



Date: June 30, 2020

To: **THE EXECUTIVE BOARD**

Care of: Charity Hurlburt, Project Manager  
**ADVANTAGE GOLD REALTY**

Via Email: [churlburt@advantagegoldrealty.com](mailto:churlburt@advantagegoldrealty.com)

Property: **RIVER BLUFF HOMEOWNERS ASSOCIATION OF ONSLOW COUNTY, INC.  
RICHLANDS, NORTH CAROLINA**

Service: **RESERVE STUDY**

Project No.: 20-0086-NC

Attachment: Full Report

Dear Ms. Hurlburt and other Directors

Criterium Engineers has completed a Reserve Study for the River Bluff Homeowners Association of Onslow County, Inc. We submit our report herewith for the Executive Board's review and consideration.

This Reserve Study has been performed in general accordance with Community Association Institute (CAI) National Reserve Study Standards.

Our findings and recommendations are principally based on observations made during our on-site visual inspection performed May 27, 2020.

The report herewith should be reviewed in its entirety, including its Appendices which contain the financial analysis, captioned photographs, and reference documents.

If you have any questions or would like to direct any follow-up service, please contact us at (800) 242-1969, extension 4211.

Criterium Engineers appreciates this opportunity to assist the Board and Advantage Gold Realty in support of the Association's facility and financial planning.

Respectfully submitted,

**CRITERIUM ENGINEERS**

A handwritten signature in blue ink, appearing to read "V. Campbell Grant", is written over a horizontal line.

V. Campbell Grant, P.E., CAI RS  
Senior Engineer



# **RESERVE STUDY**

## **RIVER BLUFF HOMEOWNERS ASSOCIATION OF ONSLOW COUNTY, INC RICHLANDS, NC**

*Prepared for:*

### **THE EXECUTIVE BOARD RIVER BLUFF HOMEOWNERS ASSOCIATION**

*Prepared by:*



**5 DEPOT STREET - SUITE 23  
FREEPORT, ME 04032  
(800) 242-1969**



Site Inspection: May 27, 2020  
*Submitted June 30, 2020*

*CE Project Number: 20-0086-NC*

# TABLE OF CONTENTS

<b>1.</b>	<b>INTRODUCTION.....</b>	<b>1</b>
<b>2.</b>	<b>EXECUTIVE SUMMARY .....</b>	<b>1</b>
<b>3.</b>	<b>PURPOSE &amp; SCOPE .....</b>	<b>3</b>
<b>4.</b>	<b>PHYSICAL ANALYSIS.....</b>	<b>5</b>
	4.1.PROPERTY DESCRIPTION .....	5
	4.2.COMMON COMPONENTS.....	6
	4.3.RESULTS OF THE OWNER SURVEY .....	6
	4.4.CONDITION ASSESSMENT .....	6
	4.5.LIFE & VALUATION.....	8
<b>5.</b>	<b>FINANCIAL ANALYSIS.....</b>	<b>10</b>
	5.1.RESERVE EXPENDITURE BUDGET PROJECTION .....	10
	5.2.EVALUATION OF CURRENT FUNDING LEVEL .....	11
	5.3.SUGGESTED ALTERNATIVE FUNDING STRATEGIES.....	11
	5.4.FUNDING METHODOLOGIES .....	12
<b>6.</b>	<b>LIMITATIONS.....</b>	<b>13</b>
<b>7.</b>	<b>CONCLUSION.....</b>	<b>14</b>

## APPENDICES

### **A. RESERVE BUDGET PROJECTION AND FUNDING ANALYSIS**

ASSN INFO, AGREED PLANNING ASSUMPTIONS & CURRENT RESERVE FUND DATA

ASSET INVENTORY AND CURRENT RESERVE ITEM DETERMINATION

CURRENT RESERVE ITEMS AND EXPENDITURE PLANNING

30-YEAR PROJECTIONS:

ANNUAL RESERVE EXPENDITURES BUDGET PROJECTION

RESERVE EXPENDITURE BUDGET PROJECTION SUMMARY

CASH FLOW PROJECTION AT THE CURRENT FUNDING LEVEL

ALTERNATIVE FUNDING PLAN NO. ONE & TWO

30-YEAR CASH-FLOW PROJECTIONS - SUMMARY GRAPH

### **B. CAPTIONED PHOTOGRAPHS**

### **C. MAPS, DRAWINGS AND AERIAL PHOTOGRAPHS**

### **D. REFERENCE DOCUMENTS**

CLIENT INPUT FORMS - ASSOCIATION AND CURRENT RESERVE FUNDING INFORMATION

ASSOCIATION 2020 OPERATING BUDGET

ASSOCIATION COVENANTS

NC DOT ROAD CROSSING AGREEMENT

TYPICAL SEPTIC SYSTEM PERMIT AND DESIGN

COMMUNITY ASSOCIATION INSTITUTE - NATIONAL RESERVE STUDY STANDARDS & CODE OF ETHICS

DEFINITIONS OF TERMS & REFERENCES USED IN THE REPORT

COMMON CONSTRUCTION ABBREVIATIONS AND ACRONYMS

### **E. PROJECT TEAM QUALIFICATIONS**

# **1. INTRODUCTION**

As requested by Advantage Gold Realty on behalf of the Executive Board of the River Bluff Homeowners Association of Onslow County, Inc. (hereinafter referred to as the "Property Manager", the "Board" and the "Association" or our "Client",) Criterium Engineers has completed a Reserve Study.

We have conducted the study in general accordance with the National Reserve Study Standards published by the Community Association Institute (CAI). Please refer to Appendix D containing copies of CAI documentation and also glossaries of common terms and abbreviations which appear in this report.

This study was conducted by licensed Professional Engineers and other qualified staff working under the responsible charge of CAI-certified Reserve Specialists. Please refer to Appendix E for the qualifications of the project team.

Criterium Project Engineer Logan Poe, P.E.<sup>(NC)</sup> conducted investigations for this study.

On May 27, 2020, he visited the community, met with a representative of the Board and conducted a visual inspection of site improvements and associated common elements. He was accompanied by a Board member and the Association Manager, Ms. Charity Hurlburt during a portion of the inspection.

Mr. Poe prepared this report and the attached reserve budget projection.

Criterium Senior Engineer V. Campbell Grant, P.E.<sup>(ME)</sup>, CAI RS, reviewed his findings and developed the attached reserve funding analysis.

Criterium presents this confidential report to the Board and the Property Manager for their consideration in support of the Association's facility and financial planning.

This report must be reviewed in its entirety to understand our findings and their limitations. The Appendices are an integral part of this report and must be included in any review.

# **2. EXECUTIVE SUMMARY**

The Association is a residential community located off NW Bridge Road in Richlands, North Carolina.

The River Bluff Association is one neighborhood accessed via River Bluff Drive.

In preparation for the on-site inspection, we reviewed all provided documentation regarding the community's configuration, maintenance history, recent operations and plans ahead.



The Board and Property Manager provided financial information on current overall condominium fees, the rate of contribution to the reserve fund, and the reserve balance.

In summary, we find the common components of the property to be in good general condition and well-maintained. We observed a few minor deficiencies and deferred repairs as is typical. They are noted in Section 4 of the report.

After our inspection, we prepared an inventory of Association-responsible common components. We then formed an opinion of the remaining useful life of each of these assets to identify those which will require significant repair or replacement expense from reserves.

We have estimated the current dollar cost of the anticipated reserve expenditures for all identified items, and projected annual reserve budgets over the agreed 30 year planning period. The period starts on January 1, 2021 and covers Fiscal Years 2021-2050.

If required, we have included near-term budgets for repairs to address observed deficiencies and deferred maintenance.

The 30-year total of all budget items is approximately \$156 thousand in current dollars, or \$225 thousand in future dollars after adjustment for 2.0% annual inflation.

See Reserve Expenditure Planning and Annual Budget tables in Appendix A for planning notes on all common components.

We have assumed the \$18,308 Net Income shown in the provide 2020 Fiscal Year Operating Budget is intended for contribution to reserves.

Our financial analysis indicates the Association's current annual rate of contribution to its reserve fund, \$18,308, if carried forward unchanged, would prove sufficient to cover anticipated reserve expenditures.

Depending on other factors, it may be excessive. Accumulated balances would reach approximately \$500 thousand by the end of the planning period.

Criterion has developed an alternative funding plan with a lower rate of contribution that would result in prudent positive year-end balances throughout the planning period for the Board's consideration.

Please note it may not be possible to have a corresponding reduction of total fee assessment. If the Association has a history of spending their budgeted Net Income every year, and/or has needed to have special assessments to fund relatively minor repairs, then increases of annual Operations and Maintenance (O&M) budgets may also be required. Such O&M considerations are beyond the scope of a Reserve Study.

See more detailed discussion of financial findings in Section 5, and 30-Year cash-flow projections of both the current and alternative funding plan in Appendix A

Criterion concurs with CAI's recommendation that reserve studies should be updated regularly to allow opportunity for periodic adjustment of facility plans, reserve budgets and funding strategies.

In reviewing the engineering assumptions, cost estimates and projected fund values herein, please understand their accuracy diminishes greatly beyond the initial years. Long range facility maintenance projections are intended only to indicate the likely pattern of reserve expenditures and to guide financial planning.

### **3. PURPOSE & SCOPE**

#### **3.1. OBJECTIVES**

Typically, a community has two broad cash requirements: general operation and maintenance (O&M) expenses and reserve expenditures for significant repairs and replacements of Association-responsible portions of the community.

This study focuses on major expenditures for common components funded from the Association's reserve fund.

Studies of this nature are important to ensure that a community association contributes to reserves such that it will have sufficient funds for long-term, periodic reserve expenditure requirements. This helps preserve the value of the common assets and of the individual units.

This report is intended to be used as a tool by the Association for considering and managing the Association's future financial obligations; for determining appropriate reserve fund expenditures and rates of contribution; and for informing the individual Owners of the community's future needs and the resulting financial plan.

The reserve fund cash-flow projections and analysis are based on the next thirty years. Data presented over the first several years is more reliable than the rough estimates used in later years.

In order to keep this study current, it should be updated periodically.

#### **3.2. LEVEL OF SERVICE**

The Community Association Institute (CAI) identifies three levels of service for Reserve Studies. All may be appropriate for a community, depending on the condition of the facility and the phase of their planning cycle.

- I. Full Reserve Study, with site visit
- II. Reserve Study Update, with site visit
- III. Reserve Study Update, without site visit

The CAI National Reserve Study Standard in Appendix C contains more detail on these levels of service and the scope of study of each of them.

Criterium's current study for the Association is a Level I Full Reserve Study.

Our actual scope of service is enhanced and exceeds the CAI standard in these ways:

- Our investigation and evaluation of the common components was performed by experienced, licensed Professional Engineers and CAI-certified Reserve Specialists.
- When appropriate to enhance facility performance or energy efficiency or code compliance, we recommend upgrades of configuration or quality of construction.
- After preparing and submitting our initial analysis, we will meet\* with the Board to discuss our findings.
- If necessary, we will engage in an iterative review process with the Board toward developing a financial plan most responsive to the needs of the Association.
- After preparing our full report, and if requested, we will meet\* with the Board or Association members to explain our findings.

\*Depending on schedule and availability, these meeting may be conducted by telephone or video conference.

### **3.3. SOURCES OF INFORMATION**

- Property Manager provided list of Association maintenance responsibilities
- Property Manager provided current Reserve Fund balance and rate of contribution
- 2020 Fiscal Year Budget
- Association Covenants
- Articles of Incorporation
- Onslow County tax assessment information & public mapping resources
- Off-site Septic Permits, Plat Maps and Phase I Survey
- GoogleMap aerial photograph
- Interviews of the Board and Property Manager

Criterion determines expected and remaining useful lives (EUL & RUL) of components and cost estimates for reserve expenditure budgets based on our evaluation of actual conditions and experience. In doing so, we also utilize these publications for guidance data:

- On-Line R S Means - Construction Cost Data
- Marshall & Swift Valuation Service – Costs Index & Life Expectancies
- Fannie Mae - Expected Useful Life Tables
- National Association of Home Builders - Life Expectancy of Components

## **4. PHYSICAL ANALYSIS**

### **4.1. PROPERTY DESCRIPTION**

Please refer to captioned photographs in Appendix B and a parcel map and aerial photograph in Appendix C.

The Association is a residential community located off Northwest Bridge Road in Richlands, North Carolina. Development of the community started in approximately 2004-2006 with different build-out phases by the developer.

The wood-framed 1 story to 2-1/2 story residential buildings are constructed over a combination of concrete slab-on-grade foundations and CMU concrete masonry unit foundations with crawlspaces.

Underground utility services connected to the buildings include public water, electric power, telephone and cable. Additionally, pole mounted lights were provided at streets maintained by the private utility company. Based on information provided the street lighting contained a prior agreement with continued monthly payment to the private electric utility company.

Roof storm water flows to the ground around the buildings. Road runoff is captured by swales adjacent to roadways.

The site has two masonry monumental signs at the front entrance. An additional masonry monumental signage is provided along S. Brandon Way. A wood privacy fence lines NW Bridge Road with individual masonry pedestals and site lighting.

The property is landscaped with building foundation plantings, and specimen trees. Private individual maintained fences are provided at various building units surrounding private yards. Open areas around buildings and road are maintained as lawns by individual building owners.

Some lots owners pump their septic tank effluent to shared septic fields in another part of the community

## **4.2. COMMON COMPONENTS**

Please see detailed Asset Inventory within Appendix A.

Unit Owners are responsible for maintenance of their own on-site improvements, buildings, interior fit-out & finishes and mechanical, electrical & plumbing systems. Additionally, Unit Owners are responsible for individual mailboxes and street lighting electric payments.

The State has assumed responsibility for road and street maintenance.

Association-responsible common structures and amenities are very limited:

- Besides perimeter fences at the front entrance, typical signage, and landscaping, we observed no common site improvements or amenities.
- We have assumed the Association will be responsible for repairs and upgrades required to the septic supply lines within the public road right away perpendicular to West Howard Drive and South Brandon Way.
- We have assumed the installed septic supply lines in other areas within the community are within the 30-foot sewer easement based on the provided plot maps. Per interviews with homeowner and previous Board member Tim Mehan – the Association is not responsible for individual offsite septic fields or individual supply lines leading from individual units to the septic fields except at the two noted locations at public road right away. We recommend that the Board verify this information and document accordingly.

We have assumed the various public utilities will maintain their respective systems up to their connections to the buildings, and that Unit Owners are responsible for their own utility connections. This should be verified.

## **4.3. CONDITION ASSESSMENT**

See Reserve Expenditure Planning worksheet in Appendix A.

See captioned inspection photographs in Appendix B.

See aerial photographs in Appendix C.

### **4.3.1 Site Improvements**

All paved surfaces and road drainage swales and piping are assumed State maintained.

Miscellaneous site improvements all appeared to be in good general condition. We noted two broken light fixtures at the front entrance fencing. Additionally, deterioration of the fiber cement caps at the masonry monuments between fences were noted. A missing brick was noted at the rear corner of the masonry Cypress Manor signage along S. Brandon Way. These should be replaced under the maintenance program.

As discussed above, the Association is responsible for future repairs and upgrades to the sewer lines at two locations where lines cross State maintained roadways. The Association will be responsible for brining the septic supply line to current standards within the right of way area which would include encasement of the septic supply lines. Note: We have assumed the supply lines at other areas are located within the sewer easements per the provided plat maps. Homeowner's privacy fences were observed within the 30-foot sewer easement. The Association is not responsible for replacing individual fences during future repairs to the underground septic supply lines. We have assumed the individual homeowner(s) at offsite septic fields are responsible for repairing supply lines and septic fields except as noted within the two State maintained right of ways.

We have carried reserve budgets for these site items:

- Contingency allowances for repairs and upgrades to the septic supply lines at the two public street crossings.
- Replacement of wood panels in the front privacy fence and lighting fixtures at 15-year intervals

See reserve budget detail in Appendix A.

Other normal site maintenance will occur during the 30-year study period. This should be covered by annual operations & maintenance (O&M) funds.

### **4.3.2 Building Structure**

There are no Association-responsible buildings in this Community.

### **4.3.3 Building Exterior**

There are no Association-responsible buildings in this Community.

### **4.3.3 Building Interior**

There are no Association-responsible common interior spaces in this Community.

### **4.3.4 Mechanical, Electrical & Plumbing Systems (MEP)**

Maintenance of the Units' utility service connections, sanitary drain pipe, septic tank, sewage pump station and other MEP systems is not the responsibility of the Association. Based on information provided, the Association is only responsible for sewer lines crossing State maintained roadways.

Any common portions of utility services, storm drainage system, street lighting and sewer & septic systems are discussed in Section 4.3.1.

### **4.3.5 Amenities**

There are no Association-responsible recreational or decorative common components installed in the Community.

## **4.4. LIFE & VALUATION**

### **4.5.1 Opinions of Useful Life**

Simply stated, for components which require periodic reserve expenditures for their repairs or replacement, the frequency of work equals the typical, industry accepted expected useful life (EUL) for the type of feature:

- Component's Frequency of major Repair or Replacement = Component's EUL

And, the remaining useful life (RUL) of a component before the next reserve expenditure for its repair or replacement is equal to the difference between its EUL and its age:

- $RUL = EUL - Age$

Of course, the condition and rate of deterioration of actual site improvements and building elements rarely conform to such simple analysis. And, often, a property's history and available documentation does not provide any record of a particular component's actual age.

In our experience, the effective age and actual RUL of an installed item vary greatly from its actual age and calculated RUL. These variances depend on the quality of its original materials and workmanship, level of service, climatic exposure, and ongoing maintenance. As part of Criterium's work, we have developed an opinion of the effective age, EUL and RUL of each common component based on our evaluation of its existing condition and considering those factors.

As a result, in preparing the reserve expenditure budget schedule, we often:

- Accelerate the schedule of work for components found to be in poorer condition than expected for their age.
- Defer work for components observed to be in unusually good condition.

In reality, repairs and replacements of some components are often spread over a number of years. This may be done because not all on-site installations of a particular type of component age or deteriorate at the same rate. Or, work may be scheduled in phases to limit disruption or ease cash flow.

For these reasons, when it seems appropriate, we will spread some budgets over multiple years. However, it is beyond the scope of this reserve study to prioritize the need for work between a number of buildings or installed locations or to closely specify or breakdown phased work packages.

In summary, we have based our opinion of the remaining service life and expected frequency and schedule of repair for each common component on some or all of the following:

- Actual or assumed age
- Observed existing condition
- Association's or Property Manager's maintenance history and plan
- Our experience with actual performance of such components under similar service and exposure
- Our experience managing the repairs and replacements of such components

We use the following documentation to guide our considerations:

- Fannie Mae - Expected Useful Life Tables
- National Association of Home Builders - Life Expectancy of Components
- Marshall & Swift Valuation Service –Expected Life Expectancies

#### **4.5.2 Cost Estimating**

In developing our estimate of reserve expenditure for most common components, we have estimated a quantity of each item and also a unit cost for its repair or replacement. In some cases, it is more appropriate to estimate a lump sum cost for a required work package.

Unless directed to take a different approach, we assume that contract labor will perform the work and apply appropriate installer's mark-ups on supplied material and equipment. When required, our estimated costs include demolition and disposal of existing materials, and protection of other portions of the property.



When appropriate for large projects, we will also include soft costs for design and project management, and typical general contractor's cost for general conditions, supervision, overhead and profit.

We have based our opinion of unit and lump sum costs on some or all of the following:

- Records of original construction cost
- Records of previous maintenance expenses
- Previously solicited Vendor quotations or Contractor proposals
- Budget estimates developed by others
- Our project files on repairs and replacements at other properties

We use the following publications to guide our considerations:

- On-Line R S Means - Construction Cost Data
- Marshall & Swift Valuation Service – Facility Cost Index

As agreed with the Board, annual aggregated reserve expenditure budgets have been calculated for all years during the study period by adjusting the annual tallies of current dollar cost estimates and compounding for inflation at 2.0% per year.

Of course, it is impossible to accurately predict inflation fluctuation. Three percent is close to the average annual values of both consumer and construction cost increases since the US Bureau of Labor Statistics started publishing data approximately 85 years ago. Two percent has been the approximate average over the past few decades.

## **5. FINANCIAL ANALYSIS**

Please refer to Appendix A which contains tables illustrating the findings following below.

### **5.1. RESERVE EXPENDITURE BUDGET PROJECTION**

Based on our investigations and scheduling and estimating methodologies described in Section 4 of this report, we have projected a reserve expenditure budget schedule throughout the study period.

The 30-year total of all budget items is approximately \$156 thousand in current dollars, or \$225 thousand in future dollars after adjustment for 2.0% annual inflation.

See Reserve Expenditure Planning and Annual Budget tables in Appendix A for planning notes on all common components.

Please note that we have assumed that the cost of minor repair & replacement work valued at less than \$2,500 will be covered by normal Operations & Maintenance budgets. Such “de minimis” expenses may be for one-time work on a single item, or aggregated repairs of a type of component over a year.

Despite conscientious planning, the Association should understand that needs for unanticipated and significant expenditures will occasionally arise from unexpected material failures or uninsured casualty damage. Typical examples of such unscheduled expenses are unreported vehicle accidents, storm or flood damage, water main leaks, plugged drains, or other utility service failure, tree falls, slope erosion, and sink holes.

We model the possibility of such future expenses by inserting lump sum contingency allowances for non-specific repairs in the out-years of the study. The need for this planning strategy usually proves understandable and acceptable to an Association’s Board and membership

## **5.2. EVALUATION OF CURRENT FUNDING LEVEL**

### **5.2.1 Association-Provided Information**

The Property Manager provided us with this starting data for our 30-Year cash flow projections:

- Study Period Starting Date: January 1, 2021 (for Fiscal Year 2021)
- Estimated Starting Reserve Fund Balance: \$47,039
- Current Rate of Reserve Contribution: \$18,308 Overall Annually
- Planned Special Assessments after 2020: None
- Planned Return on Investment: 1.00 % per Year
- Planned Inflation Rate: 2.00 % per Year

Financial data, records of past expenses, and cost estimates provided by others have been taken in good faith and at face value. No audit or other verification has been performed.

### **5.2.2 Current Funding Plan Projection**

We have assumed the \$18,308 Net Income shown in the provide 2020 Fiscal Year Operating Budget is intended for contribution to reserves.

Our financial analysis indicates the Association’s current annual rate of contribution to its reserve fund, \$18,308, if carried forward unchanged, would prove sufficient to cover anticipated reserve expenditures.

Depending on other factors, it may be excessive. Accumulated balances would reach approximately \$500 thousand by the end of the planning period.

If the Association has a history of spending their budgeted Net Income every year, and/or has needed to have special assessments to fund relatively minor repairs, then increases of annual Operations and Maintenance (O&M) budgets may also be required. Such O&M considerations are beyond the scope of a Reserve Study.

See Reserve Expenditure Planning and Annual Budget tables in Appendix A for planning notes on all common components.

### **5.3. SUGGESTED ALTERNATIVE FUNDING STRATEGIES**

For the Board's consideration, Criterium has developed an alternative funding plan with a lower rate of contribution that would result in prudent positive year-end balances throughout the planning period.

Depending on other factors as noted above, it may not be possible to have a corresponding reduction of total fee assessment.

To provide opportunity to reconsider reserve expenditure requirements and funding strategies, Criterium concurs with the Community Association Institute (CAI) recommendation to periodically update reserve studies.

### **5.4. FUNDING METHODOLOGIES**

The Community Association Institute (CAI) recognizes several reserve funding methodologies, all of which may be used to satisfy these principles:

- Sufficient Funds When Required
- Stable Contribution Rate over the Years
- Evenly Distributed Contributions over the Years
- Fiscally Responsible

For this reserve study, Criterium has utilized a cash flow approach.

One strategy to ensure there will be sufficient funds available to cover unplanned emergencies is to maintain prudent minimum threshold reserve balances.

For your association, we suggest an initial threshold equal to three times the average annual reserve expenditure in current dollars. This equals \$46 thousand in Year One. This is then adjusted for inflation over the study period leading to a future dollar threshold value of \$82 thousand in Year 30.

The alternative funding plans we developed should maintain positive reserve balances throughout the study which will not fall far below this suggested range of minimum threshold values.

For the planning needs of your association, we have recommended a cash-flow approach. This methodology is approved by CAI.

There are other ways of determining appropriate reserve funding levels. These are set forth in CAI's National Reserve Study Standard attached hereto in Appendix C.

## **6.0 LIMITATIONS**

This information in this study is not to be considered a warranty of condition, quality, compliance or cost. No warranty is implied.

Financial data, records of past expenses, and cost estimates provided by others have been taken in good faith and at face value. No audit or other verification has been performed.

The observations described in this study are valid on the dates of the investigation and have been made under the conditions noted in the report.

This study is limited to the visual observations made during our inspection. We did not undertake any excavation conduct any destructive or invasive testing, remove surface materials or finishes, or displace furnishings or equipment.

Except as specifically noted, we did not observe or inspect the following areas and items:

- Buried foundations, utility services and infrastructure
- Building wall, floor and roof structural elements and members
- Attics and other concealed spaces.
- Unit Interiors and Owners' improvements
- Locked or inaccessible or confined spaces
- Concealed wiring, ducts and piping
- Interior of mechanical and electrical enclosures and equipment
- Systems and equipment which was not operating was not tested

In the absence of other information such as records from construction or previous inspections, or indirect evidence of concealed conditions, we cannot form any opinion on unobserved portions of the facility.

In some cases, we inspected only a representative sample of site improvements and building spaces, components, systems or equipment. We cannot be responsible for aberrations.

We did not perform any computations or other engineering analysis as part of this study, nor did we conduct a comprehensive code compliance investigation.

We did not undertake to completely assess the structural stability of the buildings or the underlying foundations and soils. Similarly, we performed no seismic assessment.

We did not undertake a comprehensive environmental assessment of the facility, nor perform any sampling or testing for hazardous materials.

Reserve budgets are opinions of cost based on rough estimates. We have not obtained competitive quotations or estimates from contractors. Actual costs can vary significantly, based on the proposed scope of work, availability of materials and qualified contractors, and many other variables. We cannot be responsible for variances.

Criterion Engineers prepared this report for the use of the Association. We do not intend any other individual or party to rely upon this study without our express written consent. If another individual or party relies on this study, they shall indemnify and hold Criterion Engineers harmless for any damages, losses, or expenses they may incur as a result of its use.

Criterion Engineers does not offer financial counseling services. Although reasonable rates of inflation and return on investment must be assumed to calculate projected balances, no one can accurately predict actual economic performance. Reserve fund investments may be discussed during the course of the study. However, we do not purport to hold any special expertise and are not qualified to offer professional advice in this area.

## **7.0 CONCLUSION**

To the best of our ability, we have attempted to work in the best interest of the Association and to aid the Board toward fulfillment of their fiduciary responsibilities. In our professional opinion, and within the limitations disclosed elsewhere herein, all information contained herein is reliable and appropriate to guide the Associations' deliberations and decision-making.

We recommend that the Association seek other appropriate professional guidance before finalizing their current reserve planning. Depending on issues which may arise, consultants who could aid the Association's decision-making might include a property manager, certified public accountant, financial counselor or attorney.

All of Criterium's work for this study has been carried out in strict accordance with the Codes of Ethics of the National Society of Professional Engineers (NSPE) and the Community Association Institute (CAI).

We consider our report confidential to the Board, and will not share its content with others except as may be required by law, and then only with the Board's knowledge.

We are unaware of any other involvement or business relationship between Criterium and the Association, individual Owners, members of the Board, the Property Manager or other Vendors or Contractors that constitutes any conflict of interest.

Criterium Engineers is pleased to present this report for the Board's review. We appreciate this opportunity to assist the Board and Property Manager in support of the Association's facility and financial planning. Thank you.

Respectfully submitted,

### **CRITERIUM ENGINEERS**



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Logan Poe, P.E.<sup>(NC)</sup>  
Project Engineer  
*Inspecting and reporting*

A handwritten signature in blue ink, likely belonging to V. Campbell Grant.

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V. Campbell Grant, P.E.<sup>(ME)</sup>, CAI RS  
Senior Engineer  
*Reviewing and reporting*

**APPENDIX A**

**RESERVE BUDGET PROJECTION**

**AND FUNDING ANALYSIS**

**Reserve Study for Client:****The Executive Board****River Bluff Homeowners Association of Onslow County, Inc.**

Richlands, North Carolina

**Property Manager:**

Charity Hurlburt, Association Manager

**Advantage Gold Realty**

Jacksonville, North Carolina

[churlburt@advantagegoldrealty.com](mailto:churlburt@advantagegoldrealty.com)

(910) 353-2001

**Association Information, Agreed Planning Assumptions and Current Reserve Funding Data****Association Information:**

Number of units

116

Is this property mixed-use?

No

Are all Units assessed at equal rates?

Yes

Fiscal year starts:

1/1/2021

Fiscal year is designated as

2021

**Community-Specific Notes****Construction History**

Initial building construction or first Unit occupancy

**Year****Age**

2005

15

If building(s) had a prior use, the year of condo conversion

Not Applicable

—

If phased construction, the year the last Unit was completed

2020

0

Significant renovation

Not Applicable

—

**Study Information & Planning Assumptions:**

Study period, duration in years

30

Study period starts

1/1/2021

Rate of return on investment % (ROI) applied to reserve fund balances

1.0%

Annual inflation rate (%) applied to future expenditure annual budgets

2.0%

**Current Funding Levels:**

Current overall monthly fee revenue from Units

2020 Budget - Assessment Income

\$ 2,900.00

Current monthly reserve contribution from fees

2020 Budget - Net Income

\$ 1,525.70

Percentage - reserve contributions of overall revenue

34.5%

Monthly reserve contribution per unit

\$ 13.15

Annual reserve contribution per unit

\$ 157.83

Current overall annual reserve contribution

\$ 18,308.40

Estimated starting reserve fund balance

April 2020 reported at \$34,833.

\$ 47,039

**Currently Planned Special Assessments**

None after 2020

Dollars	Year
\$ -	—



**River Bluff Homeowners Association of Onslow County, Inc.**  
**Asset Inventory and Current Reserve Item Determination**

Category	Item Description	Decision Factors for inclusion in the Current Reserve Study										Current Reserve Item?	Notes
		Responsibility?			Foreseeable Expense?		Expected Schedule?			Funding during Period?			
		Assn	Unit Owners	Third Parties	Yes	No	Annual	Expense in Study Period	Replace Beyond Period	Reserves	O&M		
4.3.1 Site Improvements													
	Roadways and pavement			X								No	State DOT accepted and maintained
	Pole-mounted street lights			X								No	Utility company responsibility
	Monument signs	X			X			X			X	Yes	Repair on an as-needed basis under O&M
	Wood privacy fence along NW Bridge Road at main entrance	X			X			X		X		Yes	Future replacement of wood privacy fence panels
	Lighting at masonry monument sign and front privacy fence	X			X			X		X		Yes	Future replacement of light fixtures - ongoing maintenance to fix two broken lights and replace fiber cement caps
	Septic tanks, pumps cross-property sewer piping and remote leaching fields		X									No	Unit Owner maintained
	Road crossings for cross-property sewers	X			X			X		X		No	Contingency allowance for future repair or replacement of concrete-encased piping and road repairs thereafter
4.3.2 Building Structure and Exterior													
	No common buildings		X									No	
4.3.4 Mechanical, Electrical & Plumbing Systems													
	None		X									No	
4.3.5 Building Interiors													
	No common buildings		X									No	
4.3.6 Miscellaneous Assets and Services													
	Reserve study updates	X			X			X		X		Yes	In accordance with Community Assn. Institute (CAI) recommendation

**River Bluff Homeowners Association of Onslow County, Inc.**  
**Current Reserve Items and Expenditure Planning**

Category	Item Description	Planning Notes Scope of Work Budget & Scheduling	Quantity		Unit Cost  Current (Year 1) Dollars	Reserve Expenditure  Current (Year 1) Dollars	Useful Life, Years	
			Count	Unit			EUL = Expected or Frequency	RUL = Remaining or Until Next
4.3.1 Site Improvements								
	Roadways and pavement	State DOT accepted and maintained			-	-	-	-
	Pole-mounted street lights	Utility company responsibility			-	-	-	-
	Monument signs	Repair on an as-need basis under O&M			-	-	-	-
	Wood privacy fence along NW Bridge Road at main entrance	Future replacement of wood privacy fence panels	910	LF	\$ 16.00	\$ 14,560	15	1
	Lighting at masonry monument sign and front privacy fence	Future replacement of light fixtures - ongoing maintenance to fix two broken lights and replace fiber cement caps	44	Unit	\$ 150.00	\$ 6,600	15	1
	Septic tanks, pumps cross-property sewer piping and remote leaching fields	Unit Owner maintained			-	-	-	-
	Road crossings for cross-property sewers	Contingency allowance for future repair or replacement of concrete-encased piping and road repairs thereafter	2	Locations	\$ 25,000.00	\$ 50,000	15	14
4.3.2 Building Structure and Exterior								
	No common buildings				-	-	-	-
4.3.4 Mechanical, Electrical & Plumbing Systems								
	None							
4.3.5 Building Interiors								
	No common buildings				-	-	-	-
4.3.6 Miscellaneous Assets and Services								
	Reserve study updates	In accordance with Community Assn. Institute (CAI) recommendation	1	Lot	\$ 4,500.00	\$ 4,500	10	9

**River Bluff Homeowners Association of Onslow County, Inc.**  
**Annual Reserve Expenditure Budget Projection**

Category	Study Year Number & Fiscal Year									
	1	2	3	4	5	6	7	8	9	10
Item Description	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
<b>4.3.1 Site Improvements</b>										
Roadways and pavement	0	0	0	0	0	0	0	0	0	0
Pole-mounted street lights	0	0	0	0	0	0	0	0	0	0
Monument signs	0	0	0	0	0	0	0	0	0	0
Wood privacy fence along NW Bridge Road at main entrance	0	14,560	0	0	0	0	0	0	0	0
Lighting at masonry monument sign and front privacy fence	0	6,600	0	0	0	0	0	0	0	0
Septic tanks, pumps cross-property sewer piping and remote leaching fields	0	0	0	0	0	0	0	0	0	0
Road crossings for cross-property sewers	0	0	0	0	0	0	0	0	0	0
<b>4.3.2 Building Structure and Exterior</b>										
No common buildings	0	0	0	0	0	0	0	0	0	0
<b>4.3.4 Mechanical, Electrical &amp; Plumbing Systems</b>										
None	0	0	0	0	0	0	0	0	0	0
<b>4.3.5 Building Interiors</b>										
No common buildings	0	0	0	0	0	0	0	0	0	0
<b>4.3.6 Miscellaneous Assets and Services</b>										
Reserve study updates	0	0	0	0	0	0	0	0	0	4,500
<b>Current (Year 1) Dollar Annual Total =</b>	<b>0</b>	<b>21,160</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>4,500</b>
<b>Future Dollar Annual Total, adjusted for inflation =</b>	<b>0</b>	<b>21,583</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>5,378</b>

**River Bluff Homeowners Association of Onslow Co**  
**Annual Reserve Expenditure Budget Projection**

Category	Item Description	Study Year Number & Fiscal Year									
		11	12	13	14	15	16	17	18	19	20
		2031	2032	2033	2034	2035	2036	2037	2038	2039	2040
4.3.1 Site Improvements											
	Roadways and pavement	0	0	0	0	0	0	0	0	0	0
	Pole-mounted street lights	0	0	0	0	0	0	0	0	0	0
	Monument signs	0	0	0	0	0	0	0	0	0	0
	Wood privacy fence along NW Bridge Road at main entrance	0	0	0	0	0	0	14,560	0	0	0
	Lighting at masonry monument sign and front privacy fence	0	0	0	0	0	0	6,600	0	0	0
	Septic tanks, pumps cross-property sewer piping and remote leaching fields	0	0	0	0	0	0	0	0	0	0
	Road crossings for cross-property sewers	0	0	0	0	50,000	0	0	0	0	0
4.3.2 Building Structure and Exterior											
	No common buildings	0	0	0	0	0	0	0	0	0	0
4.3.4 Mechanical, Electrical & Plumbing Systems											
	None	0	0	0	0	0	0	0	0	0	0
4.3.5 Building Interiors											
	No common buildings	0	0	0	0	0	0	0	0	0	0
4.3.6 Miscellaneous Assets and Services											
	Reserve study updates	0	0	0	0	0	0	0	0	0	4,500
Current (Year 1) Dollar Annual Total =		0	0	0	0	50,000	0	21,160	0	0	4,500
Future Dollar Annual Total, adjusted for inflation =		0	0	0	0	65,974	0	29,048	0	0	6,556

**River Bluff Homeowners Association of Onslow Co**  
**Annual Reserve Expenditure Budget Projection**

Category	Item Description	Study Year Number & Fiscal Year										30-Year Line Item Totals
		21	22	23	24	25	26	27	28	29	30	
		2041	2042	2043	2044	2045	2046	2047	2048	2049	2050	
4.3.1 Site Improvements												
	Roadways and pavement	0	0	0	0	0	0	0	0	0	0	0
	Pole-mounted street lights	0	0	0	0	0	0	0	0	0	0	0
	Monument signs	0	0	0	0	0	0	0	0	0	0	0
	Wood privacy fence along NW Bridge Road at main entrance	0	0	0	0	0	0	0	0	0	0	29,120
	Lighting at masonry monument sign and front privacy fence	0	0	0	0	0	0	0	0	0	0	13,200
	Septic tanks, pumps cross-property sewer piping and remote leaching fields	0	0	0	0	0	0	0	0	0	0	0
	Road crossings for cross-property sewers	0	0	0	0	0	0	0	0	0	50,000	100,000
4.3.2 Building Structure and Exterior												
	No common buildings	0	0	0	0	0	0	0	0	0	0	0
4.3.4 Mechanical, Electrical & Plumbing Systems												
	None	0	0	0	0	0	0	0	0	0	0	0
4.3.5 Building Interiors												
	No common buildings	0	0	0	0	0	0	0	0	0	0	0
4.3.6 Miscellaneous Assets and Services												
	Reserve study updates	0	0	0	0	0	0	0	0	0	4,500	13,500
Current (Year 1) Dollar Annual Total =		0	0	0	0	0	0	0	0	0	54,500	155,820
Future Dollar Annual Total, adjusted for inflation =		0	0	0	0	0	0	0	0	0	96,784	225,322

**River Bluff Homeowners Association of Onslow County, Inc.**  
**Reserve Expenditure Budget Projection Summary**

**Annual Budgets**

<b>Year No.</b>	<b>Fiscal Year</b>	<b>Current Dollars</b>	<b>Future Dollars</b>
1	2021	\$ -	\$ -
2	2022	\$ 21,160	\$ 21,583
3	2023	\$ -	\$ -
4	2024	\$ -	\$ -
5	2025	\$ -	\$ -
6	2026	\$ -	\$ -
7	2026	\$ -	\$ -
8	2028	\$ -	\$ -
9	2029	\$ -	\$ -
10	2030	\$ 4,500	\$ 5,378
11	2031	\$ -	\$ -
12	2032	\$ -	\$ -
13	2033	\$ -	\$ -
14	2034	\$ -	\$ -
15	2035	\$ 50,000	\$ 65,974
16	2036	\$ -	\$ -
17	2037	\$ 21,160	\$ 29,048
18	2038	\$ -	\$ -
19	2039	\$ -	\$ -
20	2040	\$ 4,500	\$ 6,556
21	2041	\$ -	\$ -
22	2042	\$ -	\$ -
23	2043	\$ -	\$ -
24	2044	\$ -	\$ -
25	2045	\$ -	\$ -
26	2046	\$ -	\$ -
27	2047	\$ -	\$ -
28	2048	\$ -	\$ -
29	2049	\$ -	\$ -
30	2050	\$ 54,500	\$ 96,784

**Totals, Averages & Expense per Unit**

30-Year Total Budget =	\$ 155,820	\$ 225,322
30-Year Total Budget per Unit =	\$ 1,343	\$ 1,942
Annual Average Budget =	\$ 5,194	\$ 7,511
Annual Average per Unit =	\$ 45	\$ 65
Monthly Average Budget =	\$ 433	\$ 626
Monthly Average per Unit =	\$ 3.73	\$ 5.40

**Reserve Fund Balance - Minimum Threshold Value**

Suggest setting the initial Year One value at four times the Annual Average Reserve Budget in Current Dollars =	\$ 20,776	
Future values in Years 2-30 are projected ahead with compounding inflation. Resulting Year 30 value =		\$ 36,895

**River Bluff Homeowners Association of Onslow County, Inc.**  
**Cash-Flow Projection at the Current Funding Level**

Unchanged throughout the 30-Year Study Period

Reserve balances grow to approximately \$500 thousand by the end of the period.

Year No.	Year	Beginning Reserve Fund Balance	Current Fee Revenue	Currently Planned Special Assessments	Investment Earnings	Projected Capital Expenditures	Deficit		Suggested Minimum Threshold
							< Threshold	> Threshold	
							Ending Reserve Fund Balance		
1	2021	\$ 47,039	\$ 18,308	\$ -	\$ 653	\$ -	\$ 66,000		\$ 20,776
2	2022	\$ 66,000	\$ 18,308	\$ -	\$ 627	\$ 21,583	\$ 63,353		\$ 21,192
3	2023	\$ 63,353	\$ 18,308	\$ -	\$ 817	\$ -	\$ 82,478		\$ 21,615
4	2024	\$ 82,478	\$ 18,308	\$ -	\$ 1,008	\$ -	\$ 101,794		\$ 22,048
5	2025	\$ 101,794	\$ 18,308	\$ -	\$ 1,201	\$ -	\$ 121,304		\$ 22,489
6	2026	\$ 121,304	\$ 18,308	\$ -	\$ 1,396	\$ -	\$ 141,008		\$ 22,938
7	2026	\$ 141,008	\$ 18,308	\$ -	\$ 1,593	\$ -	\$ 160,910		\$ 23,397
8	2028	\$ 160,910	\$ 18,308	\$ -	\$ 1,792	\$ -	\$ 181,010		\$ 23,865
9	2029	\$ 181,010	\$ 18,308	\$ -	\$ 1,993	\$ -	\$ 201,312		\$ 24,342
10	2030	\$ 201,312	\$ 18,308	\$ -	\$ 2,142	\$ 5,378	\$ 216,385		\$ 24,829
11	2031	\$ 216,385	\$ 18,308	\$ -	\$ 2,347	\$ -	\$ 237,040		\$ 25,326
12	2032	\$ 237,040	\$ 18,308	\$ -	\$ 2,553	\$ -	\$ 257,902		\$ 25,832
13	2033	\$ 257,902	\$ 18,308	\$ -	\$ 2,762	\$ -	\$ 278,973		\$ 26,349
14	2034	\$ 278,973	\$ 18,308	\$ -	\$ 2,973	\$ -	\$ 300,254		\$ 26,876
15	2035	\$ 300,254	\$ 18,308	\$ -	\$ 2,526	\$ 65,974	\$ 255,114		\$ 27,413
16	2036	\$ 255,114	\$ 18,308	\$ -	\$ 2,734	\$ -	\$ 276,157		\$ 27,962
17	2037	\$ 276,157	\$ 18,308	\$ -	\$ 2,654	\$ 29,048	\$ 268,071		\$ 28,521
18	2038	\$ 268,071	\$ 18,308	\$ -	\$ 2,864	\$ -	\$ 289,243		\$ 29,091
19	2039	\$ 289,243	\$ 18,308	\$ -	\$ 3,076	\$ -	\$ 310,627		\$ 29,673
20	2040	\$ 310,627	\$ 18,308	\$ -	\$ 3,224	\$ 6,556	\$ 325,604		\$ 30,267
21	2041	\$ 325,604	\$ 18,308	\$ -	\$ 3,439	\$ -	\$ 347,351		\$ 30,872
22	2042	\$ 347,351	\$ 18,308	\$ -	\$ 3,657	\$ -	\$ 369,316		\$ 31,489
23	2043	\$ 369,316	\$ 18,308	\$ -	\$ 3,876	\$ -	\$ 391,501		\$ 32,119
24	2044	\$ 391,501	\$ 18,308	\$ -	\$ 4,098	\$ -	\$ 413,907		\$ 32,762
25	2045	\$ 413,907	\$ 18,308	\$ -	\$ 4,322	\$ -	\$ 436,538		\$ 33,417
26	2046	\$ 436,538	\$ 18,308	\$ -	\$ 4,548	\$ -	\$ 459,395		\$ 34,085
27	2047	\$ 459,395	\$ 18,308	\$ -	\$ 4,777	\$ -	\$ 482,480		\$ 34,767
28	2048	\$ 482,480	\$ 18,308	\$ -	\$ 5,008	\$ -	\$ 505,797		\$ 35,462
29	2049	\$ 505,797	\$ 18,308	\$ -	\$ 5,241	\$ -	\$ 529,346		\$ 36,172
30	2050	\$ 529,346	\$ 18,308	\$ -	\$ 4,509	\$ 96,784	\$ 455,380		\$ 36,895
30-Year Total of Revenues =		\$ 633,663		\$ 225,322		= 30-Year Total of Expenses			

All year-end balances, revenues & expenditures above in future dollars

**River Bluff Homeowners Association of Onslow County, Inc.**  
**Recommended Funding Plan**

**One-time adjustment in Year 1 (2021)**  
**Includes no special assessments.**

**Reduce the monthly rate of contributions to reserves from \$13.15 per Unit to \$5.00.**

**Please note it may not be possible to have a corresponding reduction of total fee assessment. We noticed the rather large \$18,308 Net Income in the 2020 Fiscal Year Budget, and assumed that full amount was planned for contribution to Reserves. If the Association has a history of spending their budgeted Net Income every year, and/or needs to have special assessments to fund relatively minor repairs, then increases of annual Operations and Maintenance (O&M) budgets may also be required.**

								> Threshold		
								< Threshold		
								Deficit		
Year No.	Year	Beginning Reserve Fund Balance	Proposed Fee Revenue	Currently Planned Special Assessments	Additionally Proposed Special Assessments	Investment Earnings	Projected Reserve Expenditures	Ending Reserve Fund Balance	Suggested Minimum Threshold	
1	2021	\$ 47,039	\$ 6,960	\$ -	\$ -	\$ 540	\$ -	\$ 54,539	\$ 20,776	
2	2022	\$ 54,539	\$ 6,960	\$ -	\$ -	\$ 399	\$ 21,583	\$ 40,315	\$ 21,192	
3	2023	\$ 40,315	\$ 6,960	\$ -	\$ -	\$ 473	\$ -	\$ 47,747	\$ 21,615	
4	2024	\$ 47,747	\$ 6,960	\$ -	\$ -	\$ 547	\$ -	\$ 55,254	\$ 22,048	
5	2025	\$ 55,254	\$ 6,960	\$ -	\$ -	\$ 622	\$ -	\$ 62,837	\$ 22,489	
6	2026	\$ 62,837	\$ 6,960	\$ -	\$ -	\$ 698	\$ -	\$ 70,494	\$ 22,938	
7	2026	\$ 70,494	\$ 6,960	\$ -	\$ -	\$ 775	\$ -	\$ 78,229	\$ 23,397	
8	2028	\$ 78,229	\$ 6,960	\$ -	\$ -	\$ 852	\$ -	\$ 86,041	\$ 23,865	
9	2029	\$ 86,041	\$ 6,960	\$ -	\$ -	\$ 930	\$ -	\$ 93,931	\$ 24,342	
10	2030	\$ 93,931	\$ 6,960	\$ -	\$ -	\$ 955	\$ 5,378	\$ 96,468	\$ 24,829	
11	2031	\$ 96,468	\$ 6,960	\$ -	\$ -	\$ 1,034	\$ -	\$ 104,462	\$ 25,326	
12	2032	\$ 104,462	\$ 6,960	\$ -	\$ -	\$ 1,114	\$ -	\$ 112,537	\$ 25,832	
13	2033	\$ 112,537	\$ 6,960	\$ -	\$ -	\$ 1,195	\$ -	\$ 120,692	\$ 26,349	
14	2034	\$ 120,692	\$ 6,960	\$ -	\$ -	\$ 1,277	\$ -	\$ 128,928	\$ 26,876	
15	2035	\$ 128,928	\$ 6,960	\$ -	\$ -	\$ 699	\$ 65,974	\$ 70,613	\$ 27,413	
16	2036	\$ 70,613	\$ 6,960	\$ -	\$ -	\$ 776	\$ -	\$ 78,349	\$ 27,962	
17	2037	\$ 78,349	\$ 6,960	\$ -	\$ -	\$ 563	\$ 29,048	\$ 56,824	\$ 28,521	
18	2038	\$ 56,824	\$ 6,960	\$ -	\$ -	\$ 638	\$ -	\$ 64,421	\$ 29,091	
19	2039	\$ 64,421	\$ 6,960	\$ -	\$ -	\$ 714	\$ -	\$ 72,095	\$ 29,673	
20	2040	\$ 72,095	\$ 6,960	\$ -	\$ -	\$ 725	\$ 6,556	\$ 73,225	\$ 30,267	
21	2041	\$ 73,225	\$ 6,960	\$ -	\$ -	\$ 802	\$ -	\$ 80,986	\$ 30,872	
22	2042	\$ 80,986	\$ 6,960	\$ -	\$ -	\$ 879	\$ -	\$ 88,826	\$ 31,489	
23	2043	\$ 88,826	\$ 6,960	\$ -	\$ -	\$ 958	\$ -	\$ 96,744	\$ 32,119	
24	2044	\$ 96,744	\$ 6,960	\$ -	\$ -	\$ 1,037	\$ -	\$ 104,741	\$ 32,762	
25	2045	\$ 104,741	\$ 6,960	\$ -	\$ -	\$ 1,117	\$ -	\$ 112,818	\$ 33,417	
26	2046	\$ 112,818	\$ 6,960	\$ -	\$ -	\$ 1,198	\$ -	\$ 120,975	\$ 34,085	
27	2047	\$ 120,975	\$ 6,960	\$ -	\$ -	\$ 1,279	\$ -	\$ 129,215	\$ 34,767	
28	2048	\$ 129,215	\$ 6,960	\$ -	\$ -	\$ 1,362	\$ -	\$ 137,537	\$ 35,462	
29	2049	\$ 137,537	\$ 6,960	\$ -	\$ -	\$ 1,445	\$ -	\$ 145,942	\$ 36,172	
30	2050	\$ 145,942	\$ 6,960	\$ -	\$ -	\$ 561	\$ 96,784	\$ 56,679	\$ 36,895	
30-Year Total of Revenues =		\$	234,963				\$	225,322	= 30-Year Total of Expenses	

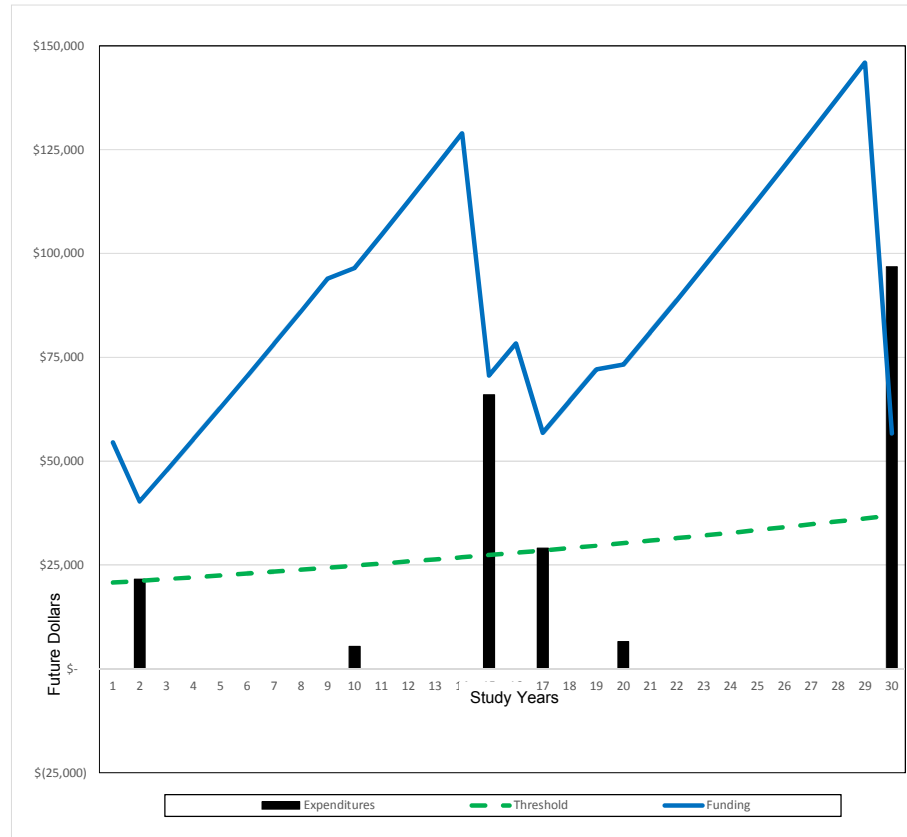
All year-end balances, revenues & expenditures above in future dollars



**River Bluff Homeowners Association of Onslow County, Inc.**  
**30-Year Cash-Flow Projection - Summary Graph**

Year No.	Year	Projected Capital Expenditures	Year-End Reserve Fund Balances	
			Suggested Minimum Threshold	Recommended Funding Level
1	2021	\$ -	\$ 20,776	\$ 54,539
2	2021	\$ 21,583	\$ 21,192	\$ 40,315
3	2022	\$ -	\$ 21,615	\$ 47,747
4	2024	\$ -	\$ 22,048	\$ 55,254
5	2025	\$ -	\$ 22,489	\$ 62,837
6	2026	\$ -	\$ 22,938	\$ 70,494
7	2026	\$ -	\$ 23,397	\$ 78,229
8	2028	\$ -	\$ 23,865	\$ 86,041
9	2029	\$ -	\$ 24,342	\$ 93,931
10	2030	\$ 5,378	\$ 24,829	\$ 96,468
11	2031	\$ -	\$ 25,326	\$ 104,462
12	2032	\$ -	\$ 25,832	\$ 112,537
13	2033	\$ -	\$ 26,349	\$ 120,692
14	2034	\$ -	\$ 26,876	\$ 128,928
15	2035	\$ 65,974	\$ 27,413	\$ 70,613
16	2036	\$ -	\$ 27,962	\$ 78,349
17	2037	\$ 29,048	\$ 28,521	\$ 56,824
18	2038	\$ -	\$ 29,091	\$ 64,421
19	2039	\$ -	\$ 29,673	\$ 72,095
20	2040	\$ 6,556	\$ 30,267	\$ 73,225
21	2041	\$ -	\$ 30,872	\$ 80,986
22	2042	\$ -	\$ 31,489	\$ 88,826
23	2043	\$ -	\$ 32,119	\$ 96,744
24	2044	\$ -	\$ 32,762	\$ 104,741
25	2045	\$ -	\$ 33,417	\$ 112,818
26	2046	\$ -	\$ 34,085	\$ 120,975
27	2047	\$ -	\$ 34,767	\$ 129,215
28	2048	\$ -	\$ 35,462	\$ 137,537
29	2049	\$ -	\$ 36,172	\$ 145,942
30	2050	\$ 96,784	\$ 36,895	\$ 56,679

All expenditures and year-end balances above in future dollars



# **APPENDIX B**

## **CAPTIONED PHOTOGRAPHS**

**River Bluffs Homeowner Association:  
Richlands, North Carolina**

*Photos taken by:*  
Logan Poe, PE

*Date:*  
May 27, 2020



**Reserve Study**



**Description:**  
Front entrance  
monument sign.

**Photo Number**  
**1**



**Description:**  
Front entrance  
monument sign.

**Photo Number**  
**2**



**Reserve Study**



**Description:**

Shrubbery and plantings at the main entrance.

**Photo Number**

**3**



**Description:**

Front privacy fencing and lighting.

**Photo Number**

**4**



**River Bluffs Homeowner Association:**  
**Richlands, North Carolina**

*Photos taken by:*  
Logan Poe, PE

*Date:*  
May 27, 2020



**Reserve Study**



**Description:**

View of the rear of the front monument sign and fence.

**Photo Number**

**5**



**Description:**

Typical lighting fixture. Note deteriorated fiber cement masonry cap.

**Photo Number**

**6**

**River Bluffs Homeowner Association:**  
**Richlands, North Carolina**

*Photos taken by:*  
Logan Poe, PE

*Date:*  
May 27, 2020



**Reserve Study**



**Description:**

Displaced lighting fixture over the front fence.

**Photo Number**

**7**



**Description:**

Typical road condition.

**Photo Number**

**8**



**River Bluffs Homeowner Association:**  
**Richlands, North Carolina**

*Photos taken by:*  
Logan Poe, PE

*Date:*  
May 27, 2020



**Reserve Study**



**Description:**

View of 30' sewer easement.

**Photo Number**

**9**



**Description:**

Location of assumed septic line crossing State road.

**Photo Number**

**10**



**River Bluffs Homeowner Association:**  
**Richlands, North Carolina**

*Photos taken by:*  
Logan Poe, PE

*Date:*  
May 27, 2020



**Reserve Study**



**Description:**

General view of  
sewer easement  
along W. Howard  
Drive.

**Photo Number**

**11**



**Description:**

Additional view of  
sewer easement at  
W. Howard Drive.

**Photo Number**

**12**



**Reserve Study**



**Description:**

Masonry monument sign along South Brandon Way.

**Photo Number**

**13**



**Description:**

Missing brick at rear of Cypress Manor signage.

**Photo Number**

**14**



**River Bluffs Homeowner Association:**  
**Richlands, North Carolina**

*Photos taken by:*  
Logan Poe, PE

*Date:*  
May 27, 2020



**Reserve Study**



**Description:**

Sewer easement to  
offsite septic fields.

**Photo Number**

**15**



**Description:**

Sewer easement  
with bollard  
barricades noted  
at S. Brandon  
Way.

**Photo Number**

**16**



**River Bluffs Homeowner Association:**  
**Richlands, North Carolina**

*Photos taken by:*  
Logan Poe, PE

*Date:*  
May 27, 2020



**Reserve Study**



**Description:**

Sewer easement to  
offsite septic fields.

**Photo Number**

**17**



**Description:**

Offsite septic field.

**Photo Number**

**18**



**River Bluffs Homeowner Association:**  
**Richlands, North Carolina**

*Photos taken by:*  
Logan Poe, PE

*Date:*  
May 27, 2020



**Reserve Study**



**Description:**

Offsite septic field.

**Photo Number**

**19**



**Description:**

View of assumed  
sewer lines  
crossing State  
road.

**Photo Number**

**20**

**River Bluffs Homeowner Association:**  
**Richlands, North Carolina**

*Photos taken by:*  
Logan Poe, PE

*Date:*  
May 27, 2020



**Reserve Study**



**Description:**

Typical street lighting.

**Photo Number**

**21**



**Description:**

Typical road signage.

**Photo Number**

**22**



**Reserve Study**



**Description:**

Utility provided  
water meter cover  
and cable pull box  
riser.

**Photo Number**

**23**



**Description:**

View of sewer  
easement with  
homeowner fences  
constructed.

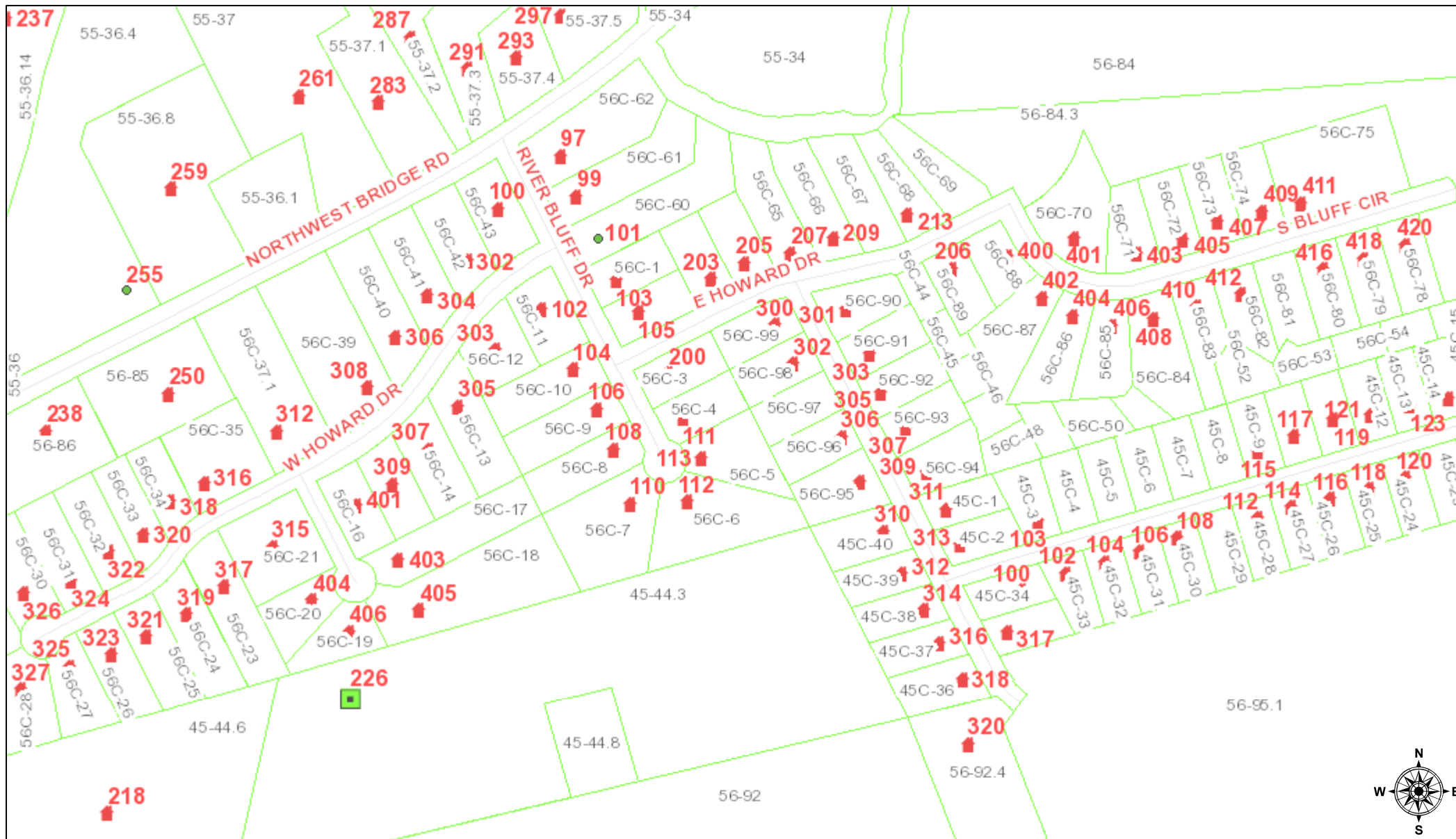
**Photo Number**

**24**

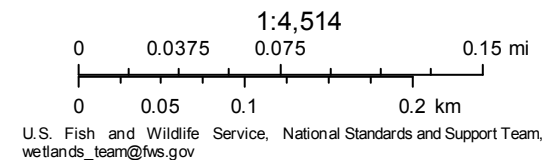
# **APPENDIX C**

## **MAPS, DRAWINGS AND AERIAL PHOTOGRAPHS**

# GoMaps



May 27, 2020







# **APPENDIX D**

## **REFERENCE DOCUMENTS**

**RESERVE STUDY**  
**GENERAL INFORMATION, PAGE 1**

Association Legal Name: RIVER Bluff HOMEOWNERS' Association of Onslow. CO, INC.  
Property Address: RIVER Bluff is located of North-West Bridge Rd.

Association Web site: \_\_\_\_\_

Why is this reserve study being undertaken? Common elements include an off-site septic system and reserves are needing to be determined in case of system failing and entrance common area fencing/lights —  
(Initial of transition of management from Developer, Initial for facility & financial planning, Periodic update, For regulatory compliance, etc.)

Has a previous reserve study been performed? Yes (No)

Date of last report? \_\_\_\_\_ By whom? \_\_\_\_\_

What did you like and/or dislike about your previous Study? \_\_\_\_\_

The Board is commonly referred to as: Board of Directors  
(Board of Trustees, Board of Governors, Association Officers, etc.)

Date of Next Board Meeting: February 25, 2020

Site Area (acres): \_\_\_\_\_ No. of Buildings: 6 No. of Stories: 6

No. of Units: \_\_\_\_\_ Total Floor Area (SF): \_\_\_\_\_ Age of Property: \_\_\_\_\_ years

Was the property developed in phases? (describe, with dates) \_\_\_\_\_

**RESERVE STUDY**  
**GENERAL INFORMATION, PAGE 2**

List of Association-responsible common components and assets: (Check all. Write in add'l info & items)

- |  |  |   |
|--|--|---|
| <input type="checkbox"/> Roofing/Gutters/Drains        | <input type="checkbox"/> Swimming Pool                               | <input type="checkbox"/> Clubhouse / Office – |
| <input type="checkbox"/> Exterior Siding / Trim        | Outdoor / Indoor (circle)  | Area, SF _____                                |
| <input type="checkbox"/> Windows                       | Number _____   |   |
| <input type="checkbox"/> Balconies / Decks             | <input type="checkbox"/> Cabana (Restrooms? Y                        | <input type="checkbox"/> Electric Generation  |
| <input type="checkbox"/> Parking                       | / N )  | <input type="checkbox"/> Sewage Treatment /   |
| Garage/Surface (circle)                                | <input type="checkbox"/> Tennis Courts –                             | Pumps   |
| No. spaces _____                                       | Number _____   | <input type="checkbox"/> Elevators            |
| <input type="checkbox"/> Curbs / Sidewalks             | <input type="checkbox"/> Fitness Facilities                          | <input type="checkbox"/> Mechanical Equipment |
| <input type="checkbox"/> Yard Lighting                 | <input type="checkbox"/> Entrance / Exit Gates                       | <input type="checkbox"/> Site                 |
| <input checked="" type="checkbox"/> Entrance monuments | <input type="checkbox"/> Private Streets –                           | <input type="checkbox"/> Retention/Detention  |
| <input checked="" type="checkbox"/> Signage            | No. Miles _____  | Basins  |
| <input type="checkbox"/> Mailbox Kiosks                | <input type="checkbox"/> Irrigation System                           | <input type="checkbox"/> Retaining Walls      |
| <input checked="" type="checkbox"/> Perimeter Fencing  | <input checked="" type="checkbox"/> Ornamental Lighting <b>FENCE</b> | <input type="checkbox"/> Ponds / Lakes        |
| <input type="checkbox"/> Sprinkler System              | <input type="checkbox"/> Central Fire Alarm                          | <input type="checkbox"/> Fire Hydrants        |
|  | System   |   |

Other common components:

off site septic

Exclusions?

Are there any special concerns?

12 homes out of 114 utilize offsite  
septic. We need to know the costs associated with if  
this system fails.

**RESERVE STUDY  
CURRENT CAPITAL RESERVE FUNDING PLAN**

Association Name: RIVER BLUFF HOA of OAKSLOW COUNTY

Preferred start date of study period: APRIL 01 2020 Length of study period:  
1 years

Start date of next fiscal period: JAN 01 2021 Designated as Fiscal Year: 2021

Does the Assn. differentiate between Capital & Operating funds & budgets? (Y) N (circle)

Estimated Capital Reserve Fund Balance at start of study period: \$ 34,833

Current total annual Operating Budget: \$ 13,900 for Fiscal Year:  
2020

Preferred basis for analysis of contribution rates:

(How are Unit assessments calculated? Check one, or describe actual other method)

- ☒ Per Unit, all equal shares
- ☐ Pro-rated by Unit floor area against all Units' combined floor area
- ☐ Pro-rated at some other varying percentage per Unit as set forth in the covenants
- ☐ Other method: \_\_\_\_\_

Current Monthly Contribution to Capital Reserves (all units combined): \$ 1691

Current Monthly Payment to Operating Fund (all units combined): \$ 1158

Planned Special Assessments: Date: MAY 2020 Amount: \$ 6-8 K (FENCE STAIN)

Date: MAY 2020 Amount: \$ 1500 (BACKFILL)

Date: \_\_\_\_\_ Amount: \$ \_\_\_\_\_

Anticipated Return on Investments: 0 % (If no direction provided, 0% will be applied)

Anticipated Inflation Rate: \_\_\_\_\_ % (If no direction provided, 2.5% will be applied)

[Signature]  
Authorized Signature

JACOB DONNENWIRTH  
Name Printed

2020/04/24  
Date

TREASURER  
Title

# Fiscal Year Budget

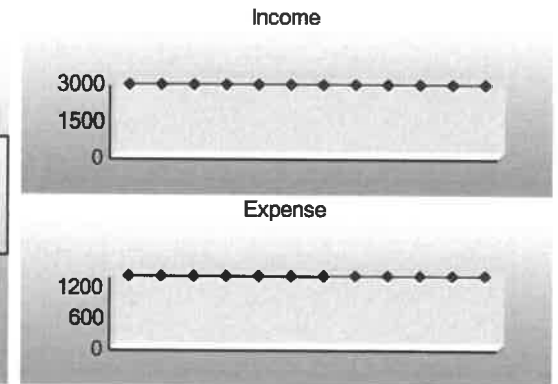
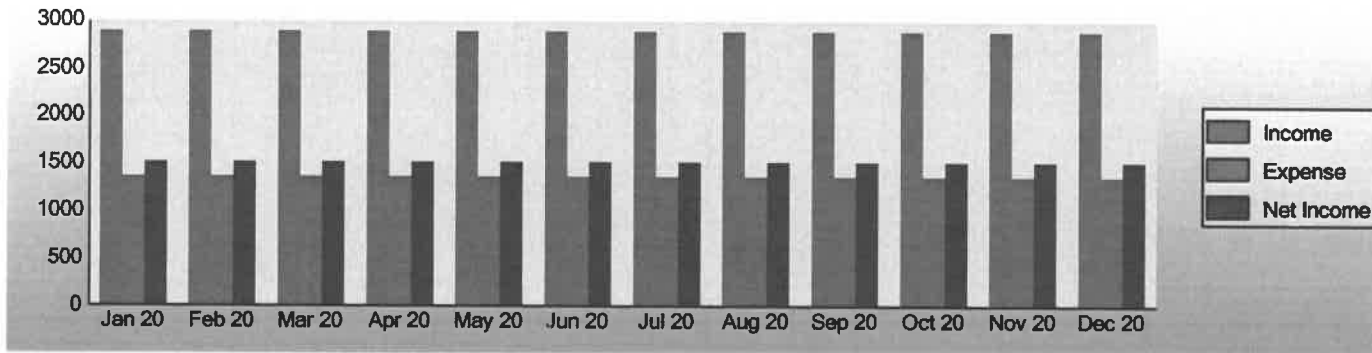
Association: River Bluff HOA of Onslow County

Monthly recap As of 01/01/20 Profit and Loss

	JAN 20	FEB 20	MAR 20	APR 20	MAY 20	JUN 20	JUL 20	AUG 20	SEP 20	OCT 20	NOV 20	DEC 20	TOTAL
<b>INCOME</b>													
4100 Association Income													
4106 Assessment Income	2,900.00	2,900.00	2,900.00	2,900.00	2,900.00	2,900.00	2,900.00	2,900.00	2,900.00	2,900.00	2,900.00	2,900.00	34,800.00
4100 Total Association Income	2,900.00	2,900.00	2,900.00	2,900.00	2,900.00	2,900.00	2,900.00	2,900.00	2,900.00	2,900.00	2,900.00	2,900.00	34,800.00
<b>TOTAL INCOME</b>	<b>2,900.00</b>	<b>2,900.00</b>	<b>2,900.00</b>	<b>2,900.00</b>	<b>2,900.00</b>	<b>2,900.00</b>	<b>2,900.00</b>	<b>2,900.00</b>	<b>2,900.00</b>	<b>2,900.00</b>	<b>2,900.00</b>	<b>2,900.00</b>	<b>34,800.00</b>
<b>EXPENSE</b>													
5000 Management Expense													
5002 Management Fee	475.38	475.38	475.38	475.38	475.38	475.38	475.38	475.38	475.38	475.38	475.38	475.38	5,704.56
5000 Total Management Expense	475.38	475.38	475.38	475.38	475.38	475.38	475.38	475.38	475.38	475.38	475.38	475.38	5,704.56
5050 Insurance													
5051 Liability Policy	148.92	148.92	148.92	148.92	148.92	148.92	148.92	148.92	148.91	148.91	148.91	148.91	1,787.00
5050 Total Insurance	148.92	148.92	148.92	148.92	148.92	148.92	148.92	148.92	148.91	148.91	148.91	148.91	1,787.00
5060 Professional Fees													
5062 Legal/Attorney Fees	150.00	150.00	150.00	150.00	150.00	150.00	150.00	150.00	150.00	150.00	150.00	150.00	1,800.00
5060 Total Professional Fees	150.00	150.00	150.00	150.00	150.00	150.00	150.00	150.00	150.00	150.00	150.00	150.00	1,800.00
5500 Ground Maintenance													
5502 Landscaping	83.34	83.34	83.34	83.34	83.33	83.33	83.33	83.33	83.33	83.33	83.33	83.33	1,000.00
5503 Lawn Care	500.00	500.00	500.00	500.00	500.00	500.00	500.00	500.00	500.00	500.00	500.00	500.00	6,000.00
5500 Total Ground Maintenance	583.34	583.34	583.34	583.34	583.33	583.33	583.33	583.33	583.33	583.33	583.33	583.33	7,000.00
5600 Mailings and Postage													
5605 Postage and Mailing	16.67	16.67	16.67	16.67	16.67	16.67	16.67	16.67	16.66	16.66	16.66	16.66	200.00
5600 Total Mailings and Postage	16.67	16.67	16.67	16.67	16.67	16.67	16.67	16.67	16.66	16.66	16.66	16.66	200.00
<b>TOTAL EXPENSE</b>	<b>1,374.31</b>	<b>1,374.31</b>	<b>1,374.31</b>	<b>1,374.31</b>	<b>1,374.30</b>	<b>1,374.30</b>	<b>1,374.30</b>	<b>1,374.30</b>	<b>1,374.28</b>	<b>1,374.28</b>	<b>1,374.28</b>	<b>1,374.28</b>	<b>16,491.56</b>
<b>NET INCOME</b>	<b>1,525.69</b>	<b>1,525.69</b>	<b>1,525.69</b>	<b>1,525.69</b>	<b>1,525.70</b>	<b>1,525.70</b>	<b>1,525.70</b>	<b>1,525.70</b>	<b>1,525.72</b>	<b>1,525.72</b>	<b>1,525.72</b>	<b>1,525.72</b>	<b>18,308.44</b>



	JAN 20	FEB 20	MAR 20	APR 20	MAY 20	JUN 20	JUL 20	AUG 20	SEP 20	OCT 20	NOV 20	DEC 20	TOTAL
<b>NET INCOME SUMMARY</b>													
Income	2,900.00	2,900.00	2,900.00	2,900.00	2,900.00	2,900.00	2,900.00	2,900.00	2,900.00	2,900.00	2,900.00	2,900.00	34,800.00
Expense	-1,374.31	-1,374.31	-1,374.31	-1,374.31	-1,374.30	-1,374.30	-1,374.30	-1,374.30	-1,374.28	-1,374.28	-1,374.28	-1,374.28	-16,491.56
<b>NET INCOME</b>	<b>1,525.69</b>	<b>1,525.69</b>	<b>1,525.69</b>	<b>1,525.69</b>	<b>1,525.70</b>	<b>1,525.70</b>	<b>1,525.70</b>	<b>1,525.70</b>	<b>1,525.72</b>	<b>1,525.72</b>	<b>1,525.72</b>	<b>1,525.72</b>	<b>18,308.44</b>



*Max*

Doc ID: 000832370010 Type: CRP  
Recorded: 07/06/2006 at 11:46:01 AM  
Fee Amt: \$41.00 Page 1 of 10  
Onslow County, NC  
Mildred M Thomas Register of Deeds  
BK 2476 PG 879-888



NORTH CAROLINA  
ONSLow COUNTY

RESTRICTIVE COVENANTS

THIS DECLARATION OF RESTRICTIVE AND PROTECTIVE COVENANTS, made this 14th day of June, 2005, by MABR COMPANY, INC, A North Carolina Corporation, hereinafter called "Declarant".

W I T N E S S E T H:

THAT WHEREAS, the Declarant is the owners of the real property described in Paragraph I of this Declaration and desirous of subjecting said real property to the protective covenants hereinafter set forth, each and all of which is and shall inure to the benefit of and pass and run with said property, and each and every lot or parcel thereof, and shall apply to and bind the successors in interest and any owner thereof.

NOW, THEREFORE, the Declarant hereby declare that the real property in and referred to in Paragraph I hereof is and shall be held, transferred, sold and conveyed subject to the protective covenants set forth below:

1. DESCRIPTION OF REAL PROPERTY: The real property which is, and shall be held, transferred, sold and conveyed subject to the protective covenants set forth in the articles of this Declaration is located in the County of Onslow, State of North Carolina, and is more particularly described as follows:

SEE ATTACHED EXHIBIT " A "

2. USES: No lot, lots or portions thereof shall be put to any use other than for residential purposes, except that any lot may be used by the Declarant for a street or roadway.

3. LAND USE AND BUILDING TYPE: No building shall be used except for "single family residential purposes". "Single family residential purposes" is defined as a family unit related by blood or marriage as is customary in the area. A single family may consist of a single individual but shall not consist of units made up of a number of unrelated by blood or marriage individuals whether adults or minors under the care of others wherein there is provided family care for usually two or more unrelated persons. A single family residential unit shall not be used nor shall residential purposes as herein set out be defined as covering the following types of uses: fraternities, sororities, family care homes, boarding homes, or any type residence in which a person or persons' care is paid for by himself or herself or others. No structure shall be erected, placed, altered or permitted to remain on any such lot other than one detached single family dwelling not to exceed height limitations set by the Onslow County Planning Department. A private garage which may contain living quarters for occupancy by domestic servants of the lot occupant only, and such other outbuildings as may be reasonably appurtenant to the dwelling, provided that the same are constructed in line with general architectural design and construction standards used as the dwelling itself. All construction shall be custom type construction built on the lot and no old building constructed elsewhere shall be moved on to the lot for residential or any other purpose. No mobile homes, double wide or pre-manufactured homes



e. The covenants pertaining to stormwater may not be altered or rescinded without the express written consent of the State of North Carolina, Division of Water Quality.

f. Alternation of the drainage as shown on the approved plans may not take place without the concurrence of the Division of Water Quality.

g. The maximum built-upon area per lot is as shown in Attachment A. This allotted amount includes any built-upon area constructed within the lot property boundaries, and that portion of the right-of-way between the front lot line and the edge of the pavement. Built upon area includes, but not limited to, structures, asphalt, concrete, gravel, brick, stone, slate, and coquina, but does not include raised, open wood decking, or the water surface of swimming pools.

h. Filling in or piping of any vegetative conveyances (ditches, swales, etc.) associated with the development except for average driveway crossings, is strictly prohibited by any persons.

i. Lots within CAMA's Area of Environment Concern may have the permitted built-upon area reduced due to CAMA jurisdiction within the AEC.

j. Each lot will maintain a 30' wide vegetated buffer between all impervious areas and surface waters.

k. All roof drains shall terminate at least 30' from the mean high water mark.

22. ENFORCEMENT OF RESTRICTIONS: In the event of a violation or breach of any of these restrictions, covenants, agreements and conditions by any person or concern claiming by, through or under the undersigned, or by virtue of any judicial proceedings, the undersigned, its successors and assigns, the State of North Carolina and the owners of the numbered lots in the subdivision, or any of them, jointly or severally, shall have the right to proceed at law or in equity to compel compliance with the terms thereof or to prevent the violation or breach of any of them. The failure to enforce any right, reservation, restriction, or condition contained herein, however long continued, shall not be deemed a waiver of the right to do so thereafter as to the same breach or as to a breach occurring prior or subsequent thereto and shall not bar or affect its enforcement.

23. RIVER BLUFF HOMEOWNERS ASSOCIATION: All purchasers of lots in River Bluff Subdivision as described herein shall, and by their acceptance of Deeds conveying such lots do, for themselves, their heirs, successors and assigns, agree to become members of the River Bluff Homeowners Association.

24. 1. RESPONSIBILITY OF ASSOCIATION:

(a) River Bluff Homeowners Association shall assume responsibility for the maintenance of the streets until the same are taken over for maintenance by the NC Department of Transportation and shall maintain the walkway in the subdivision and provide for the maintenance of the drainage easements.

**Roads now  
accepted by  
NC DOT**

(b) The Homeowners Association shall assume responsibility for all improvements and maintenance of, including but not limited to, any boat landing or park area, all common areas as shown on said recorded plat, all entrance signs and fences, and all septic tank lots located away from the primary lots; it being specifically understood and agreed that Developer shall not be responsible for improvement or maintenance of said areas.

2. ASSESSMENTS:

(a) Each member of the Homeowners Association as described herein, by acceptance of the Deed to each lot, whether or not it shall be expressed in such Deed, is deemed to and does hereby, covenant and agree, on behalf of himself, his heirs, successors and assigns, to pay assessments to the Homeowners Association for the expenses incurred. The initial assessment for the River Bluff Homeowners Association shall be Two Hundred Fifty Dollars (\$250.00) per year for each lot. Such assessment shall be used solely for the improvement maintenance of the items described in Section 24, sub-sections (a) and (b).

(b) The assessments required hereby shall be due and payable on the 1st day of July following the conveyance of the lot from the Developer to the initial purchaser and shall be paid each July 1st thereafter to Declarant as Trustee for the Homeowners Association until such time as 24 lots have been sold; thereafter, said assessment shall be paid to the secretary of the Association.

25. LIEN OF ASSESSMENT: The assessments called for hereinabove, together with interest and costs of collection, including court costs and reasonable attorney fees, shall be a charge on the land and shall be a continuing lien upon the property against which each assessment is made. Each such assessment, together with interest, costs and reasonable attorney fees, shall also be the personal obligation of the person who was the owner of such property at the time when the assessment fell due. Personal obligation for delinquent assessment shall not pass to his successors in title unless expressly assumed by them.

Any assessment not paid within thirty (30) days after the due date shall bear interest from the due date at the rate of nine percent (9.0%) per annum. The designated officer of the Association or the Association may bring an action at law against the owner or owners personally obligated to pay the same or may foreclose the lien against the property, and the officer of the Association or the Association is hereby granted a power of sale to conduct said foreclosure; any interest, costs and reasonable attorney fees arising out of the action of foreclosure shall be added to the amount of such assessment. Such foreclosure shall be conducted under the procedure prescribed by statute in North Carolina for sale under a power of sale.

26. The members of the Association on the second Monday in July of each calendar year shall elect a President and a Secretary/Treasurer, by a majority vote of those present and constituting a quorum, who shall serve until the next regular meeting. A quorum for any regular or special meeting of the River Bluff Homeowners Association shall be the owners of at least fifteen (15) of the lots in said subdivision.

ROUTE \_\_\_\_\_ PROJECT River Bluff Phase 1 COUNTY OF STATE OF NORTH CAROLINA  
Onslow

DEPARTMENT OF TRANSPORTATION

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

-AND-

River Bluff Homeowners Association, Inc.

THIS AGREEMENT, made and entered into this the 22 day of Ma, 20 12, by and between the Department  
of Transportation, party of the first part; and River Bluff Homeowners Association, Inc.  
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) West Howard Drive, South Brandon Way, located In River Bluff Subdivision, Phase 1 (MB48, P193)  
And Phase 2 (MB61, P182) both of Onslow County Registry  
with the construction and/or erection of: Eleven 2" PVC septic supply line bundled together, not encased in steel and crossing  
under West Howard Drive R/W; Sixteen 2" PVC septic supply line bundled together, not encased in steel and crossing  
under South Brandon Way perpendicular to R/W; all lines terminates at dedicated off-site septic lot location.

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 latest Manual on Uniform Traffic  
Control Devices for Streets and Highways 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: \_\_\_\_\_

Asst. Manager of Right of Way

ATTEST OR WITNESS:

\_\_\_\_\_  
RIVER BLUFF HOMEOWNERS'  
ASSOCIATION, INC.

BY: \_\_\_\_\_

President

\_\_\_\_\_  
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 Manager of Right of Way. 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.



Prepared by: DOTSON & MILSTED  
320 New Bridge Street  
Jacksonville, NC 28540

NORTH CAROLINA  
ONslow COUNTY

THIS AGREEMENT, made this 5 day of October, 2012, by and between MABR COMPANY, INC., a North Carolina corporation, and Declarant in those certain Restrictive Covenants for Phase 1 and Phase 2 of River Bluff as recorded in Book 2476, Page 879, and Book 3093, Page 586, respectively, party of the first part, and RIVER BLUFF HOMEOWNERS' ASSOCIATION, INC., party of the second part;  
WITNESSETH:

WHEREAS, the Restrictive Covenants for Phase 1 and Phase 2 of River Bluff provide that the Homeowners' Association shall assume responsibility for all improvements and maintenance of, including but not limited to, any boat landing or park area, all common areas as shown on the recorded plat, and all septic tank lots located away from the primary lots; it being specifically understood and agreed that Developer shall not be responsible for improvement or maintenance of said areas; and,

WHEREAS, MABR Company, Inc., by the recording of the plats for Phase 1 and Phase 2 of River Bluff dedicated to the State of North Carolina, Department of Transportation, said roads and streets for the use and benefit of the lot owners; and,

WHEREAS, the North Carolina Department of Transportation has agreed to accept said roads and streets in Phase 1, Phase 2 and Phase 4 of River Bluff and will take over the maintenance thereof subject to the conditions and restrictions hereinafter set forth:

1. The Homeowners' Association shall assume responsibility for all improvements and maintenance of all septic tank lots located away from the primary lots which include the septic systems on the off site lots and the septic supply lines running within the 30' sewer easements as indicated on the said recorded plats. In the event the septic supply lines within the right of way of the streets being accepted by NC Department of Transportation into the public road system fails or needs to be replaced, the Homeowners' Association shall be responsible for bringing the septic supply line to current standards within the right of way area which would include encasement of the septic supply lines.

2. This agreement must be approved and executed by MABR COMPANY, INC., the Declarant and the River Bluff Homeowners' Association, Inc., and recorded in the office of the Register of Deeds for Onslow County, North Carolina.

IN WITNESS WHEREOF, MABR COMPANY, INC., the Declarant and party of the first part, has hereunto executed this conveyance by its President, and the party of the second part, RIVER BLUFF HOMEOWNERS' ASSOCIATION, INC., has executed this agreement, as of the day and year first above written.

MABR COMPANY, INC.

By: Marlon Howard (SEAL) President

RIVER BLUFF HOMEOWNERS' ASSOCIATION, INC.

By: Paul S. Me President

NORTH CAROLINA  
ONslow COUNTY

I, the undersigned Notary Public of the County and State aforesaid, certify that \_\_\_\_\_ personally appeared before me this day and acknowledged that he is the President of RIVER BLUFF HOMEOWNERS' ASSOCIATION, INC., a North Carolina Corporation, and that by authority duly given and as the act of each entity, he signed the foregoing instrument in its name on its behalf as its act and deed.

WITNESS my hand and notarial seal, this the \_\_\_\_\_ day of \_\_\_\_\_, 2012.

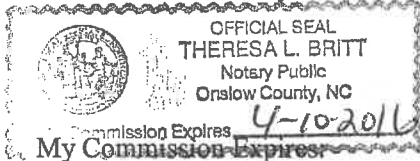
\_\_\_\_\_  
Notary Public

My Commission Expires:

NORTH CAROLINA  
ONslow COUNTY

I, the undersigned Notary Public of the County and State aforesaid, certify that Marion Howard personally appeared before me this day and acknowledged that he is the President of MABR COMPANY, INC., a North Carolina Corporation, and that by authority duly given and as the act of each entity, he signed the foregoing instrument in its name on its behalf as its act and deed.

WITNESS my hand and notarial seal, this the 5 day of October, 2012.



[Signature]  
Notary Public

client/hoa/riverbluffs/MABR to RiverBluff092612doc rev 100112\100312



Onslow County Health Department  
612 College Street  
Jacksonville, North Carolina 28540  
Phone: (910) 938-5851 Fax: (910) 989-2341

## OPERATIONS PERMIT

(GS 130A-337)

**Typical Septic System Permit  
for attachment to the  
2020 Reserve Study**



Permit No: **EOP2013-01835**

**Category: Operations Permit New**

**Owner:** GWYNN MITCHEL M & CATHERINE F

**Address** 312 W HOWARD DR JACKSONVILLE 28540

**Parcel:** 56C-37 **SR #:**

**Subdivision:** RIVER BLUFF

**Lot:** 36,37,38 **Section:** **Phase:** 1

**Block:** **Part:** **System:**

**Unit:** **Division:** **Tract:**

**Location:** OFF OF NW BRIDGE ROAD

### FINAL PLOT / REMARKS

**System Type:** III

**System Classification:** b. Septic system with single effluent pump or siphon

**Manufacturer:** Accepted System – No Reduction

**Model #:** EZ1203H-GEO

**System Info:** Installed 2 new EZ FLOW lines for a total of 8-50s. Pumped off-site as shown. Repair: LPP 1920 sq. ft.

*Note: Type V and VI systems expire in 5 years. (In accordance with Table Va of .1961). Owner must contact the Onslow County Health Department 6 months prior to expiration for permit renewal. Onslow County Health Department is required to inspect the following system types: IIIb, every 5 years; IV, every 3 years; V, once per year and VI, every six months.*

**Facility/Daily design flow:** 4 BEDROOM RESIDENCE / 480 GPD

**Water Supply:** Public

**Installed By:** RONALD PITTMAN II

**Business Name:** PITTMAN SOIL CONSULTING

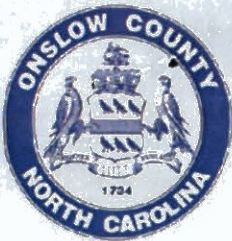
**Signed By:** Sam Frazelle

**Date:** 11/13/2013

*This system has been installed in compliance with applicable NC General Statutes, Rules for Sewage Treatment and Disposal, and all conditions of the I.P. and C.A. This system shall perform in accordance with 15A NCAC 18A Rule .1961. Ground absorption sewage treatment and disposal systems shall be checked, and the contents of the septic tank periodically removed from all compartments. The contents shall be pumped, by approved means, whenever the solids level is found to be more than 1/3 of the liquid depth in any compartment.*

**THE ISSUANCE OF THIS O.P. DOES NOT CONSTITUTE AN ONSLOW COUNTY WARRANTY OR GUARANTEE OF THE FUNCTIONALITY OF THE WASTEWATER SYSTEM.**





Onslow County Health Department  
612 College Street  
Jacksonville, North Carolina 28540  
Phone: (910) 938-5851 Fax: (910) 989-2341

# CONSTRUCTION AUTHORIZATION

(GS 130A-336)

Permit No: **ECA2013-00801**

Category: **New**

(Required for Building Permit)

THIS AUTHORIZATION FOR WASTEWATER SYSTEM CONSTRUCTION SHALL  
BE VALID FOR A PERIOD EQUAL TO THE PERIOD OF VALIDITY OF THE  
IMPROVEMENT PERMIT. NOT TO EXCEED 5 YEARS.

Owner: GWYNN MITCHEL M & CATHERINE F

Address: 312 W HOWARD DR JACKSONVILLE 28540

SR #:

Subdivision: RIVER BLUFF

Lot: 36, 37, 38

Section:

Phase: 1

Block:

Part:

System:

Unit:

Division:

Tract:

Location:

System Type/Description: III Conventional

System Classification: b. Septic system with single effluent pump or siphon

Facility/Daily design flow: **4 bedrooms/480 gpd**

System Info: Install 2 new conventional lines with existing lines total 8-<sup>50's</sup> <sup>90' 11/13/13</sup> conventional lines pumped off-site as shown. Repair LPP  
1920 sq ft.

LTAR: .4 gpd/sq. ft.

Water Supply: Public

Septic Tank Size: 1000 gallons

Grease Trap Size gallons

Pump Tank Size: 1000 gallons

Nitrification Area: 1200' sq. ft.

Nitrification Area: 400' lin. ft.

No of Lines: 8

Line Length: 50'

Line Width: 3'

Trench Bottom Depth: 18"-24"

(SEE ATTACHED PAGES 1 - 7 of 7 FOR ADDITIONAL PERMIT CONDITIONS)

Signed By: Sam Frazelle

Date:

09/06/2013

This Construction Authorization is subject to revocation if the site plan, plat, or the intended use changes. This Construction Authorization shall not be transferred when there is a change in ownership of the site. This Construction Authorization is subject to compliance with the provisions of the Laws and Rules for Sewage Treatment and Disposal and to the conditions of this permit. The construction and installation requirements of Rules .1950, .1952, .1954, .1955, .1956, .1957, .1958 and .1959 are incorporated by reference into this permit and shall be met.

THE ISSUANCE OF THIS C.A. DOES NOT CONSTITUTE AN ONSLOW COUNTY WARRANTY OR  
GUARANTEE OF THE FUNCTIONALITY OF THE WASTEWATER SYSTEM





Onslow County Health Department  
612 College Street  
Jacksonville, North Carolina 28540  
Phone: (910) 938-5851 Fax: (910) 989-2341

# IMPROVEMENT PERMIT

(GS 130A-336)

Permit No: **EIP2013-00536**

Category: Individual Dwelling

A building permit cannot be issued with only an Improvement Permit.

Expiration: Valid for 5 years from date of issuance

Owner: GWYNN MITCHEL M & CATHERINE F

Address: 312 W HOWARD DR JACKSONVILLE 28540

SR #:

Subdivision: RIVER BLUFF

Lot: 36, 37, 38

Section:

Phase: 1

Block:

Part:

System:

Unit:

Division:

Tract:

Location:

System Type/Description: III Conventional

System Classification: b. Septic system with single effluent pump or siphon

System Info: Install 2 new conventional lines with existing lines total 8-40s conventional lines pumped off-site as shown. Repair LPP 1920 sq ft. *50's part 11/13/13*

Facility/Daily design flow: 4 bedrooms/480 gpd

LTAR: .4 gpd/sq. ft.

Water Supply: Public

(SEE ATTACHED PAGES 1 - 7 of 7 FOR ADDITIONAL PERMIT CONDITIONS)

Signed By: Sam Frazelle

Date:

08/29/2013

The issuance of this permit by the Onslow County Health Department in no way guarantees the issuance of other permits. The permit holder is responsible for checking with appropriate governing bodies in meeting their requirements. This permit is subject to revocation if the site plan, plat, or the intended use changes. This Improvement Permit shall not be affected by a change in ownership of the site. This permit is subject to compliance with the provisions of the Laws and Rules for Sewage Treatment and Disposal and to conditions of this permit.

**ADDITIONAL PERMIT CONDITIONS:**

1. Do not park or drive on any part of the septic system or repair area.
2. Nitrification trench aggregate shall be covered with straw, untreated paper or other approved materials prior to final cover / backfilling.
3. Do not install system under wet conditions.
4. Rock used in soil absorption systems shall be clean, washed gravel or crushed stone and graded or size in accordance with size numbers 3, 4, 5, 57, or 6 of ASTM D-448 (standard sizes of coarse aggregate) which is hereby adopted by reference in accordance with G.S. 150 B-14 (c). Documentation of aggregate size shall be available upon request.
5. Adhere to minimum setback requirements as stated in Rule .1950 and .1951 of NC Laws and Rules for Sewage Treatment, and Disposal Systems (Article 11, G.S. Chapter 130A), unless otherwise indicated in this permit.
6. All pump tanks shall be tested for water tightness. In addition, septic tanks may be subject to a water tightness test.
7. The septic tank is designed to receive sewage or wastewater under gravity flow. However, if a system subject to the N.C. Plumbing Code is used to pump raw sewage to the septic tank, the sewage shall be reduced to gravity/non-turbulent flow by approved means at the inlet of the septic tank.
8. An accepted wastewater system may also be installed in accordance with the Accepted Wastewater System Approval (AWWS-05-01 or AWWS-05-02). Maximum LTAR of 1.0 gpd / ft2.
9. Run lines parallel to contour. System components represent approximate contours only. The contractor must flag the system prior to beginning the installation to insure that proper grade is maintained.
10. A recorded plat or deed and corresponding map shall be submitted to the Environmental Health Section of the Onslow County Health Department **PRIOR TO** the issuance of the Construction Authorization.
11. An **APPROVED** stormwater plan shall be submitted to the Environmental Health Section of the Onslow County Health Department **PRIOR** to issuance of a Construction Authorization.

**EXISTING**

**NEW**

**INITIAL**

4 BEDROOM

LTAR 5.4

8-50' CONVENTIONAL LINES

18-24" TB

>6" SOIL COVER REQUIRED OVER SYSTEM AND 5' BEYOND SYSTEM

**REPAIR AREA**

4 BEDROOMS

LTAR .25

1920 SQFT LPP

18" TB

>6" SOIL COVER REQUIRED OVER SYSTEM AND 5' BEYOND SYSTEM

Owner: RIVER BLUFF 37  
Address: 312 W HOWARD DR  
Location: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_



12. **FOR DWELLING UNIT WASTEWATER SYSTEMS ONLY** – This wastewater system is designed only for the number of bedrooms shown as bedrooms or sleeping rooms on the building/floor plan approved by Onslow County Code Enforcement. No other room or space may be relabeled as a bedroom, used as a bedroom, or converted into a bedroom without prior approval from Onslow County Environmental Health.

**APPROX SCALE 1"=40'**

## **Precast Concrete Water Tightness Testing Procedures**

### **I. Leak Testing Procedures:**

1. The tank shall be set and leveled. The tank hole may be backfilled to a point below the mid-seam of a two piece tank or to the mid-point of a one piece tank. If site conditions do not allow the tank hole to be left open or if you choose not to leave the tank hole open, then tank shall be leak tested on site prior to placement in tank hole.
2. The manhole riser(s) (if applicable), shall be attached to the tank according to state approved plans.
3. The tank shall be filled with water 2" above the seam where the manhole riser is connected to the tank top or to a point level with the top of the tank in both manholes if riser(s) are not required. It is strongly recommended to perform the leak test prior to removing any tank block out (placing any pipes into/out of the tank). If tank block outs have been removed and pipe has been installed it will be necessary to block or plug the inlet and outlet pipe to prevent flow from these pipes. It may also be necessary to place mastic around the bevel of the inlet manhole and weight the lid down to prevent leakage.
4. After filling and allowing for the concrete to absorb water (about 24 hours), add any additional water needed to get water level back to the starting level.
5. Contact the Onslow County Health Department to conduct the test. The test will take minimum of 24 hours and will not be conducted Friday or the day prior to a Holiday. Tank passes water tightness test if the difference between the starting water level and ending water level is equal to or less than one-half inch or one-percent of the liquid capacity of the tank.
6. Only after the completion of a satisfactory leak test will the tank be approved for use.

### **II. Vacuum Testing Procedures:**

1. The tank shall be set and leveled. The tank hole may be back-filled to a point below the mid-seam of a two piece tank or to the mid-point of a one piece tank. If site conditions do not allow the tank hole to be left open or if you choose not to leave the tank hole open, the tank shall be leak tested on site prior to placement in the tank hole.
2. The manhole riser(s) (if applicable), shall be attached to the tank according to state approved plans.
3. The pump tank shall be vacuum tested as per one of the following:

<u>Inches of Mercury</u>	<u>Duration</u>
3"	1 Hr.
5"	10 Min.
10"	1 Min.

( $\leq$  10% pressure drop shall constitute an acceptable test).

4. Onslow County Health Department representative shall be present during vacuum testing procedure.
5. Only after the completion of a satisfactory vacuum test will the tank be approved for use.

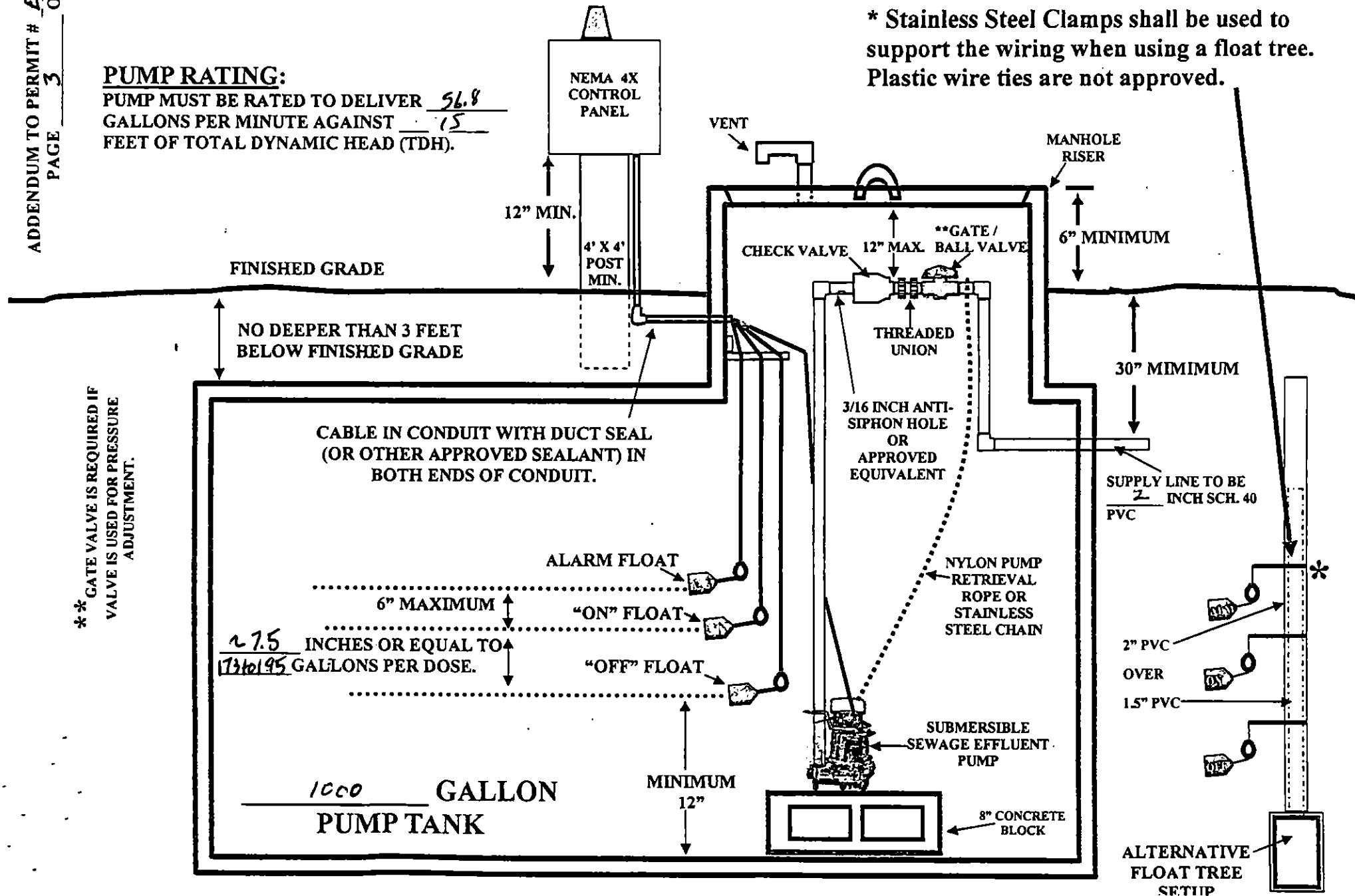


# PUMP SYSTEM DETAIL SHEET

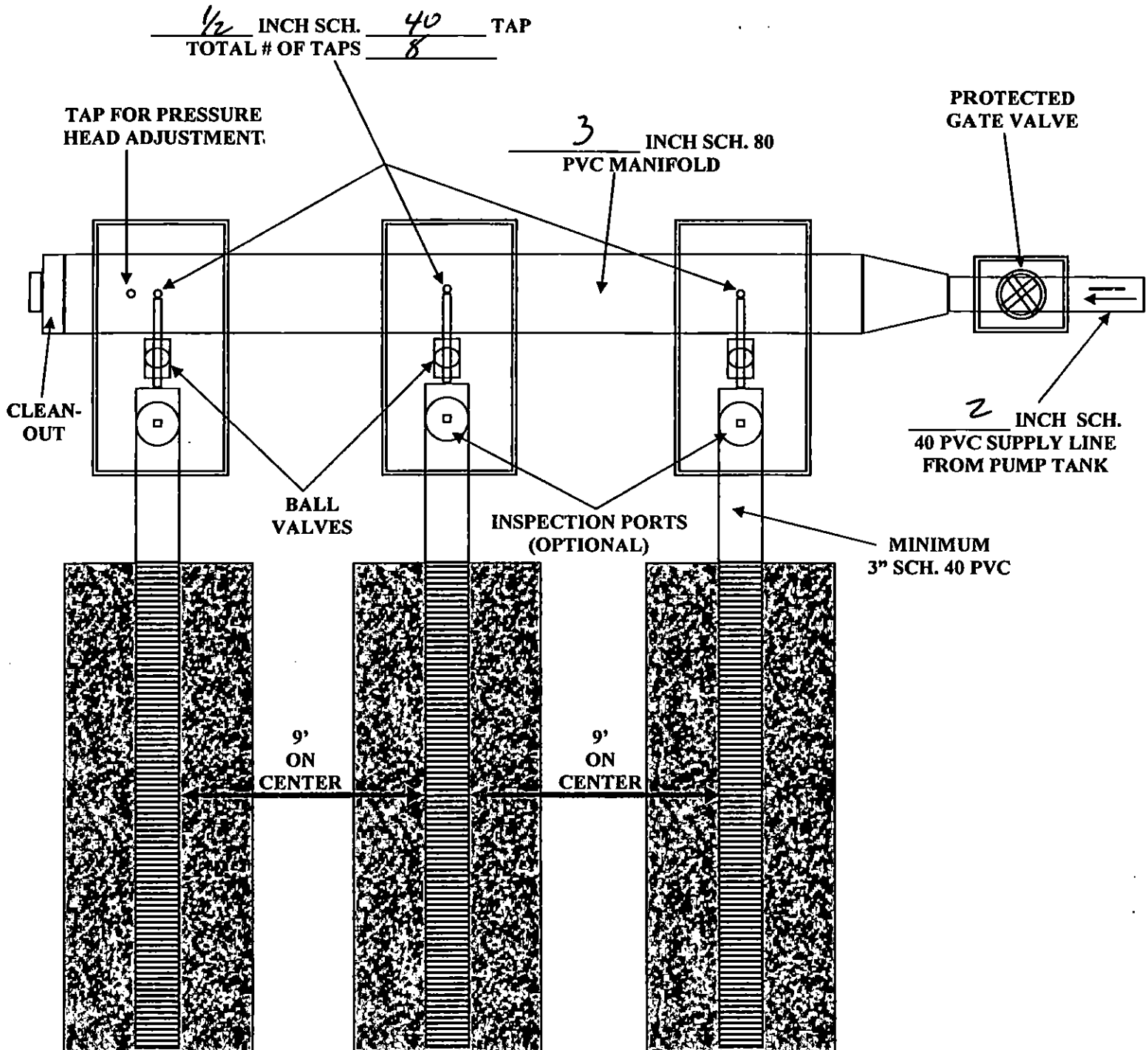
## PUMP RATING:

PUMP MUST BE RATED TO DELIVER 56.8  
 GALLONS PER MINUTE AGAINST 15  
 FEET OF TOTAL DYNAMIC HEAD (TDH).

\* Stainless Steel Clamps shall be used to support the wiring when using a float tree. Plastic wire ties are not approved.



## MANIFOLD FOR LEVEL SITES



- PRESSURE HEAD TO BE SET AT 2 FEET.
- MANIFOLD SHALL BE INSTALLED LEVEL.
- CLEANOUT PLUG MAY BE ADAPTED TO ACCOMMODATE A STAND PIPE FOR PRESSURE HEAD ADJUSTMENT.

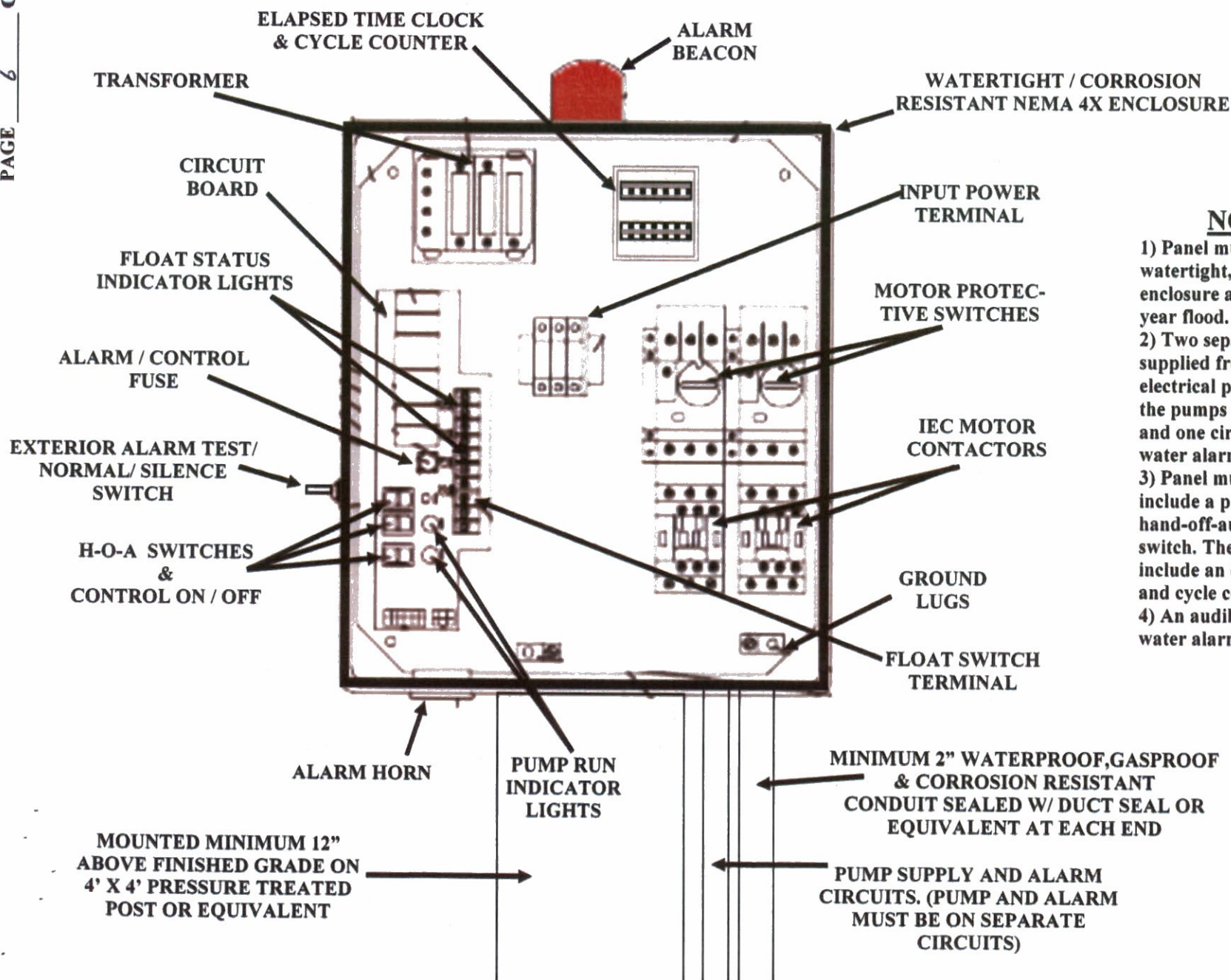


**Additional Specifications**

1. There shall be no splices in any electrical cable within the pump chamber.
2. Pump and alarm must be on two separate live electrical circuits which operate independently of each other.
3. If the pump manufacturer specifies that the "pump off" level be below the top of the pump, the follow the manufacturer's specifications and adjust the floats accordingly.
4. Contact the Onslow County Electrical inspector for release of Temporary Full Service and be sure service is available prior to contacting the Onslow County Health Department for an inspection.
5. Check valves shall be mounted horizontally and such that a siphon breaker hole can be drilled on the pump side of the valve.
6. Only those tanks specifically approved by the State of North Carolina and appropriately stamped shall be used for pump tanks. Modified septic tanks shall not be approved.
7. This permit is valid only for that shown on the attached plot plan, these specifications, and related paraphernalia approved by the Onslow County Health Department.
8. A complete and approved installation is required for this permit to continue to be valid beyond five years elapsed time from the date of issuance.
9. This permit is valid subject to all conditions so noted on this permit, the operations permit, the approved plans and specifications, and any written correspondence that may specify a condition or requirement.
10. This permit is valid only for as long as it meets all requirements of G.S. Chapter 130A Article 11 and related portions of NC Administrative Code.
11. No driving or parking shall be allowed over any portions of the system or repair area unless specifically approved elsewhere in this permit.
12. System operation, maintenance, and repairs shall be the responsibility of the land owner as named on this permit.
13. This permit shall not be transferred, nor shall any changes of use occur, without prior approval by the Onslow County Health Department.
14. The pump curve for the effluent pump installed shall be available during system inspection.
15. Paperwork confirming that the electrical enclosure used is NEMA 4X rated shall be available during system inspection. (Paperwork is not necessary if NEMA 4X rated is clearly marked on the enclosure.)

# CONTROL PANEL DETAIL

(NOT A WIRING DIAGRAM! CONSULT AN ELECTRICIAN)



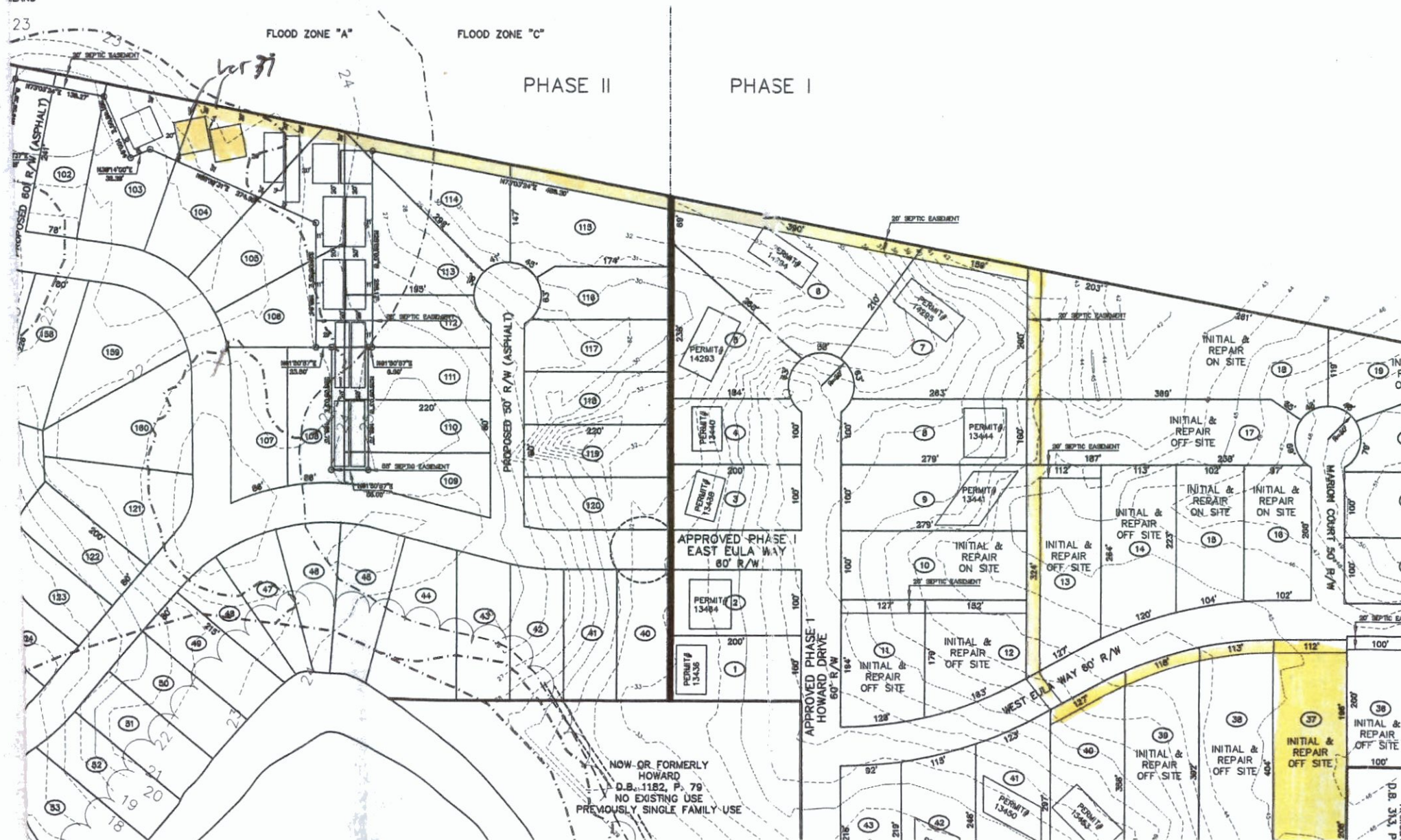
## NOTES:

- 1) Panel must be in a NEMA 4X, watertight, corrosion resistant enclosure and located above 100-year flood.
- 2) Two separate circuits must be supplied from the main house electrical panel—one circuit for the pumps and pump controls and one circuit for the high-water alarm.
- 3) Panel must be U.L. listed and include a pump run light and hand-off-automatic (H-O-A) switch. The panel should also include an elapsed time clock and cycle counter.
- 4) An audible and visible high-water alarm shall be provided.



OWNER: River Buntt  
ADDRESS: Lot 37  
LOCATION: 312 W Howard Dr.

FORMERLY  
OMAS  
-467  
3, P. 54  
ILAND



**SOIL/SITE EVALUATION**  
**for ON-SITE WASTEWATER SYSTEM**

OWNER: Mitchell Cayan APPLICANT: Hayward Pittman  
ADDRESS: 312 W Hayward Rd APPLICATION DATE:      DATE EVALUATED: 8-27-13  
PROPOSED FACILITY: 4 Bedroom PROPOSED DESIGN FLOW (.1949): 480 PROPERTY SIZE:       
LOCATION OF SITE:      PROPERTY RECORDED:       
WATER SUPPLY: ☒ Private ☐ Public ☐ Well ☐ Spring ☐ Other       
EVALUATION METHOD: ☒ Auger Boring ☐ Pit ☐ Cut  
TYPE OF WASTEWATER: ☒ Sewage ☐ Industrial Process ☐ Mixed

P R O F I L E #	.1940 LAND- SCAPE POSITION/ SLOPE%	HORI- ZON DEPTH (IN.)	SOIL MORPHOLOGY (.1941)		OTHER PROFILE FACTORS				PROFILE CLASS & LTAR
			.1941 STRUCTURE/ TEXTURE	.1941 CONSISTENCE/ MINERALOGY	.1942 SOIL WETNESS/ COLOR	.1943 SOIL DEPTH	.1956 SAPRO CLASS	.1944 RESTR HORIZ	
1	5x Pump off site	0-21 21-48	SL L SLL (L)	SAND f <sub>w</sub> N S SE f <sub>w</sub> N S SE	10 YR ≥ 48"	S	S	S	S 1.4
2									
3									
4									

DESCRIPTION	INITIAL SYSTEM	REPAIR SYSTEM	OTHER FACTORS (.1946): <u>S</u>
Available Space (.1945)	<u>S</u>	<u>S</u>	SITE CLASSIFICATION (.1948) <u>S</u>
System Type(s)	<u>CONV</u>	<u>LIPP</u>	EVALUATED BY: <u>SAM FRAZELLE</u>
Site LTAR	<u>.4</u>	<u>.25</u>	OTHER(S) PRESENT: <u>    </u>

Comments:



# SEPTIC TANK INSPECTION CHECKLIST (Type II-IV)

Name: River Bluff  
Address: lot 36, 37, 38

Location: 312 Howard Dr.

Date of Construction Authorization 9/6/13 (If after January 1, 1999, Septic Tank with filter required)

SEPTIC TANK	INITIAL DATE	NITRIFICATION LINES	INITIAL DATE
Manufacture Date <u>existing</u>		Trench Type: <u>added EZflow Polys</u>	<u>AN 9/20/13</u>
State ID Number		Trench Width: <u>3'</u>	
Capacity		Trench Length: <u>2 x 50'</u>	
Tee/Approved Filter		Trench Bottom Depth: <u>18"-24"</u>	
Baffle		Trench Grade <u>ok</u>	<u>✓</u>
Sealant		Rock Depth & Quality (3, 4, 5, 57, 6)	<u>N/A</u>
Tank Penetration Seal		Aggregate Cover	
Riser if Applicable		Warranty (if applicable)	
<b>PUMP TANK</b>		Dams/Stepdowns/Drop box, etc.	
Manufacture Date <u>existing</u>		Pressure Lateral:	
State ID Number		Hole Spacing:	
Capacity		Hole Size:	
Waterproof/Sealant		Turn-ups/Protectors	<u>✓</u>
Riser		<b>DISTRIBUTION SYSTEM</b>	
Water tightness Test (Note Reading Below)		Distribution Method: <u>Pressure Manifold</u>	
<b>PUMP</b>		Serial Dist.	
Check Valve/Gate valve <u>OK</u>		Pressure Manifold <u>2' ok</u>	<u>st</u>
Anti-siphon Hole (Size) <u>1"</u>		Pipe (Material and Grade) <u>get in field</u>	<u>10-22-13</u>
Float Switches <u>OK</u>		Valves	
Electrical Components <u>10-22-13</u>		<b>SUPPLY LINE</b>	
Rate (gpm)		Location	
Pump Manufacturer: <u>get or 10-22-13</u>		Pipe (Material)	
Pump Model Number:		Pipe Size	
Pump Removal Method		Hydrostatic Leak Test:	
<b>GREASE TRAP</b>		<b>LANDSCAPING</b>	
Manufacture Date		Surface Drain	
State ID Number		Subsurface Drain	
Capacity		Depth of Cover: Tank: <u>0</u> Drainfield: <u>≥ 6</u>	<u>10-22-13 st</u>
Tee/Approved Filter		Finish Grade/Stabilize (if applicable)	<u>ok 10-22-13</u>
		Permanent Markers	
		<b>OTHER</b>	
		System Setbacks	
		Legal Documents	
		Mound Approved (Texture, Interface,	
Contractor: <u>Karin Padgett</u>		Location, Length, Depth, Width)	

Revised 6-20-07

COMMENTS:

## NATIONAL RESERVE STUDY STANDARDS

### General Information About Reserve Studies

One of the primary responsibilities of the board of directors of a community association is to protect, maintain, and enhance the assets of the association. To accomplish this objective, associations must develop multi-year plans to help them anticipate and responsibly prepare for the timely repair and replacement of common area components such as roofs, roads, mechanical equipment, and other portions of the community's common elements.

Originally published in 1998, the National Reserve Study Standards provide a consistent set of terminology, calculations, and expectations so reserve study providers and those they serve together can build a successful future for millions of community association homeowners across the country.

A reserve study is made up of two parts, the **physical analysis** and the **financial analysis**. The physical analysis includes the component inventory, condition assessment, and life and valuation estimates. The component inventory should be relatively stable from year to year, while the condition assessment and life and valuation estimate change from year to year.

The financial analysis is made up of an analysis of the client's current reserve fund status (measured in cash or as percent funded) and a recommendation for an appropriate reserve contribution rate (a funding plan).

#### Physical analysis

- Component inventory
- Condition assessment
- Life and valuation estimates

#### Financial analysis

- Fund status
- Funding plan

## Levels of Service

The following three categories describe the various types of reserve studies, from exhaustive to minimal.

**I. Full.** A reserve study in which the following five reserve study tasks are performed:

- Component inventory
- Condition assessment (based upon on-site visual observations)
- Life and valuation estimates
- Fund status
- Funding plan

**II. Update, With Site Visit/On-Site Review.** A reserve study update in which the following five reserve study tasks are performed:

- Component inventory (verification only, not quantification)
- Condition assessment (based on on-site visual observations)
- Life and valuation estimates
- Fund status
- Funding plan

**III. Update, No-Site-Visit/Off Site Review.** A reserve study update with no on-site visual observations in which the following three reserve study tasks are performed:

- Life and valuation estimates
- Fund status
- Funding plan

**IV. Preliminary, Community Not Yet Constructed.** A reserve study prepared before construction that is generally used for budget estimates. It is based on design documents such as the architectural and engineering plans. The following three tasks are performed to prepare this type of study.

- Component inventory
- Life and valuation estimates
- Funding plan

## Terms and Definitions

**CAPITAL IMPROVEMENTS:** Additions to the association's common elements that previously did not exist. While these components should be added to the reserve study for future replacement, the cost of construction should not be taken from the reserve fund.

**CASH FLOW METHOD:** A method of developing a reserve funding plan where contributions to the reserve fund are designed to offset the variable annual expenditures from the reserve fund. Different reserve funding plans are tested against the anticipated schedule of reserve expenses until the desired funding goal is achieved.

**COMPONENT:** The individual line items in the reserve study developed or updated in the physical analysis. These elements form the building blocks for the reserve study. These components comprise the common elements of the community and typically are: 1. association responsibility, 2. with limited useful life expectancies, 3. predictable remaining useful life expectancies, and 4. above a minimum threshold cost. It should be noted that in certain jurisdictions there may be statutory requirements for including components or groups of components in the reserve study.

**COMPONENT INVENTORY:** The task of selecting and quantifying reserve components. This task can be accomplished through on-site visual observations, review of association design and organizational documents, review of association precedents, and discussion with appropriate representative(s) of the association.

**COMPONENT METHOD:** A method of developing a reserve funding plan where the total contribution is based on the sum of contributions for the individual components.

**CONDITION ASSESSMENT:** The task of evaluating the current condition of the component based on observed or reported characteristics.

**EFFECTIVE AGE:** The difference between useful life and remaining useful life. Not always equivalent to chronological age, since some components age irregularly. Used primarily in computations.

**FINANCIAL ANALYSIS:** The portion of a reserve study where the current status of the reserves (measured as cash or percent funded) and a recommended reserve contribution rate (funding plan) are derived, and the projected reserve income and expense over a period of time are presented. The financial analysis is one of the two parts of a reserve study.

**FULLY FUNDED:** 100 percent funded. When the actual (or projected) reserve balance is equal to the fully funded balance.

**FULLY FUNDED BALANCE (FFB):** An indicator against which the actual (or projected) reserve balance can be compared. The reserve balance that is in direct proportion to the fraction of life "used up" of the current repair or replacement cost. This number is calculated for each component, and then summed for an association total.

$$\text{FFB} = \text{Current Cost} \times \text{Effective Age/Useful Life}$$

Example: For a component with a \$10,000 current replacement cost, a 10-year useful life and effective age of 4 years the fully funded balance would be \$4,000.

**FUND STATUS:** The status of the reserve fund reported in terms of cash or percent funded.

**FUNDING GOALS:** Independent of methodology used, the following represent the basic categories of funding plan goals. They are presented in order of greatest risk to least risk. Risk includes, but is not limited to, cash problems, special assessments, and deferred maintenance.

**Baseline Funding:** Establishing a reserve funding goal of allowing the reserve cash balance to never be below zero during the cash flow projection. This is the funding goal with the greatest risk due to the variabilities encountered in the timing of component replacements and repair and replacement costs.

**Threshold Funding:** Establishing a reserve funding goal of keeping the reserve balance above a specified dollar or percent funded amount. Depending on the threshold selected, this funding goal may be weaker or stronger than "Fully Funded" with respective higher risk or less risk of cash problems.

**Full Funding:** Setting a reserve funding goal to attain and maintain reserves at or near 100 percent funded. This is the most conservative funding goal.

It should be noted that in certain jurisdictions there may be statutory funding requirements that would dictate the minimum requirements for funding.

**FUNDING PLAN:** An association's plan to provide income to a reserve fund to offset anticipated expenditures from that fund. The plan must be a minimum of twenty (20) years.



## Terms and Definitions (cont'd.)

**FUNDING PRINCIPLES:** The reserve provider must provide a funding plan addressing these principles.

- Sufficient funds when required
- Stable contribution rate over the years
- Equitable contribution rate over the years
- Fiscally responsible

**LIFE AND VALUATION ESTIMATES:** The task of estimating useful life, remaining useful life, and current repair or replacement costs for the reserve components.

**PERCENT FUNDED:** The ratio, at a particular point in time related to the fiscal year end, of the actual (or projected) reserve balance to the fully funded balance, expressed as a percentage. While percent funded is an indicator of an association's reserve fund size, it should be viewed in the context of how it is changing due to the association's reserve funding plan in light of the association's risk tolerance.

**PHYSICAL ANALYSIS:** The portion of the reserve study where the component inventory, condition assessment, and life and valuation estimate tasks are performed. This represents one of the two parts of the reserve study.

**REMAINING USEFUL LIFE (RUL):** Also referred to as "remaining life" (RL). The estimated time, in years, that a reserve component can be expected to serve its intended function. Projects expected to occur in the initial year have zero remaining useful life.

**REPLACEMENT COST:** The cost to replace, repair, or restore the component to its original functional condition during that particular year, including all related expenses (including but not limited to shipping, engineering and design, permits, installation, disposal, etc.).

**RESERVE BALANCE:** Actual or projected funds, as of a particular point in time that the association has identified, to defray the future repair or replacement cost of those major components that the association is obligated to maintain or replace. Also known as reserves, reserve accounts, cash reserves. Based on information provided and not audited.

**RESERVE PROVIDER:** An individual who prepares reserve studies. In many instances the reserve provider will possess a specialized designation such as the Reserve Specialist (RS) designation provided by Community Associations Institute (CAI). This designation indicates that the provider has shown the necessary skills to perform a reserve study that conforms to these standards.

**RESERVE PROVIDER FIRM:** A company that prepares reserve studies as one of its primary business activities.

**RESERVE STUDY:** A budget planning tool which identifies the components that the association is responsible to maintain or replace, the current status of the reserve fund, and a stable and equitable funding plan to offset the anticipated future major common area expenditures. The reserve study consists of two parts: the physical analysis and the financial analysis.

**RESPONSIBLE CHARGE:** A Reserve Specialist (RS) in responsible charge of a reserve study shall render regular and effective supervision to those individuals performing services that directly and materially affect the quality and competence of services rendered by the Reserve Specialist. A Reserve Specialist shall maintain such records as are reasonably necessary to establish that the Reserve Specialist exercised regular and effective supervision of a reserve study of which he or she was in responsible charge. A Reserve Specialist engaged in any of the following acts or practices shall be deemed not to have rendered the regular and effective supervision required herein:

1. The regular and continuous absence from principal office premises from which professional services are rendered; except for performance of field work or presence in a field office maintained exclusively for a specific project;
2. The failure to personally inspect or review the work of subordinates where necessary and appropriate;
3. The rendering of a limited, cursory or perfunctory review of plans or projects in lieu of an appropriate detailed review; and
4. The failure to personally be available on a reasonable basis or with adequate advance notice for consultation and inspection where circumstances require personal availability.

**SPECIAL ASSESSMENT:** A temporary assessment levied on the members of an association in addition to regular assessments. Note that special assessments are often regulated by governing documents or local statutes.

**USEFUL LIFE (UL):** The estimated time, in years, that a reserve component can be expected to serve its intended function if properly constructed in its present application or installation.

## Reserve Study Contents

The following is a list of the minimum contents to be included in the Reserve Study.

1. A summary of the association's number of units, physical description and reserve fund financial condition.
2. A projection of reserve starting balance, recommended reserve contributions, projected reserve expenses, and projected ending reserve fund balance for a minimum of 20 years.
3. A tabular listing of the component inventory, component quantity or identifying descriptions, useful life, remaining useful life and current replacement cost.
4. A description of methods and objectives utilized in computing the Fund Status and development of the Funding Plan.
5. Source(s) utilized to obtain component repair or replacement cost estimates.
6. A description of the level of service by which the Reserve Study was prepared.
7. Fiscal year for which the Reserve Study is prepared.

## Disclosures

The following are the minimum disclosures to be included in the Reserve Study:

1. **General:** Description of the other involvement(s) with the association, which could result in actual or perceived conflicts of interest.
2. **Physical Analysis:** Description of how thorough the on-site observations were performed: representative samplings vs. all common areas, destructive testing or not, field measurements vs. drawing take-offs, etc.
3. **Financial Analysis:** Description of assumptions utilized for interest and inflation, tax and other outside factors.
4. **Personnel Credentials:** State or organizational licenses or credentials carried by the individual responsible for Reserve Study preparation or oversight.
5. **Update Reports:** Disclosure of how the current work is reliant on the validity of prior Reserve Studies.
6. **Completeness:** Material issues which, if not disclosed, would cause a distortion of the association's situation.
7. **Reliance on Client Data:** Information provided by the official representative of the association regarding financial, physical, quantity, or historical issues will be deemed reliable by the consultant and assembled for the association's use, not for the purpose of performing an audit, quality/forensic analysis, or background checks of historical records.
8. **Reserve Balance:** The actual or projected total presented in the Reserve Study is based upon information provided and was not audited.
9. **Component Quantities:** For update with site visit and update no site visit levels of service, the client is considered to have deemed previously developed component quantities as accurate and reliable.
10. **Reserve Projects:** Information provided about reserve projects will be considered reliable. Any on-site inspection should not be considered a project audit or quality inspection.

# Community Associations Institute

## Professional Reserve Specialist Code of Ethics

The Reserve Specialist Shall:

1. Comply with current standards and practices as may be established from time to time by CAI, the Reserve Specialist (RS) Designation Review Board, subject to all federal, state and local laws, ordinances, and regulations, if any, in effect where the RS practices;
2. Participate in continuing professional education through CAI and other industry related organizations as required;
3. Act in the best interests of the client; refrain from making inaccurate or misleading representations or statements; not knowingly misrepresent facts to benefit the Specialist;
4. Undertake only those engagements that they can reasonably expect to perform with professional competence;
5. Exercise due care and perform planning and supervision as specified in the written client engagement agreement;
6. Disclose all relationships in writing to the client regarding any actual, potential or perceived conflict of interest between the Specialist and other vendors, including, but not limited to, management companies, insurance carriers, contractors and legal counsel.
7. Provide written disclosure of any compensation, gratuity or other form of remuneration from individuals or companies who act or may act on behalf of the client.
8. Conduct himself or herself in accordance with the Reserve Specialist requirements;
9. Not represent to anyone as being a Reserve Specialist designee until such time as he or she receives written confirmation from the Reserve Specialist Designation Review Board or CAI of receipt of the designation;
10. Recognize the original records, files, plats and surveys that are the property of the client are returned to the client at the end of the Specialists engagement; maintain the duty of confidentiality to all current and former clients.
11. Refrain from criticizing competitors or their business practices; Act in the best interests of their Employers; Maintain a professional relationship with our peers and industry related professionals.
12. Conduct themselves in a professional manner at all times when acting in the scope of their employment.
13. Not engage in any form of price fixing, anti-trust, or anti-competition.
14. Not use the work products of colleagues or competing Reserve Specialist firms that are considered proprietary without the expressed written permission of the author or the reserve specialist firm.
15. Abide by the re-designation policy of CAI.

**Compliance with the Professional Reserve Specialist Code of Ethics is further amplified in the Code Clarification Document provided by Community Associations Institute.**

# Code Clarification Document

## A. Authority

The Code derives its authority from the Community Associations Institute (CAI). CAI's Board of Trustees has established a minimum standard of professional ethical performance for those individuals who receive recognition or designations from CAI.

Those individuals or entities that have received professional Reserve Specialist (RS) designation from CAI are subject to this Code.

## B. Definitions

The Code shall apply in any Reserve Specialist-client relationship where the RS receives some form of compensation for professional services offered or provided to the client.

**Reserve Specialist (RS)**—a singular term which shall apply to all of the following persons or entities providing or offering some form of reserve studies, transition warranty inspections, construction defect reports and other facility inspection reports or consulting services to one or more clients:

- a. A single practitioner functioning as a client employee, or
- b. A single practitioner employed by a firm contracted by one or more clients, or
- c. A principal or supervisory staff member for a firm which is contracted by one or more clients, or
- d. A firm, which is contracted by one or more clients, whether it is organized as a corporation, partnership, or other entity.

Because the Code is designed to establish a standard of conduct for the practice of preparing and providing the services and products mentioned above to community association clients, it is equally applicable to individuals and firms. An individual who agrees to abide by this Code shall also be responsible to see that any other person or firm under his/her supervision shall comply with the Code.

**Client**—a singular term applying to one or more community association properties (condominium, homeowner association, cooperative, PUD, PRD, etc.) and their governing body. The client may employ the Reserve Specialist directly or be under some form of independent contract with the Reserve Specialist.

## C. Amplification

*CAI to further explain and define the Code of Ethics provides the following information.*

**The following explanations correspond to the numbered paragraphs in the Professional Reserve Specialist Code of Ethics:**

1. **Current standards or practices** are those numbered one through fourteen in the Code. Reserve Specialists who practice in states with legislative requirements must comply with those laws. Reserve Specialists shall not discriminate in any relationship, with any individual or firm, based upon race, color, religion, sex, national origin, familial status, or handicap and shall comply with all federal, state and local laws concerning discrimination. Reserve Specialists shall not engage in any form of price fixing, anti-trust, or anti-competition with other Reserve Specialists or Vendors.
2. **Continuing professional education** requirements are consistent with that Reserve Specialists designation. While CAI membership is not mandatory, the Reserve Specialist must satisfy the designation requirement in order to use said designation. Additionally the Reserve Specialist has a duty to remain informed on relevant matters affecting the industry.
3. **Act in the best interests of the client; Not make any inaccurate or misleading representations or statements to a prospective client; Not knowingly misrepresent facts to benefit the Reserve Specialist;** the Reserve Specialist has a fiduciary duty/responsibility to the client and should at all times act in the best interests of the client. Reserve Specialists should avoid exaggeration, misrepresentation, concealment, and knowingly distributing misinformation.



## Code Clarification Document (continued)

4. ***Undertake only those engagements that they can reasonably expect to perform with professional competence;*** the Reserve Specialist shall provide accurate information within his area of expertise and refrain from the unauthorized practice of other professions. No Reserve Specialist should provide any service or advice that is outside his or her field of competence which includes dispensing of professional advice that falls under the auspices of other disciplines such as legal representatives, certified engineers and contractors. The Reserve Specialist should not undertake engagements that he/she cannot perform in the required time-frame and with professional competence.
5. ***Exercise due care and exhibit planning and supervision as specified in the written client engagement agreement.*** The intent of this statement is for the Reserve Specialist to make a good faith effort to operate within the framework of the applicable engagement agreement and to abide by the terms of said agreement. The Reserve Specialist must plan his or her own work and adequately supervise his or her employees' work to ensure the work is performed with professional competence.
6. ***Disclosure of any possible conflict of interest is the key here.*** An example may be of assistance. A Reserve Specialist (individually or through a company) may have financial interest in a service contractor, supplier, or professional firm that is being considered by that Reserve Specialist's client. Disclosure must be in writing and sufficiently in advance of the selection process to allow full consideration of the possible conflicts and any alternatives. The fact that the client may still choose the Reserve Specialist's related entity is not a violation of the Code, provided ample disclosure was given.
7. ***Provide written disclosure to the client any compensation, gratuity or other from of remuneration from individuals or companies who act or may act on behalf of the client.*** Written disclosure shall be made to the client by the Reserve Specialist, confirming receipt of all commissions, rebates, discounts, payments, or other benefits received in excess of \$200.00 annually by the Reserve Specialist from any vendor or vendor related client.
8. ***Original records, files, plats, plans and surveys*** are those items that were given to the Reserve Specialist at any time prior to, during or at the conclusion of his or her engagement or were developed by the Reserve Specialist and/or the client during the period of the Reserve Specialist's engagement. This definition may be further expanded by the engagement agreement. Unless provided in such an agreement or otherwise, the Reserve Specialist has no obligation to provide the client with client-related computerized data unless the client owns the computer and software and such data can be separated from that data and software which are proprietary to the Reserve Specialist. Those items that the Reserve Specialist brought to and used during the engagement, such as operation or procedure manuals, remain the property of the Reserve Specialist.
9. The Reserve Specialist shall maintain ***a duty of confidentiality to all current and former clients,*** commencing the effective start date of the relationship and continuing through infinity.
10. ***Refrain from criticizing competitors or their business practices; Act in the best interests of their Employers; Maintain a professional relationship with our peers and industry related professionals.***  
Self-explanatory.
11. ***Shall conduct themselves in a professional manner when acting in the scope of their employment.***  
Self-explanatory.
12. Work products that are posted on the internet, e-mailed, presented as part of an education session or industry related networking exchange are not considered proprietary unless they are clearly labeled as proprietary documents or subject to further protection under the copyright or registration. Lists of clients along with their contact and confidential contract information that are maintained by a Reserve Specialist or Engineering Company are considered proprietary.

## **Code Clarification Document (continued)**

### **D. Future**

The Board of Trustees may expand application of this Code, and CAI reserves the right to update, or amend both the Professional Reserve Specialist Code of Ethics and the Code Clarification Document. Any such revision, updating or amendment shall be promptly promulgated to CAI Reserve Specialist members and, after due notice, will apply to all members subject to the Code.

### **E. Disciplinary Action**

After an internal investigation and hearing as provided in CAI's Ethics Enforcement Procedures Policy, a Reserve Specialist found to be in violation of this Code shall face a sanction in accordance with the enforcement policies adopted by the CAI Board of Trustees. The extent of such sanction shall be commensurate with the nature, severity, and intent of the violation. In a situation where a firm, principal(s) or supervisory staff are involved, sanctions may be imposed on more than one individual or the firm itself.

<p style="text-align: center;"><b>TERMS OF REFERENCE</b></p> <p style="text-align: center;"><b>RESERVE STUDY</b></p>	
<i>Association</i>	The Unit or Home Owners' association. May be referred to with different terminology in legal covenants of incorporation. "Condominium" or "Trust" are often used.
<i>Board</i>	Elected Officers of the Association with fiduciary responsibility for the community's common holdings. May be referred to with different terminology in legal covenants of incorporation.
<i>Owner</i>	Individual Unit or Home owner, a Member or the Association
<i>Property Manager</i>	Professional organization through which the Board delegates responsibilities for operations and maintenance of the community.
<i>Excellent</i>	Component or system is in "as new" condition, requiring no rehabilitation and should perform in accordance with expected performance.
<i>Good</i>	Component or system is sound and performing its function, although it may show signs of normal wear and tear. Some minor rehabilitation work may be required.
<i>Fair</i>	Component or system falls into one or more of the following categories: a) Workmanship not in compliance with commonly accepted standards, b) Evidence of previous repairs not in compliance with commonly accepted practice, c) Component or system is obsolete, d) Component or system approaching end of expected useful life. Repair or replacement is required to prevent further deterioration or to prolong expected life.
<i>Poor</i>	Component or system has either failed or cannot be relied upon to continue performing its original function as a result of having exceeded its expected useful life, excessive deferred maintenance, or state of disrepair. Present condition could contribute to or cause the deterioration of other adjoining elements or systems. Repair or replacement is required.
<i>Adequate</i>	A component or system is stable, has capacity to function as required, is sufficient for its service, is suitable for operation, and/or conforms to standard construction practices.
<i>Basis of comparison</i>	Ratings are determined by comparison to other buildings of similar age and construction type.
<i>Left, Right, Front, Rear</i>	Directions are taken from the viewpoint of an observer standing at the property frontage and facing it. Or, for a building within a campus setting, the viewpoint of an observer standing in front of the principal entrance and facing it.
<i>Current deficiency</i> <i>Immediate expense</i>	We will note any observed or reported physical condition which requires immediate action to correct an existing or potential safety hazard, an enforceable building code violation, or the poor or deteriorated condition of a critical element or system. Also, to address any conditions which, if left "as is", would likely result in the failure of a critical element or system. Such items will be noted in our report even if they do not require a capital expenditure,
<i>Short-term capital expenditures</i>	Correction of physical deficiencies including deferred maintenance, which may not warrant immediate attention, but require repairs or replacements which should be undertaken on a priority basis, taking precedence over preventive maintenance work within a one-year time frame. Included are physical deficiencies resulting from improper design, faulty installation, and/or substandard quality of original systems or materials. Components or systems that have exceeded their expected useful life and require repair or replacement within a one-year time frame are also included. Observed minor issues which would typically be addressed as normal operations & maintenance work may not be noted in the report.
<i>Long-term capital expenditures</i>	Non-routine repairs, replacements or planned improvements that will require significant expenditure during the study period. Included are items that will reach the end of their expected useful life or which, in the opinion of the engineer, will require such expense during that time. If saving for longer-term expenditures is desired, then allowances or contingencies for such items may also be included. Observed minor issues which would typically be addressed as normal operations & maintenance work may not be noted in the report.
<i>Expected Useful Life (EUL)</i>	As components age, they wear and deteriorate at varying rates, depending on their service and exposure. Although it is an inexact science, various financial underwriters, data services and trade organizations publish guidance regarding the EULs of typical building materials and operating systems. For short-lived components, their EUL is used as the frequency between periodic repairs or replacements. Some systems' economic life may be shortened because improved equipment or materials has become available which is less costly to operate or maintain.
<i>Remaining Useful Life (RUL)</i>	The simple equation for determining remaining useful life before repair or replacement is: $EUL - Age = RUL$ However, based on our evaluation of a component and our professional judgment, we may assign a shorter or longer RUL to actual items being considered.

BUILDING SYSTEMS AND COMPONENTS			
COMMON ABBREVIATIONS AND ACRONYMS			
ACM	Asbestos Containing Material	HW	Hot Water
ACT	Acoustic Ceiling Tile	HWH	Hot Water Heater (domestic)
ADA	Americans with Disabilities Act	IBC	International Building Code
AHU	Air Handling Unit	IRC	International Residential Code
ASHRAE	American Society of Heating, Refrigeration and Air-Conditioning Engineers	KVA	Kilovolt-Ampere
ASTM	American Society for Testing and Materials	LF	Lineal Foot
BOCA	Building Officials Code Administrators International	MSL	Mean Sea Level
BTU	British Thermal Unit	NEC	National Electric Code
BTUH	British Thermal Unit /Hour	NFPA	National Fire Protection Association
CFM	Cubic Foot / Minute	MBH	Thousand British Thermal Units / Hour
CI	Cast Iron (piping)	MDP	Main Distribution Panel (electric power)
CIP	Cast In Place (concrete)	O&m	Operations & Maintenance
CMU	Concrete Masonry Unit (block)	OSB	Oriented Strand Board (sheathing or decking)
CPVC	Chlorinated Poly Vinyl Chloride (piping)	PCA	Property Condition Assessment
CW	Cold Water	PCR	Property Condition Report
DI	Ductile Iron (piping)	PE	Licensed Professional Engineer
EIFS	Exterior Insulating and Finishing System	PVC	Poly Vinyl Chloride (piping and siding)
EPDM	Ethylene Propylene Diene Monomer	PTAC	Packaged Terminal Air Conditioning Unit
EUL	Expected Useful Life	ROM	RFough Order of Magnitude
FCU	Fan Coil Unit	RUL	Remaining Useful life
FEMA	Federal Emergency Management Agency	RTU	Roof Top Unit
FFE	Furniture, Fixtures and Equipment	SF	Square Foot
FHA	Forced Hot Air	SOG	Slab On Grade (concrete basement or ground floor)
FHAA	Fair Housing Act and Amendments	SQ	100 Square Feet
FHW	Forced Hot Water	SY	Square Yard
FIRM	Flood Insurance Rate Map	UBC	Uniform Building Code
FOIA	Freedom Of Information Act	UL	Underwriters Labortories
GFI	Ground Fault Interruption (circuit breaker)	VAC	Volts Alternating Current
GWB	Gypsum Wall Board (drywall or sheetrock)	VAV	Variable Air Volume box
HID	High Intensity Discharge (lamp, lighting fixture)	VCT	Vinyl Composition Tile
HVAC	Heating Ventilation and Air Conditioning	VWC	Vinyl Wall Covering



# **APPENDIX E**

## **PROJECT TEAM QUALIFICATIONS**

# Logan R. Poe, PE – Project Engineer

- B.S. Civil Engineering, The University of North Carolina at Charlotte, Charlotte, NC, 2011
- Professional Engineer – North Carolina (#046049)

## Professional Summary

Mr. Poe has experience in residential and commercial design, construction administration and special inspections. He has provided engineering and consultation on many projects and has been responsible for development construction documentation on many sites. Mr. Poe also performs studies of completed facilities which address compliance with building codes, local regulations and industry standards. These assessments include the following categories of residential/commercial facilities:

- Commercial office buildings
- Industrial warehouses
- High rise condominiums with retail space
- Multi-family housing projects

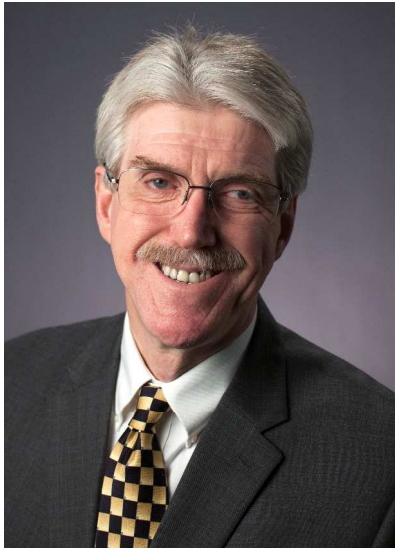
Mr. Poe performs structural assessments on commercial buildings and multi-family structures during the process of a renovation or when a forensic evaluation is requested. The assessments of existing structural beams, columns and foundations are typically required when new HVAC units and solar panels are installed and when the assembly of the floor space is modified. Mr. Poe performs structural assessments for single-family and multi-family buildings. These assessments are required to determine if significant structural defects are present in the foundation, flooring and roofing systems. Mr. Poe prepares repair designs to remedy these defects as required.

Mr. Poe has conducted numerous quality assurance inspections for the installation of building envelope systems in multi-family new construction projects. These inspections include roofing, siding, fenestration, waterproofing and related systems. Inspections were conducted to confirm installation in accordance with project specifications, manufacturer's installation recommendations, building code and industry standards. Mr. Poe has also conducted numerous moisture intrusion evaluations for multi-family residential and commercial buildings.

Mr. Poe also performs numerous capital reserves studies for community associations/building owners, performs construction monitoring and quality assurance inspections as noted above for new multi-family and commercial construction and community association capital repair projects. Included in these assessments is repair/replacement cost estimates and useful life estimates for building components and site improvements for near term/immediate repairs. In addition, Mr. Poe has performed numerous construction draw inspections to ensure the respective pay applications are current to the project's schedule and construction documents respectively.

## V. Campbell Grant, P.E., RS, CBIE, LEED<sup>®</sup> AP, E.P.

*Senior Engineer*



Cam Grant is a licensed professional civil engineer and project manager with over 35 years experience in site development, building design & construction and facility management.

Since joining Criterium, Cam has become expert in

- Commercial & residential Property Condition Assessments in support of real estate due diligence and financial underwriting
- Reserve & Transition Studies for community associations' facility & financial planning
- Phase One Environmental Site Assessments for all appropriate inquiry under EPA regulations

Cam now manages these inspection services provided to Criterium's national clients across the country. He directs assigned professional staff from our affiliated offices, and assists them with guidance whenever required to ensure consistent high quality.

Cam has planned and led hundreds of capital improvement projects from conceptual payback analysis through facility commissioning. His responsibilities have included building design; permitting & construction; and process equipment specification, procurement & start-up. The value of several of his larger projects ranged over \$50 million and up to \$150 million.

Prior to joining Criterium, Cam was a project manager for a design-build general contractor. In that role, he concurrently estimated costs, authored proposals, obtained permits, hired subcontractors, purchased materials, leased equipment, and managed on-site superintendents at multiple locations.

### EDUCATION AND PROFESSIONAL AFFILIATIONS

University of Maine, Orono, ME - Bachelors of Science, Civil Engineering  
Southern Maine Community College, South Portland, ME - 2D & 3D Design (AutoCad)  
ASTM Training, Standard E 2018 Property Condition Assessments  
ASTM Training, Standard E 1527 Phase I Environmental Site Assessments, September 2006

Licensed Professional Engineer - State of Maine, No. 4227  
Certified Reserve Specialist - Community Association Institute  
Certified Building Inspection Engineer - National Association of Building Inspection Engineers  
Leadership in Energy & Environmental Design, Accredited Professional - US Green Building Council  
Environmental Professional - Phase One Environmental Site Assessments

### WHY I DO WHAT I DO

*"When I was small, I enjoyed stacking up blocks, laying out toy train tracks and assembling erector sets. As I grew older, I learned building real facilities must be a group undertaking, and how the constructed environment enables human activities."*

*"At this point, I derive the most satisfaction from facilitating the work of others while ensuring a high quality result. I really appreciate how the outcome of our work together at Criterium informs our clients and adds value to people's lives."*

## WHY CRITERIUM ENGINEERS

*"Whether we are retained by real estate investment trusts or community associations or housing authorities or first-time home buyers, Criterium's clients require our guidance in making very significant current financial decisions, and with planning for future expenses.*

*"We place our building knowledge and professional experience into their service. Along the way, we also assist them with other considerations: life safety, regulatory compliance and obtaining the highest value-return from planned repairs and improvements. This is a great way to spend the day and earn a living!"*

## CONSTRUCTION EXPERIENCE HIGHLIGHTS

- Completed hundreds of capital improvement and infrastructure projects, including installation of equipment, building renovations, new building construction, and new plant development. Directly supervised design teams & on-site staff.
  - Urban Renewal Streetscapes
  - Highways
  - Waste Water Treatment Plants
  - Interceptor Sewers
  - Plastic Extrusion Plants
  - Shipyard Production Facilities
  - Warehouses and Material Handling Systems
  - Office Buildings
  - Shopping Centers
  - Restaurants
  - Hotels
  - Convenience Stores with Fuel Delivery Systems

## OPERATIONAL MANAGEMENT HIGHLIGHTS

- Extensive experience planning industrial operations and initiatives.
- Directed & documented the work of inter-disciplinary teams tasked with implementation of new management systems & with developing sales proposals
- Successfully coordinated the completion of thousands of individual work items during US Navy ship overhauls
- Managed production scheduling for the design and fabrication of pulp & paper line machinery

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