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: About 12 to 24 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 8.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified Land capability classification (nonirrigated): 3w Hydrologic Soil Group: B/D Ecological site: F153AY040NC - Moist Loamy Rises and Flats, F153BY040NC -Moist Loamy Rises and Flats Hydric soil rating: No

Minor Components

Tetotum

Percent of map unit: 5 percent Landform: Flats on marine terraces Landform position (two-dimensional): Summit Down-slope shape: Linear Across-slope shape: Linear Ecological site: F153AY040NC - Moist Loamy Rises and Flats, F153BY040NC -Moist Loamy Rises and Flats Hydric soil rating: No

Tomotley, undrained

Percent of map unit: 5 percent Landform: Depressions on stream terraces, flats on marine terraces Down-slope shape: Linear Across-slope shape: Linear Ecological site: F153BY060NC - Wet Loamy Flats and Depressions, F153AY090NC - Flooded Mineral Soil Floodplains and Terraces Hydric soil rating: Yes

BoA—Bojac loamy sand, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: 3rnb Elevation: 0 to 30 feet Mean annual precipitation: 42 to 58 inches Mean annual air temperature: 61 to 64 degrees F Frost-free period: 190 to 270 days Farmland classification: Farmland of statewide importance

Map Unit Composition

Bojac and similar soils: 90 percent *Minor components:* 10 percent *Estimates are based on observations, descriptions, and transects of the mapunit.*

Description of Bojac

Setting

Landform: Ridges on marine terraces Down-slope shape: Convex Across-slope shape: Linear Parent material: Loamy and sandy fluviomarine deposits

Typical profile

Ap - 0 to 8 inches: loamy fine sand *Bt - 8 to 47 inches:* fine sandy loam *C - 47 to 85 inches:* loamy fine sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): High (1.98 to 5.95 in/hr)
Depth to water table: About 48 to 72 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 6.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified Land capability classification (nonirrigated): 2s Hydrologic Soil Group: A Ecological site: F153BY030NC - Dry Loamy Rises and Flats Hydric soil rating: No

Minor Components

Conetoe

Percent of map unit: 4 percent Landform: Ridges on stream terraces, ridges on marine terraces Landform position (two-dimensional): Summit, shoulder Landform position (three-dimensional): Crest Down-slope shape: Convex Across-slope shape: Convex Ecological site: F153BY030NC - Dry Loamy Rises and Flats Hydric soil rating: No

Seabrook

Percent of map unit: 3 percent Landform: Depressions on marine terraces Down-slope shape: Concave Across-slope shape: Linear Ecological site: F153BY020NC - Moist Sands Hydric soil rating: No

Munden

Percent of map unit: 3 percent Landform: Marine terraces Down-slope shape: Linear Across-slope shape: Convex Ecological site: F153BY040NC - Moist Loamy Rises and Flats Hydric soil rating: No

Pt—Portsmouth fine sandy loam

Map Unit Setting

National map unit symbol: 3rp0 Elevation: 0 to 30 feet Mean annual precipitation: 42 to 58 inches Mean annual air temperature: 61 to 64 degrees F Frost-free period: 190 to 270 days Farmland classification: Prime farmland if drained

Map Unit Composition

Portsmouth, drained, and similar soils: 75 percent Portsmouth, undrained, and similar soils: 10 percent Minor components: 7 percent Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Portsmouth, Drained

Setting

Landform: Flats on marine terraces, depressions on marine terraces Down-slope shape: Linear Across-slope shape: Linear Parent material: Loamy fluviomarine deposits over sandy fluviomarine deposits

Typical profile

Ap - 0 to 12 inches: fine sandy loam Eg - 12 to 19 inches: fine sandy loam Btg - 19 to 35 inches: sandy clay loam BCg - 35 to 38 inches: sandy loam 2Cg - 38 to 80 inches: loamy sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: 20 to 40 inches to strongly contrasting textural stratification
Drainage class: Very poorly drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: About 0 to 12 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 5.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified Land capability classification (nonirrigated): 3w Hydrologic Soil Group: B/D Ecological site: F153BY060NC - Wet Loamy Flats and Depressions Hydric soil rating: Yes

Description of Portsmouth, Undrained

Setting

Landform: Depressions on marine terraces, flats on marine terraces Down-slope shape: Linear Across-slope shape: Linear Parent material: Loamy fluviomarine deposits over sandy fluviomarine deposits

Typical profile

A - 0 to 12 inches: fine sandy loam Eg - 12 to 19 inches: fine sandy loam Btg - 19 to 35 inches: sandy clay loam BCg - 35 to 38 inches: sandy loam 2Cg - 38 to 80 inches: loamy sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: 20 to 40 inches to strongly contrasting textural stratification
Drainage class: Very poorly drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: About 0 to 12 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 5.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified Land capability classification (nonirrigated): 6w Hydrologic Soil Group: B/D Ecological site: F153BY060NC - Wet Loamy Flats and Depressions Hydric soil rating: Yes

Minor Components

Cape lookout, undrained

Percent of map unit: 4 percent Landform: Depressions, pocosins, flats Down-slope shape: Linear Across-slope shape: Concave Ecological site: F153BY065NC - Wet Clay Flats and Depressions Hydric soil rating: Yes

Portsmouth, undrained

Percent of map unit: 3 percent Landform: Depressions on marine terraces, flats on marine terraces Down-slope shape: Linear Across-slope shape: Linear Ecological site: F153BY060NC - Wet Loamy Flats and Depressions Hydric soil rating: Yes

To—Tomotley fine sandy loam

Map Unit Setting

National map unit symbol: 3rp4 Elevation: 0 to 30 feet Mean annual precipitation: 42 to 58 inches Mean annual air temperature: 61 to 64 degrees F Frost-free period: 190 to 270 days Farmland classification: Prime farmland if drained

Map Unit Composition

Tomotley, drained, and similar soils: 75 percent *Tomotley, undrained, and similar soils:* 10 percent *Minor components:* 7 percent *Estimates are based on observations, descriptions, and transects of the mapunit.*

Description of Tomotley, Drained

Setting

Landform: Flats on marine terraces, depressions on stream terraces Down-slope shape: Linear Across-slope shape: Linear Parent material: Sandy and loamy fluviomarine deposits and/or marine deposits

Typical profile

Ap - 0 to 7 inches: fine sandy loam Btg1 - 7 to 12 inches: fine sandy loam Btg2 - 12 to 42 inches: sandy clay loam BCg - 42 to 50 inches: sandy loam Cg - 50 to 80 inches: loamy sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.20 to 1.98 in/hr)
Depth to water table: About 0 to 12 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 8.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified Land capability classification (nonirrigated): 3w Hydrologic Soil Group: B/D Ecological site: F153BY060NC - Wet Loamy Flats and Depressions, F153AY090NC - Flooded Mineral Soil Floodplains and Terraces Hydric soil rating: Yes

Description of Tomotley, Undrained

Setting

Landform: Depressions on stream terraces, flats on marine terraces Down-slope shape: Linear Across-slope shape: Linear Parent material: Sandy and loamy fluviomarine deposits and/or marine deposits

Typical profile

A - 0 to 7 inches: fine sandy loam Btg1 - 7 to 12 inches: fine sandy loam Btg2 - 12 to 42 inches: sandy clay loam BCg - 42 to 50 inches: sandy loam Cg - 50 to 80 inches: loamy sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.20 to 1.98 in/hr)
Depth to water table: About 0 to 12 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 8.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified Land capability classification (nonirrigated): 4w

Hydrologic Soil Group: B/D

Ecological site: F153BY060NC - Wet Loamy Flats and Depressions, F153AY090NC - Flooded Mineral Soil Floodplains and Terraces *Hydric soil rating:* Yes

Minor Components

Nimmo, undrained

Percent of map unit: 3 percent Landform: Depressions on marine terraces, flats on marine terraces Down-slope shape: Concave Across-slope shape: Linear Ecological site: F153BY060NC - Wet Loamy Flats and Depressions, F153AY060NC - Wet Loamy Flats and Depressions Hydric soil rating: Yes

Arapahoe, undrained

Percent of map unit: 3 percent Landform: Flats, depressions Down-slope shape: Linear Across-slope shape: Concave Ecological site: F153BY060NC - Wet Loamy Flats and Depressions, F153AY090NC - Flooded Mineral Soil Floodplains and Terraces Hydric soil rating: Yes

Dragston, undrained

Percent of map unit: 1 percent Landform: Marine terraces Down-slope shape: Linear Across-slope shape: Linear Ecological site: F153AY040NC - Moist Loamy Rises and Flats, F153BY040NC -Moist Loamy Rises and Flats Hydric soil rating: No

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Appendix C - NOAA Precipitation Intensity (Currituck County)



NOAA Atlas 14, Volume 2, Version 3 Location name: Coinjock, North Carolina, USA* Latitude: 36.3541°, Longitude: -75.9602° Elevation: 11 ft** * source: ESRI Maps ** source: USGS



POINT PRECIPITATION FREQUENCY ESTIMATES

G.M. Bonnin, D. Martin, B. Lin, T. Parzybok, M.Yekta, and D. Riley

NOAA, National Weather Service, Silver Spring, Maryland

PF_tabular | PF_graphical | Maps_&_aerials

PF tabular

PDS-based point precipitation frequency estimates with 90% confidence intervals (in inches) ¹										
Dunation				Averag	e recurrence	e interval (y	ears)			
Duration	1	2	5	10	25	50	100	200	500	1000
5-min	0.438 (0.397-0.483)	0.510 (0.462-0.564)	0.576 (0.522-0.636)	0.662 (0.597-0.731)	0.746 (0.670-0.823)	0.822 (0.737-0.906)	0.891 (0.795-0.982)	0.958 (0.850-1.06)	1.04 (0.914-1.15)	1.12 (0.976-1.24)
10-min	0.699 (0.635-0.771)	0.816 (0.739-0.902)	0.922 (0.835-1.02)	1.06 (0.955-1.17)	1.19 (1.07-1.31)	1.31 (1.17-1.44)	1.42 (1.26-1.56)	1.52 (1.35-1.67)	1.64 (1.44-1.81)	1.76 (1.54-1.95)
15-min	0.874 (0.793-0.964)	1.03 (0.930-1.13)	1.17 (1.06-1.29)	1.34 (1.21-1.48)	1.51 (1.35-1.66)	1.66 (1.49-1.83)	1.79 (1.60-1.97)	1.92 (1.70-2.11)	2.07 (1.82-2.28)	2.21 (1.93-2.44)
30-min	1.20 (1.09-1.32)	1.42 (1.28-1.57)	1.66 (1.50-1.83)	1.94 (1.75-2.14)	2.23 (2.00-2.46)	2.50 (2.24-2.75)	2.74 (2.44-3.02)	2.98 (2.64-3.29)	3.29 (2.90-3.63)	3.58 (3.12-3.96)
60-min	1.49 (1.36-1.65)	1.78 (1.61-1.96)	2.12 (1.92-2.35)	2.53 (2.28-2.79)	2.97 (2.67-3.28)	3.38 (3.03-3.73)	3.78 (3.37-4.16)	4.18 (3.71-4.61)	4.72 (4.15-5.21)	5.22 (4.56-5.78)
2-hr	1.75 (1.57-1.94)	2.09 (1.88-2.32)	2.54 (2.29-2.82)	3.08 (2.76-3.41)	3.70 (3.30-4.09)	4.29 (3.81-4.74)	4.86 (4.30-5.38)	5.48 (4.82-6.06)	6.30 (5.50-6.98)	7.09 (6.13-7.85)
3-hr	1.87 (1.68-2.09)	2.23 (2.00-2.49)	2.72 (2.45-3.04)	3.32 (2.97-3.70)	4.03 (3.59-4.49)	4.72 (4.18-5.24)	5.42 (4.77-6.01)	6.17 (5.39-6.83)	7.20 (6.22-7.98)	8.20 (7.02-9.09)
6-hr	2.21 (2.00-2.47)	2.63 (2.37-2.95)	3.23 (2.90-3.61)	3.94 (3.52-4.39)	4.80 (4.27-5.34)	5.64 (4.99-6.26)	6.49 (5.71-7.18)	7.42 (6.47-8.20)	8.70 (7.50-9.62)	9.95 (8.48-11.0)
12-hr	2.61 (2.35-2.92)	3.10 (2.78-3.49)	3.81 (3.41-4.27)	4.67 (4.17-5.23)	5.74 (5.08-6.40)	6.80 (5.98-7.56)	7.88 (6.86-8.75)	9.08 (7.82-10.1)	10.7 (9.13-11.9)	12.4 (10.4-13.7)
24-hr	3.10 (2.85-3.39)	3.77 (3.46-4.13)	4.87 (4.47-5.32)	5.79 (5.30-6.32)	7.16 (6.50-7.79)	8.33 (7.50-9.06)	9.61 (8.58-10.4)	11.0 (9.74-12.0)	13.1 (11.4-14.3)	14.9 (12.8-16.4)
2-day	3.58 (3.29-3.92)	4.34 (3.99-4.75)	5.57 (5.11-6.09)	6.62 (6.05-7.23)	8.20 (7.44-8.94)	9.57 (8.60-10.4)	11.1 (9.87-12.1)	12.8 (11.2-14.0)	15.4 (13.2-16.9)	17.6 (14.9-19.4)
3-day	3.81 (3.52-4.16)	4.62 (4.26-5.04)	5.90 (5.44-6.42)	6.98 (6.40-7.59)	8.57 (7.81-9.31)	9.93 (8.98-10.8)	11.4 (10.2-12.4)	13.1 (11.6-14.2)	15.5 (13.5-17.0)	17.8 (15.2-19.5)
4-day	4.05 (3.75-4.40)	4.90 (4.54-5.33)	6.23 (5.76-6.76)	7.34 (6.76-7.95)	8.95 (8.18-9.69)	10.3 (9.36-11.1)	11.8 (10.6-12.7)	13.3 (11.9-14.5)	15.7 (13.8-17.2)	18.0 (15.5-19.7)
7-day	4.72 (4.39-5.11)	5.69 (5.30-6.17)	7.15 (6.63-7.73)	8.35 (7.72-9.02)	10.1 (9.27-10.9)	11.5 (10.5-12.4)	13.1 (11.8-14.1)	14.7 (13.2-15.9)	17.1 (15.1-18.6)	19.1 (16.6-20.9)
10-day	5.32 (4.98-5.71)	6.38 (5.96-6.84)	7.89 (7.37-8.47)	9.15 (8.53-9.80)	11.0 (10.2-11.7)	12.4 (11.5-13.3)	14.0 (12.8-15.1)	15.7 (14.2-16.9)	18.2 (16.2-19.7)	20.2 (17.7-22.0)
20-day	7.23 (6.80-7.71)	8.61 (8.10-9.18)	10.5 (9.84-11.2)	12.0 (11.2-12.8)	14.2 (13.2-15.1)	15.9 (14.8-17.0)	17.8 (16.4-19.0)	19.7 (18.0-21.1)	22.5 (20.2-24.2)	24.7 (22.0-26.8)
30-day	8.91 (8.40-9.46)	10.6 (10.0-11.2)	12.7 (12.0-13.5)	14.5 (13.6-15.3)	16.8 (15.7-17.9)	18.7 (17.4-19.9)	20.6 (19.1-22.0)	22.6 (20.8-24.2)	25.4 (23.1-27.2)	27.5 (24.8-29.7)
45-day	11.1 (10.4-11.8)	13.1 (12.4-13.9)	15.6 (14.7-16.6)	17.7 (16.7-18.9)	20.7 (19.4-22.0)	23.1 (21.5-24.6)	25.6 (23.7-27.3)	28.2 (25.9-30.1)	31.9 (28.9-34.2)	34.8 (31.3-37.5)
60-day	13.3 (12.5-14.0)	15.7 (14.8-16.6)	18.5 (17.5-19.6)	20.8 (19.6-22.0)	23.9 (22.5-25.3)	26.3 (24.7-27.9)	28.8 (26.9-30.6)	31.4 (29.1-33.4)	34.8 (31.9-37.2)	37.5 (34.1-40.2)

¹ Precipitation frequency (PF) estimates in this table are based on frequency analysis of partial duration series (PDS).

Numbers in parenthesis are PF estimates at lower and upper bounds of the 90% confidence interval. The probability that precipitation frequency estimates (for a given duration and average recurrence interval) will be greater than the upper bound (or less than the lower bound) is 5%. Estimates at upper bounds are not checked against probable maximum precipitation (PMP) estimates and may be higher than currently valid PMP values.

Please refer to NOAA Atlas 14 document for more information.

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PDS-based depth-duration-frequency (DDF) curves Latitude: 36.3541*, Longitude: -75.9602*

NOAA Atlas 14, Volume 2, Version 3

Created (GMT): Wed Apr 24 19 29:36 2024

interval

(years)

1

2

5 10

25 - 50

100

200 500

- 1000

Duration

2-day

3-day

4-day

7-day

10-day

20-day

30-day

- 45-day

60-day

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Maps & aerials

Small scale terrain





Large scale map



Large scale aerial



Back to Top

US Department of Commerce National Oceanic and Atmospheric Administration National Weather Service National Water Center 1325 East West Highway Silver Spring, MD 20910 Questions?: <u>HDSC.Questions@noaa.gov</u>

Disclaimer

BK 1766 PG 328 - 331 (4) DOC# 388375 This Document eRecorded: 04/05/2024 04:37:25 PM Tax: \$2,000.00 Fee: \$26.00 Currituck County, North Carolina Denise A. Hall, Register of Deeds HH H Currituck County and Transfer Tax: 10000.00 County Excise Tax: 1985 Sessions Law Chapter 670 (HB 215) Excise Tax: Parcel No: 0070-000-0112000



Coinjock, NC 27923

Manteo, NC 27954

Enter in appropriate block for each party: name, address, and, if appropriate, character of entity, e.q. corporation or partnership.

The designation Grantor and Grantee as used herein shall include said parties, their heirs, successors and assigns, and shall include singular, plural, masculine, feminine or neuter as required by context.

WITNESSETH, that the Grantor, for a valuable consideration paid by the Grantee, the receipt of all of which is hereby acknowledged, has and by these presents does grant, bargain, sell and convey unto the said Grantees in fee simple, all that certain lot or parcel of land situated in **Crawford** Township, **Currituck** County, North Carolina, more particularly described as follows:

See attached Exhibit "A"

All or a portion of the property herein conveyed _____ includes or __X_does not include the primary residence of a Grantor.

This instrument prepared by: William Brumsey, III, a licensed North Carolina attorney. Delinquent taxes, if any, to be paid by the closing attorney to the County tax collector upon disbursement of closing proceeds.

Submitted electronically by "Malarney & McCown, PLLC" in compliance with North Carolina statutes governing recordable documents and the terms of the submitter agreement with the Currituck County Register of Deeds.

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 \sim The property hereinabove described was acquired by Grantor by instrument recorded in Book

Page

Q map showing the above described property is recorded in Plat Book Page

TO MAVE AND TO HOLD the aforesaid lot or parcel of land and all privileges and appurtenances thereto belonging to Grantees in fee simple.

And the Grantor covenants with the Grantee, that Grantor is seized of the premises in fee simple, has the right to convey the same in fee simple, that title is marketable and free and clear of all encumbrances, and that Grantor will warrant and defend the title against the lawful claims of all persons whomsoever except for the exceptions hereinafter stated.

Title to the property hereinabove described is subject to the following exceptions:

Reservations, restrictions and easements of record.

This conveyance is made subject to any laws, rules, regulations or ordinances, whether local, County, State or Federal, relating to subdivision development, construction on or use of the property conveyed



that Jo Ann Morris

personally

appeared before me this day and acknowledged the due execution of the foregoing instrument for the purposes therein expressed.

Witness my hand and official stamp or seal this

$$3ig_{X}$$
 day of $4pin$ 2024.



BK 1766 PG 328 - 331 (4) DOC# 388375

Exhibit A, Page One

TRACT ONE: Beginning at a 5/8 set iron rod in the western margin of US 158 (Caratoke Highway) where it intersects with SE corner of property now or formerly belonging to Jo Anne Hayman as received in Deed Book 137, Page 78;

Thence from said beginning point S 22 deg. 21 min 58 sec E along the western margin of Caratoke Highway a distance of 334 ft to a 5/8 set iron red; thence S 74 deg 38 mins 02 sec. W a distance of 366.31 ft to an existing iron pipe leaning;

Thence N 20 deg 52 mins 58 sec W 122.32 ft to an existing iron pipe leaning; Thence S 44 deg 46 min 43 sec W a distance of 2037.07 ft to an existing concrete monument 4 inches under water on the east margin at property now or formerly belonging to State of North Carolina as received in Deed Book 112, Page 444;

Thence along the east margin of lands now or formerly owned by State of North Carolina 10 20 deg 44 min 37 sec W a distance of 209.18 ft to an existing iron pipe 1 inch under water at the S margin of property now or formerly belonding to Richard A. Sineath as received in Deed Book 1700, Page 794;

Thence N 44 deg 46 m(n) 43 sec E a distance of 540.80 ft to a calculated point; \checkmark

Thence S 15 deg 21 min 58 sec E a distance of 7.89 ft to a calculated point to force closure of the parcel because of difference between Deed Book 102, page 225 and an unrecorded McDowell survey;

Thence N 44 deg 53 min 02 sec to a distance of 1357.35 ft to a 5/8 set iron rod;

Thence continuing N 44 deg. 53 min. 02 sec. E a distance of 162.65 feet to an existing iron pipe with coordinates N 961,505.412 sFT, E 2,894,861.960 sFt;

Thence N 74 deg. 38 min. 02 sec. E a distance of 355 feet to the 5/8 set iron rod; being the point or place of beginning;



BK 1766 PG 328 - 331 (4) DOC# 388375

Exhibit A, Page Two

Beginning at a 5/8 set iron rod in the western margin of TRACT TWO: (Caratoke Highway) where it intersects with SE corner of US 1,58 property now or formerly belonging to Jo Anne Hayman as received in Deed Book 137, Page 78; thence S 74 deg. 38 min. 02 sec. W a distance of 335 feet to an existing iron pipe which said existing iron pipe has NC Grid Cordinates N 961,505.412 sFt, E 2,894,861.960 sFt and being the BEGINNING point for this TRACT TWO; THENCE FROM SAID BEGINNING point, S $44\sqrt{3}$ leg. 53 min. 02 sec. W a distance of 162.65 feet to a 5/8 set iron rod (Athence N 22 deg. 21 min. 58 sec. W a distance of 242.15 feet to a 5/8 set iron rod 0.1 below ground; thence N 70 deg. 57 min. 37 sec. E a distance of 150.25 feet to a 5/8 set iron rod 0.2 above ground; thence S λ 2 deg. 21 min. 58 sec. E a distance of 170.53 to an existing iron pipe, the POINT OR PLACE OF BEGINNING.

Said parcels of And being a combination of 2 parcels of land, received by Jo Anne Hayman one in Deed Book 266, page 710 (being 30,950 sq ft - 0.71 acres) and Deed Book 196, Page 232 (being 492,582 sq ft - 11.31 acres) and shown on plat entitled "Physical lot survey for RPP Holding, LLC, formerly JJ Hayman and son" date 3/21/24, Currituck Public Registry

ALSO CONVEYED HEREIN is a non-exclusive, ingress egress easement described as follows: Beginning at a point marked by a 5/8 inch iron rod located in the western right of way line of US Highway 158, said

point being the northeast corner, of the real estate herein conveyed; running thence along the North line of the real estate conveyed S 74° 38' 02" W 208 feet to a point; running thence N 22° 24' 13" W on the line parallel with and 208 feet from the western right of way line of US Highway 158 a distance of 30 feet to a point; running thence N 74° 38" 02" E on a line parallel with and 30 feet from the north line of the property conveyed, a distance of 208 feet to a point located in the western right of way line of US Highway 158; running thence with the western right of way line of US Highway 158; S 22° 24' 13" E a distance of 30 feet to the point of beginning.





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Limited Liability Company

Legal Name RPP Holdings Group, LLC

Information

SosId: 2223839 Status: Current-Active Date Formed: 6/29/2021 Citizenship: Domestic Annual Report Due Date: April 15th CurrentAnnual Report Status: Registered Agent: Gaca, Joseph J

Addresses

Mailing	Principal Office	Reg Office	Reg Mailing
917 Burnside Road	917 Burnside Road	917 Burnside Road	917 Burnside Road
Manteo, NC 27954	Manteo, NC 27954	Manteo, NC 27954	Manteo, NC 27954

Company Officials

All LLCs are managed by their managers pursuant to N.C.G.S. 57D-3-20.

Owner ManagerOwner ManagerJoseph J GacaChristopher O'Neill917 Burnside Road917 Burnside RdManteo NC 27954Manteo NC 27954



<u>NOTES</u>

- . CURRENT OWNER:
- ENGINEER:
- RPP HOLDINGS GROUP, LLC 917 BURNSIDE RD. MANTEO, NC 27954
- QUIBLE & ASSOCIATES, P.C. P.O.. DRAWER 870 KITTY HAWK, NC TEL: (252) 491-8147
- 3. PIN: 8996-40-4911
- 4. PID: 007000001110000 . PROPERTY ADDRESS: 4510 CARATOKE HWY
- . PROPERTY ZONED: ZONE: 3.26 ACRES GENERAL BUSINESS (GB) AND REMAINING
- AGRICULTURAL (AG) 7. MAXIMUM BUILDING HEIGHT = 35 FT
- MAXIMUM ALLOWABLE LOT COVERAGE = 65% MAX
- . LOT AREA = 12.02 ACRES TOTAL
- (AREAS BY COORDINATE METHOD.)
- 10. SUBJECT REFERENCES: DB 86, PG 57; PC E. 11. ADDITIONAL REFERENCES: PC P, SL 98; PC L, SL 84; PC I, SL 198.
- 12. FIELD SURVEY DATES: 06/16/23-06/30/23.
- 13. HORIZONTAL DATUM IS NAD83(2011), VERTICAL DATUM IS NAVD 1988, DERIVED FROM NCGS BOUNDARY MON NC VA RESET. 4. PROPERTY IS LOCATED IN NFIP FLOOD ZONES AS SHOWN AND SUBJECT TO CHANGES. BASED ON COMMUNITY CID NO. 370078; PANEL 8986; MAP NUMBER 3720898600K;
- EFFECTIVE DATE: 12/21/2018. THIS PLAN SUBJECT TO ANY FACTS, INCLUDING BUILDING SETBACK RESTRICTIONS, EASEMENTS, COVENANTS, ETC., THAT MAY BE REVEALED BY A FULL AND ACCURATE TITLE SEARCH.
- 6. CONTRACTOR SHALL PROVIDE SMOOTH TRANSITION BETWEEN SPOT ELEVATION GRADES
- AND MAINTAIN POSITIVE DRAINAGE 7. AREAS OF FILL SHALL BE EXCAVATED TO COMPACTED SUGARED AND BACKFILLED IN
- 6" LIFTS. 18. ALL PIPES TO BE CLASS III REINFORCED CONCRETE, UNLESS OTHERWISE NOTED.
- 9. ALL REINFORCED CONCRETE PIPES (RCP) TO HAVE END TREATMENTS, EITHER FLARED END SECTIONS (FES) OR END WALLS. END WALLS TO BE CONSTRUCTED AS PER NCDOT STANDARD 838.01.

WET DETENTION BASIN

- MAINTENANCE 1. IMMEDIATELY AFTER THE WET POND IS ESTABLISHED, THE PLANTS ON THE VEGETATED SHELF AND PERIMETER OF THE BASIN SHOULD BE WATERED TWICE WEEKLY IF (CONMANY SIX WEEKS) NEEDED, UNTIL THE PLANTS BECOME ESTABLISHED (COMMONLY SIX WEEKS).
- 2.NO PORTION OF THE WET POND SHOULD BE FERTILIZED AFTER THE FIRST INITIAL FERTILIZATION THAT IS REQUIRED TO ESTABLISH THE PLANTS ON THE VEGETATED
- SHELF
- 3. STABLE GROUNDCOVER SHOULD BE MAINTAINED IN THE DRAINAGE AREA TO REDUCE THE SEDIMENT LOAD TO THE WET POND.
- 4.IF THE POND MUST BE DRAINED FOR AN EMERGENCY OR TO PERFORM MAINTENANCE, THE FLUSHING OF SEDIMENT THROUGH THE EMERGENCY DRAIN SHOULD BE MINIMIZED AS MUCH AS POSSIBLE.

5.0NCE A YEAR, A DAM SAFETY EXPERT SHOULD INSPECT THE EMBANKMENT. LEGEND PROPOSED HEAVY DUTY EXISTING ASPHALT PAVEMENT GRAVEL SECTION _____ PROPOSED EXISTING CONCRETE PAVEMENT CONCRETE PAVEMENT ____ PROPOSED DROP INLET EXISTING GRAVEL PROPOSED STORM PIPE EX. TELEPHONE PEDESTAL EX. CABLE TV BOX PROPOSED DRAINAGE FLOW \implies EX. UTILITY POLE G -9.0-PROPOSED CONTOUR

- EX. DRAINAGE PIPE G EX. UG GAS LINE -W---- EX. WATER LINE
- —ss— EX. SANITARY SEWER LINE
- -10- EXISTING CONTOUR

22 The major stormwater plan shall contain the following certificate: 1, Isoch T Gee owner/agent hereby certify the information included on this and citached pages is true and correct to the best of my knowledge.

On the plan entitled Kellogs Supply Co____, stormwater drainage improvements shall be installed according to these plans and specifications and approved by Currhuck County. Yearly inspections are required as part of the stormwater plan. The owner is responsible for all maintenance required. Currituck County assumes no responsibility for the design, maintenance, or performance of the storografer improvements. Date: <u>4-24-2024</u> Owner/Agent

Cartificate

PROPOSED SPOT GRADE

(TOP OF ASPHALT & FLOW LINE) (UNLESS OTHERWISE NOTED)



DRAW-DOWN STRUCTURE DETAIL

N.T.S.

NOTE: A FAIRCLOTH SKIMMER TO BE INSTALL DURING THE INITIAL CONSTRUCTION OF THE WET THE SKIMMER IS TO BE CONNECTED TO THE 8" STUB-OUT ON THE WETBASIN OVERFLOW BASIN. STRUCTURE. THE WET BASIN WILL SERVE AS A SEDIMENT BASIN DURING THE CONSTRUCTION OF THE SITE. ONCE THE SITE HAS BEEN FULLY STABILIZED THE FAIRCLOTH SKIMMER IS TO BE REMOVED AND THE SPECIFIED DRAW DOWN PIPE IS TO BE INSTALLED PER THE BASIN OVERFLOW STRUCTURE DETAIL. THE STUB-OUT FOR THE DRAW DOWN PIPE SHALL BE CAPPED DURING CONSTRUCTION

DOCUMENT IS BASED ON BEST AVAILABLE DATA AND IS NOT A CERTIFIED SURVEY. ALL INFORMATION SHOWN ON THIS DOCUMENT IS SUBJECT TO ANY REQUIREMENTS BY ANY REGULATORY AGENCY, ENTITY OR AUTHORITY. QUIBLE & ASSOCIATES, P.C. DOES NOT GUARANTEE THE ACCURACY OR THE COMPLETENESS OF ANY INFORMATION IN THIS DOCUMENT AND IS NOT RESPONSIBLE FOR ANY ERROR OR OMISSION OR ANY LOSSES OR DAMAGES RESULTING FROM THE USE OF THIS INFORMATION.

5/8"SII

(O.I'BG)

NOTE: THIS DOCUMENT IS PRELIMINARY - NOT FOR CONSTRUCTION,

RECORDATION, SALES OR CONVEYANCES - THIS DOCUMENT IS FOR

DISCUSSION PURPOSES ONLY! EXISTING INFORMATION SHOWN ON THIS



Know what's below. Call before you diğ.

NOTE: THE DATA GIVEN ON THESE PLANS IS BELIEVED TO BE ACCURATE, BUT THE ACCURACY IS NOT GUARANTEED. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL LEVELS, LOCATIONS, TYPES, AND DIMENSIONS OF THE EXISTING UTILITIES PRIOR TO CONSTRUCTION. IF A DISCREPANCY IS FOUND, WORK SHALL CEASE AND THE ENGINEER NOTIFIED. WORK MAY CONTINUE UPON ENGINEERS

NOTICE TO PROCEED.

PROPERTY LINE AS PER DB 102, PG 225 FIRM ZONE ´ AE (EL.4')

N/F

JERRY L. ANGE, JR. & JENNIE L. ANGE DB 1172, PG 569

PC J, SL 137 ZONING: GB





N. T. S.





April 24, 2024

Randall Jones, P.E. Division of Energy, Mineral, and Land Resources Land Quality Section – Washington Regional Office North Carolina Department of Environmental Quality 943 Washington Square Mall Washington, North Carolina 27889

Re: Soil Erosion and Sedimentation Control Permit Application **RPP Holdings Group, LLC** 4510 Caratoke Hwy Barco, NC 27917

Dear Mr. Jones,

On behalf of RPP Holdings Group, LLC, Quible and Associates, P.C. hereby submits for review and approval a Soil Erosion and Sedimentation Control Permit Application package for the above referenced project located in Currituck County.

The following items are included and shall be considered part of this submittal package:

- 1. Combined Review Fee Check in the amount of \$300;
- 2. One (1) original and one (1) copy of the Financial Responsibility Ownership Form;
- 3. One (1) copy of the NCDEQ checklist;
- 4. One (1) copy of a 8.5"x11" USGS Topographic Project Location Map;
- 5. One (1) copy of the NC Secretary of State Documentation;
- 6. One (1) Erosion and Sediment Control Narrative including Soils Report with Supporting Data;
- 7. One (1) copy of Property Deed 1766 Page 331, plat S slide 115;
- 8. Two (2) full size copies of the Plan Set.

Please do not hesitate to contact me at (252) 491-8147, or ndashti@quible.com should you have any questions or concerns.

Sincerely, Quible & Associates. P.C.

Nadeen Dashti, E.I.

cc: RPP Holdings Group, LLC

FINANCIAL RESPONSIBILITY/OWNERSHIP FORM SEDIMENTATION POLLUTION CONTROL ACT

No person may initiate any land-disturbing activity on one or more acres as covered by the Act, including any activity under a common plan of development of this size as covered by the NCG01 permit, before this form and an acceptable erosion and sedimentation control plan have been completed and approved by the Land Quality Section, N.C. Department of Environmental Quality. Submit the completed form to the appropriate Regional Office. (Please type or print and, if the question is not applicable or the e-mail address or phone number is unavailable, place N/A in the blank.)

Part A.

1. Project Name_____RPP Holdings Group, LLC

*If this project involves American Rescue Plan Act (ARPA) funds, list the Project Name or Project Number (e.g., SRP-D-ARP-0121) below under which you were approved for funding through the Division of Water Infrastructure (DWI).

2.	Location of land-distur	bing activi	ty: County	urrituck	_ City or Townsh	_{ip_} Barco	
	Highway/Street_4510	Caratok	e Hwy _{Latitu}	36 de(decimal degrees)	5.35418 Longitud	-75.960 e(decimal degrees)	17
3.	Approximate date land	-disturbing	g activity will co	ommence: 10/1	7/24		
4.	Purpose of developme	nt (reside	ntial, commerc	ial, industrial, ins	titutional, etc.):	commercial	
5.	Total acreage disturbe	d or unco	vered (includin	g off-site borrow	and waste areas	_{.):} 2.79	
6.	Amount of fee enclosure up to the next acre) is Checks should be add	ed: \$ <u>300</u> assessec dressed to	l without a ceil NCDEQ.	The appl ing amount(Exa	ication fee of \$10 mple: 8.10-acre	00.00 per acre (round application fee is \$90	led)0).
7.	Has an erosion and se	diment co	ntrol plan beer	n filed?Yes 🗆	Enclosed 🗹	No 🗆	
8.	Person to contact shou	uld erosior	n and sediment	t control issues a	rise during land-	disturbing activity:	
	_{Name} Joseph J Ga	aca		E-mail Addres	_s joeg@kello	gsupplyco.com	
	Phone: Office # 252	.473.21	67	Mobile #252	2.423.8068		
9.	Landowner(s) of Reco	rd (attach	accompanied	page to list addit	onal owners):		
	RPP Holdings G	roup, Ll	LC	252.473.2	167	252.423.8068	
	Name			Phone: Office	#	Mobile #	
	917 Burnside Ro	ad		917 Burns	ide Road		
	Current Mailing Addres	SS		Current Street	Address		
	Manteo	NC	27954	Manteo	NC	2795	4
	City	State	Zip	City	State	Zip	,
10.	Deed Book No. 1766		Page No. 3	31 _F	Provide a copy of	the most current dee	ed.

Part B.

1. Company(ies) who are financially responsible for the land-disturbing activity (Provide a comprehensive list of all responsible parties on accompanied page.) *If the company is a sole proprietorship or if the landowner(s) is an individual(s), the name(s) of the owner(s) may be listed as the financially responsible party(ies).*

RPP Holdings	Group, Ll	_C	joeg@kelloggsupplyco.com		
Company Name			E-mail Address		
917 Burnside	Road		917 Burnside Road		
Current Mailing Address			Current Street Ac	ldress	
Manteo	NC	27954	Manteo	NC	27954
City	State	Zip	City	State	Zip
Phone: Office # 2	52.473.216	67	Mobile # 252.42	3.8068	

Note: If the Financially Responsible Party is not the owner of the land to be disturbed, include with this form the landowner's signed and dated written consent for the applicant to submit a draft erosion and sedimentation control plan and to conduct the anticipated land disturbing activity.

2. (a) If the Financially Responsible Party is a domestic company registered on the NC Secretary of State business registry, give name and street address of the Registered Agent:

Joseph J Gao	ca		joeg@kellogsupplyco.com				
Name of Registere	ed Agent		E-mail Address 917 Burnside Road Current Street Address				
917 Burnside	Road						
Current Mailing Ad	ldress						
Manteo	NC	27954	Manteo	NC	27954		
City	State	Zip	City	State	Zip		
Phone: Office #	252.473.216	7	Mobile # 252.423.8	8068			

Name of Individual to Contact (if Registered Agent is a company)

(b) If the Financially Responsible Party is not a resident of North Carolina, give name and street address of the designated North Carolina agent who is registered on the NC Secretary of State business registry:

Name of Registered	Agent		E-mail Address			
Current Mailing Addr	ress		Current Street Add	Iress		
City	State	Zip	City	State	Zip	
Phone: Office #			Mobile #			

Name of Individual to Contact (if Registered Agent is a company)

(c) If the Financially Responsible Party is engaging in business under an assumed name, give name under which the company is Doing Business As. If the Financially Responsible Party is an individual, General Partnership, or other company not registered and doing business under an assumed name, **attach a copy of the Certificate of Assumed Name.**

Company DBA Name

The above information is true and correct to the best of my knowledge and belief and was provided by me under oath. (This form must be signed by the Financially Responsible Person if an individual(s) or his attorney-in-fact, or if not an individual, by an officer, director, partner, or registered agent with the authority to execute instruments for the Financially Responsible Party). I agree to provide corrected information should there be any change in the information provided herein.

Type or print name	Title or Authority	
Signature	Date	
l,	, a Notary Public of the County of	
State of North Carolina, hereby certify that before me this day and being duly sworn ackn	appeared perso owledged that the above form was executed by hin	onally n/her.
Witness my hand and notarial seal, this	day of, 20	
Seal	Notary	

My commission expires
EROSION and SEDIMENTATION CONTROL PLAN PRELIMINARY REVIEW CHECKLIST

The following items shall be incorporated with respect to specific site conditions, in an erosion & sedimentation control plan:

NPDES Construction Stormwater General Permit NCG010000

Soil information below culvert storm outlets

ł		
J		

Designation on the plans where the 7 or 14 day ground stabilization requirements apply per Part II.E.1 of the permit.

Design of basins with one acre or	more of drainage area f	for surface withdrawal as	per Part II.B.8 of the permit.
	J		The second se

LOCATI	ON INFORMATION		Name and classification of receiving water course or name of municipal operator (only where stormwater discharges are to
	Project location & labeled vicinity map (roads, streets, landmarks) North arrow and scale		occur)
	Identify River Basin. Provide a copy of site located on applicable USGS quadrangle and	<u>STORM</u>	WATER CALCULATIONS
	NRCS Soils maps if it is in a River Basin with Riparian Buffer requirements.		Pre-construction runoff calculations for each outlet from the site (at peak discharge points). Be sure to provide all supporting data for the computation methods used (rainfall data for required storm
<u>GENER</u>	AL SITE FEATURES (Plan elements)		events, time of concentration/storm duration, and runoff coefficients)
	Property lines & ownership ID for adjoining properties Existing contours (topographic lines) Proposed contours Limits of disturbed area (provide acreage total, delineate limits,		Design calculations for peak discharges of runoff (including the construction phase & the final runoff coefficients for the site) Design calcs for culverts and storm sewers (include HW, TW and outlet velocities)
	and label). Be sure to include all access to measures, lots that will be disturbed, and utilities that may extend offsite.		Discharge and velocity calculations for open channel and ditch flows (easement & rights-of-way)
	Planned and existing building locations and elevations Planned & existing road locations & elevations, including		Design calcs for cross sections and method of stabilization for existing and planned channels (include temporary linings). Include
	temporary access roads Lot and/or building numbers		appropriate permissible velocity and/or shear stress data. Design calcs and construction details for energy dissipaters below
	Hydrogeologic features: rock outcrops, seeps, springs, wetland and their limits, streams, lakes, ponds, dams, etc. (include all required local or state buffer zones and any DWQ Riparian Buffer		culvert and storm sewer outlets (include stone/material specs & apron dimensions). Avoid discharges on fill slopes. Design calcs and dimension of sediment basins (note current
	affected areas. Include copies of any recorded easements and/or		surface area and dewatering standards as well as diversion of runoff to the basins). Be sure that all surface drains, including ditches and berms, will have positive drainage to the basins.
	Profiles of streets, utilities, ditch lines, etc. Stockniled topsoil or subsoil locations	VEGET/	ATIVE STABILIZATION
	If the same person conducts the land-disturbing activity & any related borrow or waste activity, the related borrow or waste		Area & acreage to be stabilized with vegetation Method of soil preparation
	activity shall constitute part of the land-disturbing activity unless		Seed type & rates (temporary & permanent)
	the borrow or waste activity is regulated under the Mining Act of 1971, or is a landfill regulated by the Division of Waste		Fertilizer type and rates Mulch type and rates (include mulch anchoring methods)
	Management. If the land-disturbing activity and any related borrow or waste activity are not conducted by the same person, they shall be considered separate land-disturbing activities and must be permitted either through the Sedimentation Pollution	NOTE:	Plan should include provisions for groundcover in accordance with <u>NPDES Construction Stormwater General Permit NCG010000.</u>
	Control Act as a one-use borrow site or through the Mining Act.	<u>FINANC</u>	IAL RESPONSIBILITY/OWNERSHIP FORM
	other processing of material excavated. If the affected area associated with excavation, processing, stockpiles and transport		Completed, signed & notarized FR/O Form Accurate application fee payable to NCDEQ (\$100.00 per
	of such materials will comprise 1 or more acres, and materials will be leaving the development tract, a mining permit will be required.		acre rounded up the next acre with no ceiling amount) Certificate of assumed name, if the owner is a partnership
	Required Army Corps 404 permit and Water Quality 401 certification (e.g. stream disturbances over 150 linear feet)		Name of Registered Agent (if applicable) Copy of the most current Deed for the site. Please make sure the
EROSIO	N & SEDIMENT CONTROL MEASURES (on plan)		deed(s) and ownership information are consistent between the plan sheets, local records and this form.
	Legend (provide appropriate symbols for all measures and		Provide latitude & longitude (in decimal degrees) at the project entrance.
	reference them to the construction details) Location of temporary measures		Two hard-copies of the plans (some regional offices require additional plans or multiple sizes; please contact the regional
	Location of permanent measures Construction drawings and details for temporary and permanent		coordinator prior to such submittal.)
	measures. Show measures to scale on plan and include proposed contours where necessary. Ensure design storage requirements are maintained through all phases of construction.	NOTE:	For the Express Permitting Option, inquire at the local Regional Office for availability. Express Reviews are performed by appointment only.
	Maintenance requirements for measures Contact person responsible for maintenance	NARRA	TIVE AND CONSTRUCTION SEQUENCE
<u>SITE DR</u>	AINAGE FEATURES		Narrative describing the nature & purpose of the construction activity.
	Existing and planned drainage patterns (include off-site areas that drain through project and address temporary and permanent		Pre-construction conterence, if requested. Construction sequence related to erosion and sediment control (including installation of critical measures prior to the initiation of the lend distuicing activity & rescurse to activity activity of the second set of the s
	Method used to determine acreage of land being disturbed and drainage areas to all proposed measures (e.g. delineation man)		serve are permanently stabilized). Address all phases of construction and peressary practices associated with temporary
	Size, pipe material and location of culverts and sewers Soil information: type, special characteristics		stream bypasses and/or crossings. Bid specifications related only to erosion control

rev. 1-18-22



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Limited Liability Company

Legal Name RPP Holdings Group, LLC

Information

SosId: 2223839 Status: Current-Active Date Formed: 6/29/2021 Citizenship: Domestic Annual Report Due Date: April 15th CurrentAnnual Report Status: Registered Agent: Gaca, Joseph J

Addresses

Mailing	Principal Office	Reg Office	Reg Mailing
917 Burnside Road	917 Burnside Road	917 Burnside Road	917 Burnside Road
Manteo, NC 27954	Manteo, NC 27954	Manteo, NC 27954	Manteo, NC 27954

Company Officials

All LLCs are managed by their managers pursuant to N.C.G.S. 57D-3-20.

Owner ManagerOwner ManagerJoseph J GacaChristopher O'Neill917 Burnside Road917 Burnside RdManteo NC 27954Manteo NC 27954



Erosion and Sediment Control Narrative

RPP Holdings Group, LLC 4510 Caratoke Hwy April 23, 2024

Project Description

The subject property is located at 4510 Caratoke Hwy in the City of Barco, Currituck County. The project area consists of a parcel with PIN 8996-40-4911. The site development proposes the construction of a 18,143 sq. ft. retail building, and will include the associated parking, drainage, water, and wastewater improvements for the development of the 12.02-acre lot.

Existing Site

The existing 12.02-acre project area is currently a combination of existing development with natural vegetated areas and wetland areas. There is an existing asphalt and gravel road on the north side of the parcel and there are wetlands which line the west side of the parcel. Ground elevations range between 4' and 12' with surface slope averaging 1.0% to 4.0%. Existing stormwater sheet flows offsite towards Intercoastal Waterway.

Adjacent Property

The property is adjacent to general business development to the north and south. The property to the west is agricultural land. 4510 Caratoke Hwy adjoins the east property line.

Offsite Areas

Construction Staging and any temporary soil stockpiling will take place on-site. Any off-site areas used for disposal or borrow material shall be approved and permitted in accordance with applicable local, state, and federal regulations.

Critical Erosion Areas

The onsite soils' erosion hazards is moderate. There are no critical erosion areas anticipated and adequate erosion control measures will be employed to minimize potential erosion problems.

Soils

Per the Natural Resources Conservation Service, the predominant on-site soils belong to the following groups as described below:

At – Augusta fine sandy loam, 0 to 2 percent slopes.

- BoA Bojac loamy sand, 0 to 3 percent slopes
- Pt Portsmouth fine sandy loam, 0 to 2 percent slopes
- To Tomotley fine sandy loam, 0 to 2 percent slopes

Erosion and Sediment Control Measures

Proposed land disturbance for the site is approximately 2.91 acres. All erosion and sediment control practices shall be constructed and maintained according to minimum standards and specifications of the NCESC Planning and Design Manual, latest edition.

QUIBLE & ASSOCIATES, P.C. ENGINEERING - ENVIRONMENTAL SCIENCES - PLANNING - SURVEYING WWW.QUIBLE.COM Erosion and Sediment Control Narrative RPP Holdings Group, LLC April 24, 2024

Structural Practices

- 1. Temporary Construction Entrance (CE) 6.06.1 A construction entrance will be installed at the southern entrance to the property, connecting to the existing parking lot.
- Sediment Basin (SB) 6.61.1 A sediment basin is proposed at the east and south extents of the property. Calculations are available within this report.
- Silt Fence (SF) 6.62.1 Silt fence will be installed down slope of areas with minimal grades to filter sediment runoff from sheet flow as shown on the plans.
- Inlet Protection (IP) 6.50 All storm sewer inlets shall be protected during construction. Sediment-laden water shall be filtered before entering these structures.
- Outlet Protection (OP) 6.40
 Outlet protection should be provided to lower velocities prior to discharge of stormwater to avoid potential erosion.
- Tree Protection (TP) 6.05.1 Tree protection will be placed around trees and vegetated areas that are not to be disturbed during construction. This will provide protection from construction equipment.
- Dust Control 6.84.1
 Dust control measures will be used to prevent surface and air movement of dust from exposed soil surfaces and reduce the presence of airborne substances, which may present health hazards, traffic safety problems or harm animals or plant life.

Vegetative Practices

- 1. Topsoiling (TO) 6.04.1
 - Topsoil shall be used to provide a suitable growth medium for vegetation used to stabilize disturbed areas. It is applicable where preservation or importation of topsoil is the most cost-effective method of providing suitable growth medium.
- Temporary Seeding (TS) 6.10.1 All denuded areas which will be left dormant for longer than 21 days shall be seeded with fast germinating temporary vegetation immediately following rough grading of the area.
- Permanent Seeding (PS) 6.11.1
 Permanent seeding shall be applied to all denuded areas that will be left dormant for more than one year and to all areas where final grade has been established.
- 4. Mulching (MU) 6.14.1 Mulching shall be applied to all seeding operations, other plant materials which do not provide adequate soil protection by themselves, and bare areas which cannot be seeded (See Std. & Spec. 6.11.1) and mulch shall be used in conjunction with temporary seeding operations as specified in Temporary Seeding Std. & Spec. 6.10.1.

Management Strategies

The following sequence of events and erosion control measures shall be incorporated into the construction schedule for this project and shall apply to all construction activities.

- 1. All hard surface public roads shall be clean at the end of each work day. Temporary construction entrance(s) are required at all points of access where any material may be spilled, dropped, washed, or tracked off-site.
- 2. Erosion and sediment control devices shall be constructed and installed as a first step in any land disturbing activity and shall be made functional before upslope land disturbing

activity takes place.

- 3. Right-of-way diversions, sediment barriers, fill diversions, construction entrances, and erosion control stone are to be placed during clearing and grubbing.
- Permanent or temporary soil stabilization shall be applied to denuded areas within fifteen (15) days after final grade is reached on any portion of the site.
- 5. During construction of the project, any soil stock piles shall be stabilized or protected with sediment trapping measures.
- 6. Additional erosion and sediment control measures to those found on the plans may be required by NCDEQ if deemed necessary.
- 7. All temporary erosion and sediment control measures shall be removed and disposed of after final site stabilization.

Maintenance

Structural Practices

- 1. Temporary Construction Entrance (CE) 6.06.1
 - The construction entrance shall be maintained in a condition which will prevent tracking or flow of mud onto private or public streets. This may require periodic top dressing with additional stone or the washing and reworking of existing stone as conditions demand and repair and/or cleaning of any structures used to trap sediment. All materials spilled, dropped, washed, or tracked from vehicles onto roadways or into storm drains must be removed immediately. The use of water trucks to remove materials dropped, washed, or tracked onto roadways will not be permitted under any circumstances.
- 2. Sediment Basin (SB) 6.61.1
 - a. The proposed wet pond shall be used as a sediment basin during construction. The wet pond shall be cleaned and grades restored to original design elevations prior to demobilization.
 - b. Structures shall be removed and the area stabilized when the remaining drainage area has been properly stabilized.
- 3. Silt Fence (SF) 6.62.1
 - a. Silt fence shall be inspected immediately after each rainfall and at least daily during prolonged rainfall. Any required repairs shall be made immediately.
 - b. Close attention shall be paid to repair of damaged silt fence resulting from end runs and undercutting.
 - c. Should the fabric on a silt fence decompose or become ineffective prior to the end of the expected usable life and the barrier still be necessary, the fabric shall be replaced promptly.
 - d. Sediment deposits should be removed after each storm event. They must be removed when deposits reach approximately one-half the height of the barrier.
 - e. Any sediment deposits remaining in place after the silt fence is no longer required

shall be dressed to conform to the existing grade, prepared and seeded.

- Inlet Protection (IP) 6.50
 Inlet Protection shall be inspected after each rain and repairs made as needed.
- 5. Outlet Protection (OP) 6.40 Outlet Protection shall be inspected after each rain and repairs made as needed.
- 6. Tree Protection (TP) 6.05.1

In spite of precautions, some damage to protected trees may occur. In such cases, the following maintenance guidelines should be followed:

- a. Soil Aeration If the soil has become compacted over the root zone of any tree, the ground shall be aerated by punching holes with an iron bar. The bar shall be driven 1-foot deep and then moved back and forth until the soil is loosened. This procedure shall be repeated every 18 inches until all of the compacted soil beneath the crown of the tree has been loosened.
- b. Repair of damage
 - 1. Any damage to the crown, trunk, or root system of any tree retained on the site shall be repaired immediately.
 - 2. Whenever major root or bark damage occurs, remove some foliage to reduce the demand for water and nutrients.
 - 3. Damaged roots shall be immediately cut off cleanly inside the exposed or damaged area. Cut surfaced shall be painted with appropriate tree paint, and moist peat moss, burlap, or top-soil shall be spread over the exposed area.
- 7. Dust Control 6.84.1

Dust control measures will be used through all dry weather periods until all disturbed areas have been stabilized.

8. Temporary Seeding (6.10.1) and Permanent Seeding (6.11.1)

The seeded areas will be checked regularly to ensure that a good stand is maintained. For temporary seeding, areas which fail to establish vegetative cover adequate to prevent rill erosion will be re-seeded as soon as such areas are identified. For permanent seeding, when it is clear that plants have not germinated on an area or have died these areas must be reseeded immediately to prevent erosion damage. However, it is extremely important to determine for what reason germination did not take place and make any corrective action necessary prior to reseeding the area.

9. Mulching (MU) – 6.14.1

All mulching and soil coverings shall be inspected periodically (particularly after rain storms) to check for erosion. Where erosion is observed in mulched areas, additional mulch should be applied. Nets and mats should be inspected after rainstorms for dislocation or failure. If washouts or breakage occur, re-install netting matting as necessary after repairing damage to the slope or ditch. Inspections should take place up until grasses are firmly established. Were mulch is used in conjunction with ornamental plantings, inspect periodically throughout the year to determine if mulch is maintaining coverage of the soil surface; repair as needed.

Calculations

Drainage Area (Prior to basin installation)

Approximately 1,533 linear feet of silt fence is proposed, which allows for the approx. 2.9 acres of disturbance at the main site prior to installation of the infiltration basin. The proposed length meets the SESC requirement of ¹/₄ acre of drainage per 100 linear feet of fence.

Drainage Area (Once basin is installed)

Runoff from land disturbance will enter the wet detention basin acting as a sediment basin through proposed stormwater network/ditches. With a total disturbed drainage area of 2.9 acres at the main site, peak flows of the 5-yr, 24 hr storm are anticipated at $Q_5 = 15.71$ cfs. These flows account for the site being built out to provide a more conservative design. This requires a minimum surface area of 11,395.3 sf for Basin #1, which is provided as indicated in the table below.

Minimum Trap volume for the wet detention basin: $V = (3,630 \text{ ft}^3/\text{acre})^*(1.5 \text{ acre})^*(3.27)^*(0.46) = 11,395.3 \text{ ft}^3$

Elev	Area (sf)	Avg area (sf)	Volume (cf)	Cum Vol. (cf)
0	2021.5			0
		3031	9093	
3	4040.5			9093
		4450.75	4451	
4	4861			13544
		5544	5544	
5	6227			19088

Permanent pool Storage Provided In Wet Detention Basin 1

Total Storage (cf.) Provided in Basin 1:

19088

Above Permanent Pool Storage Provided In Wet Detention Basin 1

Elev	Area (sf)	Avg area (sf)	Volume (cf)	Cum Vol. (cf)	
5	6227			0	
		6985	6985		
6	7743			6985	
		8960.5	8961		
7	10179			15946	
		10852.5	8139		
7.75	11527			24085	
Total Storage (cf.) Provided in Basin 1: 24085					

Total Storage (cf.) Provided in Basin 1:

Volume in Forebay for Basin 1

Elev	Area (sf)	Avg area (sf)	Volume (cf)	Cum Vol. (cf)
2	162			0
		310.5	621	
3	295			621
		472	944	
4	459			1565
		554	554	
5	649			2119
		815	815	
6	981			2934
Total Sto	orage (cf.) Provide	d in Basin 1:		2934

Approximately 19,088 ft³ will be provided in the permanent pool storage, 24,085 ft³ will be provided in the above permanent pool storage and 2,934 ft³ will be the forebay volume.

Outlet protection has been provided for each outlet into the proposed wet detention basin using the anticipated discharge for the entire site. A minimum of 8'x9.5.5'x0.5' has been provided, which exceeds requirements.

Conclusions

The proposed erosion and sediment control plan for this site will provide an effective system for the proposed site improvements that complies with NCDEQ's Regulations. It should be noted that a high-density stormwater permit will be applied for concurrently with the requested soil erosion and sediment control permit.



United States Department of Agriculture

NRCS

Natural Resources Conservation Service A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Currituck County, North Carolina



Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/? cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.



	MAP L	EGEND		MAP INFORMATION
Area of Ini	erest (AOI) Area of Interest (AOI)	₩ ¢	Spoil Area Stony Spot	The soil surveys that comprise your AOI were mapped at 1:20,000.
	Soil Map Unit Polygons	25 *	Very Stony Spot Wet Spot	Warning: Soil Map may not be valid at this scale.
ĩ	Soil Map Unit Points	^ ••	Other Special Line Features	Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of
Special	Blowout	Water Fea	tures Streams and Canals	contrasting soils that could have been shown at a more detailed scale.
24 X	Borrow Pit Clay Spot	Transport : : :	ation Rails	Please rely on the bar scale on each map sheet for map measurements.
े X	Closed Depression Gravel Pit	~	Interstate Highways US Routes	Source of Map: Natural Resources Conservation Service Web Soil Survey URL:
 89	Gravelly Spot Landfill	~	Major Roads Local Roads	Coordinate System: Web Mercator (EPSG:3857)
Å. sti	Lava Flow Marsh or swamp	Backgrou	jround	projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal area conic projection, should be used if more
T T	Mine or Quarry			accurate calculations of distance or area are required.
G C	Perennial Water			This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.
~ +	Rock Outcrop Saline Spot			Soil Survey Area: Currituck County, North Carolina Survey Area Data: Version 23, Sep 13, 2023
). A	Sandy Spot Severely Eroded Spot			Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.
0 0 1	Sinkhole			Date(s) aerial images were photographed: May 18, 2022—May 31, 2022
ţ.	Sodic Spot			The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

	1		
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
At	Augusta fine sandy loam	1.3	23.2%
ВоА	Bojac loamy sand, 0 to 3 percent slopes	1.5	26.5%
Pt	Portsmouth fine sandy loam	0.0	0.3%
То	Tomotley fine sandy loam	2.9	49.9%
Totals for Area of Interest	·	5.7	100.0%

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The

delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Currituck County, North Carolina

At—Augusta fine sandy loam

Map Unit Setting

National map unit symbol: 3rn8 Elevation: 0 to 30 feet Mean annual precipitation: 42 to 58 inches Mean annual air temperature: 61 to 64 degrees F Frost-free period: 190 to 270 days Farmland classification: Prime farmland if drained

Map Unit Composition

Augusta, drained, and similar soils: 80 percent Augusta, undrained, and similar soils: 10 percent Minor components: 10 percent Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Augusta, Drained

Setting

Landform: Flats on marine terraces, depressions on marine terraces Down-slope shape: Linear Across-slope shape: Linear Parent material: Sandy and loamy fluviomarine deposits and/or marine deposits

Typical profile

Ap - 0 to 5 inches: fine sandy loam Bt - 5 to 23 inches: loam BCg - 23 to 31 inches: sandy loam Cg - 31 to 80 inches: loamy sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: About 12 to 24 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 8.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified Land capability classification (nonirrigated): 2w Hydrologic Soil Group: B/D Ecological site: F153AY040NC - Moist Loamy Rises and Flats, F153BY040NC -Moist Loamy Rises and Flats Hydric soil rating: No

.

Description of Augusta, Undrained

Setting

Landform: Flats on marine terraces, depressions on marine terraces

Down-slope shape: Linear *Across-slope shape:* Linear *Parent material:* Sandy and loamy fluviomarine deposits and/or marine deposits

Typical profile

A - 0 to 5 inches: fine sandy loam Bt - 5 to 23 inches: loam BCg - 23 to 31 inches: sandy loam Cg - 31 to 80 inches: loamy sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: About 12 to 24 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 8.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified Land capability classification (nonirrigated): 3w Hydrologic Soil Group: B/D Ecological site: F153AY040NC - Moist Loamy Rises and Flats, F153BY040NC -Moist Loamy Rises and Flats Hydric soil rating: No

Minor Components

Tetotum

Percent of map unit: 5 percent Landform: Flats on marine terraces Landform position (two-dimensional): Summit Down-slope shape: Linear Across-slope shape: Linear Ecological site: F153AY040NC - Moist Loamy Rises and Flats, F153BY040NC -Moist Loamy Rises and Flats Hydric soil rating: No

Tomotley, undrained

Percent of map unit: 5 percent Landform: Depressions on stream terraces, flats on marine terraces Down-slope shape: Linear Across-slope shape: Linear Ecological site: F153BY060NC - Wet Loamy Flats and Depressions, F153AY090NC - Flooded Mineral Soil Floodplains and Terraces Hydric soil rating: Yes

BoA—Bojac loamy sand, 0 to 3 percent slopes

Map Unit Setting

National map unit symbol: 3rnb Elevation: 0 to 30 feet Mean annual precipitation: 42 to 58 inches Mean annual air temperature: 61 to 64 degrees F Frost-free period: 190 to 270 days Farmland classification: Farmland of statewide importance

Map Unit Composition

Bojac and similar soils: 90 percent *Minor components:* 10 percent *Estimates are based on observations, descriptions, and transects of the mapunit.*

Description of Bojac

Setting

Landform: Ridges on marine terraces Down-slope shape: Convex Across-slope shape: Linear Parent material: Loamy and sandy fluviomarine deposits

Typical profile

Ap - 0 to 8 inches: loamy fine sand *Bt - 8 to 47 inches:* fine sandy loam *C - 47 to 85 inches:* loamy fine sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): High (1.98 to 5.95 in/hr)
Depth to water table: About 48 to 72 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 6.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified Land capability classification (nonirrigated): 2s Hydrologic Soil Group: A Ecological site: F153BY030NC - Dry Loamy Rises and Flats Hydric soil rating: No

Minor Components

Conetoe

Percent of map unit: 4 percent Landform: Ridges on stream terraces, ridges on marine terraces Landform position (two-dimensional): Summit, shoulder Landform position (three-dimensional): Crest Down-slope shape: Convex Across-slope shape: Convex Ecological site: F153BY030NC - Dry Loamy Rises and Flats Hydric soil rating: No

Seabrook

Percent of map unit: 3 percent Landform: Depressions on marine terraces Down-slope shape: Concave Across-slope shape: Linear Ecological site: F153BY020NC - Moist Sands Hydric soil rating: No

Munden

Percent of map unit: 3 percent Landform: Marine terraces Down-slope shape: Linear Across-slope shape: Convex Ecological site: F153BY040NC - Moist Loamy Rises and Flats Hydric soil rating: No

Pt—Portsmouth fine sandy loam

Map Unit Setting

National map unit symbol: 3rp0 Elevation: 0 to 30 feet Mean annual precipitation: 42 to 58 inches Mean annual air temperature: 61 to 64 degrees F Frost-free period: 190 to 270 days Farmland classification: Prime farmland if drained

Map Unit Composition

Portsmouth, drained, and similar soils: 75 percent Portsmouth, undrained, and similar soils: 10 percent Minor components: 7 percent Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Portsmouth, Drained

Setting

Landform: Flats on marine terraces, depressions on marine terraces Down-slope shape: Linear Across-slope shape: Linear Parent material: Loamy fluviomarine deposits over sandy fluviomarine deposits

Typical profile

Ap - 0 to 12 inches: fine sandy loam Eg - 12 to 19 inches: fine sandy loam Btg - 19 to 35 inches: sandy clay loam BCg - 35 to 38 inches: sandy loam 2Cg - 38 to 80 inches: loamy sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: 20 to 40 inches to strongly contrasting textural stratification
Drainage class: Very poorly drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: About 0 to 12 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 5.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified Land capability classification (nonirrigated): 3w Hydrologic Soil Group: B/D Ecological site: F153BY060NC - Wet Loamy Flats and Depressions Hydric soil rating: Yes

Description of Portsmouth, Undrained

Setting

Landform: Depressions on marine terraces, flats on marine terraces Down-slope shape: Linear Across-slope shape: Linear Parent material: Loamy fluviomarine deposits over sandy fluviomarine deposits

Typical profile

A - 0 to 12 inches: fine sandy loam Eg - 12 to 19 inches: fine sandy loam Btg - 19 to 35 inches: sandy clay loam BCg - 35 to 38 inches: sandy loam 2Cg - 38 to 80 inches: loamy sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: 20 to 40 inches to strongly contrasting textural stratification
Drainage class: Very poorly drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: About 0 to 12 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 5.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified Land capability classification (nonirrigated): 6w Hydrologic Soil Group: B/D Ecological site: F153BY060NC - Wet Loamy Flats and Depressions Hydric soil rating: Yes

Minor Components

Cape lookout, undrained

Percent of map unit: 4 percent Landform: Depressions, pocosins, flats Down-slope shape: Linear Across-slope shape: Concave Ecological site: F153BY065NC - Wet Clay Flats and Depressions Hydric soil rating: Yes

Portsmouth, undrained

Percent of map unit: 3 percent Landform: Depressions on marine terraces, flats on marine terraces Down-slope shape: Linear Across-slope shape: Linear Ecological site: F153BY060NC - Wet Loamy Flats and Depressions Hydric soil rating: Yes

To—Tomotley fine sandy loam

Map Unit Setting

National map unit symbol: 3rp4 Elevation: 0 to 30 feet Mean annual precipitation: 42 to 58 inches Mean annual air temperature: 61 to 64 degrees F Frost-free period: 190 to 270 days Farmland classification: Prime farmland if drained

Map Unit Composition

Tomotley, drained, and similar soils: 75 percent *Tomotley, undrained, and similar soils:* 10 percent *Minor components:* 7 percent *Estimates are based on observations, descriptions, and transects of the mapunit.*

Description of Tomotley, Drained

Setting

Landform: Flats on marine terraces, depressions on stream terraces Down-slope shape: Linear Across-slope shape: Linear Parent material: Sandy and loamy fluviomarine deposits and/or marine deposits

Typical profile

Ap - 0 to 7 inches: fine sandy loam Btg1 - 7 to 12 inches: fine sandy loam Btg2 - 12 to 42 inches: sandy clay loam BCg - 42 to 50 inches: sandy loam Cg - 50 to 80 inches: loamy sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.20 to 1.98 in/hr)
Depth to water table: About 0 to 12 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 8.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified Land capability classification (nonirrigated): 3w Hydrologic Soil Group: B/D Ecological site: F153BY060NC - Wet Loamy Flats and Depressions, F153AY090NC - Flooded Mineral Soil Floodplains and Terraces Hydric soil rating: Yes

Description of Tomotley, Undrained

Setting

Landform: Depressions on stream terraces, flats on marine terraces Down-slope shape: Linear Across-slope shape: Linear Parent material: Sandy and loamy fluviomarine deposits and/or marine deposits

Typical profile

A - 0 to 7 inches: fine sandy loam Btg1 - 7 to 12 inches: fine sandy loam Btg2 - 12 to 42 inches: sandy clay loam BCg - 42 to 50 inches: sandy loam Cg - 50 to 80 inches: loamy sand

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.20 to 1.98 in/hr)
Depth to water table: About 0 to 12 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Moderate (about 8.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified Land capability classification (nonirrigated): 4w

Hydrologic Soil Group: B/D

Ecological site: F153BY060NC - Wet Loamy Flats and Depressions, F153AY090NC - Flooded Mineral Soil Floodplains and Terraces *Hydric soil rating:* Yes

Minor Components

Nimmo, undrained

Percent of map unit: 3 percent Landform: Depressions on marine terraces, flats on marine terraces Down-slope shape: Concave Across-slope shape: Linear Ecological site: F153BY060NC - Wet Loamy Flats and Depressions, F153AY060NC - Wet Loamy Flats and Depressions Hydric soil rating: Yes

Arapahoe, undrained

Percent of map unit: 3 percent Landform: Flats, depressions Down-slope shape: Linear Across-slope shape: Concave Ecological site: F153BY060NC - Wet Loamy Flats and Depressions, F153AY090NC - Flooded Mineral Soil Floodplains and Terraces Hydric soil rating: Yes

Dragston, undrained

Percent of map unit: 1 percent Landform: Marine terraces Down-slope shape: Linear Across-slope shape: Linear Ecological site: F153AY040NC - Moist Loamy Rises and Flats, F153BY040NC -Moist Loamy Rises and Flats Hydric soil rating: No

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BK 1766 PG 328 - 331 (4) DOC# 388375 This Document eRecorded: 04/05/2024 04:37:25 PM Tax: \$2,000.00 Fee: \$26.00 Currituck County, North Carolina Denise A. Hall, Register of Deeds HH H Currituck County and Transfer Tax: 10000.00 County Excise Tax: 1985 Sessions Law Chapter 670 (HB 215) Excise Tax: Parcel No: 0070-000-0112000



Coinjock, NC 27923

Manteo, NC 27954

Enter in appropriate block for each party: name, address, and, if appropriate, character of entity, e.q. corporation or partnership.

The designation Grantor and Grantee as used herein shall include said parties, their heirs, successors and assigns, and shall include singular, plural, masculine, feminine or neuter as required by context.

WITNESSETH, that the Grantor, for a valuable consideration paid by the Grantee, the receipt of all of which is hereby acknowledged, has and by these presents does grant, bargain, sell and convey unto the said Grantees in fee simple, all that certain lot or parcel of land situated in **Crawford** Township, **Currituck** County, North Carolina, more particularly described as follows:

See attached Exhibit "A"

All or a portion of the property herein conveyed _____ includes or __X_does not include the primary residence of a Grantor.

This instrument prepared by: William Brumsey, III, a licensed North Carolina attorney. Delinquent taxes, if any, to be paid by the closing attorney to the County tax collector upon disbursement of closing proceeds.

Submitted electronically by "Malarney & McCown, PLLC" in compliance with North Carolina statutes governing recordable documents and the terms of the submitter agreement with the Currituck County Register of Deeds.

BK 1766 PG 328 - 331 (4) DOC# 388375

 \sim The property hereinabove described was acquired by Grantor by instrument recorded in Book

Page

Q map showing the above described property is recorded in Plat Book Page

TO MAVE AND TO HOLD the aforesaid lot or parcel of land and all privileges and appurtenances thereto belonging to Grantees in fee simple.

And the Grantor covenants with the Grantee, that Grantor is seized of the premises in fee simple, has the right to convey the same in fee simple, that title is marketable and free and clear of all encumbrances, and that Grantor will warrant and defend the title against the lawful claims of all persons whomsoever except for the exceptions hereinafter stated.

Title to the property hereinabove described is subject to the following exceptions:

Reservations, restrictions and easements of record.

This conveyance is made subject to any laws, rules, regulations or ordinances, whether local, County, State or Federal, relating to subdivision development, construction on or use of the property conveyed



that Jo Ann Morris

personally

appeared before me this day and acknowledged the due execution of the foregoing instrument for the purposes therein expressed.

Witness my hand and official stamp or seal this

$$3ig_{X}$$
 day of $4pin$ 2024.



BK 1766 PG 328 - 331 (4) DOC# 388375

Exhibit A, Page One

TRACT ONE: Beginning at a 5/8 set iron rod in the western margin of US 158 (Caratoke Highway) where it intersects with SE corner of property now or formerly belonging to Jo Anne Hayman as received in Deed Book 137, Page 78;

Thence from said beginning point S 22 deg. 21 min 58 sec E along the western margin of Caratoke Highway a distance of 334 ft to a 5/8 set iron red; thence S 74 deg 38 mins 02 sec. W a distance of 366.31 ft to an existing iron pipe leaning;

Thence N 20 deg 52 mins 58 sec W 122.32 ft to an existing iron pipe leaning; Thence S 44 deg 46 min 43 sec W a distance of 2037.07 ft to an existing concrete monument 4 inches under water on the east margin at property now or formerly belonging to State of North Carolina as received in Deed Book 112, Page 444;

Thence along the east margin of lands now or formerly owned by State of North Carolina 10 20 deg 44 min 37 sec W a distance of 209.18 ft to an existing iron pipe 1 inch under water at the S margin of property now or formerly belonding to Richard A. Sineath as received in Deed Book 1700, Page 794;

Thence N 44 deg 46 m(n) 43 sec E a distance of 540.80 ft to a calculated point; \checkmark

Thence S 15 deg 21 min 58 sec E a distance of 7.89 ft to a calculated point to force closure of the parcel because of difference between Deed Book 102, page 225 and an unrecorded McDowell survey;

Thence N 44 deg 53 min 02 sec to a distance of 1357.35 ft to a 5/8 set iron rod;

Thence continuing N 44 deg. 53 min. 02 sec. E a distance of 162.65 feet to an existing iron pipe with coordinates N 961,505.412 sFT, E 2,894,861.960 sFt;

Thence N 74 deg. 38 min. 02 sec. E a distance of 355 feet to the 5/8 set iron rod; being the point or place of beginning;



BK 1766 PG 328 - 331 (4) DOC# 388375

Exhibit A, Page Two

Beginning at a 5/8 set iron rod in the western margin of TRACT TWO: (Caratoke Highway) where it intersects with SE corner of US 1,58 property now or formerly belonging to Jo Anne Hayman as received in Deed Book 137, Page 78; thence S 74 deg. 38 min. 02 sec. W a distance of 335 feet to an existing iron pipe which said existing iron pipe has NC Grid Cordinates N 961,505.412 sFt, E 2,894,861.960 sFt and being the BEGINNING point for this TRACT TWO; THENCE FROM SAID BEGINNING point, S $44\sqrt{3}$ leg. 53 min. 02 sec. W a distance of 162.65 feet to a 5/8 set iron rod (Athence N 22 deg. 21 min. 58 sec. W a distance of 242.15 feet to a 5/8 set iron rod 0.1 below ground; thence N 70 deg. 57 min. 37 sec. E a distance of 150.25 feet to a 5/8 set iron rod 0.2 above ground; thence S λ 2 deg. 21 min. 58 sec. E a distance of 170.53 to an existing iron pipe, the POINT OR PLACE OF BEGINNING.

Said parcels of And being a combination of 2 parcels of land, received by Jo Anne Hayman one in Deed Book 266, page 710 (being 30,950 sq ft - 0.71 acres) and Deed Book 196, Page 232 (being 492,582 sq ft - 11.31 acres) and shown on plat entitled "Physical lot survey for RPP Holding, LLC, formerly JJ Hayman and son" date 3/21/24, Currituck Public Registry

ALSO CONVEYED HEREIN is a non-exclusive, ingress egress easement described as follows: Beginning at a point marked by a 5/8 inch iron rod located in the western right of way line of US Highway 158, said

point being the northeast corner, of the real estate herein conveyed; running thence along the North line of the real estate conveyed S 74° 38' 02" W 208 feet to a point; running thence N 22° 24' 13" W on the line parallel with and 208 feet from the western right of way line of US Highway 158 a distance of 30 feet to a point; running thence N 74° 38" 02" E on a line parallel with and 30 feet from the north line of the property conveyed, a distance of 208 feet to a point located in the western right of way line of US Highway 158; running thence with the western right of way line of US Highway 158 S 22° 24' 13" E a distance of 30 feet to the point of beginning.





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<u>NOTES</u>

- . CURRENT OWNER:
- ENGINEER:
- RPP HOLDINGS GROUP, LLC 917 BURNSIDE RD. MANTEO, NC 27954
- QUIBLE & ASSOCIATES, P.C. P.O.. DRAWER 870 KITTY HAWK, NC TEL: (252) 491-8147
- 3. PIN: 8996-40-4911
- 4. PID: 007000001110000 . PROPERTY ADDRESS: 4510 CARATOKE HWY
- . PROPERTY ZONED: ZONE: 3.26 ACRES GENERAL BUSINESS (GB) AND REMAINING
- AGRICULTURAL (AG) 7. MAXIMUM BUILDING HEIGHT = 35 FT
- MAXIMUM ALLOWABLE LOT COVERAGE = 65% MAX
- . LOT AREA = 12.02 ACRES TOTAL
- (AREAS BY COORDINATE METHOD.)
- 10. SUBJECT REFERENCES: DB 86, PG 57; PC E. 11. ADDITIONAL REFERENCES: PC P, SL 98; PC L, SL 84; PC I, SL 198.
- 12. FIELD SURVEY DATES: 06/16/23-06/30/23.
- 13. HORIZONTAL DATUM IS NAD83(2011), VERTICAL DATUM IS NAVD 1988, DERIVED FROM NCGS BOUNDARY MON NC VA RESET. 4. PROPERTY IS LOCATED IN NFIP FLOOD ZONES AS SHOWN AND SUBJECT TO CHANGES. BASED ON COMMUNITY CID NO. 370078; PANEL 8986; MAP NUMBER 3720898600K;
- EFFECTIVE DATE: 12/21/2018. THIS PLAN SUBJECT TO ANY FACTS, INCLUDING BUILDING SETBACK RESTRICTIONS, EASEMENTS, COVENANTS, ETC., THAT MAY BE REVEALED BY A FULL AND ACCURATE TITLE SEARCH.
- 6. CONTRACTOR SHALL PROVIDE SMOOTH TRANSITION BETWEEN SPOT ELEVATION GRADES
- AND MAINTAIN POSITIVE DRAINAGE 7. AREAS OF FILL SHALL BE EXCAVATED TO COMPACTED SUGARED AND BACKFILLED IN
- 6" LIFTS. 18. ALL PIPES TO BE CLASS III REINFORCED CONCRETE, UNLESS OTHERWISE NOTED.
- 9. ALL REINFORCED CONCRETE PIPES (RCP) TO HAVE END TREATMENTS, EITHER FLARED END SECTIONS (FES) OR END WALLS. END WALLS TO BE CONSTRUCTED AS PER NCDOT STANDARD 838.01.

WET DETENTION BASIN

- MAINTENANCE 1. IMMEDIATELY AFTER THE WET POND IS ESTABLISHED, THE PLANTS ON THE VEGETATED SHELF AND PERIMETER OF THE BASIN SHOULD BE WATERED TWICE WEEKLY IF (CONMANY SIX WEEKS) NEEDED, UNTIL THE PLANTS BECOME ESTABLISHED (COMMONLY SIX WEEKS).
- 2.NO PORTION OF THE WET POND SHOULD BE FERTILIZED AFTER THE FIRST INITIAL FERTILIZATION THAT IS REQUIRED TO ESTABLISH THE PLANTS ON THE VEGETATED
- SHELF
- 3. STABLE GROUNDCOVER SHOULD BE MAINTAINED IN THE DRAINAGE AREA TO REDUCE THE SEDIMENT LOAD TO THE WET POND.
- 4.IF THE POND MUST BE DRAINED FOR AN EMERGENCY OR TO PERFORM MAINTENANCE, THE FLUSHING OF SEDIMENT THROUGH THE EMERGENCY DRAIN SHOULD BE MINIMIZED AS MUCH AS POSSIBLE.

5.0NCE A YEAR, A DAM SAFETY EXPERT SHOULD INSPECT THE EMBANKMENT. LEGEND PROPOSED HEAVY DUTY EXISTING ASPHALT PAVEMENT GRAVEL SECTION _____ PROPOSED EXISTING CONCRETE PAVEMENT CONCRETE PAVEMENT ____ PROPOSED DROP INLET EXISTING GRAVEL PROPOSED STORM PIPE EX. TELEPHONE PEDESTAL EX. CABLE TV BOX PROPOSED DRAINAGE FLOW \implies EX. UTILITY POLE G -9.0-PROPOSED CONTOUR

- EX. DRAINAGE PIPE G EX. UG GAS LINE -W---- EX. WATER LINE
- —ss— EX. SANITARY SEWER LINE
- -10- EXISTING CONTOUR

22 The major stormwater plan shall contain the following certificate: 1, Isoch T Gee owner/agent hereby certify the information included on this and citached pages is true and correct to the best of my knowledge.

On the plan entitled Kellogs Supply Co____, stormwater drainage improvements shall be installed according to these plans and specifications and approved by Currhuck County. Yearly inspections are required as part of the stormwater plan. The owner is responsible for all maintenance required. Currituck County assumes no responsibility for the design, maintenance, or performance of the storografer improvements. Date: <u>4-24-2024</u> Owner/Agent

Cartificate

PROPOSED SPOT GRADE

(TOP OF ASPHALT & FLOW LINE) (UNLESS OTHERWISE NOTED)



DRAW-DOWN STRUCTURE DETAIL

N.T.S.

NOTE: A FAIRCLOTH SKIMMER TO BE INSTALL DURING THE INITIAL CONSTRUCTION OF THE WET THE SKIMMER IS TO BE CONNECTED TO THE 8" STUB-OUT ON THE WETBASIN OVERFLOW BASIN. STRUCTURE. THE WET BASIN WILL SERVE AS A SEDIMENT BASIN DURING THE CONSTRUCTION OF THE SITE. ONCE THE SITE HAS BEEN FULLY STABILIZED THE FAIRCLOTH SKIMMER IS TO BE REMOVED AND THE SPECIFIED DRAW DOWN PIPE IS TO BE INSTALLED PER THE BASIN OVERFLOW STRUCTURE DETAIL. THE STUB-OUT FOR THE DRAW DOWN PIPE SHALL BE CAPPED DURING CONSTRUCTION

DOCUMENT IS BASED ON BEST AVAILABLE DATA AND IS NOT A CERTIFIED SURVEY. ALL INFORMATION SHOWN ON THIS DOCUMENT IS SUBJECT TO ANY REQUIREMENTS BY ANY REGULATORY AGENCY, ENTITY OR AUTHORITY. QUIBLE & ASSOCIATES, P.C. DOES NOT GUARANTEE THE ACCURACY OR THE COMPLETENESS OF ANY INFORMATION IN THIS DOCUMENT AND IS NOT RESPONSIBLE FOR ANY ERROR OR OMISSION OR ANY LOSSES OR DAMAGES RESULTING FROM THE USE OF THIS INFORMATION.

5/8"SII

(O.I'BG)

NOTE: THIS DOCUMENT IS PRELIMINARY - NOT FOR CONSTRUCTION,

RECORDATION, SALES OR CONVEYANCES - THIS DOCUMENT IS FOR

DISCUSSION PURPOSES ONLY! EXISTING INFORMATION SHOWN ON THIS



Know what's below. Call before you diğ.

NOTE: THE DATA GIVEN ON THESE PLANS IS BELIEVED TO BE ACCURATE, BUT THE ACCURACY IS NOT GUARANTEED. THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL LEVELS, LOCATIONS, TYPES, AND DIMENSIONS OF THE EXISTING UTILITIES PRIOR TO CONSTRUCTION. IF A DISCREPANCY IS FOUND, WORK SHALL CEASE AND THE ENGINEER NOTIFIED. WORK MAY CONTINUE UPON ENGINEERS

NOTICE TO PROCEED.

PROPERTY LINE AS PER DB 102, PG 225 FIRM ZONE ´ AE (EL.4')

N/F

JERRY L. ANGE, JR. & JENNIE L. ANGE DB 1172, PG 569

PC J, SL 137 ZONING: GB



<u>NOTES</u> CURRENT OWNER:

ENGINEER:

RPP HOLDINGS GROUP, LLC 17 BURNSIDE RD

- MANTEO, NC 27954 QUIBLE & ASSOCIATES, P.C. P.O. DRAWER 870 KITTY HAWK, NC TEL: (252) 491-8147
- . PIN: 8996-40-4911
- 4. PID: 007000001110000
- PROPERTY ADDRESS: 4510 CARATOKE HWY PROPERTY ZONED: ZONE: 3.26 ACRES GENERAL BUSINESS
- (GB) AND REMAINING AGRICULTURAL (AG) MAXIMUM BUILDING HEIGHT = 35 FT
- 3. MAXIMUM ALLOWABLE LOT COVERAGE (WITHIN GB) = 65%
- LOT AREA = 12.02 ACRES TOTAL
- (AREAS BY COORDINATE METHOD.)

N.T.S.

- 0. SUBJECT REFERENCES: DB 86, PG 57; PC E.
- 1. ADDITIONAL REFERENCES: PC P, SL 98; PC L, SL 84; PC I, SL 198. 12. FIELD SURVEY DATES: 06/16/23-06/30/23.
- HORIZONTAL DATUM IS NAD83(2011), VERTICAL DATUM IS NAVD 1988, DERIVED FROM NCGS BOUNDARY MON NC VA RESET.
- 4. PROPERTY IS LOCATED IN NFIP FLOOD ZONES AS SHOWN AND SUBJECT TO CHANGES. BASED ON COMMUNITY CID NO. 370078; PANEL 8986; MAP NUMBER 3720898600K;
- EFFECTIVE DATE: 12/21/2018. 5. THIS PLAN SUBJECT TO ANY FACTS, INCLUDING BUILDING SETBACK RESTRICTIONS, EASEMENTS, COVENANTS, ETC., THAT MAY BE REVEALED BY A FULL AND ACCURATE TITLE

- SOIL EROSION & SEDIMENTATION CONTROL NOTES:
 - 1) OBTAIN PLAN APPROVAL AND OTHER APPLICABLE PERMITS. 2) FLAG AND/OR ROUGH STAKE WORK LIMITS.
 -) HOLD PRECONSTRUCTION CONFERENCE (OWNER, CONTRACTOR, ENGINEER, AND APPROPRIATE GOVERNMENT OFFICIALS) AT LEAST ONE WEEK PRIOR TO START OF CONSTRUCTION ACTIVITIES.
- CONSTRUCTION:
- 4) INSTALL CONSTRUCTION ENTRANCE & SILT FENCING AT LOCATIONS SHOWN ON
- CONSTRUCT TEMPORARY SEDIMENT BASIN. ALL EROSION AND SEDIMENT CONTROL MEASURES MUST BE IN PLACE PRIOR TO ANY DEMOLITION.
- 6) COMPLETE CLEARING AND GRUBBING PROCEDURES.

SILT FENCE SEE DETAIL

TOP VIEW

N.T.S.

- 7) GRADE SITE ACCORDING TO PLAN AND BEGIN CONSTRUCTION OF PROPOSED IMPROVEMENTS.
- 8) INSTALL CONTRIBUTING STORM CONVEYANCES INCLUDING RIP-RAP APRONS, MATING AND ASSOCIATED EROSION CONTROLS.
- 9) COMPLETE FINAL GRADING OF THE GROUNDS, TOPSOIL, PERMANENTLY SEED, LANDSCAPE, AND MULCH.
- 10) ALL EROSION & SEDIMENTATION CONTROLS SHALL BE INSPECTED WEEKLY AND AFTER HEAVY RAINFALL EVENT. NEEDED REPAIRS AND MAINTENANCE WILL BE MADE IMMEDIATELY. FURTHERMORE, IF ANY WIND OR STORMWATER RUNOFF EROSION DEVELOPS DURING THE CONSTRUCTION OF THE PROJECT, ADDITIONAL EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE INSTALLED TO ADDRESS THE PROBLEM AREA.
- 11) ONCE THE SITE CONSTRUCTION IS COMPLETE AND DENUDED SURFACES ARE FULLY STABILIZED; ALL STORMWATER CONVEYANCES, STRUCTURES, PIPING AND BASINS SHALL BE CLEANED OF ALL SILT/DEBRIS WHICH MAY HAVE ACCUMULATED DURING V CONSTRUCTION. CONTRACTOR SHALL VERIFY DESIGN GRADES OF ALL STORMWATER CONVEYANCES INCLUDING THE BASIN AND RESTORE TO DESIGN SPECIFICATIONS AS NECESSARY.
- 12) UPON THE REMOVAL OF ACCUMULATED SEDIMENTS AND SITE STABILIZATION, ALL REMAINING EROSION CONTROLS MAY BE REMOVED FROM THE DEVELOPMENT. ALL DOWNSTREAM EROSION CONTROLS SHALL REMAIN IN PLACE UNTIL THE COMPLETION OF ALL OTHER DEVELOPMENT CONSTRUCTION ACTIVITIES.

STOCKPILE CONTRACTOR MUST PROTECT TOPSOIL STOCKPILES BY TEMPÖRARILY SEEDING AS SOON AS POSSIBLE, NO MORE THAN 21 CALENDAR DAYSV AFTER THE FORMATION OF THE STOCKPILE 2. CONTRACTOR MUST STABILIZE STOCKPILES WITH PERMANENT VEGETATION TO CONTROL EROSION AND WEED GROWTH IF THE STOCKPILE WILL LAY DORMANT FOR MORE THAN 90 DAYS 7' MAX HEIGHT 3. TEMPORARY STOCKPILES ON THE INTERIOR PORTION OF THE CONSTRUCTION SITE MAY NOT REQUIRE STOCKPILE PERIMETER CONTROLS. OTHER DOWN GRADIENT CONTROLS (INCLUDING SITE PERIMETER CONTROL) MUST BE IN PLACE TO REMOVE STOCKPILE PERIMETER CONTROLS SECTION VIEW STOCKPILE

SILT FENCE (SEE DETAIL)





CULVERT INLET PROTECTION N.T.S.



APPROXIMATE LIMITS DISTURBANCE 3.0 ACR

PROPOSED SIL FENCE (

5/8"SIR

(0.1'BG)

DITCH

18" HDPE

YARD

INLE

N/F RICHARD A. SINEATH DB 1700, PG 794

PROPERTY LINE AS PER DB 102, PG 225

WETLANDS

SOIL EROSION & SEDIMENTATION CONTROL NOTES: AREA TO BE DISTURBED: \pm 127,661 SF (\pm 3.0 AC.)

- PROVIDE A GROUNDCOVER STABILIZATION (TEMPORARY OR PERMANENT) ON ALL DENUDED DOWNSTREAM SURFACES FOLLOWING THE COMPLETION OF LAND DISTURBING ACTIVITIES PER THE CRITERIA LISTED BELOW:
- PERIMETER DIKES, BERMS, SWALES, DITCHES AND SLOPES SHALL BE STABILIZED IN 7 DAYS.
- b. HIGH QUALITY WATER (HQW) ZONES SHALL BE STABILIZED IN 7 DAYS. c. DOWNSTREAM SLOPES STEEPER THAN 3:1 SHALL BE STABILIZED IN 7 DAYS. IF SLOPES ARE 10' OR LESS AND ARE NOT STEEPER THAN 2:1, 14 DAYS ARE ALLOWED
- d. DOWNSTREAM SLOPES 3:1 OR FLATTER AND LESS THAN 50' IN LENGTH SHALL 2.2% BE STABILIZED IN 14 DAYS. SLOPES 3:1 OR FLATTER EXCEEDING 50' IN LENGTH SHALL BE STABILIZED IN 7 DAYS.
- ALL OTHER DOWNSTREAM AREAS WITH SLOPES 4:1 OR FLATTER SHALL BE STABILIZED WITHIN 14 DAYS. e.

3. IF LAND DISTURBING ACTIVITIES OCCUR OUTSIDE THE PERMANENT VEGETATION SEEDING DATES (APR. 1– SEP.30) THEN TEMPORARY VEGETATION SEEDING SPECIFICATIONS SHALL BE FOLLOWED FOR PLANTING UNTIL THE NEXT APPROPRIATE PERMANENT SEEDING PERIOD, AT WHICH TIME PERMANENT VEGETATION SHALL BE ESTABLISHED ACCORDING TO PERMANENT VEGETATION SEEDING SPECIFICATIONS (SEE PERM. & TEMP. ORPORATION SEEDING SPECIFICATIONS).

IF EXCESSIVE WIND EROSION OR STORMWATER RUNOFF EROSION DEVELOPS DURING TIME 3: GB OF CONSTRUCTION ANY LOCATION ON THE PROJECT SITE, ADDITIONAL EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE INSTALLED IMMEDIATELY AS DIRECTED BY THE ENGINEER TO ADDRESS THE PROBLEM AREA AND PREVENT DAMAGE TO ADJACENT PROPERTIES.

SOIL EROSION AND SEDIMENTATION CONTROLS TO BE INSPECTED, MAINTAINED AND REPAIRED AS NECESSARY UNTIL PERMANENT CONTROLS ARE ESTABLISHED.

- a. A RAIN GAUGE MUST MUST BE KEPT ON SITE. DEDICATED DEMOLITION AND OTHER WASTE AREAS AND EARTHEN MATERIAL STOCKPILES MUST BE LOCATED AT LEAST 50 FEET FROM DRAINS OR STREAMS UNLESS NO ALTERNATIVE IS FEASIBLE.
- ALL EROSION AND SEDIMENT CONTROL MEASURES MUST BE INSPECTED AT LEAST ONCE A WEEK AND WITHIN 24 HOURS AFTER ANY STORM EVENT GREATER THAN A HALF INCH (DURING A 24 HOUR PERIOD). IMMEDIATE CORRECTIVE ACTION MUST BE TAKEN FOR ANY DEVICE FAILURE.
- d. INSPECT ALL OUTLETS WHERE RUNOFF LEAVES SITE AND EVALUATE EFFECT ON NEARBY STREAMS. TAKE CORRECTIVE ACTION IF NECESSARY.
- e. MAINTAIN RECORDS OF INSPECTIONS AND CORRECTIVE ACTIONS.
- f. EARTHWORK NOTE: OFFSITE BORROW MATERIAL SHALL COME FROM AN NCDEQ LAND QUALITY SECTION APPROVED SITE. OFFSITE DISPOSAL OF EXCESS MATERIAL SHALL BE TO AN NCDEQ LAND QUALITY SECTION APPROVED SITE.





N. T. S.







VEHICLE MAINTENANCE
icles and equipment to pre
pans under any stored equ
ent fluids, store in separate aste (recycle when possible
ing vehicles and construction
iels, lubricants, coolants, h
g or disposal center that ha
IATERIAL AND LAND CLEA
burn waste. Place litter ar
icient number and size of with a site to contain construction
containers at least 50 feet no other alternatives are r
containers on areas that do areas and does not drain di
ontainers at the end of eac dary containment. Repair
ntweight items in waste cor
containers as needed to pre
off-site at an approved di-
ays, clean up and dispose (
LIQUID WASTE
paint and other liquid was
washouts at least 50 feet a
d wastes in a controlled are
must be labeled, sized and
lischarge of soaps, solvents
sites.
e toilets on level ground, a
etlands unless there is no a
ad and surround with sand
ig or anchoring of portable
eas.
able toilets for leaking and
operating unit.
E MANAGEMENT
from storm drain inlets se
vaters unless it can be show
pile with silt fence installed
e stone access noint when
kpile within the timeframe
oved plan and any addition
, physical or chemical cove
starbed solis for temporary

SECTION B: RECORDKEEPING

1. E&SC Plan Documentation

PART III SELF-INSPECTION, RECORDKEEPING AND REPORTING

SECTION A: SELF-INSPECTION

Self-inspections are required during normal business hours in accordance with the table below. When adverse weather or site conditions would cause the safety of the inspection personnel to be in jeopardy, the inspection may be delayed until the next business day on which it is safe to perform the inspection. In addition, when a storm event of equal to or greater than 1.0 inch occurs outside of normal business hours, the self-inspection shall be performed upon the commencement of the next business day. Any time when inspections were delayed shall be noted in the Inspection Record.

inspect	Frequency (during normal business hours)	Inspection records must include:	(a) Each E&SC Measure has been installed Init and does not significantly deviate from the of t
 Rain gauge maintained in good working order 	Daily	Daily rainfall amounts. If no daily rain gauge observations are made during weekend or holiday periods, and no individual-day rainfall information is available, record the cumulative rain measurement for those un- attended days (and this will determine if a site inspection is needed). Days on which no rainfall occurred shall be recorded as "zero." The permittee may use another rain-monitoring device	shown on the approved E&SC Plan. Plainit the inst
(2) E&SC Measures	At least once per 7 calendar days and within 24 hours of a rain	 approved by the Division. 1. Identification of the measures inspected, 2. Date and time of the inspection, 3. Name of the person performing the inspection, 4. Indication of whether the measures were operating 	(b) A phase of grading has been completed. Init Play rep com
(3) Stormwater	event \geq 1.0 inch in 24 hours At least once per	properly, 5. Description of maintenance needs for the measure, 6. Description, evidence, and date of corrective actions taken. 1. Identification of the discharge outfalls inspected, 2. Date and time of the inspection	(c) Ground cover is located and installed Init In accordance with the approved E&SC Plan Plan. rep gro gro
outfalls (SDOs)	and within 24 hours of a rain event ≥ 1.0 inch in 24 hours	 Name of the person performing the inspection, Evidence of indicators of stormwater pollution such as oll sheen, floating or suspended solids or discoloration, Indication of visible sediment leaving the site, 	(d) The maintenance and repairCorrequirements for all E&SC Measureshave been performed.
(4) Perimeter of site	At least once per 7 calendar days and within 24 hours of a rain event > 1.0 inch in	 Description, evidence, and date of corrective actions taken. If visible sedimentation is found outside site limits, then a record of the following shall be made: Actions taken to clean up or stabilize the sediment that has left the site limits, Description, evidence, and date of corrective actions taken, and 	(e) Corrective actions have been taken Init to E&SC Measures. Play rep cor
(S) Streams or wetlands onsite or offsite (where accessible)	24 hours At least once per 7 calendar days and within 24 hours of a rain event ≥ 1.0 inch in 24 hours	 An explanation as to the actions taken to control future releases. If the stream or wetland has increased visible sedimentation or a stream has visible increased turbidity from the construction activity, then a record of the following shall be made: Description, evidence and date of corrective actions taken, and Records of the required reports to the appropriate Division Regional Office per Part III, Section C, Item (2)(a) of this permit of this permit. 	2. Additional Documentation In addition to the E&SC Plan documents above site and available for agency inspectors at all times Division provides a site-specific exemption bas requirement not practical:
(6) Ground stabilization measures	After each phase of grading	 The phase of grading (installation of perimeter E&SC measures, clearing and grubbing, installation of storm drainage facilities, completion of all land-disturbing activity, construction or redevelopment, permanent ground cover). Documentation that the required ground stabilization measures have been provided within the required timeframe or an assurance that they will be provided as soon as possible. 	 (a) This general permit as well as the certification (b) Records of inspections made during the p the required observations on the Inspect a similar inspection form that includes all electronically-available records in lieu of t shown to provide equal access and utility
NOTE: The rai	n inspection reset	s the required 7 calendar day inspection requirement.	(c) All data used to complete the Notice of In

NOTE: THIS DOCUMENT IS PRELIMINARY - NOT FOR CONSTRUCTION, RECORDATION, SALES OR CONVEYANCES - THIS DOCUMENT IS FOR DISCUSSION PURPOSES ONLY! EXISTING INFORMATION SHOWN ON THIS DOCUMENT IS BASED ON BEST AVAILABLE DATA AND IS NOT A CERTIFIED SURVEY. ALL INFORMATION SHOWN ON THIS DOCUMENT IS SUBJECT TO ANY REQUIREMENTS BY ANY REGULATORY AGENCY, ENTITY OR AUTHORITY.

QUIBLE & ASSOCIATES, P.C. DOES NOT GUARANTEE THE ACCURACY OR THE COMPLETENESS OF ANY INFORMATION IN THIS DOCUMENT AND IS NOT RESPONSIBLE FOR ANY ERROR OR OMISSION OR ANY LOSSES OR DAMAGES RESULTING FROM THE USE OF THIS INFORMATION.

						m		
 EQUIPMENT AND VEHICLE MAINTENAN Maintain vehicles and equipment Provide drip pans under any store Identify leaks and repair as soon a project. Collect all spent fluids, store in sep hazardous waste (recycle when point the store of the store) store of the store). Remove leaking vehicles and consideration of the store of	ICE to prevent discharge of fluids. d equipment. s feasible, or remove leaking equipment from the parate containers and properly dispose as ossible). truction equipment from service until the problem hts, hydraulic fluids and other petroleum products hat handles these materials.	SANDBAGS (OR STAPLES SILT FENCE - SILT FENCE - CONCRETE WASHOUT NOTING DEVICE (187X24 N BELOW GRA	ACCORPTE WASHOUT STRUCTURE WITH TYP.)	WASHOUT LINER HEVE NOT BENN I BENN I BENN	SANDBARS (17P.) of states HOL HOL HOL HOL HOL HOL HOL HOL	NC License#: C-0208 uible SINCE 1959	Associates, P.C. EERING** * CONSULTING * PLANNING DNMENTAL SCIENCES * SURVEYING** VEYING NOT OFFERED AT BLACK MTN. OFFICE** ATOKE HWY 90 CHURCH STREET	POINT, NC 27966 BLACK MOUNTAIN, NC 28711 BLACK MOUNTAIN, NC 28711 522) 491—8147 Phone: (828) 357—5149 ator@quible.com administrator@quible.com
 Never bury or burn worst. Fract. In the composite of the provide a sufficient number and siz receptacle) on site to contain const. Locate waste containers at least 50 waters unless no other alternatives. Locate waste containers on areast from upland areas and does not dr Cover waste containers at the end provide secondary containment. R Anchor all lightweight items in wast. Empty waste containers as needed containers overflow. Dispose waste off-site at an approv. On business days, clean up and disp. PAINT AND OTHER LIQUID WASTE Do not dump paint and other liqui. Locate paint washouts at least 50 waters unless no other alternative. Contain liquid wastes in a controller. Contain liquid wastes in a controller. Contain liquid wastes of soaps, so construction sites. PORTABLE TOILETS Install portable toilets on level grouts streams or wetlands unless there is offset is not attainable, provide relian offset is not attainable, provide relian offset is not attainable, provide relian a gravel pad and surround with Provide staking or anchoring of porfoot traffic areas. Monitor portable toilets for leaking Utilize a licensed sanitary waste hawith properly operating unit. EARTHEN STOCKPILE MANAGEMENT Show stockpile locations on plans. 50 feet away from storm drain inleand surface waters unless it can be available. Provide stable stone access point values are supported plan and any access as vegetative, physical or chemical access point values and surface waters unless it can be available. 	ter alla debris in approved waste containers. e of waste containers (e.g dumpster, trash rruction and domestic wastes. l feet away from storm drain inlets and surface s are reasonably available. hat do not receive substantial amounts of runoff ain directly to a storm drain, stream or wetland. of each workday and before storm events or epair or replace damaged waste containers. te containers during times of high winds. to prevent overflow. Clean up immediately if red disposal facility. bose of waste in designated waste containers. d waste into storm drains, streams or wetlands. feet away from storm drain inlets and surface s are reasonably available. ed area. d and placed appropriately for the needs of site. Ivents, detergents and other liquid wastes from und, at least 50 feet away from storm drains, s no alternative reasonably available. If 50 foot ocation of portable toilet behind silt fence or place sand bags. rtable toilets during periods of high winds or in high g and properly dispose of any leaked material. uler to remove leaking portable toilets and replace Locate earthen-material stockpile areas at least tes, sediment basins, perimeter sediment controls e shown no other alternatives are reasonably stalled along toe of slope with a minimum offset of when feasible. rames provided on this sheet and in accordance iditional requirements. Soil stabilization is defined coverage techniques that will restrain accelerated	 CONCRETE WASH4 Do not disch Dispose of, c and state so Manage was addition plat lot perimete Install tempo alternate me review and a types of tem Do not use of sections. Sta discharged t be pumped Locate wash can be show install prote spills or over Locate wash entrance par approving at Install at leas limits. Post Remove leav overflow eve components products, foi At the comp in an approv caused by re HERBICIDES, PESTI Store and ap restrictions. Store herbici label, which accidental po Do not store possible or w or surface wash Do not store 	OUTS arge concrete or cement s or recycle settled, hardened lid waste regulations and a shout from mortar mixers in ce the mixer and associated er silt fence. orary concrete washouts pre- ethod or product is to be us approval. If local standard nporary concrete washouts concrete washouts for deway ormwater accumulated with to the storm drain system of outs at least 50 feet from so out and removed from pro- nouts at least 50 feet from so on that no other alternative ction of storm drain inlet(s) rflow. nouts in an easily accessible d in front of the washout. uthority. st one sign directing concrect signage on the washout its vings from the washout wh ents. Replace the tarp, sand s when no longer functiona llow manufacturer's instrue oletion of the concrete worl ved disposal facility. Fill pit, emoval of washout. ICIDES AND RODENTICIDES oply herbicides, pesticides and vhere they may spill or leak ater. If a spill occurs, clean cpile these materials onsite	lurry from the site. d concrete residue in accordance we t an approved facility. n accordance with the above item d materials on impervious barrier is er local requirements, where appli- sed, contact your approval author details are not available, use one of provided on this detail. atering or storing defective curb o thin the washout may not be pump or receiving surface waters. Liquid ject. storm drain inlets and surface water is are reasonably available. At a m closest to the washout which cou area, on level ground and install a Additional controls may be required ete trucks to the washout within the elf to identify this location. en at approximately 75% capacity d bags or other temporary structure. I. When utilizing alternative or pro- ctions. k, remove remaining leavings and , if applicable, and stabilize any dis ind rodenticides in accordance wit icides in their original containers we redients and first aid steps in case rodenticides in areas where flood is into wells, stormwater drains, group area immediately.	with local and in and within icable. If an ity for of the two r sidewalk ped into or waste must ers unless it ninimum, uld receive a stone ed by the he project to limit ural oprietary dispose of sturbance	REVISIONS COPYRIGHT © 2024 QUIBLE & ASSOCIATES, P.C. THIS DOCUMENT IS THE PROPERTY OF QUIBLE & ASSOCIATES, P.C. ANY ATTENTION OF TAUS ADDIMENT IS	FOURTED DOUMENT IS NOT SIGNED FROHIBITED. IF THIS DOCUMENT IS NOT SIGNED AND SEALED BY A LICENSED PROFESSIONAL THEN THIS DOCUMENT SHALL BE CONSIDERED PRELIMINARY. NOT A CERTIFIED DOCUMENT AND SHALL NOT BE USED FOR SHALL NOT BE USED FOR CONSTRUCTION BEFORD AND SHALL NOT BE USED FOR CONSTRUCTION BEFORD	OR LAND CONVEYANCES, UNLESS OR LAND CONVEYANCES, UNLESS OTHERWISE NOTED. CERTIFICATION administr
ABILIZATION A	AND MATERIALS H	 Create design Place hazardo Do not store 	nated hazardous waste coll ous waste containers unde hazardous chemicals, drun	ection areas on-site. r cover or in secondary containme ns or bagged materials directly on EFFECTIVE: 0	ent. the ground. 04/01/19	O. DATE		
SELF-INSPECTION, REC CTION B: RECORDKEEPING E&SC Plan Documentation The approved E&SC plan as well as any ap approved E&SC plan must be kept up-to-oc The following items pertaining to the E&S described: <u>item to Document</u> (a) Each E&SC Measure has been installed and does not significantly deviate from the ocations, dimensions and relative elevations shown on the approved E&SC Plan. (b) A phase of grading has been completed. (c) Ground cover is located and installed n accordance with the approved E&SC Plan. (d) The maintenance and repair requirements for all E&SC Measures have been performed. (e) Corrective actions have been taken to E&SC Measures. Additional Documentation In addition to the E&SC Plan documents at and available for agency inspectors at all for Division provides a site-specific exemption requirement not practical: (a) This general permit as well as the cer	PART III CORDKEEPING AND REPORTING proved deviation shall be kept on the site. The late throughout the coverage under this permit. C plan shall be documented in the manner Documentation Requirements Initial and date each E&SC Measure on a copy of the approved E&SC Plan or complete, date and sign an inspection report that lists each E&SC Measure shown on the approved E&SC Plan. This documentation is required upon the initial installation of the E&SC Measures or if the E&SC Measures are modified after initial installation. Initial and date a copy of the approved E&SC Plan or complete, date and sign an inspection report to indicate completion of the construction phase. Initial and date a copy of the approved E&SC Plan or complete, date and sign an inspection report to indicate compliance with approved ground cover specifications. Complete, date and sign an inspection report. Initial and date a copy of the approved E&SC Plan or complete, date and sign an inspection report to indicate the completion of the corrective action.	S SECTION C: REPORTIN 1. Occurrences that in Permittees shall rep (a) Visible sediment (b) Oil spills if: They are 25 g They are less They are less They cause s They cause s They are with (a) Releases of haz of the Clean W (Ref: 40 CFR 30 (b) Anticipated by (c) Noncompliance environment. 2. Reporting Timefran After a permittee b the appropriate Div other requirements reported to the Div 858-0368 or (919) T Occurrence (a) Visible sediment deposition in a stream or wetland (b) Oil spills and	PAR SELF-INSPECTION, RECORD NG must be reported port the following occurrer int deposition in a stream of gallons or more, is than 25 gallons but cannon sheen on surface waters (rec hin 100 feet of surface water zardous substances in excer vater Act (Ref: 40 CFR 110.3 02.4) or G.S. 143-215.85. passes and unanticipated b is with the conditions of thi mes and Other Requireme becomes aware of an occur vision regional office within s listed below. Occurrence vision's Emergency Response 733-3300. Reporting Timeframes (After Within 24 hours, an oral Within 7 calendar days, is sediment and actions tak Division staff may waive case-by-case basis. If the stream is named or related causes, the perm monitoring, inspections of determine that additional with the federal or state • Within 24 hours, an oral	T III KEEPING AND REPORTING Acces: r wetland. t be cleaned up within 24 hours, regardless of volume), or ers (regardless of volume), or ers (regardless of volume). ss of reportable quantities under S and 40 CFR 117.3) or Section 102 pypasses. s permit that may endanger health nts rence that must be reported, he s the timeframes and in accordance s outside normal business hours n se personnel at (800) 662-7956, (8 ar Discovery) and Other Requirement or electronic notification. a report that contains a description of en to address the cause of the deposi the requirement for a written report of the NC 303(d) list as impaired for sec ittee may be required to perform addi or apply more stringent practices if sta i requirements are needed to assure of impaired-waters conditions. The notification. The notificat	Section 311 of CERCLA h or the hall contact re with the nay also be 00) s the tion. a diment- itional iff compliance	SESC DETAILS	RPP HOLDINGS GROUP, LLC FORMERLY JJ HAYMAN AND SON	CRAWFORD TOWNSHIP CURRITUCK COUNTY NORTH CAROLINA
 (b) Records of inspections made during t the required observations on the Ins a similar inspection form that include electronically-available records in lieu shown to provide equal access and u (c) All data used to complete the Notice maintained for a period of three year upon request. [40 CFR 122.41] 	he previous 30 days. The permittee shall record pection Record Form provided by the Division or es all the required elements. Use of a of the required paper copies will be allowed if tility as the hard-copy records. of Intent and older inspection records shall be s after project completion and made available	release of hazardous substances per Item 1(b)-(c) above (c) Anticipated bypasses [40 CFR 122.41(m)(3)] (d) Unanticipated bypasses [40 CFR 122.41(m)(3)] (e) Noncompliance with the conditions of this permit that may endanger health or the environment[40 CFR 122.41(l)[7)]	 shall include information location of the spill or relined in the spill or relined include a spill or relined include a seffect of the bypass. Within 2 changes and a spill of the bypass. Within 7 calendar days, a quality and effect of the bypass. Within 7 calendar days, a noral Within 7 calendar days, a noncompliance, and its c including exact dates and been corrected, the antitic continue; and steps takes prevent reoccurrence of Division staff may waive to case-by-case basis. 	about the date, time, nature, volume ease. s before the date of the bypass, if pos an evaluation of the anticipated quality or electronic notification. a report that includes an evaluation of bypass. or electronic notification. a report that contains a description of auses; the period of noncompliance, and it imes, and if the noncompliance has cipated time noncompliance is expected n or planned to reduce, eliminate, and the noncompliance. [40 CFR 122.41(l)] the requirement for a written report of	and ssible. y and f the the not ed to j (6). on a	PROJECT N DESIGNED DRAWN BY CHECKED E ISSUE DATE	^{0.} P23058 ^{BY} CMS BPJ/CMS ^{BY} MWS ^E 04/25/2 EET NO	
CTION RECOR	DKEEPING AND RF		T	EFFECTIVE: 0	4/01/19	OF	8 SHEE	TS

April 24, 2024

Caitlin Spear **NCDOT** 1929 North Road St. Elizabeth City, NC 27909

Re:

Right of Way Encroachment **RPP Holdings Group, LLC** Barco, Currituck County, NC

Ms. Spear,

On behalf of RPP Holdings Group, LLC, Quible & Associates, P.C. hereby submits for your review and approval a Two-Party Right of Way Encroachment for a development located at 4510 Caratoke Hwy in Barco, Currituck County, NC. The following is attached and shall be considered part of this package:

- A digital copy of the executed Two Party Right-of-Way Encroachment Agreement for sidewalk installation, curb and gutter, and concrete driveway widening/replacement;
- A digital copy of the sealed plan sheet.

Please review and do not hesitate to contact me by email at ndashti@quible.com or by phone at (252) 491-8147 should you have any questions or require any additional information.

Thank you for your time and attention to this project.

Sincerely, Quible & Associates, P.C.

Nadeen Dashti, E.I. Encl.: as stated Cc: RPP Holdings Group, LLC

ROUTE 4510 C	aratoke Hwy

PROJECT RPP Holdings Group, LLC

DEPARTMENT OF TRANSPORTATION

-AND-

RPP Holdings Group, LLC

RIGHT OF WAY ENCROACHMENT AGREEMENT FOR NON-UTILITY ENCROACHMENTS ON PRIMARY AND SECONDARY HIGHWAYS

COUNTY OF

THIS AGREEMENT, made and entered into this the _____ day of _____, 20 _____, by and between the Department of Transportation, party of the first part; and RPP Holdings Group, LLC

party of the second part,

WITNESSETH

THAT WHEREAS, the party of the second part desires to encroach on the right of way of the public road designated as

 Route(s)
 4510 Caratoke Hwy
 , located
 to the west of caratoke highway appriximately 0.338 miles south of the intersection of

 Coinjock Village Drive (SR 1416) in Barco
 Coinjock Village Drive (SR 1416) in Barco
 to the west of caratoke highway appriximately 0.338 miles south of the intersection of

WHEREAS, it is to the material advantage of the party of the second part to effect this encroachment, and the party of the first part in the exercise of authority conferred upon it by statute, is willing to permit the encroachment within the limits of the right of way as indicated, subject to the conditions of this agreement;

NOW, THEREFORE, IT IS AGREED that the party of the first part hereby grants to the party of the second part the right and privilege to make this encroachment as shown on attached plan sheet(s), specifications and special provisions which are made a part hereof upon the following conditions, to wit:

That the said party of the second part binds and obligates himself to install and maintain the encroaching facility in such safe and proper condition that it will not interfere with or endanger travel upon said highway, nor obstruct nor interfere with the proper maintenance thereof, to reimburse the party of the first part for the cost incurred for any repairs or maintenance to its roadways and structures necessary due to the installation and existence of the facilities of the party of the second part, and if at any time the party of the first part shall require the removal of or changes in the location of the said facilities, that the said party of the second part binds himself, his successors and assigns, to promptly remove or alter the said facilities, in order to conform to the said requirement, without any cost to the party of the first part.

That the party of the second part agrees to provide during construction and any subsequent maintenance proper signs, signal lights, flagmen and other warning devices for the protection of traffic in conformance with the <u>latest Manual on Uniform Traffic</u> <u>Control Devices for Streets and Highways</u> and Amendments or Supplements thereto. Information as to the above rules and regulations may be obtained from the Division Engineer of the party of the first part.

That the party of the second part hereby agrees to indemnify and save harmless the party of the first part from all damages and claims for damage that may arise by reason of the installation and maintenance of this encroachment.

It is clearly understood by the party of the second part that the party of the first part will assume no responsibility for any damage that may be caused to such facilities, within the highway rights of way limits, in carrying out its construction and maintenance operations.

That the party of the second part agrees to restore all areas disturbed during installation and maintenance to the satisfaction of the Division Engineer of the party of the first part. The party of the second part agrees to exercise every reasonable precaution during construction and maintenance to prevent eroding of soil; silting or pollution of rivers, streams, lakes, reservoirs, other water impoundments, ground surfaces or other property; or pollution of the air. There shall be compliance with applicable rules and regulations of the North Carolina Division of Environmental Management, North Carolina Sedimentation Control Commission, and with ordinances and regulations of various counties, municipalities and other official agencies relating to pollution prevention and control. When any installation or maintenance operation disturbs the ground surface and existing ground cover, the party of the second part agrees to remove and replace the sod or otherwise reestablish the grass cover to meet the satisfaction of the Division Engineer of the party of the first part.

That the party of the second part agrees to assume the actual cost of any inspection of the work considered to be necessary by the Division Engineer of the party of the first part.

That the party of the second part agrees to have available at the encroaching site, at all times during construction, a copy of this agreement showing evidence of approval by the party of the first part. The party of the first part reserves the right to stop all work unless evidence of approval can be shown.

Provided the work contained in this agreement is being performed on a completed highway open to traffic; the party of the second part agrees to give written notice to the Division Engineer of the party of the first part when all work contained herein has been completed. Unless specifically requested by the party of the first part, written notice of completion of work on highway projects under construction will not be required.

That in the case of noncompliance with the terms of this agreement by the party of the second part, the party of the first part reserves the right to stop all work until the facility has been brought into compliance or removed from the right of way at no cost to the party of the first part.

That it is agreed by both parties that this agreement shall become void if actual construction of the work contemplated herein is not begun within one (1) year from the date of authorization by the party of the first part unless written waiver is secured by the party of the second part from the party of the first part.

R/W (161A) : Party of the Second Part certifies that this agreement is true and accurate copy of the form R/W (161A) incorporating all revisions to date.

IN WITNESS WHEREOF, each of the parties to this agreement has caused the same to be executed the day and year first above written.

DEPARTMENT OF TRANSPORTATION

BY:

DIVISION ENGINEER

ATTEST OR WITNESS:

RPP Holdings Group, LLC

Second Party

INSTRUCTIONS

When the applicant is a corporation or a municipality, this agreement must have the corporate seal and be attested by the corporation secretary or by the empowered city official, unless a waiver of corporate seal and attestation by the secretary or by the empowered City official is on file in the Raleigh office of the State Utilities Manager. In the space provided in this agreement for execution, the name of the corporation or municipality shall be typed above the name, and title of all persons signing the agreement should be typed directly below their signature.

When the applicant is not a corporation, then his signature must be witnessed by one person. The address should be included in this agreement and the names of all persons signing the agreement should be typed directly below their signature.

This agreement must be accompanied, in the form of an attachment, by plans or drawings showing the following applicable information:

- 1. All roadways and ramps.
- 2. Right of way lines and where applicable, the control of access lines.
- 3. Location of the proposed encroachment.
- 4. Length and type of encroachment.
- 5. Location by highway survey station number. If station number cannot be obtained, location should be shown by distance from some identifiable point, such as a bridge, road, intersection, etc. (To assist in preparation of the encroachment plan, the Department's roadway plans may be seen at the various Highway Division Offices, or at the Raleigh office.)
- 6. Drainage structures or bridges if affected by encroachment.
- 7. Typical section indicating the pavement design and width, and the slopes, widths and details for either a curb and gutter or a shoulder and ditch section, whichever is applicable.
- 8. Horizontal alignment indicating general curve data, where applicable.
- 9. Vertical alignment indicated by percent grade, P.I. station and vertical curve length, where applicable.
- 10. Amount of material to be removed and/or placed on NCDOT right of way, if applicable.
- 11. Cross-sections of all grading operations, indicating slope ratio and reference by station where applicable.
- 12. All pertinent drainage structures proposed. Include all hydraulic data, pipe sizes, structure details and other related information.
- 13. Erosion and sediment control.
- 14. Any special provisions or specifications as to the performance of the work or the method of construction that may be required by the Department must be shown on a separate sheet attached to encroachment agreement provided that such information cannot be shown on plans or drawings.
- 15. The Department's Division Engineer should be given notice by the applicant prior to actual starting of installation included in this agreement.
- 16. Method of handling traffic during construction where applicable.
- 17. Scale of plans, north arrow, etc.



NOTES	LEGEND	
917 BURNSIDE RD. MANTEO, NC 27954	EXISTING ASPHALT PAVEMENT CRAVEL SECTION	
2. ENGINEER: QUIBLE & ASSOCIATES, P.C. P.O DRAWER 870	EXISTING CONCRETE PAVEMENT	Ĭ
KITTY HAWK, NC TEL: (252) 491–8147		
3. PIN: 8996-40-4911		
4. PID: 007000001110000 5. PROPERTY ADDRESS: 4510 CARATOKE HWY	EX. TELEPHONE PEDESTAL PROPOSED FIRE HYDRANT	5/8"SIR (0.1'BG)
6. PROPERTY ZONED: ZONE: 3.26 ACRES GENERAL BUSINESS (GB) AND	C EX. CABLE TV BOX	DITCH-F
7. MAXIMUM BUILDING HEIGHT = 35 FT	C→ EX. UTILITY POLE PROPOSED GATE VALVE	
8. MAXIMUM ALLOWABLE LOT COVERAGE (WITHIN GB) = 65% MAX	EX. UC CAS LINE	
9. LOT AREA = 12.02 ACES TOTAL (AREAS BY COORDINATE METHOD.) 10. SUBJECT REFERENCES: DB 86, PG 57; PC F.		
11. ADDITIONAL REFERENCES: PC P, SL 98; PC L, SL 84; PC I, SL 198.		
12. FIELD SURVEY DATES: 06/16/23-06/30/23.	S PROPUSED SEWER MANHOLE V 	
13. HORIZONTAL DATUM IS NAD83(2011), VERTICAL DATUM IS NAVD 1988, DERIVED FROM NCGS BOUNDARY MON NC VA RESET.	· V	
14. PROPERTY IS LOCATED IN NFIP FLOOD ZONES AS SHOWN AND SUBJECT TO CHA BASED ON COMMUNITY CID NO. 370078; PANEL 8986; MAP NUMBER 372089860 FFFECTIVE DATE: 12/21/2018	ANGES. DOK;	× × ×
15. THIS PLAN SUBJECT TO ANY FACTS, INCLUDING BUILDING SETBACK RESTRICTION	IS, EASEMENTS,	V Y
16. PROJECT SCOPE: PERMITTING AND CONSTRUCTION OF A \pm 7,500 SQ.FT. STORAG		
17. LOT COVERAGE: <u>PROPOSED</u>		
ROADWAY/PARKING= 44,311.90SQ.FT.BUILDINGS W/ OVERHANG= 18,143.35SQ.FT.CONCRETE AREAS= 13.491.04SO.F.T.	Know what's below .	V V V
TOTAL PROPOSED = $23,566.1$ SQ.FT	Call before you dig.	X X X I
PERCENT COVERAGE 53.4% OVER 3.27 ACRES OF GB ZONING		ACTIVE SYSTEM:
18. MAXIMUM BUILDING HEIGHT = 35' 19. SETBACKS: <u>REQUIRED</u>		0.25 GPD/SF LTAR (12) 60' LINES AT 5' 0.C. (900
FRONT: 20' (MAJOR ARTERIAL FULL SERVICE = 30 SIDE: 15'	THE DATA GIVEN ON THESE PLANS IS BELIEVED	GPD CAPACITY)
WETLAND/RIPARIAN BUFFER: 20'	GUARANTEED. THE CONTRACTOR IS RESPONSIBLE	21,5 × ×
ACCESSORY USE/PARKING = $10'$ MINIMUM FILL SETBACK = $10'$ (COUNTY ENGINEER EXCEPTION REQUIRED)	AND DIMENSIONS OF THE EXISTING UTILITIES PRIOR TO CONSTRUCTION. IF A DISCREPANCY IS FOUND WORK SHALL CEASE AND THE ENCINEER	R SHALL INSTALL SYSTEM IN SUCH A
20. PARKING REQUIREMENTS: RETAIL: 1 SPACE PER EVERY 300 SQ.FT.	NOTIFIED. WORK MAY CONTINUE UPON ENGINEERS	TO GUARANTEE
7,133 SQ. FT. INTERIOR RETAIL FLOOR X 1 SPACE/300 SQ. FT. = 23.8 OR 23 SPACES REQUIRED.		V V V V
STORAGE AREA: 1 SPACE PER EVERY 2,000 SQ. FT. 7,500 SQ. FT. ENCLOSED STORAGE X 1 SPACE/2,000 SQ. FT. = 3.8 SPACES OR 3 SPACES REQUIRED.		V NF V V RICHARD A. SINEATH
TOTAL SPACES REQUIRED: RETAIL + STORAGE =26 SPACES		v v v
BIKE RACK REQUIRED; 1-BIKE RACK PROVIDED: 1	V V V	Y Y Y
21. ALL DIMENSIONS ARE TO FACE OF CURB UNLESS OTHERWISE NOTED.		V V V
23. BUILDING CONSTRUCTION SHALL COMPLY WITH ALL ASPECTS OF THE NORTH CA CODE.	ROLINA BUILDING AND FIRE	v v v
24. EXISTING VEGETATION TO BE PRESERVED WHERE POSSIBLE.	X X X X	X X X Y
25. THE LOCATION, DIMENSIONS, AND ELEVATION OF EXISTING UTILITIES SHOWN ARE AVAILABLE DATA AND ARE APPROXIMATE. THE CONTRACTOR SHALL VERIFY AL PRIOR TO CONSTRUCTION TO HIS/HER OWN SATISFACTION. THE CONTRACTOR S	BASED ON THE BEST L DATA IN THE FIELD SHALL PERFORM ANY TEST	
PIT WORK OR PROVIDE LOCATION SERVICES AS REQUIRED TO AVOID CONFLICTS CONTACT NORTH CAROLINA ONE-CALL AT TELEPHONE NO. 1-800-632-4949, REPEOPLANC ANX EXCAVATION TO HAVE UTUITIES MARKED	S WITH EXISTING UTILITES. 48 HOURS PRIOR TO	V V V V
26. THE CONTRACTOR SHALL PROVIDE SMOOTH TRANSITIONS FROM PROPOSED FEAT	URES TO EXISTING	x x x x
27. THE CONTRACTOR SHALL SEAL THE EDGE OF EXISTING ASPHALT PAVEMENT WIT	H TACK COAT IN	X X X X
ACCORDANCE WITH THE NORTH CAROLINA DEPARTMENT OF TRANSPORTATION S WHERE NEW PAVEMENT JOINS EXISTING PAVEMENT.	STANDARD SPECIFICATIONS	× × × ×
28. ALL PAVEMENT JOINTS SHALL BE SAW-CUT PRIOR TO PAVING TO PROVIDE A D JOINT.	URABLE AND UNIFORM	ERTY LINE AS V PB 102, PG 225 V
29. PROOF ROLL ALL NEW PAVED AREAS. NOTIFY OWNER AND ENGINEER OF ANY U 30. THIS PLAN SET TO BE UTILIZED FOR THE INSTALLATION OF SITE LAYOUT IMPRO	NACCEPTABLE AREAS.	¥ ¥ ¥ ¥
NOT LIMITED TO, GRADING & DRAINAGE, INSTALLATION OF SEDIMENT CONTROL AND WATER SYSTEM. FOR BUILDING DESIGN AND ASSOCIATED PLUMBING, SEE PLANS.	MEASURES, WASTEWATER, APPROPRIATE SEPARATE	V V V V
31. ALL EXTERIOR LIGHTING SHALL BE IN ACCORDANCE WITH CHAPTER 5.4 OF THE UNIFORM DEVELOPMENT ORDINANCE. LIGHTING PLAN TO BE PROVIDED UNDER S	CURRITUCK COUNTY	
32. REMOVE TREES, GRASSES, SHRUBS, AND OTHER VEGETATION IMPROVEMENTS OR	OBSTRUCTIONS	V V V V
33. STORMWATER MANAGEMENT:		V V V
CONTROL MEASURE LOCATED AT THE REAR OF THE PROPERTY. A STATE HIGH I PERMIT MUST BE OBTAINED.	DENSITY STORMWATER	
34. PRIOR TO LAND DISTURBANCE, A STATE APPROVED SOIL EROSION AND SEDIMEN REQUIRED.	IT CONTROL PLAN IS	V V V V V V
35. PRIOR TO ANY WORK WITHIN THE NCDOT RIGHT-OF-WAY, AN NCDOT ENCROACH DRIVEWAY ACCESS AGREEMENT SHALL BE OBTAINED.	IMENT AGREEMENT AND	V V V
36. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO PROTECT ALL DURING CONSTRUCTION. DISTURBED OR REMOVED PROPERTY MONUMENTS SHAL	PROPERTY MONUMENTS	x x x x
NORTH CAROLINA LICENSED PROFESSIONAL LAND SURVEYOR. 37. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THESE DRAWINGS, APPI		+ FIRM ZONE V.
COUNTY CODES AND ORDINANCES, AND NCDEQ DIVISION OF ENERGY, MINERAL, REGULATIONS.	AND LAND RESOURCES	✓ AE (EL.4') ✓ ✓ ✓ ✓ ✓
38. WATER IS PROVIDED VIA CURRITUCK COUNTY WATER SYSTEM. ALL WATER IMPRO ACCORDANCE WITH CURRITUCK COUNTY STANDARD WATER SPECIFICATIONS AND	DVEMENTS SHALL BE IN D DETAILS.	Y Y Y Y
WASTEWATER NOTES 1. CONTRACTOR IS RESPONSIBLE FOR LOCATING EXISTING UNDERGROUND LITER	TIES IN AREAS OF WORK PRIOR	× × × ×
TO ANY WORK. PROVIDE ADEQUATE MEANS OF SUPPORT AND PROTECTION PLACE.	IF UTILITIES ARE TO REMAIN IN	Y Y Y Y
2. REMOVE TREES, GRASSES, SHRUBS AND OTHER VEGETATION, IMPROVEMENT WITH INSTALLATION OF NEW CONSTRUCTION UNLESS NOTED OTHERWISE.	S OR OBSTRUCTIONS INTERFERING	× × × ×
3. NEW WASTEWATER SYSTEM DESIGN PARAMETERS:		46' 56" W
DESIGN FLOW: 7,133 SF OF INTERIOR RETAIL SPACE AT 120 GAL/1,000 SF ACTIVE: LONG TERM APPLICATION RATE (LTAR): 0.25 GPD/SQ.FT. FOR LPP	= 856 GALLONS PER DAY (GPD)	S 44° V V
900 GPD/0.25 = 3,600 SQ.FT. 3,600 SQ.FT./5 FT. TRENCH = 720 LN. FT. (12) 60' LINES $(2,5)$ F' 0.0 (720 LN. FT. TOTAL)	V V IS' MB. 2036.25'	V V V V
REPAIR: 3,360 SQ.FT. PRETREATMENT REPAIR AREA		
4. UNLESS OTHERWISE INDICATED ON THE PLAN, CONSTRUCTION OF SEWAGE ODISPOSAL SYSTEM IS TO CONFORM WITH SECTION .1900 "LAWS AND RULES"	COLLECTION, TREATMENT AND	Y Y Y
DISPOSAL SYSTEMS" OF NORTH CAROLINA ADMINISTRATIVE CODE, DEPARTM NATURAL RESOURCES, DIVISION OF ENVIRONMENTAL HEALTH, ON-SITE WAS 18A 1900)	ENT OF ENVIRONMENT AND TEWATER SECTION (15 NCAC	L V V V V
5. CONSTRUCTION OF SEWAGE COLLECTION SYSTEM, TREATMENT AND DISPOSA	L SYSTEM IS TO CONFORM WITH	V V V
6. MATERIAL USED FOR COLLECTION AND DISPOSAL SYSTEM SHALL CONFORM	WITH SAME REQUIREMENTS AS #4	V V V
7. FILL MATERIAL SHALL HAVE SUCH SOIL TEXTURE TO BE CLASSIFIED AS SA	ND OR LOAMY SAND (SOIL GROUP	
I) UP TO THE TOP OF THE NITRIFICATION TRENCHES. THE FINAL SIX INCHI SYSTEM SHALL HAVE A FINER TEXTURE (SUCH AS GROUP II, III) FOR THE COVER. THE FILL MATERIAL AND THE EXISTING SOIL SHALL BE MIXED TO	ES OF FILL USED TO COVER THE ESTABLISHMENT OF A VEGETATIVE A DEPTH OF SIX INCHES BELOW	
THE INTERFACE. HEAVY VEGETATIVE COVER OR ORGANIC LITTER SHALL BE MATERIAL IS INCORPORATED.	REMOVED BEFORE THE FILL N/F JERRY L. ANGE, JR.	GRAPHIC SCA
8. ALL SURFACE RUNOFF SHALL BE DIVERTED AROUND AND AWAY FROM THE SHALL BE LANDSCAPED TO PREVENT PONDING OF SURFACE WATER. VEGE	DRAINFIELD AREA. FINISH GRADE DB II 12, PG 569 TATE DRAINFIELD AREA AS PC J, SL 137 TATE DRAINFIELD AREA AS PC J, SL 137	ρ 15' 30'
9. PER 15ANCAC 07H .0306(F)(2), SEPTIC TANKS SHALL NOT BE RELOCATED	OCEANWARD OF THE PRIMARY	

(IN FEET) 1 inch = 30 ft.







FOR ANY ERROR OR OMISSION OR ANY LOSSES OR DAMAGES RESULTING FROM THE USE OF THIS INFORMATION.

of 8 <u>sheets</u>