Quible

Quible & Associates, P.C.

ENGINEERING • ENVIRONMENTAL SCIENCES • PLANNING • SURVEYING

SINCE 1959

P.O. Drawer 870
Kitty Hawk, NC 27949
Phone: 252-491-8147
Fax: 252-491-8146
web: quible.com

April 22, 2016

Mrs. Tammy Glave, CZO
Senior Planner
Currituck County Planning and Community Development
153 Courthouse Road, Suite 110
P.O. Box 73
Currituck, NC 27929

Re: **Major Site Plan Application for Cottages at Kilmarlic**
Parcel Identification No. 9837-47-7924
Corner Lot Bordered by North Side Lane, West Side Lane, and US 158
Currituck County, North Carolina

Dear Mrs. Glave,

On behalf of Fortune Bay Commercial, LLC, Quible & Associates, P.C. hereby submit for your review the enclosed application package for the Cottages at Kilmarlic Major Site Plan Application. Enclosed in this package, please find the following:

- Five (5) copies of each:
  - Signed Major Site Plan Application Form
  - Major Site Plan Submittal Checklist
  - Approved Stormwater Permit No. SW7160301, dated March 11, 2016
  - Approved Erosion and Sedimentation Control Plan No. Curri-2016-015, dated April 12, 2016
  - Currituck County Stormwater Calculations (In Lieu of Forms SW-002 and SW-003)
  - Drainage Area Exhibit that was included in the NCDEQ Stormwater Permit Application
  - ARHS Site Evaluation
  - ARHS E-mail from David Swinney, REHS explaining permit issuance
  - Exterior Lighting Cut Sheet
  - Kilmarlic Cottage Floor Plans and Elevations
  - 24"x36" Full Size Site Plan Sets

- One (1) copy of each:
  - Major Site Plan Application Fee in the amount of $486.00 made payable to "Currituck County"
  - CD containing pdf copy of the Major Site Plan Application Package

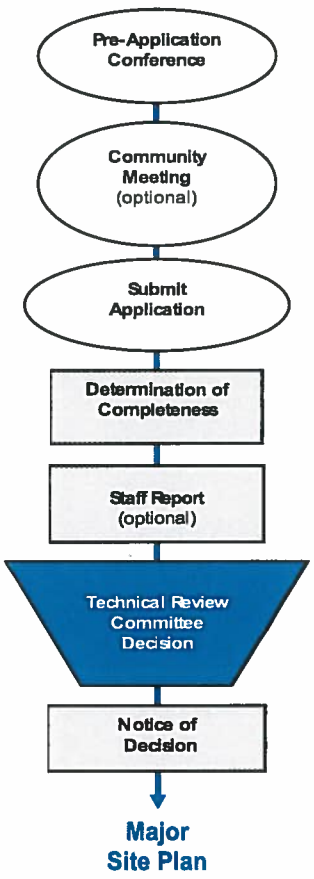
Please do not hesitate to contact me at 252.491.8147 or bharris@quible.com if you have any questions, comments or requests for additional information.

Sincerely,
Quible & Associates, P.C.

Brandon K. Harris, E.I.T.

encl.: as stated
cc: Bryan Sullivan, Fortune Bay Commercial, LLC

Major Site Plan
Review Process



Contact Information

Currituck County
Planning and Community Development
153 Courthouse Road, Suite 110
Currituck, NC 27929

Phone: 252.232.3055
Fax: 252.232.3026

Website: http://www.co.currituck.nc.us/planning-community-development.cfm

General

Major site plan approval is required for any non-residential, multi-family, or mixed-use development that:

- Is 5,000 square feet or greater of building gross floor area, impervious surface, disturbed land area, and other use area.

Step 1: Pre-application Conference

The purpose of a pre-application conference is to provide an opportunity for the applicant to determine the submittal requirements and the procedures and standards applicable to an anticipated development application. A pre-application conference is also intended to provide an opportunity for county staff to become familiar with, and offer the applicant preliminary comments about, the scope, features, and impacts of the proposed development, as it relates to the standards in the Unified Devlopment Oridinance (UDO).

The applicant shall submit conceptual drawings that show the location, general layout, and main elements of the development to be proposed as part of the application to the Planning and Community Development Department at least three business days before the pre-application conference.

Step 2: Application Submittal and Acceptance

The applicant must submit a complete application packet on or before the application submittal date. A complete application packet consists of the following:

- Completed Currituck County Major Site Plan Application.
- Application Fee ($.02 per square foot of gross floor area or $50 minimum).
- Site plan drawn to scale. The plan shall include the items listed in the major site plan design standards checklist.
- Landscape plan drawn to scale. The plan shall include the items listed in the major site plan design standards checklist.
- Exterior lighting plan drawn to scale. The plan shall include the items listed in the major site plan design standards checklist.
- Major Stormwater Plan and Form SW-002.
- Architectural elevations illustrating the design and character of the proposed structures, if applicable.
- ARHS Construction Improvements Permit or letter of commitment from centralized sewer provider.
- NCDENR, DWQ stormwater permit application (if 10,000sf or more of built upon area).
- NCDENR, Land Quality, Erosion and Sedimentation Control permit application (if one acre or more of land disturbance).
- NCDOT Street and Driveway Access Permit Application and Encroachment Agreement.

- Number of Copies Submitted:
  - ☐ 5 Copies of site plans
  - ☐ 5 Hard copies of ALL documents
  - ☐ 1 PDF digital copy (ex. Compact Disk – e-mail not acceptable) of all plans AND documents

On receiving an application, staff shall, within ten business days, determine whether the application is complete or incomplete. A complete application contains all the information and materials listed above, and is in sufficient detail to evaluate and determine whether it complies with appropriate review standards. If an application is determined to be incomplete, the applicant may correct the deficiencies and resubmit the application for completeness determination. Failure to resubmit a complete application within 45 calendar days after being determined incomplete will result in the application being considered withdrawn. Applicants may submit applications for a site plan and building permit concurrently.

Step 3: Staff Review and Action

Once an application is determined complete, it will be distributed to the Technical Review Committee (TRC) and be place on the TRC meeting agenda. TRC shall review and prepare a written report that will include any outstanding concerns with the application. The applicant is required to attend the TRC meeting to discuss the outstanding concerns listed in the written report. TRC shall approve, approve subject to conditions or disapprove the application. Conditions of approval shall be limited to those deemed necessary to ensure compliance with the standards of the UDO.

An application for a site plan shall be approved on a finding the applicant has demonstrated the proposed development:

- Is consistent with the Land Use Plan or other officially adopted plan;
- Complies with the applicable district, use-specific, development, environmental, and infrastructure design standards of the UDO;
- Complies with the Currituck County Stormwater Manual and all other applicable standards of the UDO and the County Code of Ordinances; and
- Complies with all standards or conditions of any prior applicable development permits or approvals.

Major Site Plan
Application

OFFICIAL USE ONLY:
Case Number: _____
Date Filed: _____
Gate Keeper: _____
Amount Paid: _____

Contact Information

APPLICANT:
Name: Fortune Bay Commercial, LLC, Attn: Bryan Sullivan
Address: 215 West Side Lane
Powells Point, NC 27966
Telephone: (252) 491-4220
E-Mail Address: kilmarlicbryan@hotmail.com

PROPERTY OWNER:
Name: Fortune Bay Commercial, LLC
Address: P.O. Box 279
Harbinger, NC 27941
Telephone: (252) 491-4220
E-Mail Address: kilmarlicbryan@hotmail.com

LEGAL RELATIONSHIP OF APPLICANT TO PROPERTY OWNER: Manager of Fortune Bay Commercial, LLC

Property Information

Physical Street Address: Corner Lot Bordered by North Side Lane, West Side Lane, and US 158

Location: Corner Lot Bordered by North Side Lane, West Side Lane, and US 158

Parcel Identification Number(s): 9837-47-7924

Total Parcel(s) Acreage: 4.59

Existing Land Use of Property: Vacant

Request

Project Name: Cottages at Kilmarlic

Proposed Use of the Property: 18 Single Family Residential Units

Deed Book/Page Number and/or Plat Cabinet/Slide Number: DB 682, PG 500 / PC "I", SL 342

Total square footage of land disturbance activity: 172,362 sq. ft.

Total lot coverage: 54,393 sq. ft.

Total vehicular use area: 24,000 sq. ft.

Existing gross floor area: 0 sq. ft.

Proposed gross floor area: 24,300 sq. ft.

I hereby authorize county officials to enter my property for purposes of determining zoning compliance. All information submitted and required as part of this process shall become public record.

_____ 4/22/16
Property Owner(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.**

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: _____ TRC Date: _____

Project Name: Cottages at Kilmarlic

Applicant/Property Owner: Fortune Bay Commercial, LLC

Site Plan Design Standards Checklist		
	General	
1	Property owner name, address, phone number, and e-mail address.	✔
2	Site address and parcel identification number.	✔
3	North arrow and scale to be 1" = 100' or larger.	✔
4	Vicinity map showing property's general location in relation to streets, railroads, and waterways.	✔
5	Existing zoning classification and zoning setback lines of the property.	✔
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.	✔
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.	N/A
8	Sight distance triangles.	✔
9	Proposed common areas, open space set-asides, and required buffers.	✔
	Landscape Plan	
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.	✔
11	Existing and proposed physical barriers to be used to comply with the bufferyard and screening requirements.	✔
12	Heritage tree inventory and proposed tree protection zones.	N/A
13	Adjoining property lines, zoning, and names and address of adjoining property owners.	✔
	Exterior Lighting Plan	
14	Location, height, and type of all proposed exterior lighting including but not limited to site, street, building, and security lighting.	See Subm.
15	Footcandle measurements of the entire site including lot lines, or light fixture documentation when minimal lighting is proposed.	See Subm.
	Major Stormwater Management Plan	
16	Major Stormwater Plan and From SW-002 *(See spreadsheet in lieu of form SW-002)*	✔

	Architectural Elevations	
17	Architectural drawings and/or sketches illustrating the design, character, height, and materials of the proposed buildings.	✔
	Flood Damage Prevention, if Applicable	
18	Proposed elevation of all structures and utilities.	✔
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.	✔
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).	✔
22	Design Flood Elevation (Base Flood Elevation plus one foot freeboard).	✔
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.	✔
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: _____ TRC Date: _____

Project Name: Cottages at Kilmarlic

Applicant/Property Owner: Fortune Bay Commercial, LLC

Major Site Plan Submittal Checklist		
1	Complete Major Site Plan application	✔
2	Application fee ($.02 per square foot of gross floor area or $50 minimum)	✔
3	Site plan	✔
4	Landscape plan	✔
5	Exterior Lighting plan	✔
6	Major Stormwater Management plan and Form SW-002 *(See spreadsheet in lieu of form SW-002)*	✔
7	Architectural elevations, if applicable	✔
8	ARHS Construction Improvements Permit or letter of commitment from centralized sewer provider.	✔
9	NCDENR, DWQ stormwater permit application (if 10,000sf or more of built upon area). *Permit*	✔
10	NCDENR, Land Quality, Erosion and Sedimentation Control permit application (if one acre or more of land disturbance). *Permit*	✔
11	NCDOT Street and Driveway Access Permit Application and Encroachment Agreement	N/A
12	5 copies of plans	✔
13	5 hard copies of ALL documents	✔
14	1 PDF digital copy of all plans AND documents (ex. Compact Disk – e-mail not acceptable)	✔

For Staff Only

Pre-application Conference

Pre-application Conference was held on _____ and the following people were present:

_____

_____

Comments

_____

_____

_____

Energy, Mineral
and Land Resources
ENVIRONMENTAL QUALITY

PAT MCCRORY
Governor

DONALD R. VAN DER VAART
Secretary

TRACY DAVIS
Director

March 11, 2016

Fortune Bay Commercial, LLC
Mr. Bryan Sullivan
PO Box 279
Harbinger, NC 27941

Subject: Stormwater Permit No. SW7160301
Cottages at Kilmarlic
High Density Project
Currituck County

Dear Mr. Sullivan:

The Washington Regional Office received a complete Stormwater Management Permit Application for the Cottages at Kilmarlic project on March 1, 2016. Staff review of the plans and specifications has determined that the project, as proposed, will comply with the Stormwater Regulations set forth in Title 15A NCAC 2H.1000. We are forwarding Permit No. SW7160301 dated March 11, 2016, for the construction of the subject project.

This permit shall be effective from the date of issuance until March 11, 2024, and shall be subject to the conditions and limitations as specified therein. Please pay special attention to the Operation and Maintenance requirements in this permit. Failure to establish an adequate system for operation and maintenance of the stormwater management system will result in future compliance problems.

If any parts, requirements, or limitations contained in this permit are unacceptable, you have the right to request an adjudicatory hearing upon written request within thirty (30) days following receipt of this permit. This request must be in the form of a written petition, conforming to Chapter 150B of the North Carolina General Statutes, and filed with the Office of Administrative Hearings, 6714 Mail Service Center, Raleigh, NC 27699-6714. Unless such demands are made this permit shall be final and binding.

If you have any questions, or need additional information concerning this matter, please contact me at (252) 946-6481.

Sincerely,

Samir Dumpor, P.E.
Regional Engineer

G:\SD\Permits - Infiltration\SW7160301

cc: Michael Strader, PE, Quible & Associates, P.C.
Currituck County Planning Division
Washington Regional Office

STATE OF NORTH CAROLINA

DEPARTMENT OF ENVIRONMENTAL QUALITY

DIVISION OF ENERGY, MINERAL, AND LAND RESOURCES

STATE STORMWATER MANAGEMENT PERMIT

HIGH DENSITY DEVELOPMENT

In accordance with the provisions of Article 21 of Chapter 143, General Statutes of North Carolina as amended, and other applicable Laws, Rules, and Regulations

PERMISSION IS HEREBY GRANTED TO

Fortune Bay Commercial, LLC

Cottages at Kilmarlic

Currituck County

FOR THE

construction, operation and maintenance of 4 infiltration basin and one wet detention basin to serve 18 single family units, in compliance with the provisions of 15A NCAC 2H .1000 (hereafter referred to as the *"stormwater rules"*) and the approved stormwater management plans and specifications and other supporting data as attached and on file with and approved by the Division of Energy, Mineral, and Land Resources and considered a part of this permit.

This permit shall be effective from the date of issuance until March 11, 2024, and shall be subject to the following specified conditions and limitations:

I. DESIGN STANDARDS

1. This permit is effective only with respect to the nature and volume of stormwater described in the application and other supporting data.

2. The stormwater control has been designed to handle the runoff from total of 70,123 square feet of built-upon area.

3. The tract will be limited to the amount of built-upon area indicated in Section I.7 on page 3 of this permit, and as shown on the approved plans.

4. All stormwater collection and treatment systems must be located in either dedicated common areas or recorded easements. The final plats for the project will be recorded showing all such required easements, in accordance with the approved plans.

5. The runoff from all built-upon area within the permitted drainage area of this project must be directed into the permitted stormwater control system.

6. The built-upon areas associated with this project shall be located at least 50 feet landward of all surface waters.

7. The following design criteria have been permitted for the infiltration basins and must be provided and maintained at design condition:

INFILTRATION BASIN		#1	#3
a.	Drainage Area, ft^2:	105,403	2,380
b.	Total Impervious Surfaces, ft^2:	36,600	705
c.	Design Storm, inches:	1.5"	1.5"
d.	Basin Depth, feet:	1.50	1.50
e.	Bottom Elevation, FMSL:	9.50	9.50
f.	Bottom Surface Area, ft^2:	7,500	45.50
g.	Required Storage Volume, ft^3:	4,770	95
h.	Permitted Storage Volume, ft^3:	18,966	468
i.	Type of Soil:	BoA – Bojac loamy sand	
j.	Expected Infiltration Rate, in/hr:	2.42	2.42
k.	Seasonal High Water Table, FMSL:	7.20	7.20
l.	Time to Draw Down, days:	0.31	0.31
m.	Receiving Stream/River Basin:	Albemarle Sound/Pasquotank	
n.	Stream Index Number:	30	
o.	Classification of Water Body:	"SB"	

INFILTRATION BASIN		#4	#5
a.	Drainage Area, ft^2:	5,194	4,248
b.	Total Impervious Surfaces, ft^2:	2,531	1,975
c.	Design Storm, inches:	1.5"	1.5"
d.	Basin Depth, feet:	1.50	1.50
e.	Bottom Elevation, FMSL:	9.50	9.50
f.	Bottom Surface Area, ft^2:	45.50	45.50
g.	Required Storage Volume, ft^3:	318	249
h.	Permitted Storage Volume, ft^3:	468	468
i.	Type of Soil:	BoA – Bojac loamy sand	
j.	Expected Infiltration Rate, in/hr:	2.42	2.42
k.	Seasonal High Water Table, FMSL:	7.20	7.20
l.	Time to Draw Down, days:	0.31	0.31
m.	Receiving Stream/River Basin:	Albemarle Sound/Pasquotank	
n.	Stream Index Number:	30	
o.	Classification of Water Body:	"SB"	

WET POND		#2
a.	Drainage Area, ft^2:	72,567
b.	Total Impervious Surfaces, ft^2:	28,312
c.	Design Storm, inches:	1.5
d.	Pond Depth - average, feet:	3.5
e.	TSS removal efficiency:	90%
f.	Permanent Pool Elevation, FMSL:	7.20
g.	Permanent Pool Surface Area required, ft^2:	2,903
h.	Permanent Pool Surface Area, ft^2:	10,634
i.	Min. Volume required, ft^3:	3,637
j.	Permitted Storage Volume, ft^3:	11,355
k.	Temporary Storage Elevation, FMSL:	8.20
l.	Receiving Stream/River Basin:	Albemarle Sound/Pasquotank
m.	Stream Index Number:	30
n.	Classification of Water Body:	"SB"

II. SCHEDULE OF COMPLIANCE

1. The stormwater management system shall be constructed in its entirety, vegetated and operational for its intended use prior to the construction of any built-upon surface.

2. During construction, erosion shall be kept to a minimum and any eroded areas of the system will be repaired immediately.

3. The permittee shall at all times provide the operation and maintenance necessary to assure the permitted stormwater system functions at optimum efficiency. The approved Operation and Maintenance Plan must be followed in its entirety and maintenance must occur at the scheduled intervals including, but not limited to:

   a. Semiannual scheduled inspections (every 6 months).
   b. Sediment removal.
   c. Mowing and revegetation of slopes and the vegetated filter.
   d. Immediate repair of eroded areas.
   e. Maintenance of all slopes in accordance with approved plans and specifications.
   f. Debris removal and unclogging of bypass structure, infiltration media, flow spreader, catch basins, piping and vegetated filter.
   g. A clear access path to the bypass structure must be available at all times.

4. Records of maintenance activities must be kept for each permitted BMP. The reports will indicate the date, activity, name of person performing the work and what actions were taken.

5. The facilities shall be constructed as shown on the approved plans. This permit shall become voidable unless the facilities are constructed in accordance with the conditions of this permit, the approved plans and specifications, and other supporting data.

6. If the stormwater system was used as an Erosion Control device, it must be restored to design condition prior to operation as a stormwater treatment device, and prior to occupancy of the facility.

7. Upon completion of construction, prior to issuance of a Certificate of Occupancy, and prior to operation of this permitted facility, a certification must be received from an appropriate designer for the system installed certifying that the permitted facility has been installed in accordance with this permit, the approved plans and specifications, and other supporting documentation. Any deviations from the approved plans and specifications must be noted on the Certification. A modification may be required for those deviations.

8. Access to the stormwater facilities shall be maintained via appropriate easements at all times.

9. The permittee shall submit to the Director and shall have received approval for revised plans, specifications, and calculations prior to construction, for any modification to the approved plans, including, but not limited to, those listed below:
   a. Any revision to any item shown on the approved plans, including the stormwater management measures, built-upon area, details, etc.
   b. Project name change.
   c. Transfer of ownership.
   d. Redesign or addition to the approved amount of built-upon area or to the drainage area.
   e. Further subdivision, acquisition, lease or sale of all or part of the project area.

The project area is defined as all property owned by the permittee, for which Sedimentation and Erosion Control Plan approval or a CAMA Major permit was sought.

f. Filling in, altering, or piping of any vegetative conveyance shown on the approved plan.

10. The permittee shall submit final site layout and grading plans for any permitted future areas shown on the approved plans, prior to construction.

11. A copy of the approved plans and specifications shall be maintained on file by the Permittee at all times.

12. The Director may notify the permittee when the permitted site does not meet one or more of the minimum requirements of the permit. Within the time frame specified in the notice, the permittee shall submit a written time schedule to the Director for modifying the site to meet minimum requirements. The permittee shall provide copies of revised plans and certification in writing to the Director that the changes have been made.

III. GENERAL CONDITIONS

1. This permit is not transferable to any person or entity except after notice to and approval by the Director. In the event of a change of ownership, or a name change, the permittee must submit a completed Name/Ownership Change form to the Division of Energy, Mineral, and Land Resources, signed by both parties, and accompanied by the appropriate documentation as listed on page 2 of the form. The approval of this request will be considered on its merits and may or may not be approved.

2. The permittee is responsible for compliance with all permit conditions until such time as the Division approves the transfer request.

3. Failure to abide by the conditions and limitations contained in this permit may subject the Permittee to enforcement action by the Division of Energy, Mineral, and Land Resources, in accordance with North Carolina General Statute 143-215.6A to 143-215.6C.

4. The issuance of this permit does not preclude the Permittee from complying with any and all statutes, rules, regulations, or ordinances, which may be imposed by other government agencies (local, state, and federal) having jurisdiction.

5. In the event that the facilities fail to perform satisfactorily, including the creation of nuisance conditions, the Permittee shall take immediate corrective action, including those as may be required by this Division, such as the construction of additional or replacement stormwater management systems.

6. The permittee grants DEQ Staff permission to enter the property during normal business hours for the purpose of inspecting all components of the permitted stormwater management facility.

7. The permit issued shall continue in force and effect until revoked or terminated. The permit may be modified, revoked and reissued or terminated for cause. The filing of a request for a permit modification, revocation and reissuance or termination does not stay any permit condition.

8. Unless specified elsewhere, permanent seeding requirements for the stormwater controls must follow the guidelines established in the North Carolina Erosion and Sediment Control Planning and Design Manual.

9. Approved plans and specifications for this project are incorporated by reference and are enforceable parts of the permit.

10. The issuance of this permit does not prohibit the Director from reopening and modifying the permit, revoking and reissuing the permit, or terminating the permit as allowed by the laws, rules and regulations contained in Title 15A NCAC 2H.1000, and NCGS 143-215.1 et. al.

11. The permittee shall notify the Division in writing of any name, ownership or mailing address changes at least 30 days prior to making such changes.

12. This permit shall be effective from the date of issuance until March 11, 2024. Application for permit renewal shall be submitted 180 days prior to the expiration date of this permit and must be accompanied by the processing fee.

Permit issued this the 11th day of March, 2016.

NORTH CAROLINA ENVIRONMENTAL MANAGEMENT COMMISSION

_____ *for*

Tracy E. Davis, PE, CPM, Director
Division of Energy, Mineral, and Land Resources

Permit No. SW7160301

Cottages at Kilmarlic
Stormwater Permit No. SW7160301
Currituck County

Designer's Certification

I, _____, as a duly registered _____ in the State of North Carolina, having been authorized to observe (periodically/ weekly/ full time) the construction of the project,

_____
(Project)

for _____(Project Owner) hereby state that, to the best of my abilities, due care and diligence was used in the observation of the project construction such that the construction was observed to be built within substantial compliance and intent of the approved plans and specifications.

The checklist of items on page 2 of this form is included in the Certification.

Noted deviations from approved plans and specification:

SEAL

Signature _____

Registration Number _____

Date _____

Certification Requirements:

_____1. The drainage area to the system contains approximately the permitted acreage.

_____2. The drainage area to the system contains no more than the permitted amount of built-upon area.

_____3. All the built-upon area associated with the project is graded such that the runoff drains to the system.

_____4. All roof drains are located such that the runoff is directed into the system.

_____5. The bypass structure weir elevation is per the approved plan.

_____6. The bypass structure is located per the approved plans.

_____7. A Trash Rack is provided on the bypass structure.

_____8. All slopes are grassed with permanent vegetation.

_____9. Vegetated slopes are no steeper than 3:1.

_____10. The inlets are located per the approved plans and do not cause short-circuiting of the system.

_____11. The permitted amounts of surface area and/or volume have been provided.

_____12. All required design depths are provided.

_____13. All required parts of the system are provided.

_____14. The required system dimensions are provided per the approved plans.

cc: NCDEQ-DEMLR Regional Office
Currituck County Planning Division

Energy, Mineral
and Land Resources
ENVIRONMENTAL QUALITY

PAT MCCRORY
Governor

DONALD R. VAN DER VAART
Secretary

TRACY DAVIS
Director

April 12, 2016

LETTER OF APPROVAL WITH GUIDELINES

Fortune Bay Commercial, LLC
ATTN: Mr. Bryan Sullivan, Manager
Post Office Box 279
Harbinger, North Carolina 27941

RE: Erosion and Sedimentation Control Plan No. Curri-2016-015
Project Name: Cottages at Kilmarlic
Location: North Side Lane County: Currituck
River Basin: Pasquotank
Date Received by LQS: March 17, 2016
Acres Approved: 4 Project Type: New
Project Description: Grading for the construction of residential development with associated infrastructure, as shown on the plans received by this office on March 17, 2016.

Dear Sir:

This office has reviewed the subject erosion and sedimentation control plan. We find the plan to be acceptable and hereby issue this Letter of Approval (NOTE: Attached is a list of guidelines and statutory requirements for conducting land disturbance activities). This plan approval shall expire three (3) years following the date of approval, if no land-disturbing activity has been undertaken, as required by 15A NCAC 4B.0129, unless modified by other legislation.

Please be advised that 15A NCAC 4B.0118(a) requires that a copy of the approved erosion and sedimentation control plan be on file at the job site. Also, you should consider this letter as giving the Notice required by G.S. 113A-61.1(a) of our right of periodic inspection to ensure compliance with the approved plan.

North Carolina's Sedimentation Pollution Control Program is performance oriented, requiring protection of existing natural resources and adjoining properties through the use of reasonable and appropriate Best Management Practices throughout the course of the project. If, following the commencement of this project, it is determined that the erosion and sedimentation control plan is inadequate to meet the requirements of the Sedimentation Pollution Control Act of 1973 (G.S. 113A-51 through 66), this office may require revisions to the plan and implementation of the revisions to ensure compliance with the Act.

Acceptance and approval of this plan is conditioned upon your compliance with Federal and State water quality laws, regulations and rules. In addition, local city or county ordinances or

rules may also apply to this land-disturbing activity. This approval does not supersede any other permit or approval.

Please note that this approval is based in part on the accuracy of the information provided in the Financial Responsibility/Ownership Form, which you have submitted. You are required to file an amended form if there is any change in the information included on the form. In addition, 15A NCAC 4B.0127(c) requires that you notify this office of the proposed starting date for this project (using the enclosed Project Information Sheet). Please notify us if you plan to have a preconstruction conference.

Please be aware that your project will be covered by the enclosed NPDES General Stormwater Permit NCG010000 (Construction Activities). You should first become familiar with all of the requirements for compliance with the enclosed permit.

Sincerely,

Richard Peed, CPESC
Regional Engineering Associate

Enclosures

cc w/o enc: Brandon K. Harris, E.I.T., Quible & Associates, P.C.
WaRO Surface Water Supervisor, Division of Water Quality

1. **AS THE DECLARED RESPONSIBLE PARTY, YOUR LEGAL RESPONSIBILITY** is to understand the Act and comply with the following minimum requirements of the Act:

   A. In the event of a conflict between the requirements of the Sedimentation Pollution Control Act, the submitted plan and/or the contract specifications, the more restrictive requirement shall prevail;

   B. The land-disturbing activity shall be conducted in accordance with the approved erosion and sedimentation contorl plan;

   C. The **LATEST APPROVED** erosion and sediment control plan will be used during periodic unannounced inspections to determine compliance and a copy of the plan must be on file at the job site. If it is determined that the implemented plan is inadequate, this office may require the installation of additional measures and/or that the plan be revised to comply with state law;

   D. All revisions, including those required by other local, state or federal agencies, which affect site layout, drainage patterns, limits of disturbance and/or disturbed acreage must be submitted to this office for approval a minimum of 15 days prior to the start of construction;

   E. Revisions exceeding the approved scope of this project without prior approval of the plan showing the changes can be considered a violation. Failure to comply with any part of the approved plan or with any requirements of this program could result in appropriate legal action (civil or criminal) against the financially responsible party. Legal actions include Stop Work Orders and the assessing of a civil penalty of up to $5000 for the initial violation plus an additional penalty of up to $5000 per day for each day the site is out of compliance;

   F. The **CERTIFICATE OF PLAN APPROVAL must be posted** at the primary entrance to the job site and remain until the site is permanently stabilized;

   G. In cases of natural disaster related changes to the proposed land disturbing activity, all appropriate actions and adequate measure installations may be performed to prevent sediment damage, prior to submitting and receiving approval of the revised plan. A revised plan must be submitted for approval as soon as possible, but no later than 15 days after all emergency actions have been performed;

H. Erosion and sediment control measures or devices are to be constructed and/or installed to safely withstand the runoff resulting from a 10 year storm event (25 year storm event in High Quality Zones). The 10 year storm event is generally equivalent to a storm producing 6.5 - 7 inches of rain in 24 hours or at the rate of 6.5 - 7 inches of rain in 1 hour, depending on the location of the project within the region;

I. No earthen material is to be brought on or removed from the project site, until the off-site borrow and/or disposal sites are identified as part of the erosion control plan. If an off-site borrow and/or disposal site is to be utilized, prior to the start of construction submit the name and identification number (E&SCP # or Mine Permit #) using the enclosed Project Information Sheet;

J. Buffer zone, sufficient to restrain visible sedimentation within the 25% of the width closest to the land disturbance, must be provided and maintained between the land-disturbing activity and any adjacent property or watercourse;

K. In order to comply with the intent of the Act, the scheduling of the land-disturbing activities is to be such that both the area of exposure and the time between the land disturbance and the providing of a ground cover is minimized;

L. Unless a temporary, manufactured, lining material has been specified, a clean straw mulch must be applied, at the minimum rate of 2 tons/acre, to all seeded areas. The mulch must cover at least 75% of the seeded area after it is either tacked, with an acceptable tacking material, or crimped in place;

M. New or affected cut or filled slopes must be at an angle that can be retained by vegetative cover, AND **must be provided with a ground cover** sufficient to restrain erosion **within 21 calendar days of completion of any phase (rough or final) of grading** (**ANNUAL RYE GRASS IS NOT** in the **APPROVED** seeding specifications **NOR** is it an **ACCEPTABLE** substitute for the providing of a temporary ground cover);

N. A **permanent ground cover**, sufficient restrain erosion, **must be provided** within the shorter of 15 working or 90 calendar days (if in a High Quality Zone, the shorter of 15 working or 60 calendar days) after completion of construction or development on any portion of the tract (**ANNUAL RYE GRASS IS NOT** in the **APPROVED** seeding specifications **NOR** is it an **ACCEPTABLE** substitute for the providing of a nurse cover for the permanent grass cover);

O. All sediment and erosion control details for this project must conform to the standards as shown in the current Erosion & Sediment Control Planning and Design Manual; these details must be utilized for construction and incorporated in the plan. The manual can be found online at http://portal.ncdenr.org/web/lr/publications

2. Adequate and appropriate measures must be properly installed downstream, within the limits of disturbance, of any land disturbing activity to prevent sediment from leaving the limits of disturbance, entering existing drainage systems, impacting an on-site natural watercourse or adjoining property.

PROJECT INFORMATION SHEET

APPROVAL DATE: April 12, 2016

RESPONSIBLE PARTY: Fortune Bay Commercial, LLC

PROJECT NAME: Cottages at Kilmarlic

COUNTY: Currituck NO.: Curri-2016-015

OFF-SITE BORROW
AND/OR DISPOSAL SITE: _____ NO.: _____

START-UP DATE: _____

CONTRACTOR: _____

ON-SITE CONTACT: _____

ON-SITE PHONE NO.: _____

OFFICE PHONE NO.: _____

COMPLETE & RETURN THIS FORM
PRIOR TO THE START OF CONSTRUCTION TO:

N.C.D.E.N.R.
LAND QUALITY SECTION
ATTN: Chris Pullinger
943 WASHINGTON SQUARE MALL
WASHINGTON, NORTH CAROLINA 27889

CERTIFICATE OF PLAN APPROVAL

The posting of this certificate certifies that an erosion and sedimentation control plan has been approved for this project by the North Carolina Department of Environmental Quality in accordance with North Carolina General Statute 113A – 57 (4) and 113A – 54 (d) (4) and North Carolina Administrative Code, Title 15A, Chapter 4B.0107 (c). This certificate must be posted at the primary entrance of the job site before construction begins and until establishment of permanent groundcover as required by North Carolina Administrative Code, Title 15A, Chapter 4B.0127 (b).

COTTAGES AT KILGARLIC – NORTH SIDE LAKE – Currituck County

Project Name and Location

4/12/2016

Date of Plan Approval

Samir Dunlap, P.E.

Regional Engineer

Environmental Quality

CURR-2016-015

Project Name:	Cottages at Kilmarlic
Quible Project Number:	P14029
Date:	4/22/2016

Currituck County Stormwater Calculations *(In Lieu of Forms SW-002 and SW-003)*

Step 1: Drainage Area

	189791.41	square feet
	4.36	acres

Step 2: Determine Runoff Coefficient

C = 0.2

Step 3: Determine Time of Concentration

Sheet Flow

$$Tc_1 = \frac{0.42(nL)^{0.8}}{P^{0.5}S^{0.4}}$$

n =	0.1	(woods)
L =	300	feet
P =	4	inch
S =	0.01	ft/ft
Tc_1=	**20.1**	mins

Shallow Concentrated Flow

$$Tc_2 = \frac{L}{V}$$

L =	304	ft
	unpaved	ft/ft
Slope =	0.007	

Paved Areas $V = 1302(S^{0.53})$

Unpaved Areas $V = 972(S^{0.53})$

V =	**70.1**	ft/min
Tc_2=	**4.3**	mins

Channel Flow

(n/a)

Tc = Tc1 + Tc2

Tc = **24.5** mins

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	2.8	1.76	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

I = **3.26** in/hr

Interpolation Formula =

$$y_2 = \frac{(x_2 - x_1)(y_3 - y_1)}{(x_3 - x_1)} + y_1$$

X	Y	
1	15	4.06
2	24.5	
3	30	2.8

y_2= **3.26**

Step 5: Determine the 2-year Pre-Development peak discharge, Q

Q = CIA

Q = **2.84** cfs

Step 6: Determine the weighted runoff coefficient, Cw for post-development

			C - Value
Impervious Area =	70,122.44	sq.ft.	0.95
Open Area =	119,668.97	sq.ft.	0.25
Total =	189,791.41	sq.ft.	

Cw = **0.51**

Step 7: Determine Time of Concentration for post-development

Sheet Flow

$Tc_1 = \frac{0.42(nL)^{0.8}}{P^{0.5}S^{0.4}}$

n =	0.035	(grass)
L =	172.67	feet
P =	5.15	inch *(From NOAA Rainfall Depth Data)*
S =	0.017	ft/ft
Tc_1=	3.9	mins

Shallow Concentrated Flow

$Tc_2 = \frac{L}{V}$

L =	237.84	ft
	unpaved	ft/ft
Slope =	0.016	

Paved Areas $V = 1302(S^{0.53})$

Unpaved Areas $V = 972(S^{0.53})$

V =	108.5	ft/min
Tc_2=	2.2	mins

Channel Flow

(n/a)

Tc = Tc1 + Tc2

Tc = **6.1** mins

Step 8: 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	2.8	1.76	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

I = **6.51** in/hr

Interpolation Formula =

$$y_2 = \frac{(x_2 - x_1)(y_3 - y_1)}{(x_3 - x_1)} + y_1$$

y_2= **6.51**

X	Y	
1	5	6.82
2	6.1	
3	10	5.46

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

Q = CIA

Q = **14.43** cfs

Step 10: Determine the weighted curve number, CN, for the post-development conditions.

Hydrologic Soil Type: A *(From NRCS Soils Report)*

Land Use	CN	Area
Impervious Area	98	70,122.44
Open Space	49	119,668.97
	Total =	**189,791.41**
	CN_W =	**67.10**

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

$$Q = \frac{(P-0.2S)^2}{(P+0.8S)} \qquad S = \frac{1000}{CN} - 10$$

P =	5.15	in
S =	**4.90**	
Q =	**1.92**	in

Step 12: Determine the Runoff Volume, V_r

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

Q =	1.92	in
A =	4.36	acres
V_r =	**0.70**	ac-ft

Step 13: Determine the Required Storage Volume, V_s

$$V_s = 1613.33 * V_r * \left(1 - \frac{Q_{2_pre}}{Q_{5_post}}\right)$$

V_r =	0.70	ac-ft
$Q_{2\text{-pre}}$ =	2.84	cfs
$Q_{5\text{-post}}$ =	14.43	cfs
V_s =	**901.23**	CY
	24,333.33	CF

NOAA Atlas 14, Volume 2, Version 3
Location name: Powells Point, North Carolina, US*
Latitude: 36.1217°, Longitude: -75.8342°
Elevation: 12 ft*
* source: Google Maps

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]

Duration	Average recurrence interval (years)									
	1	2	5	10	25	50	100	200	500	1000
5-min	0.449 (0.408–0.494)	0.524 (0.477–0.577)	0.596 (0.544–0.656)	0.681 (0.618–0.748)	0.768 (0.694–0.841)	0.843 (0.759–0.924)	0.914 (0.819–1.00)	0.982 (0.876–1.08)	1.07 (0.943–1.17)	1.15 (1.01–1.26)
10-min	0.717 (0.652–0.790)	0.839 (0.763–0.922)	0.955 (0.871–1.05)	1.09 (0.988–1.20)	1.22 (1.11–1.34)	1.34 (1.21–1.47)	1.45 (1.30–1.59)	1.56 (1.39–1.71)	1.69 (1.49–1.85)	1.81 (1.58–1.99)
15-min	0.896 (0.815–0.987)	1.05 (0.960–1.16)	1.21 (1.10–1.33)	1.38 (1.25–1.51)	1.55 (1.40–1.70)	1.70 (1.53–1.86)	1.84 (1.65–2.01)	1.96 (1.75–2.15)	2.12 (1.88–2.33)	2.27 (1.99–2.49)
30-min	1.23 (1.12–1.35)	1.46 (1.33–1.60)	1.72 (1.57–1.89)	2.00 (1.81–2.19)	2.30 (2.08–2.52)	2.56 (2.31–2.81)	2.81 (2.52–3.08)	3.06 (2.73–3.35)	3.38 (2.99–3.71)	3.67 (3.22–4.04)
60-min	1.53 (1.39–1.69)	1.83 (1.66–2.01)	2.20 (2.01–2.42)	2.60 (2.36–2.85)	3.06 (2.76–3.35)	3.47 (3.13–3.80)	3.87 (3.47–4.24)	4.29 (3.83–4.70)	4.85 (4.29–5.32)	5.36 (4.70–5.89)
2-hr	1.76 (1.59–1.95)	2.11 (1.91–2.33)	2.60 (2.35–2.87)	3.13 (2.82–3.44)	3.76 (3.37–4.13)	4.34 (3.88–4.76)	4.93 (4.38–5.40)	5.55 (4.91–6.09)	6.40 (5.61–7.02)	7.17 (6.24–7.87)
3-hr	1.92 (1.73–2.13)	2.30 (2.08–2.55)	2.84 (2.56–3.15)	3.44 (3.10–3.81)	4.18 (3.74–4.62)	4.88 (4.35–5.38)	5.60 (4.96–6.17)	6.38 (5.61–7.02)	7.47 (6.49–8.22)	8.49 (7.30–9.34)
6-hr	2.32 (2.10–2.59)	2.78 (2.51–3.09)	3.44 (3.10–3.82)	4.17 (3.75–4.62)	5.09 (4.55–5.62)	5.96 (5.30–6.57)	6.86 (6.05–7.55)	7.85 (6.87–8.62)	9.24 (7.98–10.1)	10.6 (9.01–11.6)
12-hr	2.75 (2.48–3.09)	3.29 (2.96–3.69)	4.09 (3.67–4.57)	4.98 (4.46–5.56)	6.12 (5.44–6.81)	7.23 (6.38–8.01)	8.38 (7.33–9.27)	9.65 (8.36–10.7)	11.5 (9.77–12.7)	13.2 (11.1–14.6)
24-hr	3.28 (3.02–3.58)	3.99 (3.68–4.36)	5.15 (4.74–5.62)	6.13 (5.62–6.67)	7.58 (6.90–8.23)	8.83 (7.96–9.58)	10.2 (9.11–11.0)	11.7 (10.3–12.7)	14.0 (12.1–15.2)	15.9 (13.6–17.4)
2-day	3.80 (3.49–4.17)	4.61 (4.23–5.05)	5.91 (5.43–6.47)	7.04 (6.44–7.68)	8.72 (7.91–9.51)	10.2 (9.16–11.1)	11.8 (10.5–12.9)	13.6 (12.0–14.9)	16.4 (14.1–18.0)	18.8 (15.9–20.7)
3-day	4.04 (3.72–4.42)	4.90 (4.51–5.35)	6.25 (5.76–6.83)	7.40 (6.79–8.07)	9.09 (8.27–9.90)	10.5 (9.52–11.5)	12.1 (10.8–13.2)	13.9 (12.3–15.1)	16.6 (14.4–18.2)	18.9 (16.2–20.9)
4-day	4.28 (3.96–4.67)	5.18 (4.79–5.66)	6.60 (6.09–7.19)	7.77 (7.14–8.45)	9.47 (8.64–10.3)	10.9 (9.88–11.8)	12.4 (11.2–13.5)	14.1 (12.5–15.4)	16.7 (14.6–18.3)	19.1 (16.5–21.0)
7-day	4.95 (4.58–5.39)	5.97 (5.52–6.50)	7.50 (6.92–8.16)	8.76 (8.05–9.51)	10.6 (9.67–11.5)	12.1 (11.0–13.1)	13.7 (12.3–14.9)	15.5 (13.8–16.8)	18.0 (15.8–19.7)	20.1 (17.4–22.1)
10-day	5.58 (5.20–6.02)	6.69 (6.23–7.22)	8.29 (7.71–8.94)	9.61 (8.92–10.4)	11.5 (10.6–12.4)	13.1 (12.0–14.1)	14.8 (13.4–15.9)	16.5 (14.9–17.9)	19.1 (16.9–20.8)	21.2 (18.6–23.2)
20-day	7.50 (7.03–8.01)	8.92 (8.38–9.55)	10.9 (10.2–11.6)	12.4 (11.6–13.3)	14.7 (13.7–15.7)	16.5 (15.3–17.7)	18.5 (16.9–19.8)	20.5 (18.6–22.0)	23.3 (20.9–25.2)	25.7 (22.7–27.8)
30-day	9.22 (8.68–9.81)	11.0 (10.3–11.7)	13.2 (12.4–14.0)	15.0 (14.0–15.9)	17.4 (16.3–18.5)	19.4 (18.0–20.6)	21.4 (19.8–22.8)	23.4 (21.5–25.1)	26.3 (23.9–28.3)	28.5 (25.7–30.8)
45-day	11.4 (10.7–12.1)	13.5 (12.7–14.3)	16.1 (15.2–17.2)	18.3 (17.1–19.4)	21.3 (19.9–22.7)	23.8 (22.1–25.4)	26.4 (24.4–28.1)	29.1 (26.7–31.1)	32.9 (29.8–35.3)	35.9 (32.2–38.7)
60-day	13.6 (12.9–14.4)	16.1 (15.2–17.0)	19.0 (17.9–20.1)	21.3 (20.1–22.6)	24.5 (23.1–26.0)	27.1 (25.3–28.7)	29.6 (27.6–31.5)	32.2 (29.8–34.3)	35.8 (32.7–38.2)	38.5 (34.9–41.3)

[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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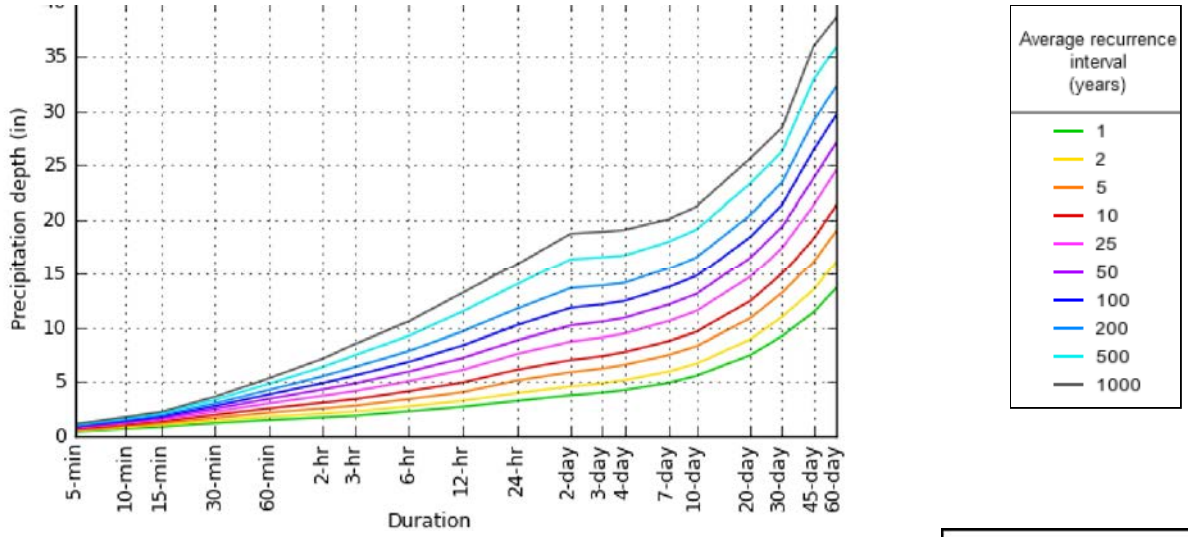
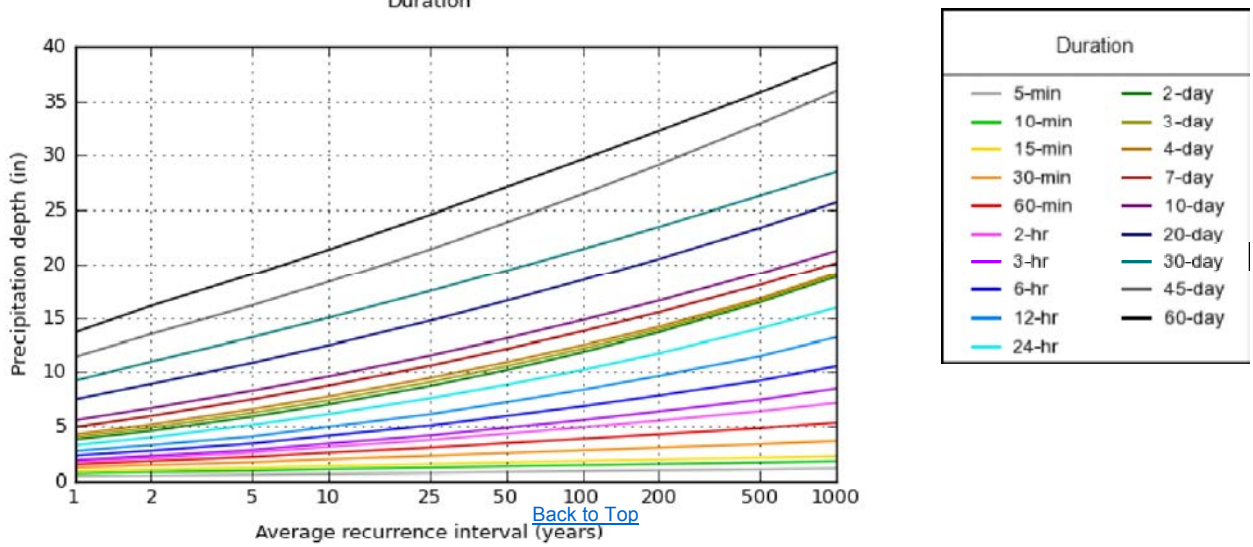
PF graphical





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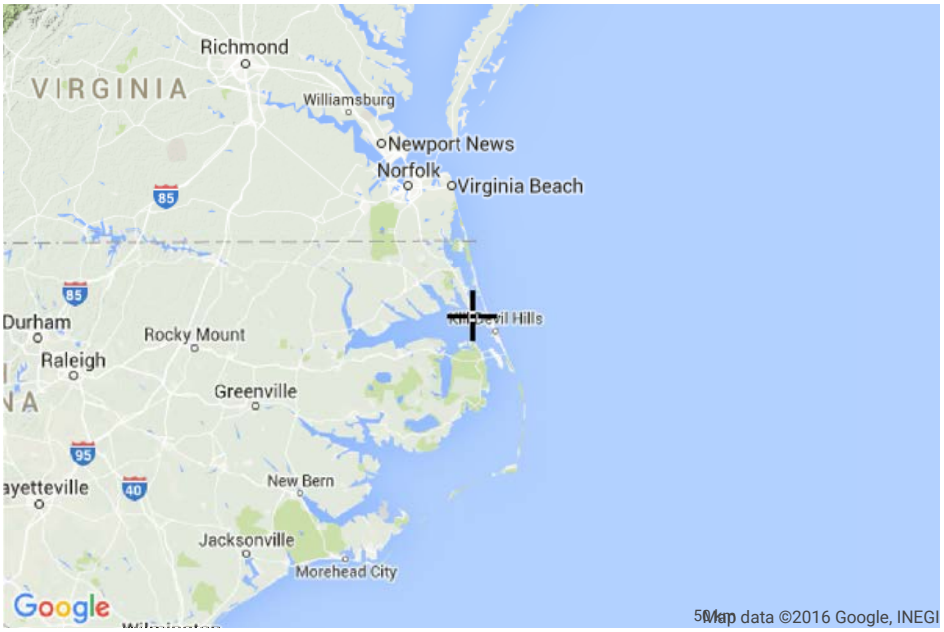
Maps & aerials

NOAA Atlas 14, Volume 2, Version 3

Created (GMT): Thu Feb 25 15:15:34 2016

Small scale terrain



Large scale terrain

Large scale map

Large scale aerial

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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

Custom Soil Resource Report
Soil Map

MAP LEGEND

Area of Interest (AOI)

Area of Interest (AOI)

Soils

Soil Map Unit Polygons

Soil Map Unit Lines

Soil Map Unit Points

Special Point Features

Blowout

Borrow Pit

Clay Spot

Closed Depression

Gravel Pit

Gravelly Spot

Landfill

Lava Flow

Marsh or swamp

Mine or Quarry

Miscellaneous Water

Perennial Water

Rock Outcrop

Saline Spot

Sandy Spot

Severely Eroded Spot

Sinkhole

Slide or Slip

Sodic Spot

Spoil Area

Stony Spot

Very Stony Spot

Wet Spot

Other

Special Line Features

Water Features

Streams and Canals

Transportation

Rails

Interstate Highways

US Routes

Major Roads

Local Roads

Background

Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Warning: Soil Map may not be valid at this scale.

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 contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: Web Mercator (EPSG:3857)

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 accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Currituck County, North Carolina
Survey Area Data: Version 14, Sep 13, 2014

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Nov 27, 2010—Mar 29, 2011

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

Currituck County, North Carolina (NC053)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
BoA	Bojac loamy sand, 0 to 3 percent slopes	4.6	100.0%
Totals for Area of Interest		**4.6**	**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

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
Natural 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 storage in profile: Low (about 6.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2s
Hydrologic Soil Group: A

Minor Components

Conetoe

Percent of map unit: 4 percent
Landform: Ridges on stream terraces, ridges on marine terraces
Landform position (two-dimensional): Shoulder, summit
Landform position (three-dimensional): Crest
Down-slope shape: Convex
Across-slope shape: Convex

Seabrook

Percent of map unit: 3 percent
Landform: Depressions on marine terraces
Down-slope shape: Concave
Across-slope shape: Linear

Munden

Percent of map unit: 3 percent
Landform: Marine terraces
Down-slope shape: Linear
Across-slope shape: Convex

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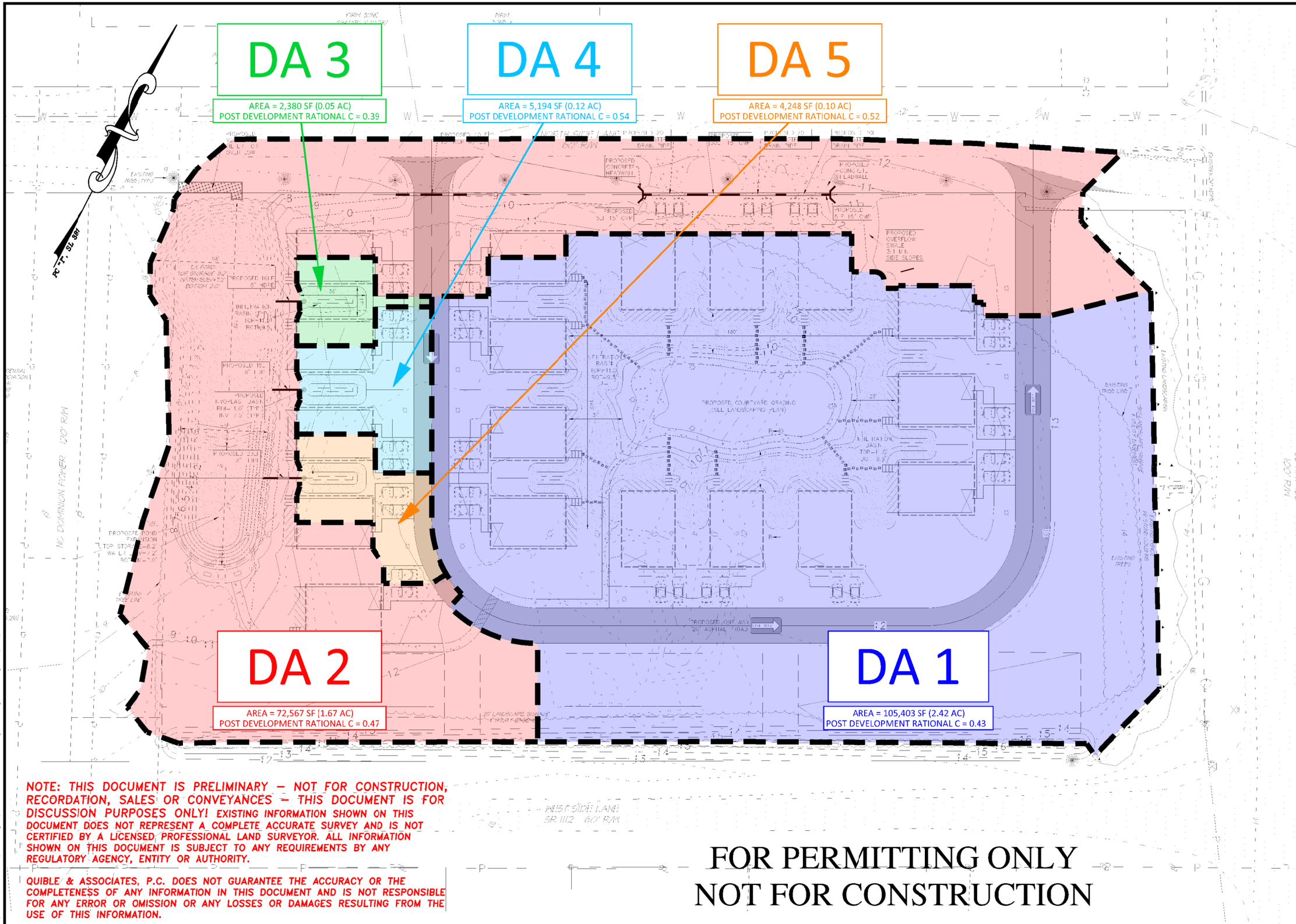

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E-Mail: administrator@quible.com

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NOT FOR
CONSTRUCTION

DRAINAGE AREA EXHIBIT

COTTAGES AT KILMARLIC
THE KILMARLIC CLUB

POPLAR BRANCH TOWNSHIP CURRITUCK COUNTY
NORTH CAROLINA

0 50' 100'
GRAPHIC SCALE IN FEET 1"=50'

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PROJECT	P14029
DRAWN BY	BKH
CHECKED BY	MWS
DATE	02/26/16

Q:\2014\P14029\Drawings\P14029-BKHWorkingDrawing-DA.dwg 2/26/2016 4:26 PM Bharris

ALBEMARLE REGIONAL HEALTH SERVICES

194518

Applicant:
QUIBLE & ASSOCIATES, P.C.
P.O. DRAWER 870
KITTY HAWK, NC

Owner:
FORTUNE BAY COMMRICAL , LLC
P.O. BOX 279
HARBINGER, NC 27941

Site Location:
CARATOKE HWY AND WEST SIDE LANE
POWELLS POINT, NC 27966

GPD: 1,440 **LTAR:** 0.600 **Classification:** Provisionally 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

Comments:

Septic system is to be designed by a NC Professional Engineer. Seasonal High Water Table was found to be 30-36"

EHS: _____
Carver, Kevin

Date: 06/23/2015

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

ALBEMARLE REGIONAL HEALTH SERVICES

194520

Applicant:
QUIBLE & ASSOCIATES, P.C.
P.O. DRAWER 870
KITTY HAWK, NC 27949

Owner:
FORTUNE BAY COMMERICAL , LLC
P.O. BOX 279
HARBINGER, NC 27941

Site Location:
CARATOKE HWY AND WEST SIDE LANE
POWELLS POINT, NC 27966

GPD: 1,440	**LTAR:** 0.600	**Classification:** Provisionally Suitable

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

To obtain an Authorization to Construct:

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* Sign legal documents agreeing to the inspection and maintenance requirements of the Albemarle Regional Health Services Management Entity
* Pay permit fee of $1000

Comments:

Septic system is to be designed by a NC Professional Engineer. Seasonal High Water Table was found to be 30-36"

EHS: _____
Carver, Kevin

Date: 06/23/2015

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

ALBEMARLE REGIONAL HEALTH SERVICES

194521

Applicant:
QUIBLE & ASSOCIATES, P.C.
P.O. DRAWER 870
KITTY HAWK, NC 27949

Owner:
FORTUNE BAY COMMERICAL, LLC
P.O. BOX 279
HARBINGER, NC 27941

Site Location:
CARATOKE HWY AND WEST SIDE LANE
POWELLS POINT, NC 27966

GPD: 1,440	**LTAR:** 0.600	**Classification:** Provisionally Suitable

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

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* Submit a plat or scale drawing of the lot, showing location and dimensions of all property lines, proposed structures and driveways
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* Sign legal documents agreeing to the inspection and maintenance requirements of the Albemarle Regional Health Services Management Entity
* Pay permit fee of $1000

Comments:

Septic system is to be designed by a NC Professional Engineer. Seasonal High Water Table was found to be 30-36"

EHS: K C
Carver, Kevin

Date: 06/23/2015

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

Brandon Harris

From: Michael Strader
Sent: Friday, April 22, 2016 10:46 AM
To: Brandon Harris
Subject: FW: Kilmarlic Project # P14029

Michael W. Strader, Jr., P.E.
Director of Engineering
Quible & Associates, P.C.
8466 Caratoke Highway, Bldg 400
Powells Point, NC 27966
P.O. Drawer 870
Kitty Hawk, NC 27949
t 252.491.8147
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From: Tommy Stokely
Sent: Tuesday, April 05, 2016 6:20 PM
To: Michael Strader <MStrader@quible.com>; Cathleen Saunders <csaunders@quible.com>
Subject: Fwd: Kilmarlic Project # P14029

FYI

Sent from my U.S. Cellular® Smartphone

-------- Original message --------
From: David Swinney <dswinney@arhs-nc.org>
Date: 04/05/2016 4:58 PM (GMT-05:00)
To: Tommy Stokely <TStokely@quible.com>
Subject: Kilmarlic Project # P14029

Plans for Kilmarlic look good with 1 exception. Sheet 3 has System A with ST1 ST2 ST2 (I think one of the ST2's should be PT).

Also the payment of $450 submit will be applied to the permit fees.

System A, 2880 gpd, permit fee of $1400
System B, 1440 gpd, permit fee of $1000
Total Permit Fees = $2400 - $450 payment, balance due $1950

I have Management Entity Paperwork that must be filled out for these permits. Please let me know who signs legal documents for this company. Example, Bryan Sullivan President of Fortune Bay. . . . .

Submit the payment along with 2 more copies of the plans and specifications. Once the Management Entity documents are signed and returned to my office the permits can then be issued.

Thanks

David R Swinney, REHS
Environmental Health Specialist

Albemarle Regional Health Services
Office: 252-338-4470
Fax: 252-338-4475
dswinney@arhs-nc.org

Mailing Adddress:
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P O Box 72
Camden, NC 27921

UPS/FED EX Address:
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Camden Medical Park
US Hwy 158 West, Building B
Camden, NC 27921

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Our Mission:

The Public Health professionals and programs of Albemarle Regional Health Services are dedicated to disease prevention and the promotion of a healthy environment to reduce morbidity, mortality and disability, through quality service, education, and advocacy.

Colonial

The Colonial style luminaire is frequently used in residential areas, pedestrian lighting applications, and in parks and small parking areas.

- Decorative cast aluminum housing with a matte black paint finish.
- Top mounted horizontal lamping with clear refractive acrylic panels with a Type III distribution.
- Vertical base down lamping with clear refractive acrylic panels with a Type V distribution.
- High pressure sodium lamping in 70, 100, and 150 watts.

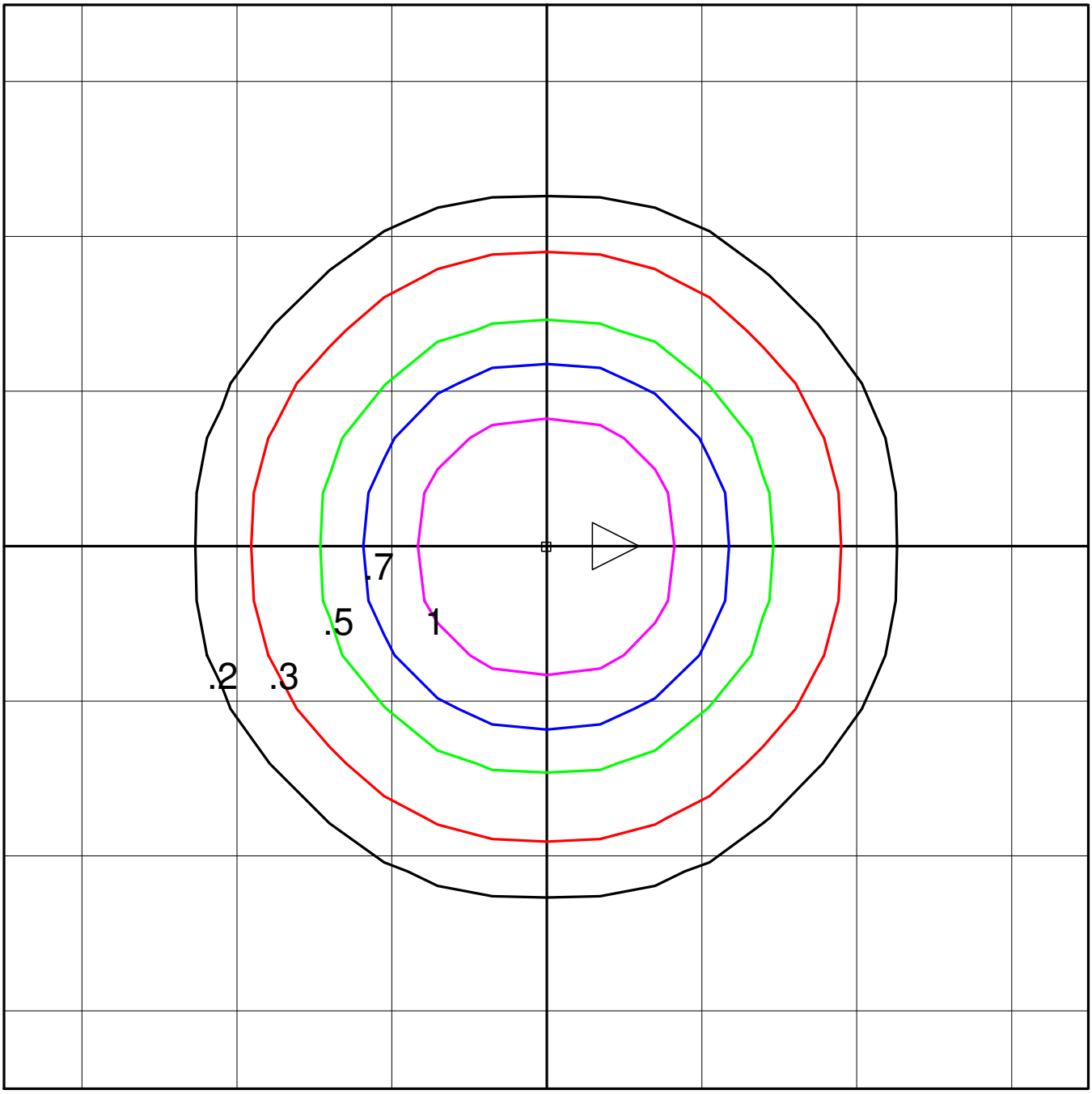
Luminaires:

Lamp Type	Nominal Lamp Watts	Nominal/Mean Lamp Lumens	Finish Color	Initial Lamp Lumens	Input Wattage	Recommended Mounting Height	Percent Uplight	WMIS CU	Luminaire Stock #
HPS	70	5,000 - Type III	Matte Black	6,500 - Type III	82	10 to 12 ft.	8.0 %	LCOL5SV	66386600
HPS	100	8,000 - Type III	Matte Black	9,500 - Type III	120	12 ft.	8.0 %	LCOL8SV	66387000
HPS	150	14,000 - Type III	Matte Black	16,000 - Type III	202	14 ft.	8.0 %	LCOL14SV	66388000
HPS	70	5,000 - Type V	Matte Black	6,500 - Type V	82	10 to 12 ft.	15.2 %	LCOL5SV5	66386400
HPS	100	8,000 - Type V	Matte Black	9,500 - Type V	120	12 ft.	15.2 %	LCOL8SV5	66387700

Poles Available:

Smooth Round Tapered Black Composite - Standard
Smooth Round Tapered Concrete - Standard

Many localities have restrictions on light distribution and placement of outdoor lighting equipment.
Consult with your local government before selecting outdoor lighting equipment.



COOPER LIGHTING
LXF70S55
LEXINGTON HID TYPE 5 POST TOP FIXTURE
WITH DIFFUSE PANELS
AND VERTICAL LAMP SOCKET ASSEMBLY
MOGUL BASE ED23.5 CLEAR HIGH PRESSURE SODIUM

Horizontal Footcandles
Scale: 1 Inch = 10 Ft.
Light Loss Factor = 0.80
Total Lumens Per Luminaire = 6500
Mounting Height = 10.00 Ft
Maximum Calculated Value = 1.25 Fc
Arrangement: Single

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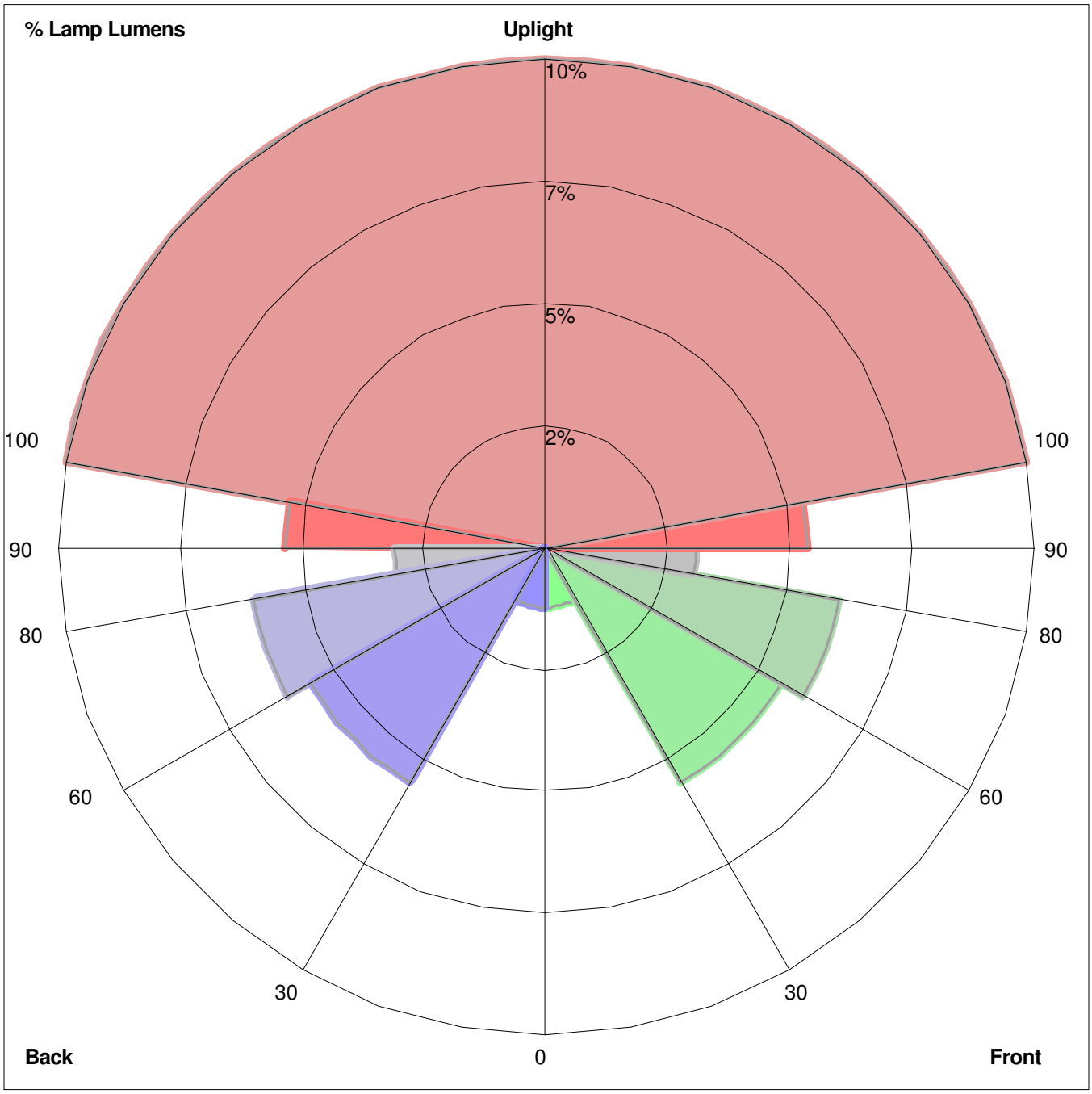
Calculations based on published IES Methods and recommendations.
Results derived from content of manufacturers photometric file.

IES ROAD REPORT
PHOTOMETRIC FILENAME : COLONIAL 70HPS TYPE5.IES

LUMINAIRE CLASSIFICATION SYSTEM (LCS) GRAPH



Percent Lamp Lumens:
Front: Low=1.2%, Medium=5.5%, High=6.0%, Very High=3.1%
Back: Low=1.2%, Medium=5.5%, High=6.0%, Very High=3.1%
Uplight: Low=5.3%, High=9.9%

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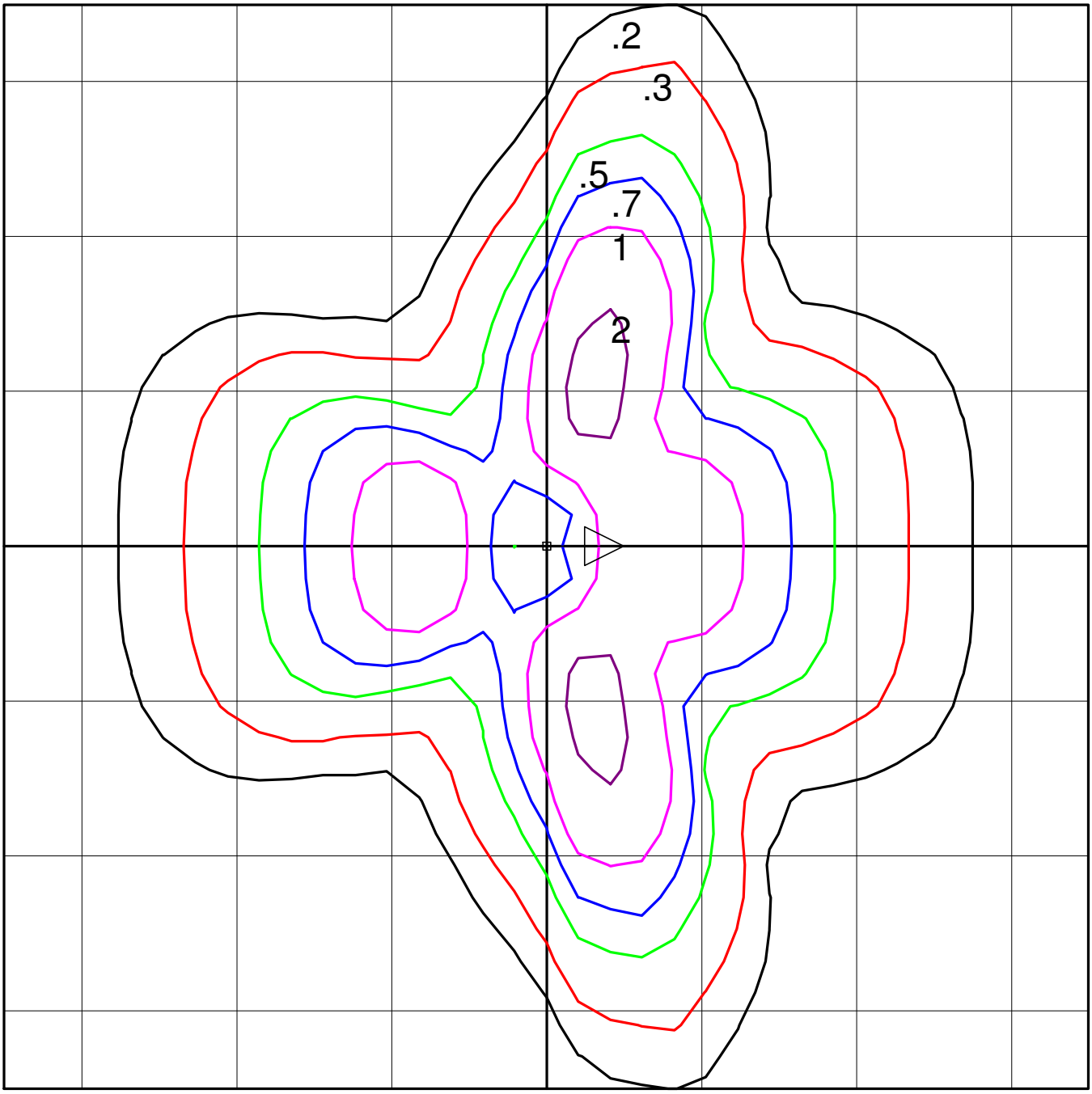
Calculations based on published IES Methods and recommendations, values rounded for display purposes.
Results derived from content of manufacturers photometric file.



COOPER LIGHTING
LXF10S33
LEXINGTON HID TYPE 3 POST TOP FIXTURE
WITH PRISMATIC TYPE 2 & 3 PANELS
AND VERTICAL LAMP SOCKET ASSEMBLY
MOGUL BASE ED23.5 COATED HIGH PRESSURE
SODIUM

Horizontal Footcandles
Scale: 1 Inch = 12 Ft.
Light Loss Factor = 0.80
Total Lumens Per Luminaire = 9500
Mounting Height = 12.00 Ft
Maximum Calculated Value = 2.44 Fc
Arrangement: Single

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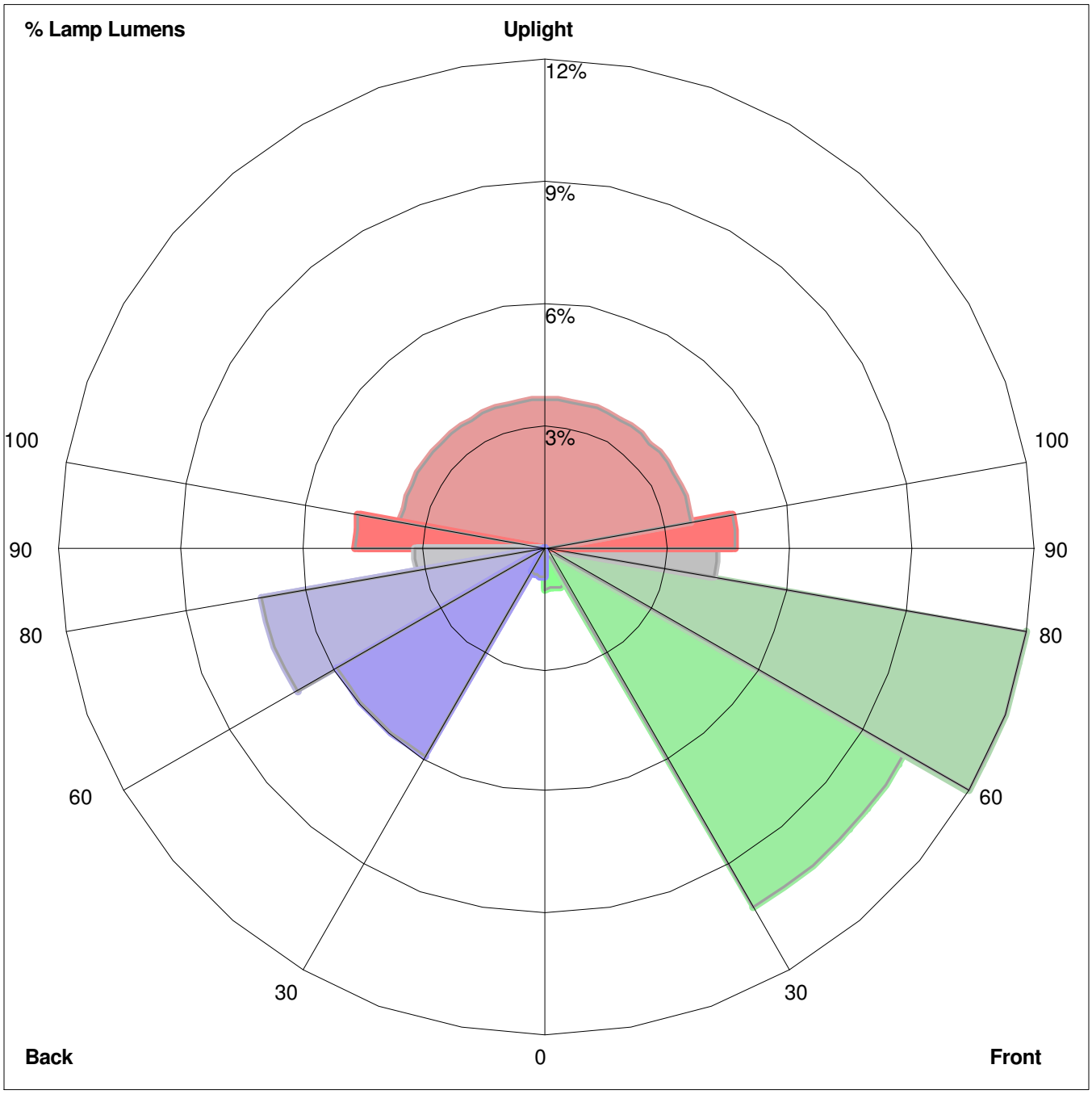
Calculations based on published IES Methods and recommendations.
Results derived from content of manufacturers photometric file.

IES ROAD REPORT
PHOTOMETRIC FILENAME : COLONIAL 100HPS TYPE3.IES

LUMINAIRE CLASSIFICATION SYSTEM (LCS) GRAPH



Percent Lamp Lumens:
Front: Low=1.0%, Medium=9.9%, High=11.6%, Very High=4.1%
Back: Low=0.7%, Medium=5.7%, High=6.9%, Very High=3.1%
Uplight: Low=4.5%, High=3.5%

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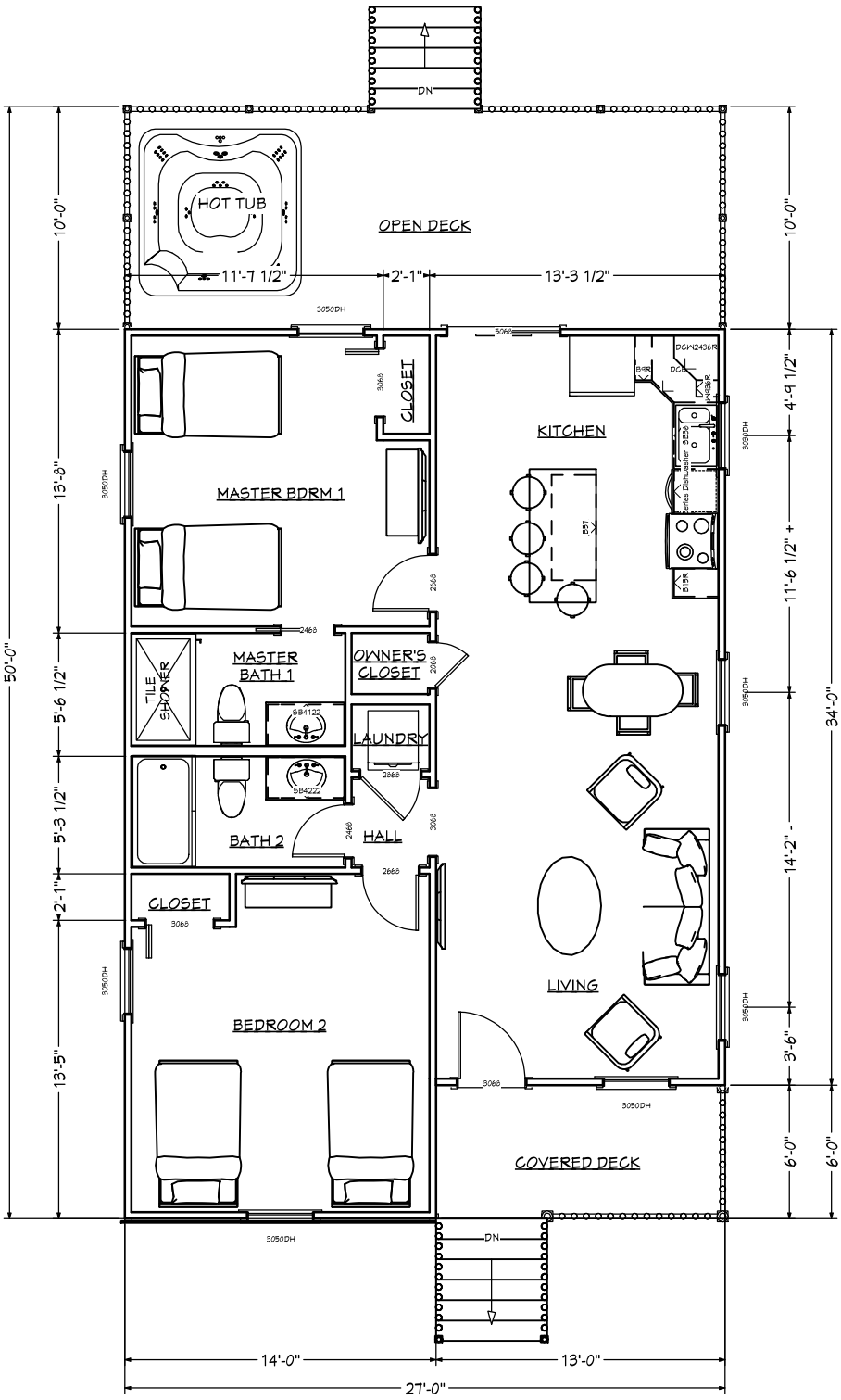
Calculations based on published IES Methods and recommendations, values rounded for display purposes.
Results derived from content of manufacturers photometric file.

Kilmarlic Cottage

COTTAGE #1

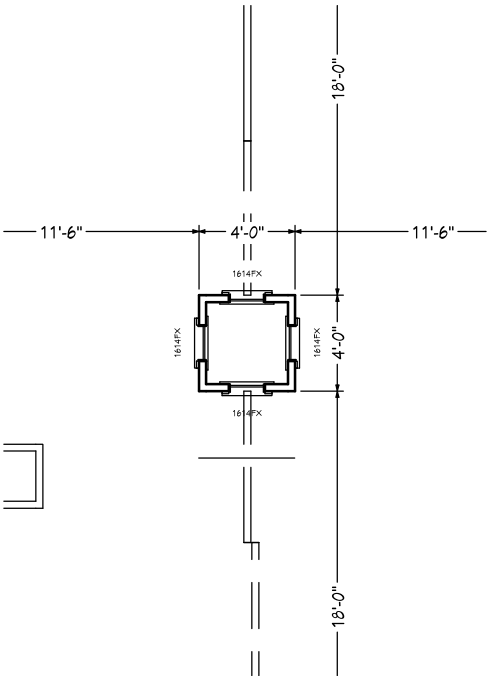
Kilmarlic Cottage



FIRST FLOOR PLAN
SCALE: 1/8" = 1'

9' CEILING HEIGHT
2" X 4" EXTERIOR WALLS
HEATED AREA = 1002 SQ. FT.
FRONT COVERED PORCH = 78 SQ. FT.
REAR OPEN DECK = 270 SQ. FT.

Kilmarlic Cottage

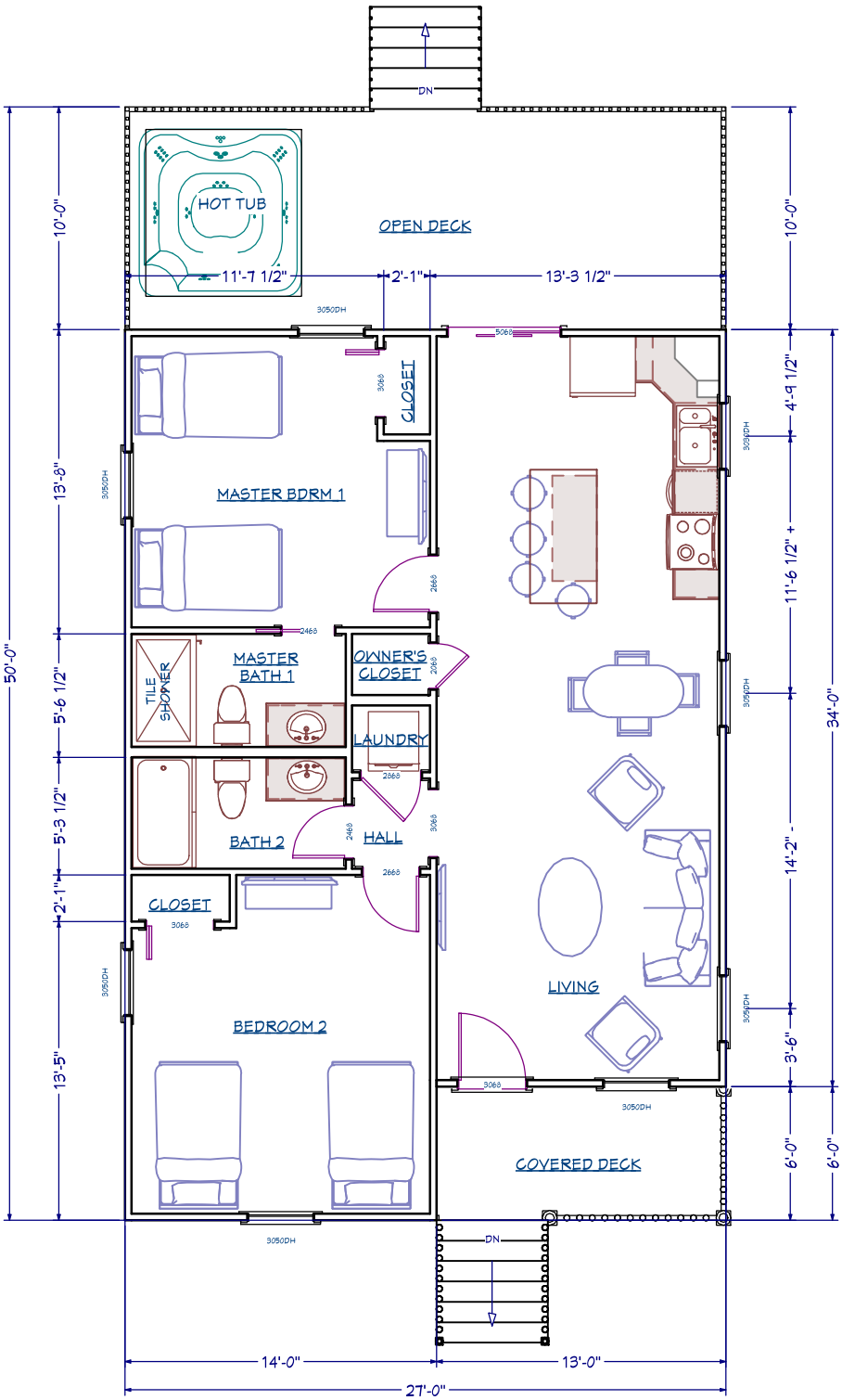


CUPOLA PLAN
SCALE: 1/8" = 1'

Kilmarlic Cottage

COTTAGE #2

Kilmarlic Cottage



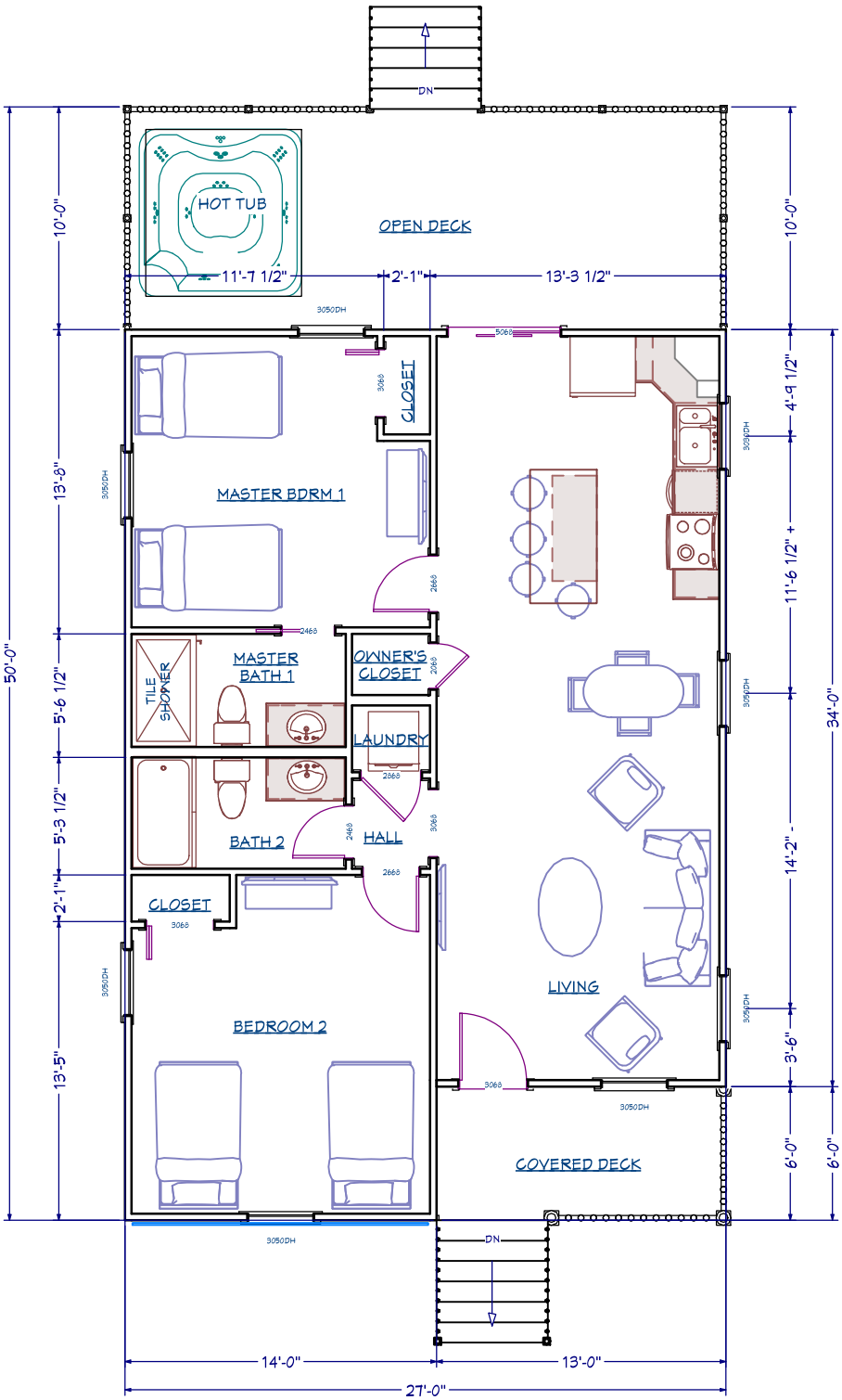
FIRST FLOOR PLAN
SCALE: 1/8" = 1'

9' CEILING HEIGHT
2" X 4" EXTERIOR WALLS
HEATED AREA = 1002 SQ. FT.
FRONT COVERED PORCH = 78 SQ. FT.
REAR OPEN DECK = 270 SQ. FT.

Kilmarlic Cottage

COTTAGE #3

Kilmarlic Cottage



FIRST FLOOR PLAN
SCALE: 1/8" = 1'

9' CEILING HEIGHT
2" X 4" EXTERIOR WALLS
HEATED AREA = 1002 SQ. FT.
FRONT COVERED PORCH = 78 SQ. FT.
REAR OPEN DECK = 270 SQ. FT.