

PROCESS, REGULATION REQUIREMENTS, AND FINANCIAL ANALYSIS FOR
TRANSFORMING RURAL LAND TO RECREATIONAL
SPORTFISHING WATERS

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PROCESS, REGULATION REQUIREMENTS, AND FINANCIAL ANALYSIS FOR
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SPORTFISHING WATERS

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THESIS ABSTRACT

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SPORTFISHING WATERS

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This study illustrates the process and regulation requirements for transforming rural land in South Alabama into recreational waters. Moreover, the goal of this study is to evaluate the financial feasibility of addition of sportfishing water to an ongoing outdoor recreational facility. Also, the feasibility of 40-acre and 20-acre start-up sportfishing operations was evaluated. The data analyzed were obtained through inputs from outdoor industry contractors and consultants, recreational water owners and managers in Alabama, and state and national environmental regulatory agencies. This study is arranged from an outdoor recreational industry standpoint. The information therein and results are shown so that the general public, rural land owners, recreational water owners and outdoor industry can comprehend and benefit.

Furthermore, this paper examines a specific case study of a 40-acre sportfishing water in the state of Alabama utilized under a membership criterion to generate additional income for an existing outdoor recreational facility. The analysis illustrates that an outdoor recreational facility which currently owns the land needed for lake construction and uses equity capital for initial capital costs can generate significant cash inflows relatively early in the life of the project. The specific 40-acre sportfishing project examined for an existing recreational facility obtained a net present value of \$16,233.30 at an 8 percent rate, and had an internal rate of return of 10 percent, given shared overhead costs. The 40-acre and 20-acre start-up operations analyzed with owned parcels of rural land and requiring borrowed capital to satisfy initial capital requirements and early operating costs returned negative net present values at 8 and 12 percent rates. Also, only a 3 percent internal rate of return was generated for the 20-acre project and a negative internal rate of return was generated for the 40-acre start-up project.

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TABLE OF CONTENTS

LIST OF TABLES.....	ix
I. INTRODUCTION.....	1
II. OBJECTIVES AND METHODS	8
III. LITERATURE REVIEW.....	15
IV. REVIEW OF PLANNING PROCESS.....	19
V. ANALYSIS AND RESULTS.....	32
VI. DISCUSSION.....	40
VII. REFERENCES.....	44
APPENDICES	47
Appendix 1.....	48
Appendix 2	65
Appendix 3	67
Appendix 4	68
Appendix 5	70
Appendix 6	71
Appendix 7	72
Appendix 8	73
Appendix 9	75

LIST OF TABLES

TABLE 1-1	Capital and Operating Costs for a 40-Acre Sportfishing Lake with a 15-Year Planning Horizon and Using Equity Capital, Alabama	49
TABLE 1-2	Projection of the Net Cash Flows for a 40-Acre Sportfishing Lake, 15-Year Planning Horizon, Alabama	52
TABLE 1-3	Capital and Operating Costs for a 40-Acre Sportfishing Lake with a 15-Year Planning Horizon and Using Borrowed Capital for Construction and Initial Cost Purposes, Alabama	54
TABLE 1-4	Projection of the Net Cash Flows for a 40-Acre Sportfishing Lake with a 15-Year Planning Horizon, Alabama	57
TABLE 1-5	Capital and Operating Costs for a 20-Acre Sportfishing Lake with a 15-Year Planning Horizon and Using Borrowed Capital for Construction and Initial Cost Purposes, Alabama	59
TABLE 1-6	Projection of the Net Cash Flows for a 20-Acre Sportfishing Lake with a 15-Year Planning Horizon, Alabama	62
TABLE 1-7	Cash Inflows, Net Present Values (NPV), and Internal Rates of Return (IRR) for a 20 and 40-Acre Sportfishing Lakes in Alabama, 15 Year Planning Horizon	64

I. INTRODUCTION

Today, rural land owners are investigating diverse alternatives to efficiently utilize rural property, including examining nontraditional land uses, such as the addition of recreational water. The more traditional land uses in the Southeast, such as farming soybeans, corn, cotton, and peanuts are being somewhat replaced by larger timber investments, a greater number of hunting leases, fish farming and other economic and recreational uses. These more recently emphasized land uses have not been employed for an extended period of time, and therefore, are constantly evolving. Better technologies, improved resources, and varied goods and services related to these more nontraditional land uses are realized on an extremely rapid time scale.

More modern equipment used in the construction process of recreational water, such as global positioning units, enables contractors to work more efficiently when designing recreational water. Also, expert contractors and consultants are available to facilitate planning and completion of either part or the entire recreational water project. Lending institutions are willing and able to assist in these recreational processes, providing the owner meets certain financial requirements. Services needed to complete an acceptable recreational water project are accessible for today's rural land owner and should be explored in great detail before a project is started.

Rural land owner demographics and characteristics are changing just as rapidly as land uses. Agriculturally based farm ownership of rural lands has steadily decreased over

the past seventy years and has decreased significantly in the past 40 years (Alabama Bulletin 46 2004). The demographics of ownership of rural property have diversified tremendously during that same period of time and continue to expand. Rural property owners currently are made up of farmers, corporations, banks, timber companies, investment firms, hunting and fishing clubs and outfitters, resorts, retirees, and outdoor recreationalists (Chappell 2005).

All of these land owners seek to own property for specific uses and these uses typically vary a great deal from one owner to another. This paper examines the process for meeting regulatory requirements for transforming rural land into recreational sportfishing water. The regulation and approval processes of building recreational sportfishing water will be reviewed from the perspective of the United States Army Corps of Engineers (USACE) and the Alabama Department of Environmental Management (ADEM) guidelines for a specific recreational water project in Alabama. Scenarios for two separate recreational water projects are analyzed for potential financial benefits afforded to land owners. The first scenario evaluates the financial benefits of adding a recreational amenity (sportfishing water) to an existing outdoor recreational facility that will be utilized by current members and customers. The second scenario analyzes the feasibility of a start-up sportfishing facility. Both scenarios consider the initial capital and operating costs required and potential cash inflows of the two projects.

Who are the land owners in need of recreational water? The land owners in question vary in their needs as much, if not more, than in their demographics and characteristics. The land owner's needs are strongly dependent upon the specific use of the property and potential water. For example, the land owner may have the need for

recreational uses, such as fishing or hunting. In this situation, the land owner would determine certain purposes the body of water would serve for his/her personal and specific satisfaction and then seek the manner in which to most effectively develop those waters. The water could essentially fulfill the owner's needs for hunting fowl or perhaps fishing for largemouth bass. The characteristics of land owners, as mentioned before, vary a great deal just as the specific uses do for new waters (Chappell 2005). The land owner may be retiring from his/her residence to the specified site and would enjoy full time use of his/her recreational water or could simply desire a recreational setting for the family and friends with access to a lake and its potential bounty. The owners could be nonresidents or live in local proximity; they could be sole owners or in a partnership with others who desire recreational water and the requisite amenities. Regardless of the personal characteristics of land owners and the planned uses for the waters, certain processes and regulations need to be understood and followed by all owners to bring water related projects to fruition.

Below are several selected examples of recreational water development and use. The land owners may have motivations to increase the value of their property more quickly than typical land appreciation in the area. The addition of recreational water to the property could accomplish increases in recreational value of the property, as well as in market value more rapidly than if waters were not present on the land. "The addition of recreational water to a particular parcel of land that is lacking in water not only diversifies potential land uses, but also establishes an additional amenity to potential users", said Robert Pitman, owner of a hunting and outdoor recreational facility in Alabama.

There are numerous water ski clubs available for private use in the state of Alabama that have membership fees available ranging from \$500 to \$2,000 per member per year. These lakes are expensive to build due to the specific design needs for water skiing purposes which require a minimum of 2,000 feet of length and 350 feet of width. “The ability to have private use of the water while skiing not only provides convenience, but also provides greater safety”, says Steve Stanley, a member of a central Alabama ski club. “When you have complete use of the lake to yourself without worries of other boaters, you can control the water surface for roughness providing a safer environment for everyone”.

Farming operations utilize water in everyday farm practices, such as irrigation. Huguley Farms in Geneva County, Alabama designed and built waters for the above mentioned purpose during the summer of 2003. The lake totals 14 acres in size and is used to irrigate 80 acres of peanuts and cotton annually. Tommy Huguley said, “having the ability to irrigate their cotton and peanuts four times a year has produced more consistent yields”. Huguley Farms runs 4 irrigation cycles a year on their newly acquired property, pumping approximately 1,365,000 gallons of water per cycle. “There are also recreational benefits for our family and friends who enjoy the lake for fishing and hunting,” Huguley (2005) relayed. This particular water serves several purposes and was constructed through an exemption of the United States Army Corps of Engineers for specific agricultural purposes. (Exemptions and permitting will be discussed later in the paper)

A final example of recreational water development and use, and the main subject of this paper, is the privately held recreational sportfishing water site that is larger and

more complex in size and design than a majority of developed waters. A recreational water project used for day fishing trips, family recreation, hunting, nature observation, aesthetics, and as a source of income will be reviewed. Sportfishing alone has more participation by Americans than the sports golf and tennis combined, produces nine times as many jobs as AT&T and the overall economic impact is large enough to make sportfishing 32nd on the Fortune 500 list (American Sportfishing Association 2002). These statistics demonstrate the extent of involvement in sportfishing, and also the growing opportunity and need for planned recreational waters.

What type and size of lake should someone build for sportfishing and other related uses? This aspect of the recreational water planning process is dependent upon several factors, including: 1) personal utilization or preferences, 2) site compatibility for such use to the tract of property, and 3) site approval. Each project will vary substantially in each of these aspects. As previously mentioned, land owners have different needs and uses for water, basically no one person has the same wants or needs as another for utilization of recreational water. Secondly, every property is unique in topography and layout, which greatly influences lake design. Lastly, the approval process is an independent process and is specific to the project design and site location.

As discussed earlier, the personal preferences of land owners have a major influence on the design of recreational water. Moreover, each land owner has different needs and uses in mind for adding water resources to their land. However, those needs and uses help significantly in determining the design and utilization of a planned water project. Remember the water ski example previously discussed, that body of water required a length of over 2,000 feet and a width of 350 feet along with at least a depth of

7 feet and would be a minimum of 20 acres in size. Additionally, the water would need to be clear of structures, obstacles, and debris that could damage boats and injure skiers. However, the sportfishing water used for fishing or water fowl hunting would need areas both deep enough for fishing (approximately 6 feet) and shallow enough for hunting (approximately 1 foot). Also, there would need to be structure and debris present in the form of sandbars or points and flooded timber in order to provide proper habitat for both fish and other wildlife. Note that the uses of the two lakes are dependent upon the preferences of the land owner; therefore, they differ greatly in design.

The recreational water projects reviewed in detail for this study were specifically designed for sportfishing. The lakes total 40 acres and 20 acres in size and range from 1 to 24 feet in depth. The design of the 40-acre lake contained 5 fingers or channels, which are narrowed bodies of water that branch off from the lake's main body of water. There are several sandbars or points that extend from the shorelines toward the main body of the lake. These structures provide fish with preferred spawning areas and structures for feeding purposes. A majority of the tree trunk and root systems that remained from the timber harvest that took place during the construction of the lake were placed in strategic areas throughout the lake. These areas will offer fish structure, safety, and good feeding habitat. There were also several areas of the lake that contain shallow depths and flooded timber, which give water fowl a beneficial habitat. The shorelines and damn are planted with grasses that produce seed and forage that the resident and transient wildlife and water fowl can utilize for feed, and in turn, also provide great areas for wildlife observation. The 20-acre and 40-acre lake projects using borrowed capital illustrated in

this paper are strictly used to evaluate financial feasibility and start-up and not to demonstrate the design and regulation aspects of a recreational water project.

II. OBJECTIVES AND METHODS

This study addresses two primary objectives. The first is identifying and examining the nature and process of satisfying regulatory requirements for adding recreational water to a rural tract of land. The second is to analyze the financial feasibility of developing recreational water to add to an existing outdoor recreational facility and also as a start-up sportfishing operation: one 40-acre and one 20-acre sportfishing lake.

The first objective will be achieved by summarizing and describing requirements specified by USACE and ADEM to add water on a rural land tract. The second objective will be achieved by development of cash flow statements for a 15 – year planning horizon. Also, Net Present Value (NPV) and Internal Rate of Return (IRR) analysis will be conducted to evaluate feasibility of the projects.

Recreational Facility Case Study Overview

The data used for the specific study of a 40 - acre sportfishing lake for an ongoing recreational facility located in Southeastern Alabama, were obtained over a two-year time period, in which the author was afforded the opportunity to experience all facets of the project. The author personally participated in the process of the projects: site selection, state and federal permitting application requirements, site engineering and construction bidding and acceptance process, financial status and budgeting, stocking and management of fish, and marketing and sales plans. Data were collected from USACE and ADEM regulatory permitting entities regarding site acceptance and cost of

permitting. The site engineer and consulting costs were derived from actual bids submitted by two separate consulting firms. All construction costs were also obtained through a bid process that included four separate contracting firms.

Assumptions of a 40-Acre Sportfishing Project Addition to an Ongoing Recreational Facility

The 40-acre sportfishing lake used in this case study was constructed and managed for the purpose of generating additional income for the land owner. The site on which the lake was constructed is currently owned; therefore, not requiring financial assistance for both land purchase and lake construction. The property, previous to lake construction, was used solely for paid hunting trips and a moderately sized hay production operation. The land owner currently operates a year round outdoor recreational facility that generates income through paid hunting trips, shooting sports, timber and hay production, as well as several other outdoor activities. Through the addition of the sportfishing lake, the land owner has positioned the facility to generate income during the time of year when other aspects of the business are lacking significant cash inflow. By selling fishing memberships during the traditionally slow income producing times of the year, April through September, the outdoor recreational facility will experience less of the seasonal fluctuations in cash inflows.

The initial assumptions made about transforming this particular section of rural land into a sportfishing lake were the following:

1. Building a lake large enough to withstand a maximum of 90 fishing trips during a 6 month time frame would generate solid income during the facilities slower cash inflow time of year.

2. Stocking a more aggressive and rapid growing fish would allow trips to be sold earlier in the life of the project compared to more traditional forms of stocking.
3. Relatively early in the project's life, substantial financial returns would be generated, permitting relatively quick recoupment of the initial outlay cost.

Financial Analysis Methods

Feasibility was evaluated using Net Present Value (NPV) and Internal Rate of Return (IRR) approaches for the project. The NPV method is used to demonstrate the current or net present value of an investment, while taking into account the time value of money, when analyzing cost and returns of the project over time. This method measures the net value of a multiyear project investment in today's dollars using a discount factor (Erickson et al.). Since the time value of money encapsulates that a dollar now is worth more than a dollar received at some future date, NPV can be used by project managers to decide whether or not to engage in certain projects.

Net Present Value Formula

$$NPV = -INV + \frac{P_1}{1+i} + \frac{P_2}{(1+i)^2} + \dots + \frac{P_N}{(1+i)^N} + \frac{V_N}{(1+i)^N}$$

NPV = net present value of the investment alternative

INV = initial investment

P_i = net cash flows attributed to the investment in period i

V_N = terminal or salvage value of the investment

i = interest rate or required rate of return

The project manager or land owner selects a desired rate of return for the project which he/she feels is acceptable and that rate serves as the interest rate used in capital budgeting for the project. The interest rate is also referred to as the discount rate or cost of capital. For example, the 40-acre and 20-acre sportfishing scenarios analyzed in this paper use rates of 8 percent and 12 percent. If at 12 percent the NPV is negative, the manager would reject the project, if positive, he/she would accept it, and if equal to zero it would cover the stated rate. When determining a discount rate, there are several influences to consider: risk, alternative uses for capital, and inflation (Jolly and Clonts). Risk simply refers to the uncertainty associated with the project. For example, the manager can not be certain he/she will sell the projected amount of fishing trips. Alternative uses imply the manager should investigate other possible projects that could use the available funds and be more profitable than the project being considered. Inflation reflects the purchasing power of the dollar or anticipated rate of inflation that could affect the cost of say, labor, money, or fish. Using the NPV method has several advantages. The method realizes projected cash flows, is responsive to the cash flows timing due to the investment, allows managers to evaluate benefits and costs in current dollars, and, through accepting positive NPV projects to increase the value of the firm. One disadvantage is that managers must determine/estimate cash flows over long periods of time. Remembering the influences of the discount rate, managers must ultimately guess what alternative uses might produce greater profits, what effects inflation might have on the project, and whether or not people will actually purchase fishing trips. Basically, at the end of the day, the manager has to be confident he/she has made correct calculations of cash flow for the entire life of the project.

The internal rate of return for a project can be determined by using the same equation used in determining the net present value. The IRR is the discount rate (i), which equates the net present value of projected cash flows to zero.

Internal Rate of Return Formula

$$\text{NPV}(\$0) = -\text{INV} + \frac{P_1}{1+i} + \frac{P_2}{(1+i)^2} + \dots + \frac{P_N}{(1+i)^N} + \frac{V_N}{(1+i)^N}$$

However, with a multiyear project such as the one in this case study (15 – year planning horizon), it is recommended that a computer program be used in determining IRR compared to a trial and error approach. As with NPV, the manager will compare the IRR to his/her required rate of return. If the IRR exceeds the required rate of return, the project should be accepted, if it is less than the required rate of return the project should be denied, and if IRR equals the required rate of return the manager would be indifferent. The manager can also compare different projects' IRR, accepting the project demonstrating the largest IRR. Another way to view IRR is to be willing, as a manager, to borrow money at a rate no higher than the IRR to engage in a project that satisfies the managers required rate of return through the methods of NPV and IRR.

40-Acre Sportfishing Scenario Using Equity Capital

The life of the project is 15 years and there are initial capital investments made in each of the first three years of the project and capital replacements needed in the fifth and tenth year of the project. Sale of day fishing memberships take place in April of the fourth year. (See Table 1-1) The production cycle in this project is two years in order to obtain larger weights of the sportfish and greater numbers of feed fish before fishing trips are permitted. Fathead minnows, coppernose bluegill, and shellcrackers were all stocked

during October of the second year and are considered feed fish in this particular setting. The fathead minnows were stocked at a rate of 1,000 fish per acre, totaling 40,000 fish. The coppernose bluegill and shellcrackers were stocked at a 9:1 ratio, coppernose bluegill to shellcrackers, at a rate of 1,000 fish per acre totaling 36,000 coppernose bluegill and 4,000 shellcrackers. Threadfin Shad were stocked during March of the third year of the project at a rate of 500 per acre totaling 20,000 fish and are considered feed fish as well. The F-1 Tiger Bass, 2" in size, were stocked during June of the third year at a rate of 50 fish per acre totaling 2,000 fish and are considered the sportfish in this project.

There were two primary motivations for stocking feed fish at earlier times for this project. First, early stocking and lengthened production cycle allowed the feed fish to complete several spawning cycles in order to increase the population of each species. Secondly, it provided enough time for feed fish to increase in size, and this established a noncompetitive condition for feed with the F-1 tiger bass. The F-1 tiger bass is a hybrid cross between the northern smallmouth bass and the Florida largemouth bass. The smallmouth is recognized for highly aggressive feeding habits and behavior, but not for reaching weights significantly over 8 pounds. The Florida largemouth, however, are identified as a less aggressive but larger strand, reaching weights in excess of 17 pounds. The motivation for stocking the F-1 tiger bass is to grow fish that gain weight quickly and have fish which exhibit highly aggressive feeding habits (Smith 2005). Fishing will be on a catch and release basis.

40-Acre and 20-Acre Sportfishing Start-Up Scenarios Using Borrowed Capital

The 40-acre sportfishing lake scenario designed as a start-up sportfishing operation follows the same initial and operating costs schedule and management practices

as the ongoing outdoor recreational facility case study. Additional costs include the loan amortization payments and the interest and principal payments of the loan. The 20-acre sportfishing start-up scenario also mimics the initial and operating costs schedules as the ongoing scenario, however, overall costs are significantly less due to a decreased size of the project.

III. LITERATURE REVIEW

This case study examines the potential financial benefits available for outdoor recreational facilities through the addition of recreational sportfishing water. Throughout the United States, particularly the Southeastern region, fee fishing has been used by water owners to generate income through the sale of fishing activities. Basically, these facilities charge a minimal fee for the access to fish or charge a standard fee per pound of fish harvested. More often than not, these operations have been minimal in size and in the production of income. The 40-acre fee fishing operation in this study differs substantially from typical freshwater fee fishing operations. The 40-acre sportfishing scenario in this study provides participants the option of utilizing other outdoor activities during his/her stay such as golf, hunting, or shooting sports. The customer has the opportunity to stay overnight, have all food and beverage needs provided, and transportation services are even available to and from airports. The operation in this case study provides the customer more than just a setting to fish, it provides a “recreational experience.”

The public sector has attempted to measure the net social benefits associated with outdoor recreation, specifically recreational water, and has encountered difficulties in doing so. Benefit of state parks or public waters for the use by the general public are examples. The difficulty lies in that a majority of these recreational venues are publically funded and managed and a majority of the costs, such as travel, are incurred by the participants before they actually use the resource (Burt and Brewer 1971). Also, more

often than not, the entry cost associated with areas such as state parks or public waters is minimal, unlike the cost associated with the utilization of the sportfishing lake used in this study. For example, consider the consumer who drives ten miles for a meal with his/her family. There is a cost associated with travel, although nominal, but the bulk of the cost of this particular activity takes place when the balance is due for the meal. Now, consider the same family traveling to a public state lake for the weekend to camp and fish. The cost of travel could be as minimal as going to the restaurant the night before, however, more than likely, greater travel will be required to do so. The majority of cost will be associated with the resources needed in order to partake in the outdoor recreation, such as camping equipment, food, and fishing gear. The cost of outdoor recreation varies much more dramatically than for most commodities for consumers (Burt and Brewer 1971). The reason for the 40-acre addition of sportfishing water to an existing outdoor recreational facility lies in this fact; increased income and leisure desires, combined with advances in transportation technologies, have made outdoor recreation an important consumption commodity in the United States (Burt and Brewer 1971).

The decision to take a sportfishing trip is done so with the expectation that the experience or benefit will exceed the associated costs. That decision is dependent upon characteristics of the participant and attributes associated with the recreation (Hamel et al. 2002). Attributes such as fish population or regulatory guidelines have been found to affect fisher's decisions regarding sportfishing trips. In this paper's particular case study, high stocking rates of a regionally preferred sportfish are used to increase potential catch rates and to positively affect a fisher's decision to take a trip to the outdoor facility.

A study on the importance of environmental quality and catch potential in Mississippi noted that clean fishing environments and the availability of desired fish were “very” or “extremely” important to fishing site selection (Schramm et al. 2003). There are about 3 million acres of ponds in the Southeast. As a conservative estimate, it is believed that 15 percent of the acreage is fertilized and 5 percent of the fish stocked receive feed (Boyd et al. 2002). Sportfishing lakes managed correctly can provide excellent opportunities to anglers and outdoor enthusiasts alike. Proper fertilization and feeding rates are not only important for commercial aquaculture, such as catfish ponds, but are also extremely important for the management practices of sportfishing waters. Improper rates of fertilizer and feed application can result in the discharge of nitrogen and phosphorus into local streams and waterways (Boyd et al. 2002). Best management practices (BMPs) are considered to be the best economically feasible and technically practical method for reducing pollution to a level that protects water quality and are consistent with resource management goals (Hairston et al. 1995). Below are prescribed BMPs for sportfish ponds/lakes from Auburn University and USDA/Natural Resources Conservation Service:

Feed Application BMPs for Sportfish Water

- Select high quality feeds that do not contain excessive amounts of nitrogen and phosphorous.
- Store feed in dry, ventilated bins or rooms if bagged and use on a first in, first out basis.
- Do not apply more feed than fish will eat.

Fertilizer Application BMPs for Sportfish Water

- Only apply fertilizer when necessary to promote phytoplankton bloom.
- Do not use animal manures for fertilize.
- Do not fertilize when heavy precipitation is expected.
- Do not fertilize during the winter months.
- Do not use fertilizers with high nitrogen to phosphorous ratios, because excess nitrogen contributes to pollution of streams.
- Store fertilizer in a dry place.

There are very limited applied economic analyses available concerning private sportfishing institutions. However, there is theoretical work available illustrating the importance of outdoor recreation and sportfishing. The theoretical work promotes the ideology that consumers are willing and able to purchase outdoor recreation providing the appropriate attributes are in place. Attributes such as, good environmental quality, high stock rates, amenities and overall safety all affect a fisher's willingness to purchase a sportfishing trip. The 40-acre sportfishing lake in this study provides a setting where the attributes listed above are all present and managed for continuity throughout the life of the project.

IV. REVIEW OF PLANNING PROCESS

The planning process in this study involves two primary regulatory agencies: United States Army Corps of Engineers (USACE) and Alabama Department of Environmental Management (ADEM). The roles of these agencies are to ensure that construction of impoundments and quality of added water are achieved in a specified manner which is environmentally sound. The process requires proper permitting for all construction activities and development of environmental impacts on projected sites.

United States Army Corps of Engineers (USACE)

Since 1890, USACE has been regulating activities affecting U.S. waters. Historically, their activities were primarily concerned towards the navigation of U.S waterways. However, during the 1960s, the scope of USACE activities broadened to include dumping of trash and sewage through new laws and court decisions. In 1972, the Clean Water Act, particularly section 404, passed and broadened USACE authority to an even greater scope, which now considers the full public interest for both the protection and utilization of water resources (USACE, Clean Water Act).

The USACE bases regulatory practices on the following laws:

- Section 10 of the Rivers and Harbors Act of 1899 (33 US.C. 403) basically states that obstruction or alteration of navigable water ways in the United States without a permit was prohibited.

- Section 404 of the Clean Water Act 1972 (33 US.C. 1344) basically states that discharge of dredged or fill material into United States water is prohibited, without permit.
- Section 103 of the Marine Protection, Research, and Sanctuaries Act of 1972 (US.C. 1413) basically states that transportation of dredged material for dumping into ocean waters without permit is prohibited.

These are not the only laws that can affect the USACE decisions in the approval process of a potential lake site. The USACE has the authority and responsibility to review all regulatory forms that are pertinent to a specific water resources project and has effects on the general public. Laws such as, Fish and Wildlife Coordination Act 1934, Endangered Species Act 1973, and National Historic Preservation Act 1966 are just some examples of other laws that USACE has, and can use in Alabama when researching water related application requests.

As mentioned before, the USACE regulates for both the protection and utilization of water resources based on the public's interest. The USACE focus on public interest is to assure that projects do not harm the general public, that is, the project can not benefit one citizen while at the same time harming others. As an example, consider the situation in which the amount of run off needed to sustain a new water site takes away run off water needed to sustain a public water already in existence. Therefore, it is necessary, regardless of the project size or complexity, to follow the correct procedures set in the proposed project's district. Not all projects will require specific permits by USACE; however, the land owner should notify and inquire regarding the proper process to be taken through USACE before commencing in the building process.

The USACE has many general permits which allow minor activities to be completed without the need for individual processing. There are also several exemptions that are available for very specific activities, though consultation with either a site planner or USACE engineers is still highly recommended. Certain projects can avoid the permitting process partially or completely: the prudent action would be to ensure those omissions apply to your project before beginning construction. The site owner or planner should contact USACE regarding whether or not the potential site is applicable for such exemptions and permits.

The larger, more complex projects typically require a complete process of submission, review, and approval by the USACE before building commences. Since these more complex projects usually require greater amounts of labor, money, and time, adhering to approval guidelines beforehand can prove beneficial and help in avoiding hardships throughout the building process. The remainder of this section examines the steps needed to be taken through USACE in the approval process, the guidelines and influences considered by USACE when permitting projects, and examples of several general forms and applications used by USACE in the approval process.

The basic application form used by USACE throughout the country and in Alabama is the Engineer Form 4345, *Application of a Department of the Army Permit* (Appendix 2). The form is easily accessible and can be obtained through downloading from the internet at www.usace.mil or can be acquired through one of the USACE regulatory offices. As previously mentioned, certain activities/uses have already been authorized by nationwide or regional permits, and will need no further approvals. In this situation, USACE would likely inform the planner to commence activities under a

Region (RWP) or National (NWP) permit, also referred to as a General Permit. Other activities/uses that are minor or routine in nature, such as inserting new pipes and pumps needed in the irrigation process of an existing farm, may qualify for a Letter of Permission (LOP). A LOP is usually issued for activities that are minimal in impacts and will likely have no public objections. The LOP can be issued quickly since public notification is not required (USACE).

The Individual Permit can be issued in one or two ways. The first, mentioned above, is the Letter of Permission and, secondly, through a Standard Permit (SP). The SP is a more intensive process of approval and requires more measures to be taken by the owner. A recreational lake of approximately 40 acres in size, on private land in Alabama will be used for an example in the consultant proposal (Appendix 3)

Below are the standard procedures for a SP listed in the order of the review.

- I. Pre-application consultation
 - This step is optional, as mentioned previously, but highly recommended.
An applicant can simply contact the USACE's engineer in his/her district to schedule a consultation.
- II. Applicant/Planner submits ENG Form 4345 to local regulatory office
 - Local offices can have minute variations for submission.
- III. Application received by USACE
 - USACE will assign the project an identification number; the ID number is what the applicant/planner will need to use when checking the status of the application

IV. Public notice issued

- This notice is to be issued by USACE within 15 days of receiving all permit information from the applicant, including drawings, fees, and applications.

V. Comment Period

- The comment period typically takes place within 15 to 30 days after notices of potential site construction have been served, yet it is dependent upon the proposed construction activities.

VI. Proposal review

- The proposal for planned activities/uses will be reviewed by USACE. This review observes all permit request information and could be delayed if that information is not received in a timely manner.

VII. Corps considers all comments

- This point of the process is when USACE considers reviews from all relative groups such as, adjoining land owners, engineers, or office of public health, for example.

VIII. Other Federal agencies consulted

- This step is only used if USACE deems it necessary. Example: applicant has been denied previously for a certain construction activity due to Federal or State Law.

- IX. District engineer may ask for additional information
- Depending on the proposed activities, USACE could require wetlands/waters delineation, alternative analysis, mitigations, endangered species, drawings or minimization plans (Appendix 4).
- X. Public hearing
- Public hearings are held to acquire information and give the public the opportunity to present opinions. These meetings are rarely needed, and can usually be resolved by the district engineer, informally.
- XI. District engineer decision
- The district will either issue the permit for construction or deny the site and advise the applicant on reasoning.

Several of the standard procedures should be examined more thoroughly. The pre-application consultation, although optional, can be very beneficial to the planner in expediting the permit process. After determining if a permit is needed, the applicant would need to schedule a meeting date with the local USACE district office. Upon scheduling a meeting, a “Summary of Project” should be sent to all agencies that could be in attendance at least 10 days prior, such as Alabama Game and Fish Department or the Alabama Department of Environmental Management. Wetland/water delineation should be brought to the meeting, if necessary. The pre-application meeting is a good opportunity for the applicant to gather information regarding USACE rules and regulations that could be used in final project design.

If public notice is needed, the applicant could be asked to notify Federal, state or local agencies, adjacent property owners, and the general public. This contact allows both public and private views to be heard by the USACE. Informing these groups allows for an assessment by USACE on the impact of the specified project.

Upon receiving information concerning the proposed project, USACE will begin an assessment process. USACE will review the likely benefits of the project compared to the detriments possible from granting a permit for the said project. There are numerous factors to be considered when evaluation of the “public interest” is considered. Conservation, erosion, economics, aesthetics, flood hazards, wetlands, water quality, recreation, and safety are important items for consideration when decisions are made for the approval or denial of a construction site. Simply stated, USACE will weigh the need for the proposed project both publicly and privately, consider alternative locations and methods to obtain the project, and evaluate benefits and detriments of the project.

In the state of Alabama, particularly the central and southern regions, wetlands/waters are often found on projected sites. Alabama is very fortunate to have ample water available to the public for recreational uses, for example swimming, boating, fishing, and wildlife observation. However, a land owner should identify wetlands that are located on and in proximity of the project and take appropriate measures to ensure that the projected construction site is not detrimental to those specific areas. The presence of said areas typically requires a wetlands/waters delineation to be completed for USACE. The site planner will obtain delineation in accordance with the Routine Onsite Methodology described in the 1987 U.S. Army Corps of Engineers Wetland Delineation Manual.

Mentioned previously were specific laws and Acts USACE regulates under, one of which was the Clean Water Act, Section 404. Having a wetland/waters delineation completed prior to applying for a permit helps in expediting the approval process. Typical steps a planner would take in a wetland/water delineation process are as follows, and can vary depending on the proposed permitting site.

- Mark wetland boundaries with labeled flags designated alphabetically and numerically for each wetland site. Example: A-1 on the corner of a wetland boundary and continuing around the perimeter of entire wetland accordingly, A-2,A-3,A-4, until complete. Other wetlands may be designated in similar manner B-1 - B-4, C-1 – C-6, etc.
- Each wetland boundary would then be denoted on the appropriate map.
- Upland and wetland data test would be conducted for vegetation, soils and hydrology as per regulatory agency guidelines.
- Drawings would be given to the land owner of each of the areas tested along with results.
- Photographs of each area tested would also be provided in mapped form to the land owner.

A wetland survey prepared by the applying party is also required by USACE for projects in areas that contain wetlands/waters; however, a global positioning system (GPS) could be used in place of a wetland survey. The later method of distinguishing wetlands for USACE is a more economical approach with the high availability of GPS units; however, the user must still have the capability of operating the unit properly.

Drawings of proposed sites and activities are required in addition to wetland delineation and application. There are three types of drawings needed in order for planned activities to be properly depicted for review by USACE. An original (or good copy) of, Vicinity, Plan, and Elevation notations are to be submitted by the site planner on 8.5 X 11 inch white paper. These drawings are intended to provide USACE with a clear vision of the projected site and should be in good detail. The Vicinity Map is used to describe the area or vicinity as exact as possible through existing maps or site originals, and should include such items as latitude and longitude, township/range, roads, directions and other items used in locating the site. The Plan View illustrates the proposed activity from a view of above, and should include such items as water marks, location of structures, dimensions, and other items used in describing the site's structural make up and plan of construction. The Elevation View should represent the water elevations, water depths, high water marks, and other items needed in describing the dimensions of the varying elevations of the project site (Environmental Laboratory / USACE). These illustrations can be very detailed and should have the assistance of a professional in development, who may already possess customized versions of each map or view (Appendix 5, 6 & 7).

Alabama Department of Environmental Management (ADEM)

The second regulatory agency to be discussed in this study is the Alabama Department of Environmental Management, referred to as ADEM for the remainder of this paper. The overall responsibilities of ADEM cover a broad spectrum of issues and separate divisions address certain aspects categorized under each particular division's responsibilities. Divisions for air, permits and development, land, field operations,

education & outreach, and water, regulate and enforce all activities that could possibly affect the state of Alabama's environment (ADEM). The passage of the Alabama Environmental Protection Act in 1982 created the Alabama Environmental Management Commission and ADEM, which absorbed other commissions and agencies responsible for implementing environmental laws. All major federal environmental laws, including the Clean Air, Clean Water, and Safe Drinking Water Acts and federal solid and hazardous waste laws are administered through ADEM. The above responsibilities were only assumed by ADEM after state laws and regulations were at least equivalent to federal standards and matching funds and personnel were available to administer efforts.

ADEM enforces any and all regulations and laws affecting the state of Alabama's environment in order to protect the State's environment and citizens. Also, ADEM constantly monitors the State's environmental status and will make recommendations on revisions needed to existing state laws and regulations as environmental status changes.

For the needs of this study, the Permit Coordination and Development Division(PCDD) and the Water Division(WD) will be examined and the steps required by both divisions during the site selection and building approval processes of water in Alabama will be included.

The PCDD communicates all pertinent application and project standings to the proper divisions involved for each program area. For example, a permit for drainage alteration for an existing water body would first reach PCDD, then would be referred and coordinated to the appropriate division for approval, denial, or monitoring procedures, in this case the WD. The environmental permit is the main tool that ADEM will use to regulate emissions into the air and water, assure the quality of drinking water, and

oversee the management of solid and hazardous wastes. The permits sent to ADEM by the site planner will again, first be reviewed by the PCDD and then be directed to the appropriate program areas. When applying for a site approval permit, the destination of acceptance should be understood because failing to do so can cause major time loss in the project's review.

The Water Division (WD) is the other division that will be heavily involved in the permitting process for the proposed approval site. The WD constantly evaluates the current and projected status of waters in the state of Alabama. The WD adheres to the Clean Water Act as does the USACE; however, the two agencies work in conjunction under separate sections of the Act. The WD uses section 401 Water Quality Certifications in conjunction with the Section 404 permits used by the Mobile and Nashville Districts of USACE when considering potential site approval.

The main disparity between Sections 404 used by USACE and Section 401 used by ADEM is that the 404 permits address more of the actual construction and design of the proposed site, and the 401 certifications emphasize the actual water quality of the proposed site. A more thorough discussion regarding the specifics of Section 401 certifications will follow. To basically understand how USACE and ADEM work in conjunction with Clean Water Act, remember that USACE approves the actual construction process of the proposed site and ADEM certifies that the quality of water and effects on Alabama waters resulting from that site are acceptable. Section 401 of the Clean Water Act requires that certain activities have a State water quality certification. The WD of ADEM will issue certification, when there is reasonable assurance that the

discharges of the proposed activities will not violate the water quality standards under Section 303 of the Clean Water Act and Title 22 of the Code of Alabama 1975 (ADEM).

The Alabama Department of Environmental Management Field Operations Division - Water Quality Program, Chapter 335-6-12 is a great tool to utilize when learning the requirements of water quality standards, definitions and programs considered by ADEM when evaluating projects. The Water Quality Program Chapter purpose is to establish a comprehensive statewide program for stormwater management pursuant to the requirements of the National Pollutant Discharge Elimination System (ADEM, NPDES). This material can be obtained through ADEM with ease and should be used by prospective site planners.

Application forms required are site and activity/use specific. Consultation should be obtained by the site owner with either the project planner or the Field Operation Division of ADEM before the project commences. Several forms and registrations needed by ADEM for the recreational site are represented in Appendix 7, 8, and 9 of this study. The Field Operation Division will be able to assist site planners with the proper forms for each activity/use. For example, a flooded timber area utilized for hunting would require separate registration and monitoring forms than a 40-acre site used for sportfishing with greater depths and larger run off capabilities. If a project site's activities/uses do not accommodate standard best management practices regulated through ADEM, alternative measures regarding best management practices could be required. Examples of this situation could be improper drainage, discharge, or improper materials used in filtering discharge, such as pipes and rocks.

Again, the primary concern of ADEM with recreational waters regards discharge into Alabama waters. Sites are monitored periodically for adherences to regulations and water quality management practices. Like with USACE, ADEM is present to preserve and protect Alabama's waters and citizens. Complying with the proper regulatory processes insures that all parties concerned are partaking in the best management practices needed to construct a recreational site that conforms best to applicable legislation, the citizens' needs, and waters involved.

V. ANALYSIS AND RESULTS

A land owner who is planning a site development for recreational water usually has a preconceived idea or vision of the demand for the waters' end use before site selection takes place. The next step is the actual site selection on the property. Several property aspects affect the ultimate site selection such as topography of the property, streams and other flowing bodies of water, soil characteristics and percolation and other land characteristics depending on area or region of the state (Environmental Laboratory / USACE).

The site approval process through regulatory agencies will require great amounts of time and detailed preparation. A land owner is strongly encouraged to employ the consultation services of a consulting project engineer, environmental consulting firm, and/or a USACE district engineer for assistance in this process. The State of Alabama is served by USACE in the Mobile District, which regulates the majority of the State, and the Nashville District that regulates the extreme northern area of the State.

The site engineer, recognized as the planner for the remainder of this study, will make assessments of the topography and related impacts to aquatic features, such as wetlands, that the potential recreational water development site will have on the property. Upon the initial assessment of the projected site, determinations will be made on the type of permitting needed by the applicable regulatory agencies (See appendices I, II, VIII and IX for specific examples.) Subject to characteristics of a potential site and its

dimensions, wetlands/waters delineation could be required. Wetlands delineation simply outlines all wetland areas that are possessed on the applying party's land, which could possibly be utilized in the exchange through mitigation for the approval of the potential water site (ADEM, NPDES). The site planner will be able to inform the land holder of these needs so that he/she can take the appropriate actions and steps. Basically, a detailed representation by drawing will be developed and provided to the regulatory agencies regarding the wetland location and impacts of the project. Further discussion related to wetland delineation will follow later in the paper.

It is necessary to reiterate the importance of taking the proper steps towards site approval before embarking on the actual construction of a site. Failure to successfully complete compatible site locations and proper request for permits could result in project delays, plus severe damages and penalties. For example, if run off estimates from the proposed site were inadequately calculated, adjoining land owners' property could be eroded or flooded. Other inadequate site selection examples could be related to the destruction of wetlands due to failure of observation, or damn depletion which could ultimately result in a complete loss of water.

Special attention should always be given to wetland observation when selecting a potential site. Wetlands are areas characterized by growth of wetland vegetation where the soil is saturated during a portion of the growing season or the surface is flooded during some part of most years (Environmental Laboratory / USACE). Wetlands in the state of Alabama generally would include swamps, marshes, bogs, and other similar areas of terrain. These areas are not only important to observe before selecting a site, but also as a means to understand the benefits that wetlands serve on a particular property.

Wetlands serve as good habitat to many species of fish and wildlife; nesting, rearing, resting sites for aquatic and land species; protection of other areas of the property from erosion; and for natural water filtration and purification functions (USACE). Of course, there are many other benefits and further discussion will follow when discussing the approval processes of USACE and Alabama Department of Environmental Management (ADEM). For now, the main objective of the land owner is to identify and designate wetlands and consider the impacts they will have on the location and approval process of the projected body of water and vice versa.

The previous examples dealt with only physical repercussions a recreational lake site could have on the applicants land. Premature building could also result in economically devastating repercussions in the form of penalties and delays to construction. Regulatory agencies, such as USACE, have a multitude of ways in which a land owner can be penalized, such as monetary fines, mitigation of lands, and complete reconstruction of the site. By employing the services of a professional planner, a land owner can likely avoid hardship and be assured of a properly planned building site. Below are several recommendations to help in the selection process for a lake site planner:

- Contact accredited environmental service companies or engineers.
- Ask existing lake owners in your area for referrals.
- Be informed of the planner(s) previous works / projects.
- Have proposals submitted on site determination.
- Have proposals submitted on site construction.
- Review regulatory agencies lists of consultants.

- Review other waters/wetlands projects completed or occurring in your area and the planners employed for those projects.

Below are the costs and return estimates for the specific 40-acre sportfishing lake used in this project. Management and budget analysis are based solely for the uses in this project and could vary considerably for other projects. The investment and operating costs of the project are shown in Table 1-1. The initial capital costs were satisfied through personal equity. The cost of lake construction was \$1,500 per acre and the engineering fee of \$7,500 included all but one of the registration and permitting fees. All operating cost remain constant throughout the life of the project and exclude assumptions of future inflation. The sales assumptions were based on other outdoor activities sales and marketing records during the past 23 years at the project site facility. Feed cost were based on a 4 month cycle of 2 feedings per day and a 2 month cycle of 1 feeding per day of approximately 7 pounds of feed per feeding, or approximately 3,780 pounds. Fertilizer application was based on recommended practices of liquid based fertilizer. There are 7 applications of 200 pounds prescribed from March to October each year. Insurance is liability based, providing \$1,000,000 of coverage per occurrence with 2 occurrences allowed annually. Recreational water that is not in a farm setting and non-income producing can usually be covered by general home owners insurance. Maintenance cost includes general upkeep and feed and fertilizer application. Labor cost include overall daily management practices of the site when customers are present, sales and booking, and marketing. Property taxes are based on the market value (\$1,800 per acre) at a 10 percent assessment rate for a 2,300 acre tract of rural property and a local 51 millage rate. The sportfishing lake represents approximately 6 percent of the facility's outdoor

recreation income and therefore bear's approximately 6 percent of the property taxes for the specified tract of rural land. Advertising cost are approximately 6 percent of the facility's total outdoor recreation advertising budget. Federal taxes will adjust depending on the nature of the sportfishing entity's legal business status as a limited liability company, corporation, partnership, or as a sole proprietorship. Sales taxes also fluctuate depending on the county of the state in which the project is located. All federal and state taxes were excluded from this project but can be simply added to Tables 1-2, 1-4, or 1-6 for analysis purposes.

Fishing memberships cost \$700.00 per day per boat and were held constant throughout the life of the project (See Table 1-1 and 1-2). Fishing memberships generate income starting in the fourth year of the project. Fishing trip sales are expected from existing ad campaigns in outdoor publications, facility web site traffic, and individual mailings to facility's existing customers and members. An existing customer or member is recognized as someone who has personally visited the facility, joined as a member in the past, or has specifically requested information regarding outdoor recreation at the facility. The maximum number of trips per season is 90, which includes two members per trip. A booking rate of 85 percent per year, approximately 77 trips, is held constant throughout the life of the project.

By allowing the extended production cycle and providing substantial feeding sources in way of feed fish, the F – 1 tiger bass were expected to increase in size at a rate of 2.2 pounds per year or greater until leveling off in excess of 14.0 pounds. Also, by limiting the amount of fishing pressure on the resource, harvest numbers should increase compared to waters open to the public that can be fished daily by high volumes of people.

Expected catch per person per day range from 25 to 75 fish, based on similar sportfishing lake harvest records already established with similar management practices in place (Smith 2005).

The amount borrowed for the 40-acre start-up operation was \$138,000 at a 5.75 percent interest rate and closing costs were assumed to be 2.5 percent of the loan, approximately \$3,450. The borrower is responsible for 20 percent down payment of the loan and all financial cost and closing cost (See Tables 1-3 and 1-4).

The 20-acre sportfishing lake scenario used in this study mimics the management practices and cost schedules of the 40-acre sportfishing scenarios, but does so, on an overall lesser scale. As with the 40-acre scenario start-up operation, the land is currently owned and is considered to be approximately 100 acres in size, worth approximately \$1,800 per acre. This scenario required the borrowing of capital to address the initial capital cost and operating cost during the first four years of the project. The borrower is responsible for 20 percent down payment of the loan and all financial cost and closing cost. The amount borrowed was \$119,000 at a 5.75 percent interest rate and closing cost were assumed to be 2.5 percent of the borrowed amount, approximately \$2,975. Closing costs were amortized over the life of the loan. The initial capital construction costs were assumed to reflect the same prices as the 40-acre project equating approximately 50 percent the total initial cost needed in the 40-acre project.

The labor and maintenance costs were combined in the 20-acre scenario. Advertising costs would be higher for the 40-acre ongoing scenario due to a lack of existing or current customers and start in year three of the project. The advertising cost

provides ad space in 2 outdoor publications to be run 5 times year, approximately \$3,800 and site brochures and literature, approximately \$1,200 (See Tables 1-5 and 1-6).

The 40-acre sportfishing lake addition to an existing outdoor recreational facility was evaluated using Net Present Value (NPV) and Internal Rates of Return (IRR) methods. The net present value at a 12 percent rate was \$ -12,216.72 and therefore lacked feasibility. However, with a rate of 8 percent, the net present value was \$16,233.30 and acceptable to the firm (See Table 1-7). By observing the net present value at 8 percent, the manager would be willing to engage in the 40-acre sportfishing addition project. The net present value relays to the manager that the project will not only meet the firms required rate of return at 8 percent, but will also give the project an additional worth of \$16,233.30 present value above that required rate of return. The internal rate of return for the 40-acre scenario is 10 percent. This informs the manager that capital for the project should not be borrowed at a rate higher than 10 percent.

The 40-acre sportfishing lake start-up using borrowed capital illustrates a complete lack of feasibility at both 8 and 12 percent rates and has a negative internal rate of return (See Table 1-7). The manager would reject the addition of a 40-acre sportfishing lake if he/she were required to borrow capital in order to satisfy initial and operating costs during the first four years of the project.

The 20-acre sportfishing start-up operation scenario also proved not to be an acceptable project for the land owner. Due to the land owners need for borrowed capital for initial cost and portions of early operating cost, net present values remained negative at both 12 percent and 8 percent. The net present value at 12 percent was \$-42,236.81 and at 8 percent the net present value was \$-29,580.49 (See Table 1-7). The land owner

would choose an alternative use for his/her 100 acres and reject the 20-acre sportfishing project with negative net present values at both evaluated rates of return. The internal rate of return for this project was only 3 percent.

VI. DISCUSSION

This paper reviews the process and regulation requirements for transforming rural land into recreational waters. The benefits and economic feasibility of establishing such recreational waters for sportfishing in the state of Alabama were examined.

The economic analysis evaluated a 40-acre sportfishing lake added as an amenity to an ongoing recreational facility and as a start-up operation. Also, a 20-acre alternative as a start-up operation was evaluated for feasibility. Results could be used for comparison when reviewing other sites with similar characteristics in the state of Alabama. Process and regulation requirements discussed are also site specific; however, they could be used to evaluate other similar construction for planning purposes.

The economic evaluation indicates that addition of recreational sportfishing water to an existing outdoor recreation facility can be beneficial to the firm under certain conditions. By owning the land and using equity capital in the construction of the 40-acre sportfishing scenario, the firm manager would be willing to engage in the addition of sportfishing water to his/her existing operation. With other outdoor recreational activities already in place and generating income, the overhead costs are shared and minimized for the sportfishing project. That is to say, the 40-acre scenario only bear's the respective share of cost of advertising, labor, and property taxes compared to the other income producing activities the firm has in place. Also, by having an existing customer base, the firm reduces the risk and efforts associated with generating a customer base strong

enough to support the expected sales figures. Without the synergistic relationships with the ongoing facility, start-up 40–acre or even 20–acre sportfishing operation lack feasibility. The financial returns could assist the land owner who does not have other sources of income being generated on his/her land with maintenance cost associated with the property, property taxes, or in providing supplemental income to the owner, but would not be sufficient as a primary source of income for the owner. The need for borrowed capital significantly affects the cash flows of the project negatively.

Establishment of an intensively managed population of sportfish that is desired by the majority of the southeast population, and particularly Alabama residents is necessary. Thus, customer or member participation is expected to meet sales expectations early in the life of the existing outdoor facility scenario. Providing a private setting in which customers or members have the opportunity to harvest above average catches and weights also encourages customer or member participation more so than more traditional forms of freshwater sportfishing. The specific type of sportfish used in this project also enables fisherman the opportunity to experience a more aggressive type of bass than is typically found throughout the state of Alabama.

In a locale, and more specifically the state of Alabama, in which citizens are highly supportive and involved in outdoor recreation, the addition of sportfishing water compliments the desires of the outdoor recreation populations . The state of Alabama has a multitude of both private and public outdoor recreational opportunities available to the public. The outdoor recreation private sector and rural land owners of Alabama have increased tremendously over the past forty years and is ever growing. The analysis in this study can provide both parties with basic understanding of the process and benefits of

constructing recreational waters. Moreover, the analysis in this study demonstrates the economic returns that can be achieved by outdoor recreational facilities through the addition of sportfishing waters.

Land owners need to be aware of the options available to them in the state of Alabama. Land owners should be aware of the opportunities, risks, and requirements associated with building water resources on their lands. Land owners should be afforded the right to establish recreational water on their land for personal enjoyment, the enjoyment by their loved ones, and potential economic gains through the use of those waters.

Along with these options, opportunities, and risks arises the question of who will ensure these activities are conducted in ways that will not harm the state of Alabama and the people who live there? Great expansions of the regulatory agencies and their coverage and responsibilities have taken place in the most recent decades in order to address that question. These agencies monitor, regulate, inform, serve and in some cases punish those who conduct construction projects of new and existing bodies of water in Alabama. The responsibilities of the agencies are awesome, but so are requirements and responsibilities of the citizens developing water resources.

Land owners should be responsible for educating themselves on the proper guidelines and procedures set forth by the monitoring agencies, such as USACE and ADEM. The agencies and land owners working together on proper management of water, best management practices, accurate site planning, excellent water quality controls and sound construction processes will ensure continued use and building of recreational waters by private land owners. Through awareness of the opportunity's for recreational

waters and the policies and procedures needed for the construction of those recreational waters on privately held lands, the citizens and agencies of Alabama will all benefit significantly now, and in years to come.

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APPENDICES

APPENDIX 1

TABLES

TABLE 1-1 Capital and Operating Costs for a 40-Acre Sportfishing Lake with a 15-Year Planning Horizon and Using Equity Capital, Alabama

Item	1	2	3	4	5
Capital Costs					
Pond construction	60,000.00				
Pipe	5,000.00				
Trash rack	260.00				
Engineer fee	7,500.00				
Registration fee	225.00				
Fertilzer / Plantings		575.00			
Gravel / Rock		6,500.00			2,500.00
Fathead minnows			1,600.00		
Shellcrackers			1,000.00		
Bluegill			9,000.00		
Shad			4,000.00		
Bass			2,000.00		
Feeder			700.00		
Boats				15,000.00	
Dock / Pier				1,500.00	
Sub - Total	72,985.00	7,075.00	18,300.00	16,500.00	2,500.00
Operating Costs					
Fish Feed			900.00	900.00	900.00
Fertilizer			1,960.00	1,960.00	1,960.00
Testing/ Monitoring			650.00	650.00	650.00
Maintenance			5,000.00	5,000.00	5,000.00
Insurance				5,000.00	5,000.00
Property taxes	1,372.00	1,372.00	1,372.00	1,372.00	1,372.00
Labor			12,500.00	12,500.00	12,500.00
Advertising			2,500.00	2,500.00	2,500.00
Gross revenue /					
year	0.00	0.00	0.00	53,550.00	53,550.00
Net Return / year	-74,357.00	-8,447.00	-43,182.00	7,168.00	21,168.00

Table 1-1 (continued)

Item	6	7	8	9	10
Capital Costs					
Pond construction					
Pipe					
Trash rack					
Engineer fee					
Registration fee					
Fertilizer / Plantings					
Gravel / Rock					2,500.00
Fathead minnows					
Shellcrackers					
Bluegill					
Shad					
Bass					
Feeder					
Boats					
Dock / Pier					
Sub - Total					2,500.00
Operating Costs					
Fish Feed	900.00	900.00	900.00	900.00	900.00
Fertilizer	1,960.00	1,960.00	1,960.00	1,960.00	1,960.00
Testing/ Monitoring	650.00	650.00	650.00	650.00	650.00
Maintenance	5,000.00	5,000.00	5,000.00	5,000.00	5,000.00
Insurance	5,000.00	5,000.00	5,000.00	5,000.00	5,000.00
Property taxes	1,372.00	1,372.00	1,372.00	1,372.00	1,372.00
Labor	12,500.00	12,500.00	12,500.00	12,500.00	12,500.00
Advertising	2,500.00	2,500.00	2,500.00	2,500.00	2,500.00
Gross revenue /					
year	53,550.00	53,550.00	53,550.00	53,550.00	53,550.00
Net Return / year					
	23,668.00	23,668.00	23,668.00	23,668.00	21,168.00

Table 1-1 (continued)

Item	11	12	13	14	15
Capital Costs					
Pond construction					
Pipe					
Trash rack					
Engineer fee					
Registration fee					
Fertilizer / Plantings					
Gravel / Rock					
Fathead minnows					
Shellcrackers					
Bluegill					
Shad					
Bass					
Feeder					
Boats					
Dock / Pier					
Sub - Total					
Operating Costs					
Fish Feed	900.00	900.00	900.00	900.00	900.00
Fertilizer	1,960.00	1,960.00	1,960.00	1,960.00	1,960.00
Testing/ Monitoring	650.00	650.00	650.00	650.00	650.00
Maintenance	5,000.00	5,000.00	5,000.00	5,000.00	5,000.00
Insurance	5,000.00	5,000.00	5,000.00	5,000.00	5,000.00
Property taxes	1,372.00	1,372.00	1,372.00	1,372.00	1,372.00
Labor	12,500.00	12,500.00	12,500.00	12,500.00	12,500.00
Advertising	2,500.00	2,500.00	2,500.00	2,500.00	2,500.00
Gross revenue /					
year	53,550.00	53,550.00	53,550.00	53,550.00	53,550.00
Net Return / year					
	23,668.00	23,668.00	23,668.00	23,668.00	23,668.00

TABLE 1-2 Projection of the Net Cash Flows for a 40-Acre Sportfishing Lake, 15-Year Planning Horizon, Alabama

Item	1	2	3	4	5	6	7	8
Operating Receipts				53,550.00	53,550.00	53,550.00	53,550.00	53,550.00
Terminal Value								
Total Cash Inflow				53,550.00	53,550.00	53,550.00	53,550.00	53,550.00
Initial Outlay	-72,985.00							
Operating Expense	1,372.00	8,447.00	43,182.00	46,382.00	29,882.00	29,882.00	29,882.00	29,882.00
Financial Expense								
Depreciation								
Recurrent Cost					2,500.00			
Taxable Income								
Income Taxes								
Total Cash Outflow	-74,357.00	-8,447.00	-43,182.00	46,382.00	32,382.00	29,882.00	29,882.00	29,882.00
Net Cash Flow	-74,357.00	-8,447.00	-43,182.00	7,168.00	21,168.00	23,668.00	23,668.00	23,668.00

TABLE 1-2 (continued)

Item	9	10	11	12	13	14	15
Operating Receipts	53,550.00	53,550.00	53,550.00	53,550.00	53,550.00	53,550.00	53,550.00
Terminal Value							
Total Cash Inflow	53,550.00	53,550.00	53,550.00	53,550.00	53,550.00	53,550.00	53,550.00
Initial Outlay							
Operating Expense	29,882.00	29,882.00	29,882.00	29,882.00	29,882.00	29,882.00	29,882.00
Financial Expense							
Depreciation							
Recurrent Cost		2,500.00					
Taxable Income							
Income Taxes							
Total Cash Outflow	29,882.00	32,382.00	29,882.00	29,882.00	29,882.00	29,882.00	29,882.00
Net Cash Flow	23,668.00	21,168.00	23,668.00	23,668.00	23,668.00	23,668.00	23,668.00

TABLE 1-3 Capital and Operating Costs for a 40-Acre Sportfishing Lake with a 15-Year Planning Horizon and Using Borrowed Capital for Construction and Initial Cost

Purposes, Alabama

Item	1	2	3	4	5
Capital Costs					
Pond construction	60,000.00				
Pipe	5,000.00				
Trash rack	260.00				
Engineer fee	7,500.00				
Registration fee	225.00				
Fertilizer / Plantings		575.00			
Gravel / Rock		6,500.00			2,500.00
Fathead minnows			1,600.00		
Shellcrackers			1,000.00		
Bluegill			9,000.00		
Shad			4,000.00		
Bass			2,000.00		
Feeder			700.00		
Boats				15,000.00	
Dock / Pier				1,500.00	
Sub - Total	72,985.00	7,075.00	18,300.00	16,500.00	2,500.00
Operating Costs					
Fish Feed			900.00	900.00	900.00
Fertilizer			1,960.00	1,960.00	1,960.00
Testing / Monitoring			650.00	650.00	650.00
Maintenance			5,000.00	5,000.00	5,000.00
Insurance				5,000.00	5,000.00
Property taxes	1,372.00	1,372.00	1,372.00	1,372.00	1,372.00
Labor			12,500.00	12,500.00	12,500.00
Advertising			2,500.00	2,500.00	2,500.00
Loan Amortization	230.00	230.00	230.00	230.00	230.00
Interest on Loan	7,935.00	7,588.00	7,220.00	6,832.00	6,421.00
Gross revenue / year	0.00	0.00	0.00	53,550.00	53,550.00
Net Return / year	-82,522.00	-16,265.00	-50,632.00	106.00	14,517.00

TABLE 1-3 (continued)

Item	6	7	8	9	10
Capital Costs					
Pond construction					
Pipe					
Trash rack					
Engineer fee					
Registration fee					
Fertilizer / Plantings					
Gravel / Rock					2,500.00
Fathead minnows					
Shellcrackers					
Bluegill					
Shad					
Bass					
Feeder					
Boats					
Dock / Pier					
Sub - Total					2,500.00
Operating Costs					
Fish Feed	900.00	900.00	900.00	900.00	900.00
Fertilizer	1,960.00	1,960.00	1,960.00	1,960.00	1,960.00
Testing / Monitoring	650.00	650.00	650.00	650.00	650.00
Maintenance	5,000.00	5,000.00	5,000.00	5,000.00	5,000.00
Insurance	5,000.00	5,000.00	5,000.00	5,000.00	5,000.00
Property taxes	1,372.00	1,372.00	1,372.00	1,372.00	1,372.00
Labor	12,500.00	12,500.00	12,500.00	12,500.00	12,500.00
Advertising	2,500.00	2,500.00	2,500.00	2,500.00	2,500.00
Loan Amortization	230.00	230.00	230.00	230.00	230.00
Interest on Loan	5,986.00	5,527.00	5,041.00	4,527.00	3,983.00
Gross revenue / year	53,550.00	53,550.00	53,550.00	53,550.00	53,550.00
Net Return / year	17,452.00	17,911.00	18,397.00	18,911.00	16,955.00

TABLE 1-3 (continued)

Item	11	12	13	14	15
Capital Costs					
Pond construction					
Pipe					
Trash rack					
Engineer fee					
Registration fee					
Fertilizer / Plantings					
Gravel / Rock					
Fathead minnows					
Shellcrackers					
Bluegill					
Shad					
Bass					
Feeder					
Boats					
Dock / Pier					
Sub - Total					
Operating Costs					
Fish Feed	900.00	900.00	900.00	900.00	900.00
Fertilizer	1,960.00	1,960.00	1,960.00	1,960.00	1,960.00
Testing / Monitoring	650.00	650.00	650.00	650.00	650.00
Maintenance	5,000.00	5,000.00	5,000.00	5,000.00	5,000.00
Insurance	5,000.00	5,000.00	5,000.00	5,000.00	5,000.00
Property taxes	1,372.00	1,372.00	1,372.00	1,372.00	1,372.00
Labor	12,500.00	12,500.00	12,500.00	12,500.00	12,500.00
Advertising	2,500.00	2,500.00	2,500.00	2,500.00	2,500.00
Loan Amortization	230.00	230.00	230.00	230.00	230.00
Interest on Loan	3,409.00	2,801.00	2,158.00	1,479.00	760.00
Gross revenue / year	53,550.00	53,550.00	53,550.00	53,550.00	53,550.00
Net Return / year	20,029.00	20,637.00	21,280.00	21,959.00	22,678.00

TABLE 1-4 Projection of the Net Cash Flows for a 40-Acre Sportfishing Lake with a 15-Year Planning Horizon, Alabama

Item	1	2	3	4	5	6	7	8
Operating Receipts				53,550.00	53,550.00	53,550.00	53,550.00	53,550.00
Terminal Value								
Total Cash Inflow				53,550.00	53,550.00	53,550.00	53,550.00	53,550.00
Initial Outlay	-72,985.00							
Operating Expense	9,537.00	16,265.00	50,632.00	53,444.00	36,533.00	36,098.00	35,639.00	35,153.00
Financial Expense	6,043.00	6,390.00	6,758.00	7,146.00	7,557.00	7,992.00	8,451.00	8,937.00
Depreciation								
Recurrent Cost					2,500.00			
Taxable Income								
Income Taxes								
Total Cash Outflow	-88,565.00	-22,655.00	-57,390.00	-60,590.00	-46,590.00	-44,090.00	-44,090.00	-44,090.00
Net Cash Flow	-88,565.00	-22,655.00	-57,390.00	-7,040.00	6,960.00	9,460.00	9,460.00	9,460.00

TABLE 1-4 (continued)

Item	9	10	11	12	13	14	15
Operating Receipts	53,550.00	53,550.00	53,550.00	53,550.00	53,550.00	53,550.00	53,550.00
Terminal Value							
Total Cash Inflow	53,550.00	53,550.00	53,550.00	53,550.00	53,550.00	53,550.00	53,550.00
Initial Outlay							
Operating Expense	34,639.00	34,095.00	33,521.00	32,913.00	32,270.00	31,591.00	30,872.00
Financial Expense	9,451.00	9,994.00	10,569.00	11,177.00	11,819.00	12,499.00	13,218.00
Depreciation							
Recurrent Cost		2,500.00					
Taxable Income							
Income Taxes							
Total Cash Outflow	-44,090.00	-46,589.00	-44,090.00	-44,090.00	-44,089.00	-44,090.00	-44,090.00
Net Cash Flow	9,460.00	6,961.00	9,460.00	9,460.00	9,461.00	9,460.00	9,460.00

TABLE 1-5 Capital and Operating Costs for a 20 - Acre Sportfishing Lake with a 15-
Year Planning Horizon and Using Borrowed Capital for Construction and Initial Cost

Purposes, Alabama

Item	1	2	3	4	5
Capital Costs					
Pond Construction	30,000.00				
Pipe	2,000.00				
Trash Rack	260.00				
Engineer Fee	3,750.00				
Registration Fee	225.00				
Fertilizer / Plantings		288.00			
Gravel / Rock		3,250.00			1,250.00
Fathead Minnows			800.00		
Shellcracker			500.00		
Bluegill			4,500.00		
Shad			2,000.00		
Bass			1,000.00		
Feeder			700.00		
Boats				15,000.00	
Dock				1,500.00	
Sub-Total	36,235.00	3,538.00	9,500.00	16,500.00	1,250.00
Operating Costs					
Fish Feed			450.00	450.00	450.00
Fertilizer			980.00	980.00	980.00
Testing / Monitoring			650.00	650.00	650.00
Labor / Maintenance			15,000.00	15,000.00	15,000.00
Advertising			5,000.00	5,000.00	5,000.00
Insurance				5,000.00	5,000.00
Property Taxes	918.00	918.00	918.00	918.00	918.00
Loan Amortization					
Cost	198.00	198.00	198.00	198.00	198.00
Interest on Loan	6,843.00	6,543.00	6,226.00	5,891.00	5,537.00
Gross Revenue / Year	0	0	0	53,550.00	53,550.00
Net Return / Year	-44,194.00	-11,197.00	-38,922.00	2,963.00	18,567.00

Table 1-5 (continued)

Item	6	7	8	9	10
Capital Costs					
Pond Construction					
Pipe					
Trash Rack					
Engineer Fee					
Registration Fee					
Fertilizer / Plantings					
Gravel / Rock					1,250.00
Fathead Minnows					
Shellcracker					
Bluegill					
Shad					
Bass					
Feeder					
Boats					
Dock					
Sub-Total					1,250.00
Operating Costs					
Fish Feed	450.00	450.00	450.00	450.00	450.00
Fertilizer	980.00	980.00	980.00	980.00	980.00
Testing / Monitoring	650.00	650.00	650.00	650.00	650.00
Labor / Maintenance	15,000.00	15,000.00	15,000.00	15,000.00	15,000.00
Advertising	5,000.00	5,000.00	5,000.00	5,000.00	5,000.00
Insurance	5,000.00	5,000.00	5,000.00	5,000.00	5,000.00
Property Taxes	918.00	918.00	918.00	918.00	918.00
Loan Amortization					
Cost	198.00	198.00	198.00	198.00	198.00
Interest on Loan	5,162.00	4,766.00	4,347.00	3,904.00	3,435.00
Gross Revenue / Year	53,550.00	53,550.00	53,550.00	53,550.00	53,550.00
Net Return / Year	20,192.00	20,588.00	21,007.00	21,450.00	20,669.00

Table 1-5 (continued)

Item	11	12	13	14	15
Capital Costs					
Pond Construction					
Pipe					
Trash Rack					
Engineer Fee					
Registration Fee					
Fertilizer / Plantings					
Gravel / Rock					
Fathead Minnows					
Shellcracker					
Bluegill					
Shad					
Bass					
Feeder					
Boats					
Dock					
Sub-Total					
Operating Costs					
Fish Feed	450.00	450.00	450.00	450.00	450.00
Fertilizer	980.00	980.00	980.00	980.00	980.00
Testing / Monitoring	650.00	650.00	650.00	650.00	650.00
Labor / Maintenance	15,000.00	15,000.00	15,000.00	15,000.00	15,000.00
Advertising	5,000.00	5,000.00	5,000.00	5,000.00	5,000.00
Insurance	5,000.00	5,000.00	5,000.00	5,000.00	5,000.00
Property Taxes	918.00	918.00	918.00	918.00	918.00
Loan Amortization					
Cost	198.00	198.00	198.00	198.00	198.00
Interest on Loan	2,939.00	2,415.00	1,861.00	1,275.00	655.00
Gross Revenue / Year	53,550.00	53,550.00	53,550.00	53,550.00	53,550.00
Net Return / Year	22,415.00	22,939.00	23,493.00	24,079.00	24,699.00

Table 1-6 Projection of the Net Cash Flows for a 20 - Acre Sportfishing Lake with a 15-Year Planning Horizon, Alabama

Item	1	2	3	4	5	6	7	8
Operating Receipts				53,550.00	53,550.00	53,550.00	53,550.00	53,550.00
Terminal Value								
Total Cash Inflow				53,550.00	53,550.00	53,550.00	53,550.00	53,550.00
Initial Outlay	-36,235.00							
Operating Expense	7,959.00	11,197.00	38,922.00	50,587.00	33,733.00	33,358.00	32,962.00	32,543.00
⌘ Financial Expense	5,211.00	5,510.00	5,827.00	6,162.00	6,517.00	6,891.00	7,288.00	7,707.00
Depreciation								
Recurrent Cost					1,250.00			
Taxable Income								
Income Taxes								
Total Cash Outflow	-49,405.00	-16,707.00	-44,749.00	56,749.00	41,500.00	40,249.00	40,250.00	40,250.00
Net Cash Flow	-49,405.00	-16,707.00	-44,749.00	-3,199.00	12,050.00	13,301.00	13,300.00	13,300.00

Table 1-6 (continued)

Item	9	10	11	12	13	14	15
Operating Receipts	53,550.00	53,550.00	53,550.00	53,550.00	53,550.00	53,550.00	53,550.00
Terminal Value							
Total Cash Inflow	53,550.00	53,550.00	53,550.00	53,550.00	53,550.00	53,550.00	53,550.00
Initial Outlay							
Operating Expense	32,100.00	31,631.00	31,135.00	30,611.00	30,057.00	29,471.00	28,851.00
Financial Expense	8,150.00	8,618.00	9,114.00	9,638.00	10,192.00	10,778.00	11,398.00
Depreciation		1,250.00					
Recurrent Cost							
Taxable Income							
Income Taxes							
Total Cash Outflow	40,250.00	41,499.00	40,249.00	40,249.00	40,249.00	40,249.00	40,249.00
Net Cash Flow	13,300.00	12,051.00	13,301.00	13,301.00	13,301.00	13,301.00	13,301.00

Table 1-7 Cash Inflows, Net Present Values (NPV), and Internal Rates of Return (IRR) for a 20- and 40-Acre Sportfishing Lakes in Alabama, 15 Year Planning Horizon

	40-Acre Project with Lake Construction and Equity Capital Used	40-Acre Project with Lake Construction and Borrowed Capital	20-Acre Project with Lake Construction and Borrowed Capital
Year	Cash Flow	Cash Flow	Cash Flow
1	-74,357.00	-88,565.00	-49,405.00
2	-8,447.00	-22,655.00	-16,707.00
3	-43,182.00	-57,390.00	-44,749.00
4	7,168.00	-7,040.00	-3,199.00
5	21,168.00	6,960.00	12,050.00
6	23,668.00	9,460.00	13,301.00
7	23,668.00	9,460.00	13,300.00
8	23,668.00	9,460.00	13,300.00
9	23,668.00	9,460.00	13,300.00
10	21,168.00	6,961.00	12,051.00
11	23,668.00	9,460.00	13,301.00
12	23,668.00	9,460.00	13,301.00
13	23,668.00	9,461.00	13,301.00
14	23,668.00	9,460.00	13,301.00
15	23,668.00	9,460.00	13,301.00
Total	136,530.00	-76,588.00	29,747.00
NPV 12%	-12,216.72	-108,984.93	-42,236.81
NPV 8%	16,233.30	-105,378.95	-29,580.49
IRR	0.10050459	-0.06501686	0.02978489

Appendix 2

APPLICATION FOR DEPARTMENT OF THE ARMY PERMIT <i>(33 CFR 325)</i>		OMB APPROVAL NO. 0710-0003 Expires December 31, 2004	
<p>The public reporting burden for this collection of information is estimated to average 10 hours per response, although the majority of applications should require 5 hours or less. This includes the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Department of Defense, Washington Headquarters Service Directorate of Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302; and to the Office of Management and Budget, Paperwork Reduction Project (0710-0003), Washington, DC 20503. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to any penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number. Please DO NOT RETURN your form to either of those addresses. Completed applications must be submitted to the District Engineer having jurisdiction over the location of the proposed activity.</p>			
<p>PRIVACY ACT STATEMENT</p> <p>Authorities: Rivers and Harbors Act, Section 10, 33 USC 403; Clean Water Act, Section 404, 33 USC 1344; Marine Protection, Research, and Sanctuaries Act, Section 103, 33 USC 1413. Principal Purpose: Information provided on this form will be used in evaluating the application for a permit. Routine Uses: This information may be shared with the Department of Justice and other federal, state, and local government agencies. Submission of requested information is voluntary, however, if information is not provided, the permit application cannot be processed nor can a permit be issued.</p> <p>One set of original drawings or good reproducible copies which show the location and character of the proposed activity must be attached to this application (see sample drawings and instructions) and be submitted to the District Engineer having jurisdiction over the location of the proposed activity. An application that is not completed in full will be returned.</p>			
<p>(ITEMS 1 THRU 4 TO BE FILLED BY THE CORPS)</p>			
1. APPLICATION NO.	2. FIELD OFFICE CODE	3. DATE RECEIVED	4. DATE APPLICATION COMPLETED
<p>(ITEMS BELOW TO BE FILLED BY APPLICANT)</p>			
5. APPLICANT'S NAME		8. AUTHORIZED AGENT'S NAME AND TITLE <i>(an agent is not required)</i>	
6. APPLICANT'S ADDRESS		9. AGENT'S ADDRESS	
7. APPLICANT'S PHONE NUMBERS WITH AREA CODE		10. AGENT'S PHONE NUMBERS WITH AREA CODE	
<p>a. Residence</p> <p>b. Business</p>		<p>a. Residence</p> <p>b. Business</p>	
11. STATEMENT OF AUTHORIZATION			
<p>I hereby authorize _____ to act in my behalf as my agent in the processing of this application and to furnish, upon request, supplemental information in support of this permit application.</p>			
APPLICANT'S SIGNATURE		DATE	
<p>NAME, LOCATION AND DESCRIPTION OF PROJECT OR ACTIVITY</p>			
12. PROJECT NAME OR TITLE <i>(see instructions)</i>			
13. NAME OF WATERBODY, IF KNOWN <i>(if applicable)</i>		14. PROJECT STREET ADDRESS <i>(if applicable)</i>	
15. LOCATION OF PROJECT			
_____ COUNTY	_____ STATE		
16. OTHER LOCATION DESCRIPTIONS, IF KNOWN <i>(see instructions)</i>			
17. DIRECTIONS TO THE SITE			
<p>ENG FORM 4345, Jul 97 EDITION OF SEP 94 IS OBSOLETE (Proponent: CECW-OR)</p>			

18. Nature of Activity (Description of project, include all features)

19. Project Purpose (Describe the reason or purpose of the project, see instructions)

USE BLOCKS 20-22 IF DREDGED AND/OR FILL MATERIAL IS TO BE DISCHARGED

20. Reason(s) for Discharge

21. Type(s) of Material Being Discharged and the Amount of Each Type in Cubic Yards

22. Surface Area in Acres of Wetlands or Other Waters Filled (see instructions)

23. Is Any Portion of the Work Already Complete? Yes _____ No _____ IF YES, DESCRIBE THE COMPLETED WORK

24. Addresses of Adjoining Property Owners, Lessees, etc., Whose Property Adjoins the Waterbody (if more than can be entered here, please attach a supplemental list).

25. List of Other Certifications or Approvals/Denials Received from other Federal, State, or Local Agencies for Work Described in This Application

AGENCY	TYPE APPROVAL*	IDENTIFICATION NUMBER	DATE APPLIED	DATE APPROVED	DATE DENIED

*Would include but is not restricted to zoning, building and flood plain permits

26. Application is hereby made for a permit or permits to authorize the work described in this application. I certify that the information in this application is complete and accurate. I further certify that I possess the authority to undertake the work described herein or am acting as the duly authorized agent of the applicant.

SIGNATURE OF APPLICANT

DATE

SIGNATURE OF AGENT

DATE

The application must be signed by the person who desires to undertake the proposed activity (applicant) or it may be signed by a duly authorized agent if the statement in block 11 has been filled out and signed.

18 U.S.C. Section 1001 provides that: Whoever, in any manner within the jurisdiction of any department or agency of the United States, knowingly and willfully falsifies, conceals, or covers up any trick scheme, or disguises a material fact or makes any false, fictitious or fraudulent statements or representations or makes or uses any false writing or document knowing same to contain any false, fictitious or fraudulent statements or entry, shall be fined not more than \$10,000 or imprisoned not more than five years or both.

Appendix 3



630 Colonial Park Drive
Suite 200
Roswell, Georgia 30075
P 770.998.7848 • F 770.998.3600
www.ecologicalsolutions.net

August 29, 2003

Mr. [REDACTED]
[REDACTED]
[REDACTED]
Tuskegee, Alabama 36083

RE: Proposal for Section 404 Waters/Wetland Individual Permit
Construction of Proposed Recreational Ponds
Tuskegee, Alabama
ES Proposal #90999-136

Dear Mr. [REDACTED]:

Ecological Solutions, Inc. is pleased to submit this proposal for Section 404 waters/wetland Individual Permitting for the proposed construction of multiple, eight to twelve-acre recreational ponds within the property boundaries of [REDACTED] in Tuskegee, Alabama. This proposal contains our understanding of the background information, scope of services, fee estimate, and schedule. The scope of services is separated into two phases, consisting of field studies and permitting. The permitting phase will not be initiated until we have discussed with you the wetlands/waters limits and its effect on the project.

Background Information

Based on recent telephone discussions, we understand that [REDACTED] is evaluating numerous potential pond sites to supplement/enhance [REDACTED] full-service hunting, shooting, and recreational resort by providing additional recreational amenities. We understand that up to ten sites are being evaluated and the ponds will encompass approximately eight to twelve acres each.

Due to the nature of pond construction and based on the topographic maps provided, impacts are likely to occur to aquatic features on the property. These aquatic features are considered "waters of the United States." Construction activities within waters of the U.S. are regulated by the U. S. Army Corps of Engineers (USACE) under the Clean Water Act (33 U.S.C. 1344). While certain types of minor activities may be eligible for permitting under the Nationwide Permit (NWP) program, applicable NWP's only allow up to 1/2 acre of jurisdictional waters/wetlands impacts and 300 linear feet of stream impacts for single and complete projects. Impacts in excess of these thresholds require an Individual Permit (IP). Ecological Solutions recently discussed (in general) pond construction projects with the USACE to determine if an activity-specific regional permit would apply to this project or if the activities would qualify under an agricultural exemption. However, our conversations confirmed that neither of these two alternatives would apply, thereby requiring an Individual Permit for this project.

Appendix 4

Mr. [REDACTED]
August 29, 2003
[REDACTED]



An IP requires a wetlands/waters delineation and may require endangered species and cultural resources surveys, and detailed discussions concerning project purpose/need, alternatives analysis, avoidance/minimization, and compensatory mitigation. Furthermore, a public notice and comment period and coordination with other state and federal agencies is required. Within the Mobile District, the IP process typically requires six to nine months to complete providing favorable review by the agencies. Ecological Solutions' Scope of Services provided below contains the basic elements required to make application to the USACE for an IP.

1.0 SCOPE OF SERVICES

The scope of services provided below is separated into two separate phases, Field Studies and the IP application. Field studies will be conducted and wetlands/waters limits will be provided to the client to discuss potential permitting scenarios and to discuss the most practical and feasible alternatives. The Field Studies phase includes one meeting with White Oak Plantation to discuss these issues. Should [REDACTED] decide to proceed with permitting, Ecological Solutions will immediately initiate the second phase.

1.1 Field Studies (Phase One)

1.1.1 Wetland/Waters Delineation

Waters of the U.S., including wetlands, are protected under Section 404 of the Clean Water Act, which is administered and enforced by the USACE. Our proposed scope of work for Task 1.1.1 includes delineating the extent, if any, of federal jurisdictional waters/wetlands within the six drainages depicted in the topographic maps provided. The following will be performed to accomplish the wetlands/waters delineation.

A team of biologists will conduct a field visit of the site. Studies to delineate jurisdictional wetlands and waters will be performed in general accordance with the three-parameter Routine Onsite Methodology described in the 1987 *U.S. Army Corps of Engineers Wetland Delineation Manual*. This level of effort is generally required by the USACE to support 404 permitting, if required. Ecological Solutions, Inc. will perform the following:

- Mark wetland boundaries using "wetland boundary" plastic survey flagging. Flags will be labeled with sequential alpha-numeric designation corresponding to wetland area and flag number (example: A - 1). Each wetland boundary will be sketched on the available field map.
- Complete upland and wetland field data points forms for each separate jurisdictional system. Vegetation, soils, and hydrology will be documented on the data forms.
- Complete a sketch identifying jurisdictional systems found on the property and provide to client.
- Take representative photographs of each jurisdictional system.

A wetland survey will be required to locate the wetlands and reference them to known points/locations (i.e., boundary corners). An alternative to a wetland survey, and a method

██████████
August 29, 2003
██████████



generally accepted by the USACE, is the use of a global positioning system unit (GPS) having submeter accuracy for locating wetland flags. This optional task is provided below.

1.1.2 GPS Location of Wetlands/Waters

During field studies, wetland limits will be flagged and located using a Trimble ProXRS or similar model global positioning unit. Several benchmarks or reference points (locations to be provided by ██████████) will also be located to provide for accurate referencing. Collected points will be corrected and a map will be produced showing approximate wetland limits. This map and the data collected will be provided to the client, with the points being available for import into a G.I.S. system or AutoCAD drawing in order to evaluate potential pond sites and select areas that minimize jurisdictional impacts. Please note that the USACE Mobile District accepts GPS location for purposes of verification of the jurisdictional boundaries but wetlands/waters limits must be field located by a licensed surveyor prior to permitting. Our scope of services does not include field location of wetlands/waters limits.

1.2 IP Application (Phase Two)

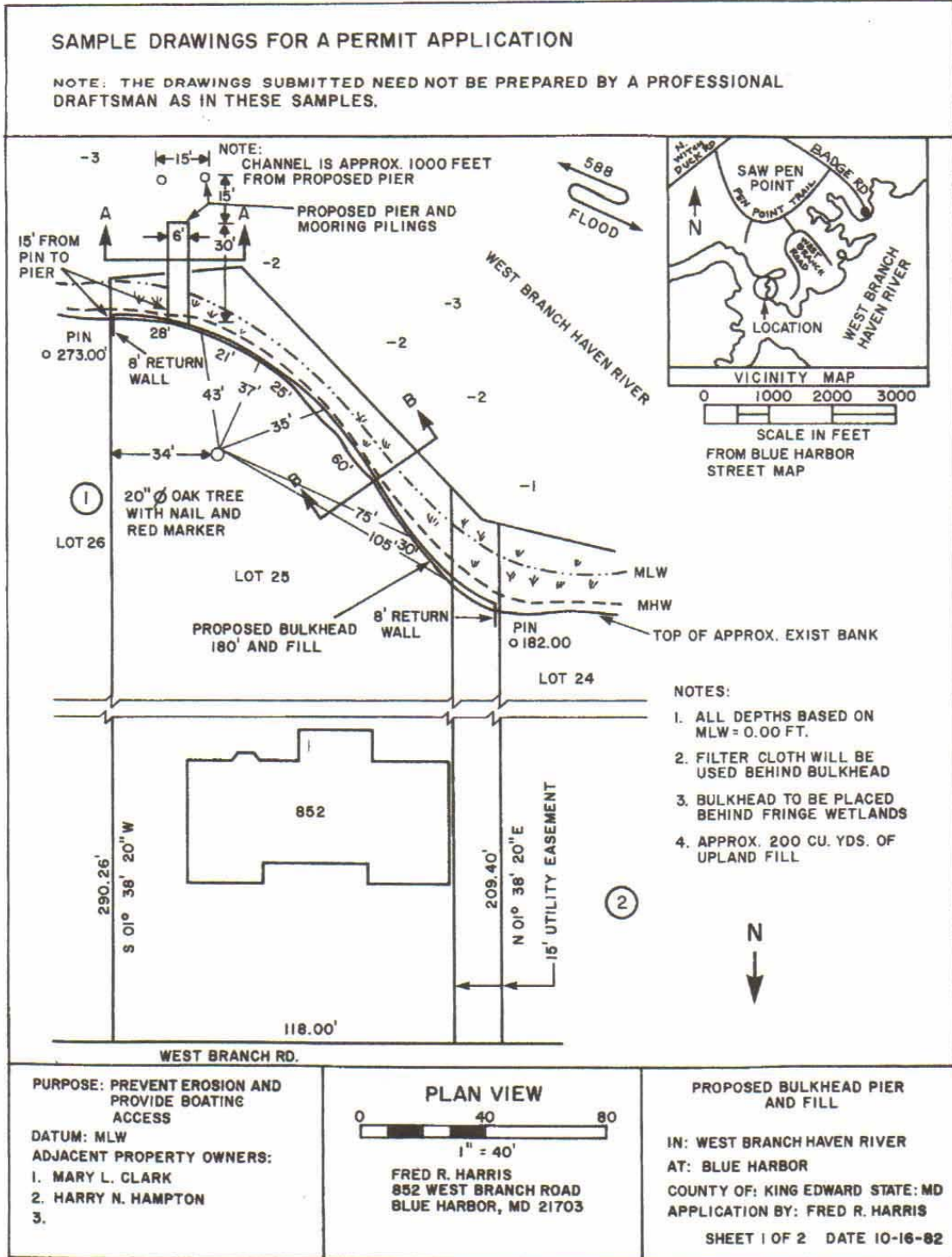
1.2.1 Alternatives Analysis

The IP process requires consideration of purpose and need, and alternatives to avoid and minimize wetland/stream impacts to the extent practicable. For unavoidable impacts, compensatory mitigation will be required. Based on planning, engineering, financial, and other site-specific information provided by your planner(s), and engineers, we will prepare an analysis of project alternatives that demonstrates the necessity to construct the development in the manner proposed. We anticipate this analysis will include drawings and supporting text outlining alternative configurations and the need to build the preferred alternative. We will also include a thorough discussion of your past experience and success with existing ponds and how they contribute to the overall success of ██████████ the demand for additional recreational ponds, and other pertinent information you may already have. We assume that supporting drawings will be provided by ██████████.

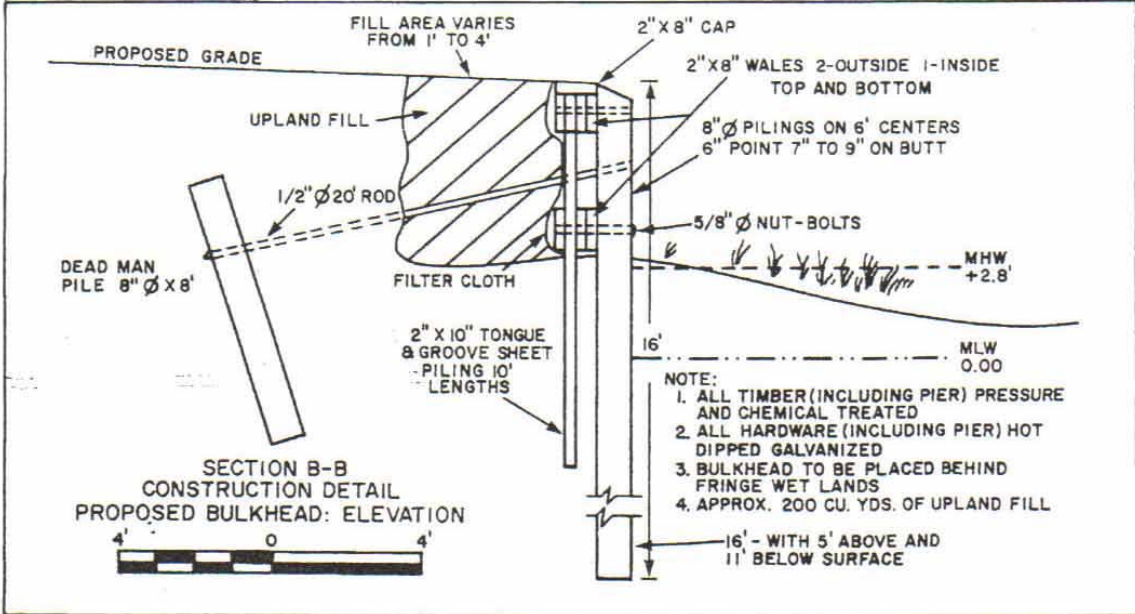
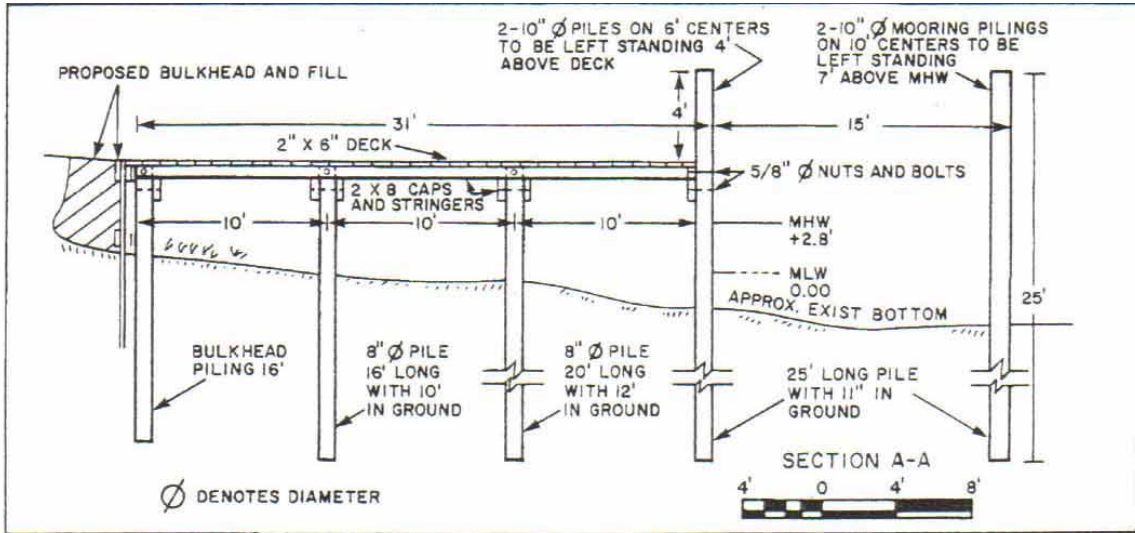
1.2.2 Mitigation Plan

Ecological Solutions will work closely with you to develop a mitigation plan describing activities to offset jurisdictional impacts from pond construction. Considering current land-use of ██████████ we will attempt to develop a plan for on-site mitigation provided that the client makes available other properties that contain potential wetland and stream mitigation sites. Ecological Solutions will assess up to three potential sites on the property and prepare a conceptual mitigation plan based on the site(s) available. This scope includes an assessment of proposed stream and wetland impacts, a mitigation plan description, and conceptual drawings of sufficient detail to complete the permitting process. We anticipate that the mitigation plan will include a discussion of comprehensive erosion control measures, monitoring protocols, and protective measures for waterways. Detailed construction drawings and hydrologic/hydraulic modeling may be required prior to mitigation implementation, but are not included in this scope.

Appendix 5



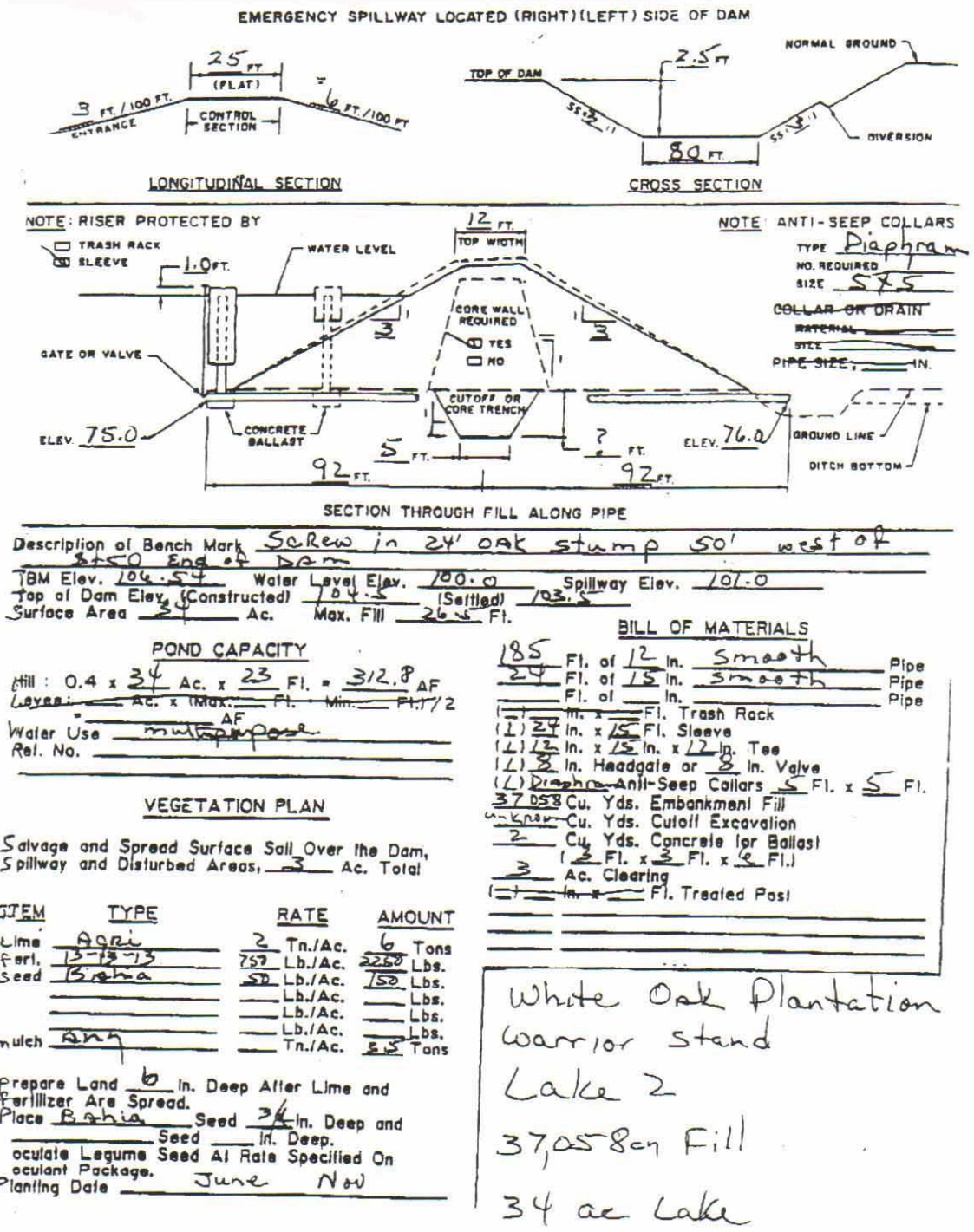
Appendix 6



<p>PURPOSE: PREVENT EROSION AND PROVIDE BOATING ACCESS</p> <p>DATUM: MLW</p> <p>ADJACENT PROPERTY OWNERS:</p> <ol style="list-style-type: none"> MARY L. CLARK HARRY N. HAMPTON 	<p>SECTION VIEWS</p> <p>FRED R. HARRIS 852 WEST BRANCH ROAD BLUE HARBOR, MD 21703</p>	<p>PROPOSED BULKHEAD PIER AND FILL</p> <p>IN: WEST BRANCH HAVEN RIVER AT: BLUE HARBOR COUNTY OF: KING EDWARD STATE:MD APPLICATION BY: FRED R. HARRIS</p> <p>SHEET 2 OF 2 DATE 10-16-82</p>
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REV. 11-28-82

Appendix 7



Appendix 8

ALABAMA DEPARTMENT OF ENVIRONMENTAL MANAGEMENT (ADEM) FIELD OPERATIONS DIVISION NPDES STORMWATER PROGRAM

NOTICE OF REGISTRATION (NOR)

THIS FORM IS TO BE USED FOR ADEM ADMINISTRATIVE CODE CHAPTER 335-6-12 - NPDES CONSTRUCTION, NONCOAL/NONMETALLIC MINING AND DRY PROCESSING LESS THAN FIVE ACRES, OTHER LAND DISTURBANCE ACTIVITIES, AND AREAS ASSOCIATED WITH THESE ACTIVITIES

PLEASE READ THE INSTRUCTIONS BEGINNING ON PAGE 3 OF THIS FORM CAREFULLY BEFORE COMPLETING. COMPLETE ALL QUESTIONS. RESPOND WITH "N/A" AS APPROPRIATE. INCOMPLETE OR INCORRECT ANSWERS, OR MISSING SIGNATURES WILL DELAY ACCEPTANCE OF REGISTRATION. IF SPACE IS INSUFFICIENT, CONTINUE ON AN ATTACHED SHEET(S) AS NECESSARY. ATTACH CBMP AND OTHER INFORMATION AS NEEDED. PLEASE TYPE OR PRINT LEGIBLY IN INK.

I. REGISTRANT INFORMATION Registration: Modification: Transfer: Re-Registration: AL _____

Registrant Name <u>DAVE DOE</u>		Facility/Site Name <u>BASS LAKE</u>		# of Years Coverage Requested:	
Responsible Owner/Operator or Official, and Title <u>DAVE DOE</u>			Site Contact and Title <u>JOHN DOE - ENVIRONMENTAL LAKES, INC</u>		
Mailing Address of Registrant <u>123 ELM ST.</u>			Site Street Address or Location Description <u>55 NORTH AVE</u>		
City <u>CITYVILLE</u>	State <u>AL.</u>	Zip <u>33111</u>	City <u>CITYVILLE</u>	State <u>AL</u>	Zip <u>33111</u>
Business Phone Number <u>555-444-3322</u>		Site Phone Number <u>555-555-1112</u>		Fax Number <u>555-555-1133</u>	
Responsible Official (RO) Street/Physical Address <u>SAME</u>			RO Phone Number		Email Address <u>JOHNDA@XYZ.COM</u>
(If applicable) Registered Agent Name, Address, & Phone Number					

II. LEGAL STRUCTURE OF REGISTRANT

Corporation Individual Single Proprietorship Partnership LLC LLP Government Agency Other

Yes No If not an Individual or Single Proprietorship, registrant is properly registered and in good standing with the Alabama Secretary of State's office. If "No", please explain:

III. ACTIVITY DESCRIPTION & INFORMATION

County(s) LAKE Township(s), Range(s), Section(s) SEC 18 & 19, T 10 NORTH, R 30E

Directions To Site 7 MILES SOUTH OF CITYVILLE, AL, WEST ON HWY 1

Yes No Is/will this facility:		Yes No	
(a) <input checked="" type="checkbox"/> <input type="checkbox"/>	an existing site which currently discharges to State waters?	(b) <input type="checkbox"/> <input type="checkbox"/>	discharge to waters of or be located in the Coastal Zone?
(c) <input type="checkbox"/> <input type="checkbox"/>	a proposed site which will result in a discharge to State waters?	(d) <input type="checkbox"/> <input type="checkbox"/>	be located on Indian/ historically significant lands?

IV. PROPOSED SCHEDULE - Used to determine potential registration duration & applicable fee amount, considering responses to Item VIII.

Anticipated Activity schedule: Commencement date: 6/20/05 Completion date: 8/20/05

Area of the Registered site: Total site area in acres: 2,400 Total disturbed area in acres: 40

V. VIOLATION HISTORY

Identify every Notice of Violation (NOV), Administrative Order, Directive, or Litigation filed by ADEM or EPA during the three year (36 months) period preceding the date on which this form is signed issued to the operator, owner, registrant, partner, parent corporation, subsidiary, LLP, or LLC Member. Indicate the date of issuance, briefly describe alleged violations, list actions (if any) to abate alleged violations, and indicate date of final resolution:

VI. MAP SUBMITTAL

VII. PROPOSED ACTIVITY(S) TO BE CONDUCTED

If Non-Coal, Non-Metallic Mining, Recovery, or Construction Material Management Site: Dirt-Chert Sand-Gravel Shale-Clay
 Crushed-Dimension Stone Other _____ Other _____ Other _____
 Primary SIC Code 1896 Brief Description Construction, Noncoal Mining, or Materials Management Activity:
CONSTRUCTION OF LOW LEVEL LAKE WITH ROAD

VIII. RECEIVING WATERS

List name of receiving water(s), latitude & longitude (decimal or deg,min,sec) of location(s) that run-off enters the receiving water, total number of disturbed acres, the total number of drainage acres which will drain through each treatment system or BMP, and the waterbody classification. If receiving water is designated as ONRW and/or Tier 1 waterbody, attach/submit copy of CBMPP.

Receiving Water	Latitude	Longitude	Disturbed Acres	Drainage Acres	Waterbody Classification	ONRW Y or N	TIER 1 Y or N
<u>PRETTY STREAM</u>	<u>N 23°</u>	<u>W 074°</u>	<u>3</u>	<u>100/110</u>	<u>FW</u>	<u>N</u>	<u>N</u>
	<u>20.245"</u>	<u>46.222"</u>					

IX. MODIFICATION & RE-REGISTRATION - CONTINUING EDUCATION & INSPECTION INFORMATION

Yes No Required inspections/monitoring by QCP/QCI have been performed and records retained. If "No", explain:

 List name(s) and designation/certification #s of QCPs/QCIs that performed required inspections/monitoring:

X. QUALIFIED CREDENTIALLED PROFESSIONAL (QCP) CERTIFICATION

"I certify under penalty of law that a comprehensive Construction Best Management Practices Plan (CBMPP) for the prevention and minimization of all sources of pollution in stormwater and authorized related process wastewater runoff has been prepared under my supervision for this site/activity, and associated regulated areas/activities, utilizing effective BMPs from the Alabama Handbook For Erosion Control, Sediment Control, And Stormwater Management On Constructions Sites And Urban Areas, Alabama Soil and Water Conservation Committee, as amended (ASWCC). If the CBMPP is properly implemented and maintained by the registrant, discharges of pollutants in stormwater runoff can reasonably be expected to be effectively minimized to the maximum extent practicable according to the requirements of ADEM Administrative Code Chapter 335-6-12. The CBMPP describes the pollution abatement/prevention management and effective structural & nonstructural BMPs that must be fully implemented and regularly maintained as needed at the registered site in accordance with sound sediment and erosion practices to ensure the protection of water quality."

QCP Designation/Description: BASS LAKE - ENVIRONMENTAL LAKE, INC.
 Address 55 NORTH AVE, CITYVILLE, AL. 33111 Registration/Certification _____
 Name and Title (type or print) JOHN DOE - VP Phone Number 555-555-1133
 Signature John Doe Date Signed 5/1/05

XI. OPERATOR - RESPONSIBLE OFFICIAL SIGNATURE

Pursuant to ADEM Administrative Code Rule 335-6-6-.09, this NOR must be signed by a Responsible Official of the registrant who is the operator, owner, the sole proprietor of a sole proprietorship, a general/controller member or partner, a ranking elected official or other duly authorized representative for a unit of government; or an executive officer of at least the level of vice-president for a corporation, having overall responsibility and decision making for the site/activity. "I certify under penalty of law that this form, the CBMPP, and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the qualified credentialed professional (QCP) and other person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, correct, and complete. I am aware that there are significant penalties for submitting false information including the possibility of fine or imprisonment for knowing violations. I certify that this form has not been altered, and if copied or reproduced, is consistent in format and identical in content to the ADEM approved form. I further certify that the proposed discharges described in this registration have been evaluated for the presence of any non-construction and/or coal/mineral mining stormwater, or process wastewaters have been fully identified."

Name (type or print) DAVE DOE Official Title OWNER
 Signature Dave Doe Date Signed 5/1/05

Appendix 9

ADEM FIELD OPERATIONS DIVISION – NPDES CONSTRUCTION, AND NONCOAL MINING LESS THAN 5 ACRES STORMWATER REGISTRATION TERMINATION REQUEST AND CERTIFICATION

RESPOND WITH "N/A" AS APPROPRIATE. FORMS WITH INCOMPLETE OR INCORRECT ANSWERS, OR MISSING SIGNATURES WILL BE RETURNED AND MAY RESULT IN APPROPRIATE COMPLIANCE ACTION BY THE DEPARTMENT. IF SPACE IS INSUFFICIENT, CONTINUE ON AN ATTACHED SHEET(S) AS NECESSARY. PLEASE TYPE OR PRINT IN INK.

Complete this form, attach additional information as necessary, and send report to the nearest ADEM office.

Item I.

Registrant Name		Facility/Site Name
NPDES AL	County	Facility Contact and Title
Facility Latitude & Longitude (decimal or deg,min,sec)		Facility Street Address <u>or</u> Location Description
Township(s), Range(s), Section(s)		City State Zip
Phone Number	Fax Number	Email Address

Item II.

<input type="checkbox"/> Yes <input type="checkbox"/> No required inspections/monitoring have been performed and records retained. If "No", explain: <hr/>
<input type="checkbox"/> Yes <input type="checkbox"/> No required inspections/monitoring were performed by a QCI, QCP, or qualified person under the direct supervision of a QCP. If "No", attach required Continuing Education Greenfield Fee, and explain: <hr/>

Item III.

<input type="checkbox"/> Yes <input type="checkbox"/> No All regulated activity authorized by this registration at this facility has been completed, construction/industrial effects removed, solid waste/debris properly disposed, all disturbed areas have been fully reclaimed, suitably stabilized, or perennial vegetative cover established, and stormwater discharges do not represent an adverse impact to water quality.
<input type="checkbox"/> Yes <input type="checkbox"/> No Permittee no longer has operational control of the facility or legal responsibility for the site, this registration only provides coverage for a part of a phased project or a part of a larger common plan of development or sale. In order for this termination request to be granted, the Name, Phone Number, and Address of the succeeding responsible operator(s) <u>must</u> be listed: If "No" attach Inspection Report and BMP Certification [and if conducted, any photographs or monitoring results], and explain: <hr/>

"I understand that discharging pollutants in storm water associated with regulated activity to waters of the State that is not authorized by NPDES registration coverage is a violation of State law. I also understand that the submittal of this request for termination does not release the operator from liability for any violations of this registration, ADEM Administrative Code Chapter 335-6-12, or other ADEM rules until a complete and correct request for termination of the registration is received by the Department. I understand that the registrant, operator, owner, developer, contractors, home builder(s), property owners association, etc., separately or collectively, must retain coverage for subdivision developments or other phased developments until all disturbance activity, including individual home construction, is substantially complete. Coverage for mines or borrow pits must be retained until all disturbance activity is reclaimed or protection of water quality is assured. I understand that should an inspection or complaint reveal significant noncompliance with ADEM rules, an environmental problem related to the discharge of stormwater from the site or that incorrect information has inadvertently been provided, implementation of remedial measures may be required, to include resubmittal of the NOR and subsequent re-registration in order to correct any deficiencies, comply with federal stormwater permitting requirements, and provide for the protection of water quality. I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment for knowing violations."

Name & Designation of QCP	Signature	Date
Name & Title of Registrant Responsible Official	Signature	Date