SOUTH CAROLINA ELECTRIC & GAS COMPANY

COLUMBIA, SOUTH CAROLINA

SALUDA HYDROELECTRIC PROJECT

LAKE MURRAY SHORELINE MANAGEMENT PLAN

DRAFT

JUNE 2009

Prepared by:

Kleinschmidt
Energy & Water Resource Consultants

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SOUTH CAROLINA ELECTRIC & GAS COMPANY
COLUMBIA, SOUTH CAROLINA

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EXECUTIVE SUMMARY

The Saluda Hydroelectric Project (Federal Energy Regulatory Commission [FERC] Project No. 516) (Project) is an existing, federally licensed hydroelectric project owned and operated by South Carolina Electric & Gas Company (SCE&G) located in central South Carolina, on the Saluda River. The Project generates clean renewable energy for use by SCE&G customers, as well as maintains Lake Murray, as a popular fishing and recreation destination that is used and enjoyed by residents and visitors of the state.

In conjunction with its relicensing activities, SCE&G has assembled a diverse group of stakeholders to develop a revised comprehensive Shoreline Management Plan (SMP). A SMP is a comprehensive plan to manage the multiple resources and uses of the Project's shorelines in a manner that is consistent with license requirements and Project purposes, and to address the needs of the public.

The Saluda Hydroelectric Project is one of the very first licensed projects to create a shoreline management plan. This plan, originally conceived in 1979, has seen many revisions over time. The SMP has been updated every five years in consultation with relevant federal, state and local agencies. The most recent plan was submitted to FERC on February 1, 2000, was approved by FERC with modifications on June 23, 2004 (107 FERC ¶ 62,273) and further clarified and modified on October 28, 2004 (109 FERC ¶ 61,083). Today the SMP identifies existing land uses and provides a program for responsible and balanced future use and management of project lands and the flora and fauna using those lands.

This SMP covers approximately 650 miles of shoreline and 15,837 acres of project land (both inundated and non-inundated). Because of development, new strategies have been introduced to rebalance shoreline uses. While it introduces some new strategies regarding the management and permitting of shoreline activities and facilities within the Project boundary, it is based on management practices established by SCE&G over the years. SCE&G maintains its commitment to balancing all uses within the Project boundary. In order to consider all relative factors, they have utilized a collaborative process that entails gaining input from multiple stakeholders.

To aid in the understanding of the Project Area, this SMP provides a review of the existing shoreline resources. As described further in section 4.0, the Project area is characterized by silty-loam surface soils, to clayey subsoils. Plant species are typical of Southern piedmont hardwood forests, with shoreline dominated by a combination of woody tree and shrub species. Water quality in the Project Area is generally good, and unit and operational modifications have been made in the past few years to increase the quality of water that passes into the lower Saluda River. A diversity of aquatic and terrestrial wildlife species exist within the Project Area. Many terrestrial species that occur in the Lake Murray area are typical of forested second-growth and woody successional habitats of the Piedmont region. Aquatic species are diverse and over the years, there have been forty fish species, representing 12 different families, documented in Lake Murray (SCE&G, 2005).

Land management classifications are described in detail in Section 6.0 and have been separated into five distinctive management classifications. These classifications include Multi-purpose, Forest Management, Public Recreation, Natural Areas, and Project Operations. Multi-purpose lands fall into several sub-classifications which include easement properties, commercial properties, Buffer Zone, and Future Development lands (or "fringelands"). Forest Management lands have been set aside for compatible recreation, scenic, aesthetic, and timber management purposes. SCE&G forest resources are managed according to the South Carolina Forestry Commission's Best Management Practices. Public Recreation lands include lands such as State parks, public beaches, and islands that are owned by SCE&G. Natural areas are those areas that warrant special protection because they provide important habitat for various wildlife species, including the recreational fishery.

Lastly, lands reserved for Project operations are those lands that are specifically required for operation of the Saluda Project.

SCE&G developed land management prescriptions over time in consultation with agencies and the public. They consist of the guiding principals regarding management of the SCE&G-owned lands within each classification. Section 7.0 specifically details management prescriptions as they relate to each classification. Moreover, prescriptions are administered though the Shoreline Permitting Program.

In addition to the SMP, a Permitting Handbook was developed in consultation with stakeholders and agencies to address certain activities that require permits and consultation with SCE&G. These activities include excavation; construction, maintenance, and placement of docks, boatlifts, boat ramps, and shoreline stabilization; limited brushing; and other shoreline activities. SCE&G will reconvene with stakeholders and agencies on a yearly basis to review the Permitting Handbook and to address issues that have arisen.

SCE&G considers maintaining a strong commitment to managing the Lake Murray shoreline for multiple resources by considering the impact of various activities on the environmental, aesthetic, and recreational character of the lands. Section 8.0 details the activities and structures that are compatible with the goals of the Shoreline Management Program. The activities consist of items requiring SCE&G approval through the permitting program. Also, property owners considering new shoreline facilities or activities within the Project boundary will follow a standard procedure for initiating, permitting, and completing their proposed projects. These procedures are detailed in more depth in section 9.0 and in the Permitting Handbook.

SCE&G is currently evaluating, and will adopt, a fee structure for recovering a portion of the costs of administering the shoreline management program. This will ensure that activities occurring on Project lands are consistent with the overall goals for the project. Such fees can be a one-time or annual cost.

Annual surveys of the land below the 360' PD contour are conducted by SCE&G and also allow for an inventory and inspection of docks built and permitted throughout the year. SCE&G also makes note of unauthorized structures below the 360' PD contour as well as in Buffer Zones at that time. Violations may be dealt with in several manners as deemed appropriate to SCE&G. Consequences of violations could range from dock permit cancellations, to fines, or legal action.

Best Management Practices (BMPs) are actions taken to lessen potential impacts to a particular resource resulting from its direct or indirect use. SCE&G has developed several management plans designed to preserve the health of the shoreline, and they also promote the use of BMPs through their Shoreline Permitting Program. BMPs are further described in Section 12.0 of this document.

Public education and outreach on the protection of valuable shoreline resources remains an important goal of the SMP. Section 13.0 of this document details specific measures that will be undertaken in order to help educate both lake residents and users. Specific items include SMP education, BMP education, Public Service Announcements, and Safety Programs.

In the Application for New License, SCE&G is proposing a 10 year review period for the SMP. The previous process of a 5 year review and revision, which included gathering input and addressing issues from stakeholders, required several years to complete in and of itself. The ten-year SMP review period allows for SCE&G to assess new issues that arise as a result of development around the lake, and allows for the analysis of cumulative affects. Concurrently with the FERC SMP review process, SCE&G will review the Shoreline Permitting Program with interested stakeholders annually to ensure its effectiveness; however, changes to the permitting process may be made periodically, as needed, outside of the scheduled review periods.. Also, a review process that includes the use of GIS data will be used to address the modified land management classification system to ensure the new system is appropriate.

SOUTH CAROLINA ELECTRIC & GAS COMPANY
COLUMBIA, SOUTH CAROLINA

SALUDA HYDROELECTRIC PROJECT

LAKE MURRAY SHORELINE MANAGEMENT PLAN

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1.0 INTRODUCTION

The Saluda Hydroelectric Project (Saluda Project) is located on the Saluda River approximately 10 miles west of Columbia, SC (Figure 1-1). Lake Murray, the Project's hydroelectric reservoir, is largely located within Lexington County, though it also spans Saluda, Newberry, and Richland Counties. The 2,420 square mile watershed area, drained by the Saluda River and its tributaries above Saluda Dam, provides water for Lake Murray, which covers a maximum water surface area of approximately 79.5 square miles or approximately 50,900 acres at full pool. Saluda Dam is nearly a mile and a half long and supports state highway SC Route 6, which is built along the top of the Dam.

The South Carolina Electric & Gas Company (SCE&G) manages the Lake Murray shoreline and SCE&G-owned lands within the Project boundary to comply with its Federal Energy Regulatory Commission (FERC) operating license. The goal in land management is to serve the greater public interest by providing recreational access and opportunities, protecting wildlife habitat, water quality, producing low cost electricity, and preserving cultural as well as aesthetic resources.

In 1980, pursuant to a FERC order in FERC Docket No. E-7791, SCE&G established a shoreline management plan (SMP). Since its inception, the SMP has seen several revisions, which are described in Section 5.0 (*History of the Lake Murray Shoreline Plan*). To ensure that it maintains relevance and effectiveness under current environmental and developmental pressures, SCE&G has again revised the SMP for the Saluda Project. This SMP was developed in accordance with established FERC guidelines for developing Shoreline Management Plans and in cooperation with relicensing stakeholders, including federal and state regulatory agencies, interested non-governmental organizations, and

concerned citizens. This SMP is submitted to the FERC as a part of SCE&G's Saluda Project comprehensive relicensing package.

The management guidelines set forth in this SMP are applicable to all lands within the Saluda Project boundary. Project lands are those lands within the FERC project boundary owned by SCE&G in fee title and those lands for which SCE&G has acquired or retained an easement. Although this SMP is the latest in a series of revisions, it is significant in that it documents the results of recent rebalancing whereby SCE&G-owned lands within the Project boundary have been re-classified. The rebalancing process, which considered natural resource, recreation, and economic values, is discussed in more depth in Section 5.0. Among other things, the current document includes the following components:

- Summary inventory of existing resources covered by this shoreline management plan;
- Results of rebalancing of lands among classifications;
- Detailed inventory, descriptions, management prescriptions and mapping of land classifications;
- Summary information on the shoreline permitting program and fee policies;
- Best management practices;
- Public education and outreach;
- Monitoring and outreach;
- A proposed review process; and
- Land management plans (including those revised by the Lake and Land Management Technical Working Committee as described in Section 3.1):
    - Woody Debris & Stump Management Plan – Revised by TWC (Appendix A)
    - Buffer Zone Management Plan – Revised by TWC (Appendix B)
    - Sedimentation and Erosion Control Management Plan – (118 FERC ¶ 62,041) (Appendix C)
    - Baseline Environmental Monitoring Plan for Lake Murray Marinas (Exhibit 29 in 12/27/89 SCE&G filing)(Appendix D)
    - Lake Murray Water Quality Monitoring Plan (Exhibit 30 in 12/27/89 SCE&G filing)(Appendix E)
    - Environmentally Sensitive Areas Drawings (116 FERC ¶ 62,087) (Appendix F)

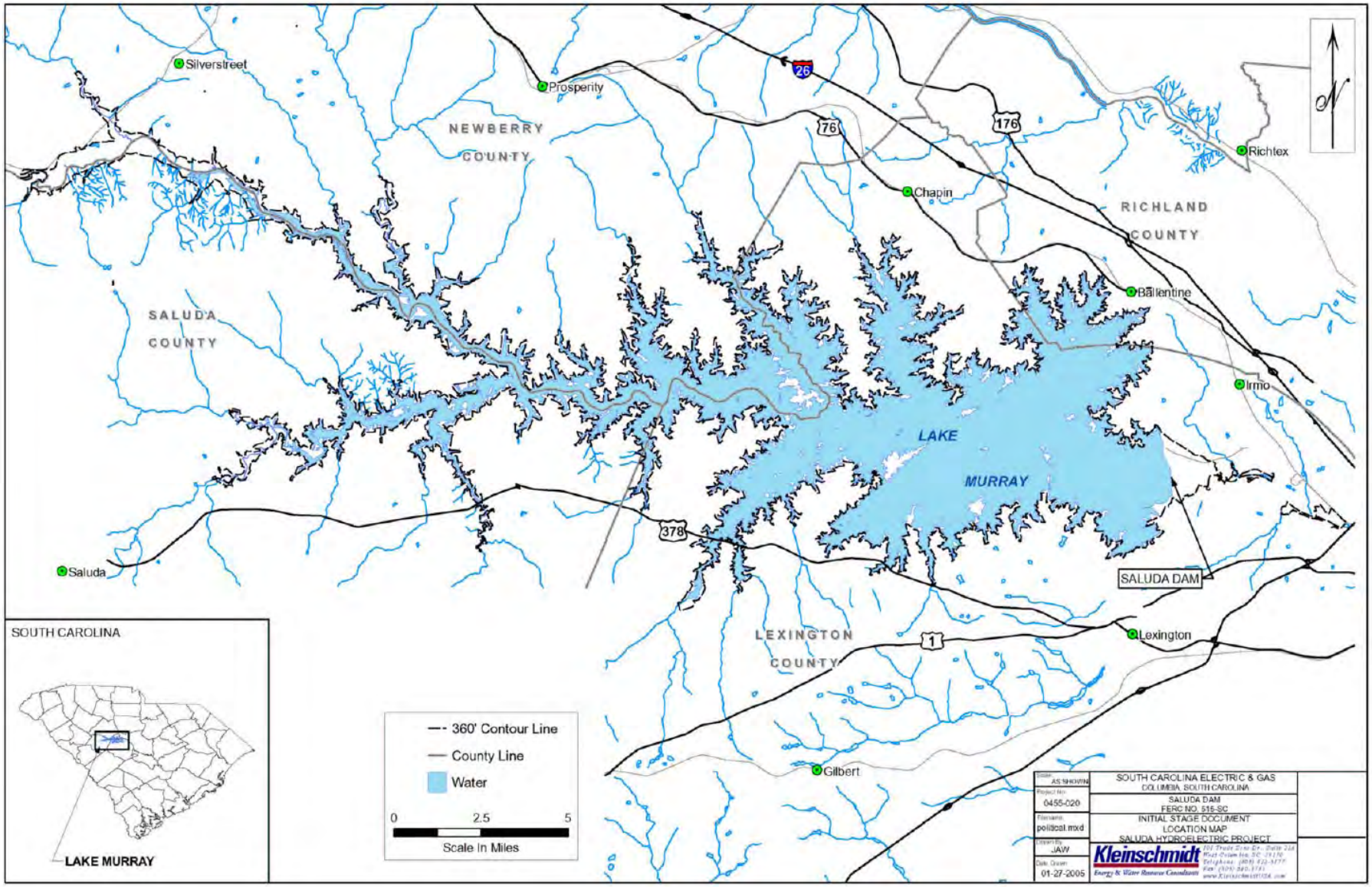
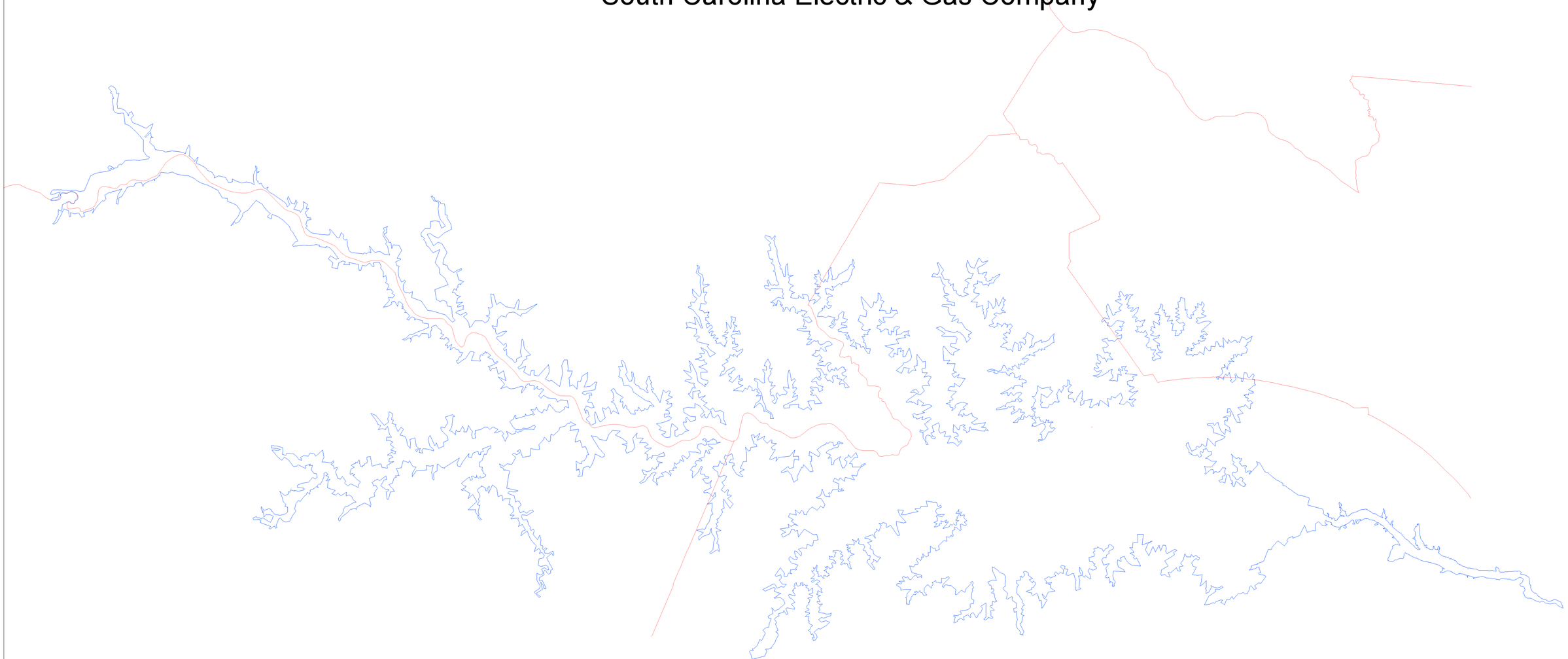


Figure 1-1: Location Map

Figure 1-2: Project Boundary

Project Boundary Map

Saluda Hydroelectric Project No. 516
South Carolina Electric & Gas Company



N
W E
S

1 inch equals 1 mile

Legend

- Project Boundary Line
- County Line

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2.0 PURPOSE AND SCOPE OF THE LAND USE AND SHORELINE MANAGEMENT PLAN

Lake Murray has served as a major power generator and source of recreation and commercial opportunity for resident and visitors to South Carolina for several decades. As development increases in the Columbia metropolitan area, so too does stress placed upon Lake Murray and the surrounding watershed. Thus, a comprehensive SMP that recognizes and addresses sources of potential environmental degradation is essential to managing the lake for the benefit of all interests.

Its purpose is to protect public access to project lands and water and to protect environmental values. Specifically, it will assist in providing a balance between shoreline development, recreational use, and environmental protection.

3.0 SHORELINE MANAGEMENT PLAN GOALS AND OBJECTIVES

The overall goal of this SMP is to formalize the process and criteria that SCE&G will use to manage and balance private, public, and hydroelectric uses of the Saluda Project lands and Lake Murray shoreline. The SMP serves as a reference document for SCE&G in implementing the Standard Land Use Article, which authorizes SCE&G to permit certain non-project uses of project lands and waters (see Appendix E) for license articles pertaining to the SMP. This SMP will help to ensure the protection and enhancement of the Project's scenic, environmental, recreational, natural and cultural resources over the term of the license.

This SMP represents a consensus-based, updated management plan intended for submittal in the Project 516 License Application. It has taken into consideration not just the land and properties within the Project boundary line (PBL), but lands upstream and downstream, and such areas beyond the PBL, which SCE&G, through its SMP, can materially influence.

Specific goals relative to the SCE&G relicensing process that are discussed under this SMP include the following:

1) Provide for reasonable current and future public access;
2) Preserve the opportunity to meet recreational needs within the project;
3) Protect fish and wildlife habitat;
4) Protect cultural resources;
5) Protect operational needs;
6) Facilitate compliance with license articles;
7) Minimize adverse impacts to water quality;
8) Minimize erosion;
9) Minimize adverse scenic impacts;
10) Guide the permitting of shoreline development;
11) Provide a summary of the types and locations of existing recreational opportunities and future enhancements that are set to occur as a requirement of the new Project license;

12) Establish Shoreline Management Classifications (SMC) and Allowable Uses to help in the management of non-Project uses of the Lake Murray shoreline lands within the Project boundary;
13) Describe the SMP amendment and monitoring process; and
14) Educate and encourage lakefront property owners on the use of voluntary Best Management Practices (BMP)

3.1 Consultation

SCE&G recognizes that successfully completing the relicensing process involves identifying and resolving project issues in consultation with Federal and State resource agencies, local and national non-governmental organizations (NGOs), home and boat owner associations, and individuals who have an interest in the Saluda Hydro Project. SCE&G began soliciting input on project-related concerns through public workshops in October 2004. Since that time, SCE&G has sought active public involvement in the process and fostered commitment to issue resolution among SCE&G and stakeholders. Stakeholder involvement has been extensive with the following groups participating in the relicensing project (Table 3-1).

Table 3-1: Participating Groups in Saluda Project Relicensing Project

STAKEHOLDER GROUPS
American Rivers
American Whitewater
Catawba Indian Nation
Coastal Conservation League
Columbia Audubon Society
Columbia Fire and Rescue
Greenville Striper Kings
Lake Murray Association
Lake Murray Historical Society
Lake Murray Homeowner Coalition

STAKEHOLDER GROUPS
Lake Murray Power Squadron
Lake Murray Southside Community Association
Lake Murray Watch
League of Women Voters
Lower Saluda River Scenic River Advisory Council
Midlands Striper Club
National Marine Fisheries Service
National Park Service
National Striped Bass Association
National Wildlife Federation
Newberry County
River Runner Outdoor Center
Saluda County
SCANA Corporation
South Carolina Council Trout Unlimited
South Carolina Department of Health and Environmental Control
South Carolina Department of Natural Resources
South Carolina Department of Parks, Recreation and Tourism
South Carolina Electric & Gas Company
South Carolina Historic Preservation Office
South Carolina Wildlife Federation
Trout Unlimited - Saluda River Chapter
United States Fish and Wildlife Service
University of South Carolina, Department of Biological Sciences

3.1.1 Lake and Land Management Resource Conservation Group

In support of the relicensing effort, seven Resource Conservation Groups (RCG) were developed that are comprised of interested stakeholders committed to working together and with SCE&G to identify project issues related to various resources within the PBL. Their goal is to develop consensus-based strategies for issue resolution. The Lake and Land Management Resource Conservation Group is assigned with the mission of gathering and synthesizing relevant information, developing required studies, and addressing issues relevant to this SMP. The RCG was a highly diverse group consisting of over 24 entities from federal, state, and local government; utilities; industry; academia; non-governmental organizations; homeowner associations; and private citizens (Table 3-2).

Table 3-2: Organizations with Representation on Lake & Land Management RCG (Updated 3/31/06)

ORGANIZATION
American Rivers
Coastal Conservation League
Coastal Conservation League
Columbia Audubon Society
Lake Murray Association
Lake Murray Historical Society
Lake Murray Homeowner's Coalition
Lake Murray Power Squadron
Lake Murray Southside Community Association
Lake Murray Watch
League of Women Voters
Lexington County
Lower Saluda Scenic River Advisory Council
Newberry County
Saluda County
SCANA Corporation
South Carolina Department of Health and Environmental Control
South Carolina Department of Natural Resources
South Carolina Department of Parks, Recreation & Tourism

ORGANIZATION
South Carolina Electric & Gas Company
South Carolina Wildlife Federation
Trout Unlimited - Saluda River Chapter
United States Fish and Wildlife Service
University of South Carolina

3.1.2 Technical Working Committees

Within each RCG, smaller teams, or Technical Working Committees (TWC), were developed. The TWCs focused on resolving specific ecological issues and conducting related studies. The Lake and Land Management TWC consists of members from the following organizations (Table 3-3).

Among the objectives of the Lake and Land Management TWC was to revise the land use and shoreline management plan to more effectively protect shoreline resources. In working collaboratively, the members of the TWC aimed to blend the objectives of the state and federal resource agencies with other stakeholder interests. Plans revised by the TWC, which are discussed in more detail in Sections 7.0 and 9.0, consist of the Buffer Zone Management Plan, Sedimentation and Erosion Control Management Plan, Baseline Environmental Monitoring Plan for Lake Murray Marinas, Forest Management Plan, and the Woody Debris and Stump Management Plan.

Table 3-3: Organizations with Representation on Lake & Land Management TWC

ORGANIZATION
Lake Murray Association
Lake Murray Watch
Lexington County
SCANA Corporation
South Carolina Department of Natural Resources
South Carolina Department of Parks, Recreation & Tourism
South Carolina Electric & Gas Company
United States Fish and Wildlife Service

3.1.3 Meeting Schedule

Between November 2005 and October 2008, 41 public meetings were held on a roughly bimonthly schedule by the Lake and Land Management RCG and TWC groups. These meetings were held to work out the details of the Saluda SMP, and to allow interested parties opportunity to provide input on resource issues and the overall future management of the shoreline resources. Results of this collaboration contributed valuable information from entities familiar with the Project. The forum was instrumental in addressing important issues as part of the relicensing process for the operation and management of the Project over the term of the new license.

4.0 INVENTORY OF EXISTING RESOURCES

To understand the intent of the SMP, it is important to be familiar with the existing resources in the vicinity of the Lake Murray shoreline. The following section briefly describes the existing resources in the Project area. For more detailed information on these topics, refer to the *Final Application for New License Saluda Hydro Document* (SCE&G, 2008).

4.1 Geology and Soils

The Saluda Project is centrally located within the Piedmont physiographic province of South Carolina. To the north lies the Blue Ridge province (e.g., Blue Ridge Mountains). To the south is the Atlantic portion of the Coastal Plain province. The Piedmont is typically hilly country with isolated hills of bedrock that rise above a general level surrounding area. Saluda Dam is located in west central South Carolina along the Eastern Piedmont fault system (Hatcher et al., 1977), which extends from Western Georgia through Virginia.

The soils of the Project Area are predominantly Ultisols of the Carolina Slate Belt. These soils are highly weathered with low fertility, which makes them well-suited for pasture or forest use (Mead and Hunt, 2000). The predominant soil association of the Project area is the Georgeville-Herndon-Almance association. These soils were mainly developed in residuum, from the fine-grained slate rock of the Carolina Slate Belt (USDA, 1962). They generally have moderate permeability with medium to high available water capacity and medium amounts of runoff (USDA, 1976). The predominant texture class is a silt-loam surface soil, with a clayey subsoil (USDA, 1962). The thickness of the soils is dependent upon the rock type; soils overlying the Gneiss unit are thick (30 to 90 feet) whereas, the soil over the schist unit is thinner (10 to 30 feet). The thinnest soil zones are on the tops of hills.

The Project shoreline totals 691 miles including the islands and is characterized by deep coves and prominent peninsulas. Approximately 386 miles of shoreline is privately owned down to the 360' PD contour. The irregular shoreline is gently sloped and coursed by many creek beds and drainage ways that cut through the terrain (FERC 2002; Mead and Hunt 2000). The soils are typically not susceptible to creep or slumping; however, soil limitations generally occur along drainage ways or other areas where bedrock is close to the surface (Mead and Hunt, 2000).

Shoreline erosion is occurring in some lakeshore areas, particularly along exposed shores where prevailing westerly winds create waves that strike the shoreline (Mead and Hunt, 2000). Also, soil slumping may occur in areas where bedrock is located close to the surface. Over the past 20 years, however, voluntary shoreline stabilization projects have been implemented by private landowners to reduce the effects of shoreline erosion around the Lake. (Mead and Hunt, 2000; Tommy Boozer, SCANA personal communication).

4.2 Water Quality

Water quality affects the aquatic and terrestrial wildlife and habitats of Lake Murray, as well as the health and well-being of individuals and communities that surround the lake. Water quality impairment of the lake can occur in several ways because of the introduction of both point and non-point sources of pollutants. Point source discharges in inflow tributary streams may include wastewater treatment plant effluents, leachate from septic systems around the lake, and other miscellaneous activities within the watershed. Non-point sources include water runoff from various land use activities, including residential, industrial, agriculture, forestry, and construction. When water runs off surrounding lands, it picks up sediment, bacteria, oil, grease, chemicals, and other pollutants as well as nutrients such as nitrogen and phosphorus. Excessive levels of introduced pollution (from point and non-point sources) can overwhelm a reservoir's natural filtering abilities and lead to impaired water quality.

4.2.1 Water Quality Standards

All waters entering and contained within Lake Murray are classified as "freshwaters" (FW) and are considered suitable for primary and secondary contact, recreation, and as a drinking water supply using conventional treatment [based on requirements set forth by South Carolina Department of Health and Environmental Control (SCDHEC)]. Freshwaters also are suitable for industrial and agricultural uses, fishing, and the survival and propagation of a balanced indigenous aquatic community of flora and fauna.

In addition to the standards for FW waterbodies, Lake Murray also is subject to water quality standards regarding nutrient levels for large lakes (40 acres or larger) based on its location within the Piedmont and Southeastern Plains ecoregion of the state. These numeric nutrient criteria were developed based on an ecoregional approach that takes into account the geographic location of the lake within the state.

4.2.2 Water Quality Conditions of Lake Murray

Data on water quality for Lake Murray, its tributaries, and the tailwaters (the area immediately downstream of the dam) have been collected over the last 30 years in support of the Saluda Hydroelectric Project (SCE&G, 2005). Input to the lake originates primarily from the Saluda River, which contributes 68% of the mean streamflow. Six other tributaries make up the remaining 32% of inflow to Lake Murray (Little Saluda River, Bush River, Little River, Clouds Creek, Rocky Creek, and Ninety-Six Creek) (Table 4-1).

While the lake itself covers approximately 75 square miles, the drainage area for Lake Murray encompasses 2,420 square miles (SCE&G, 2005). Currently no direct point source discharges into Lake Murray exist. However, there are point source pollution discharges into tributaries that contribute to Lake Murray as well as non-point runoff of the surrounding landscape. Thus, the lake is affected by its position within a large watershed

with high levels of residential and commercial developments. In general, Lake Murray experiences thermal stratification with associated DO depletion during the summer months, not unlike many reservoirs of its size in the region (SCE&G, 2005). Recreational uses within the lake, however, have typically not been limited by water quality concerns.

In 2002 SCDHEC issued a formal notice that the DO standard for the LSR would be revised. Upon review of the comprehensive water quality report for the Saluda Hydro relicensing, it was shown that phosphorous trend data indicates potential problems with nutrient loading into Lake Murray. In order to comply with a new DO standard, SCE&G sought to evaluate the potential effects that nutrient reduction would have on the DO levels in Lake Murray and the releases from Saluda Hydro. A CE-QUAL-W2 model was chosen among industry accepted models to be used in water quality evaluations on Lake Murray. Temperature, DO, algal levels, and phosphorus were the primary water quality constituents studied using this modeling technique.

Data derived from the CE-QUAL-W2 model predicted that the most likely cause for water quality problems in Lake Murray stems from the point source discharges of phosphorus into Ninety-Six Creek and the Bush River. The discharge of phosphorus at these locations is very high. The Saluda River is responsible for 68% of the mean streamflow into Lake Murray; however, it only contributes 15% of the total phosphorus load. Strikingly, the other smaller tributaries together only make up 32% of the mean streamflow into Lake Murray but contribute 85% of the total phosphorus load.

Another indication that point source pollution is a major contributor to water quality issues in Lake Murray is that phosphorus discharges from Lake Greenwood are relatively low due to tertiary waste treatment upstream. In turn, model results estimated that 60% of the phosphorus input into Lake Murray occurs as a result of discharges from point sources outside of the Project boundary.

4.2.3 Water Quality Conditions of the Lower Saluda River

SCE&G began monitoring DO and temperature in the releases from the Project turbines in 1989 and continues the effort to the present day. These monitoring efforts have determined that nutrient loading from the tributaries and the thermal stratification of Lake Murray from May through approximately October of each year result in the depletion of DO levels in the metalimnion and hypolimnion layers of the lake. These anoxic conditions during the summer months in the lake can translate into low DO concentrations in the water released through the Project turbines. The anoxic conditions and low alkalinity levels in the bottom waters of the lake can also result in moderately low pH conditions (pH < 7.0), because of the lack of oxygen and the production of carbon dioxide from the various decomposition processes.

In an effort to increase the DO levels in the releases from the Project turbines, SCE&G installed turbine vents and modified operations starting in 1999. The median DO concentration of the Project release has increased from 2.7 mg/L (before implementing turbine venting) to 7.2 mg/L (with turbine venting - 1999 to present). Ultimately, this has resulted in less frequent occurrences of DO levels in the release below 5.0 mg/L, from 88% to about 12% of the time. The percentage of time the DO levels from the Project releases were below 3.0 mg/L has decreased from 55% to 3% since turbine venting and modified operations were implemented in 1999. In 2005, SCE&G implemented operational protocols that further assist in maintaining enhanced DO levels in the LSR.

Table 4-1: Percent Contributions to the Upper Regions of Lake Murray (Ruane, 2004)

LAKE MURRAY TRIBUTARY	MEAN STREAMFLOW (percent)
Bush River	4
Little Saluda River	7
Clouds and West Creeks	4
Ninety-Six Creek	5
Little River	7
Saluda River	68
All Other Flows	5

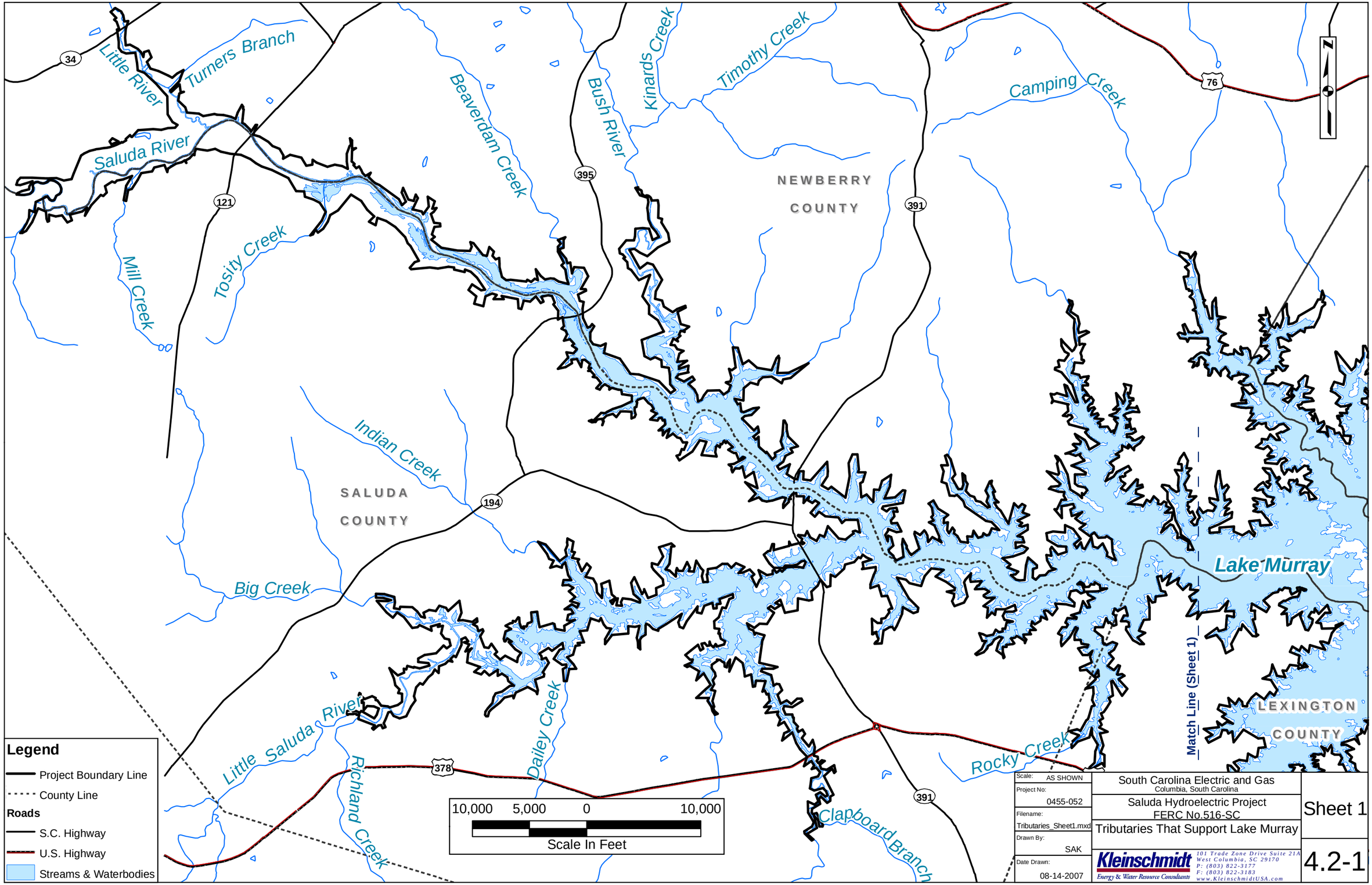


Figure 4-1: Tributaries that Support Lake Murray

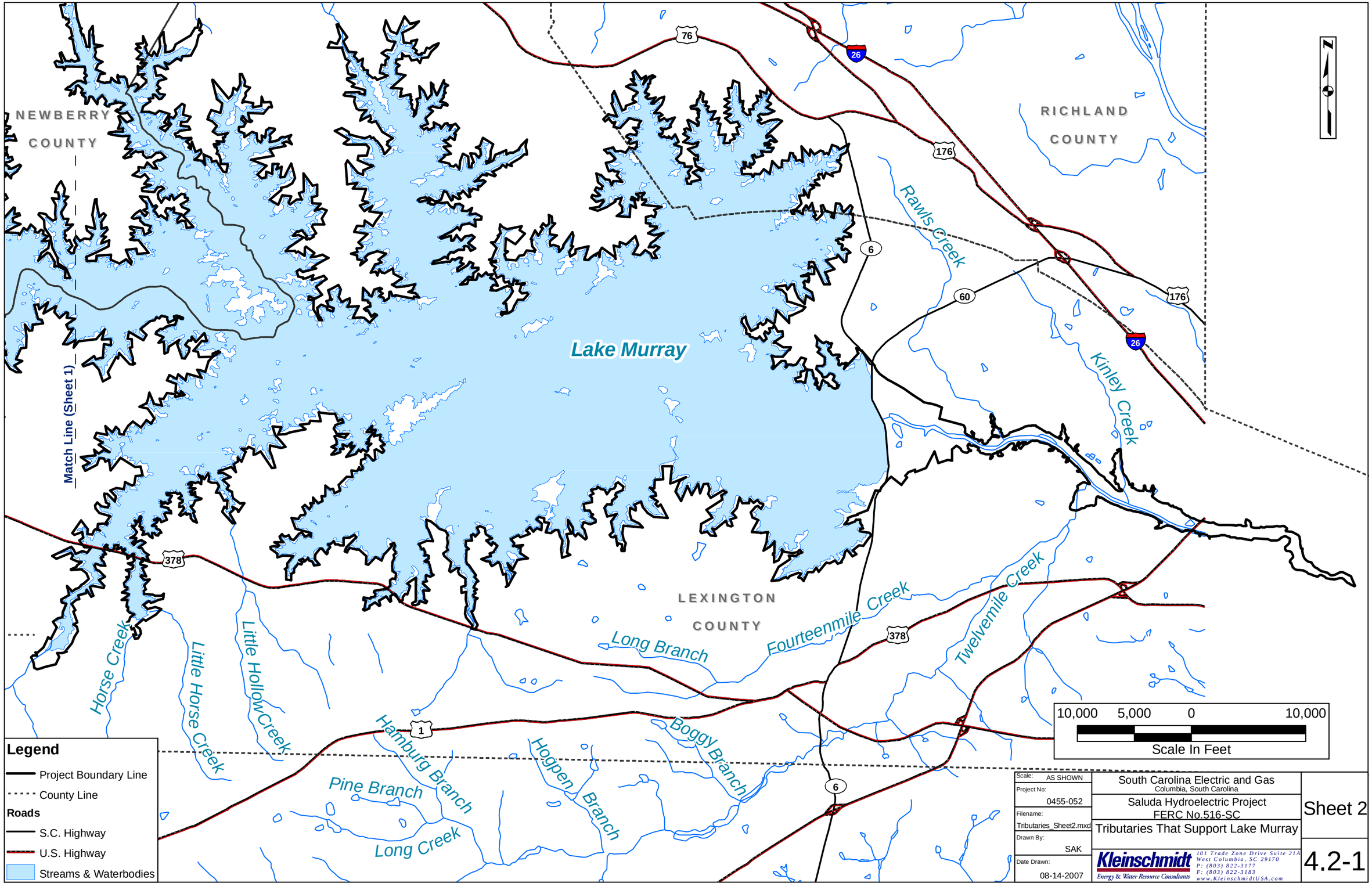


Figure 4-2: Tributaries that Support Lake Murray

4.3 Aquatic Resources

There are a diversity of aquatic habitats available within and around Lake Murray, including shallow coves, an extensive littoral fringe, shoreline wetlands, and a vast open, deepwater section (Mead and Hunt, 2000; SCE&G, 2005). But past intense development has resulted in a significant loss of habitat on approximately one half of the project's shoreline. As a result, the lake's diverse fisheries are dependent on resources primarily located in the upper lake regions. Over the years, there have been forty fish species, representing 12 different families, documented in Lake Murray (SCE&G, 2005). Of these, seven species are considered game fish. At least 16 resident species of forage fish occur in the Project waters, with 10 of these species belonging to either the minnow or perch families. Fish growth in these waters is generally considered to be good and has produced several current state record fish (Mead and Hunt, 2002a).

Shallow coves, littoral fringe areas, and shoreline wetlands provide significant habitat for many fish species and valuable areas for spawning and recruitment below the 360' PD contour. These areas may be comprised of vegetation such as forbs, grasses, and rushes, and are often below button bush and black willow flats which are categorized as Environmentally Sensitive Areas. This vegetation can greatly aid in the spawning success of shallow water spawning fish species and provides cover for the young of year (YOY). Fish species that utilizes these areas for spawning include bass and sunfish species.

In 1994, SCDNR prepared a comprehensive fishery management plan for Lake Murray, which identified a number of species with particular importance to the lake's sport fishery. According to SCDNR, the most sought after game species in Lake Murray are largemouth bass, black crappie, red-ear sunfish, bluegill sunfish, and stocked striped bass. The most important prey species for the lake include threadfin shad, gizzard shad, and blueback herring.

4.4 Terrestrial Resources

4.4.1 Botanical Resources and Habitats

Approximately 50% of the shoreline is privately owned down to the high water mark (360' PD contour) resulting in a significant loss of terrestrial resources. The upland habitat located above the 360' PD contour interval along the Lake Murray shoreline is characterized by vegetation typical of southern Piedmont hardwood forests. It is dominated by a combination of woody tree and shrub species, including both pioneer and climax species. The most common tree species is loblolly pine, which is a quick and dominating colonizer in disturbed, well-drained sites. This tree is also prized by the regional forestry industry and its growth is managed in various areas (Mead and Hunt, 2000). In areas not managed for this pine, succession to deciduous tree species, particularly oaks, sweetgum, and hickory, typically occurs. These upland forested areas function mostly in support of forestry, wildlife or game management, fisheries, water quality, shoreline stability and recreation or aesthetic values.

In addition to these forested areas, the land surrounding Lake Murray contains areas below the 360' PD contour that have been identified by SCE&G as Environmentally Sensitive Areas (ESA). ESAs consist of habitat areas known to be occupied by rare, threatened, or endangered species; rare or exemplary natural communities; significant land forms or geological features; wetlands and shallow coves; and other areas determined to be critical to the continued existence of native species, such as spawning and nesting habitat. The ESA designation is a resource tool in consideration of management alternatives and establishment of management objectives (SCE&G, 1994). Originally, ESAs were documented and described in detail by SCE&G in response to a 1991 FERC *Order to Amend the Land Use and Shoreline Management Plan* (SCE&G, 1994; FERC, 1991). Since then, the ESAs have been resurveyed and their classifications have been revised (2006). Because the original inventory provided extensive information on botanical resources

of the ESAs, it is used in the descriptions below. A summary of the recent ESA survey and classification system is provided in Section 6.3.

In the 1994 inventory undertaken by SCE&G, ESAs below the 360' PD high water contour were classified into 11 habitat types (SCE&G, 1994). They included ten vegetated classes, and two unvegetated classes (e.g., shallow shoals and rocky shores having littoral buffer or fishery values). The vegetated classes are described below.

Mature hardwood forest – The riparian slopes in the upper region of the lake are characterized by mature oak-dominated forest with a diverse and dense canopy and sub-canopy layer, and a sparse herbaceous layer (SCE&G, 1994). Lower slopes have white oak, red oak, swamp chestnut oak, red maple, American beech, and sweet gum. Higher slopes are dominated by chinkapin oak, southern red oak, red oak, white oak, shagbark hickory, and red cedar. These forests are important mainly as wildlife habitat.

Islands – Numerous islands exist within the project and support a variety of plant communities depending on elevation and land-use history. They range in character from open habitat with scattered trees and shrubs over a dense herbaceous layer of grasses and forbs; to upland pine/hardwood forested islands with closed canopies and no herbaceous layer; to riverine islands of bottomland hardwood forest wetlands (see description below for bottomland forest). These islands provide important wildlife habitat for a number of species and are a major recreational and aesthetic resource for the lake.

Shallow coves – These areas consist of palustrine emergent wetland habitat that occurs in the zone between the 354' PD contour interval to about 6 feet below annual mean high-water mark on flats and gentle slopes. They provide shallow water habitat or exposed shoreline habitat, depending on water level and time of year, but are generally inundated or saturated from late winter through spring. Shallow coves support an assemblage of forbs,

grasses, sedges and rushes, and are important spawning habitat form most of the lakes centrarchid species (bass, crappie, and sunfish).

Buttonbush and willow flats – These areas generally occur in shallow coves and consist of palustrine scrub-shrub wetland habitat along the lake fringe. Although composed predominantly of buttonbush and black willow shrubs, this habitat may also support persimmon and water willow. The dense root system provided by the shrubs effectively reduces the effects of erosion caused by wave action and function to stabilize the lake shoreline. They also provide important spawning habitat for centrarchids, and shelter for larval and juvenile fishes.

Bottomland hardwood – This forested wetland habitat can be found within the riparian zone around the entire lake, particularly at the confluence with tributaries. In the upper portion of the lake, it occurs on riverine islands or lakeshore between wet flats and upland forest. In the lower lake sections, it lies between shallow coves or buttonbush/willow flats and upland forest. These forests are dominated by a variety of southern red oak but also include swamp chestnut oak, willow oak, water oak, shumard oak, and sweet gum. Understory may include red maple, American hornbeam, and swamp dogwood, with herbaceous species including switch cane and sedges. This forested wetland habitat is important foraging and nesting habitat for many wildlife species. It also performs runoff filtration and sedimentation functions, which help buffer the lake and protect water quality.

Exposed bars – Exposed bar areas occur in the upper section of the lake and are associated with the riverine islands. They are remnants of the old river system and consist primarily of sand and larger substrate deposited along the river banks during flood events - before the Saluda River was impounded. Exposed bars are still heavily influenced by river currents and the inflow of nutrients, and are inundated during most of the year. They are classified as wetlands under the National Wetlands Inventory (NWI) mapping system. The plant community is dominated by grasses that colonize the sediment deposits

between larger substrate. Upstream portions of the bars usually have limited fish habitat due to high water velocity and nutrient loading in the upper portion of the reservoir. The more protected downstream areas of the bars offer more favorable spawning locations for nest-building bass, crappie, and sunfishes.

Water tupelo stands – Small, monotypic stands of water tupelo (*Nyssa aquatic*a), a type of forested wetland community, occur in the upper section of the lake in low wet flats. These wooded wetland areas are consistently inundated and lack a shrub layer although swamp beggar-tick grows on the trunks of the trees at or just above the high water mark and false pimpernel is found in areas with exposed substrate (SCE&G, 2005). These stands are unique because they are the northern most occurrences of water tupelo known to exist in the Saluda River.

Wet flats – This forested wetland type exists between the bottomland hardwoods and the shallow coves, and has two distinct forest cover types depending on elevation. Low wet flats have canopies dominated with sweet gum, green ash, American elm, overcup oak, water hickory, red maple, sugarberry, water tupelo, and sycamore. It has an open shrub layer, mostly buttonbush and deciduous holly, with a patchy herbaceous layer. Slightly higher flats are dominated by willow oak and sweet gum, red maple, sugarberry, tulip poplar, and loblolly pine. The shrub layer is dominated by holly, whereas switch cane dominates the herb layer. The wet flats are important habitat for migratory waterfowl and provide prime feeding areas when submerged.

4.4.2 Invasive Aquatic Vegetation

Like many lakes in the Piedmont, Lake Murray suffers from infestations of nonnative aquatic plants. Of particular concern is hydrilla (*Hydrilla verticillata*), which is considered a noxious aquatic weed by both the USDA and SCDNR. This species inhabits the littoral and near littoral zone (7 to 15 feet) and is an aggressive and swift colonizer. One factor for hydrilla's success is the multiple modes through which it reproduces. Not only does hydrilla spread through seeds, it also reproduces through tubers, plant fragments, and turions (overwintering buds). Boat traffic and waterfowl also contribute to the spread of populations throughout bodies of water (Access Washington, 2004).

Following its discovery in Lake Murray in 1993, hydrilla infestation increased rapidly in various locations around the lake. Its populations and spread was subsequently controlled cooperatively by SCE&G and SCDNR using water level drawdowns and chemical treatment (Mead and Hunt, 2000). Currently, hydrilla populations appear to be declining further due to introduction of triploid Chinese grass carp to the lake. Grass carp forage almost exclusively on aquatic plants and can drastically reduce the biomass of invasive plant species in a system. In 2003, 64,500 grass carp were stocked in Lake Murray and provided excellent control of hydrilla, which has continued through 2006, when surveys failed to identify direct evidence of hydrilla growth.

4.4.3 Wildlife Resources and Habitats

The Lake Murray shoreline contains wildlife habitat and a diverse assemblage of wildlife species. Many of the species that occur in the Lake Murray area are typical of forested second-growth and woody successional habitats of the Piedmont region. Such species include wild turkey, white-tailed deer, raccoon, gray squirrel, opossum, and gray fox. Terrestrial areas also support a variety of resident and migratory birdlife including songbirds,

woodpeckers, raptors, and upland game birds. Typical species include red-tailed and red-shoulder hawks, bobwhite quail, mourning dove, American robin, eastern bluebird, pileated woodpecker, and meadowlark. The project area also supports an abundance of terrestrial reptiles and amphibians including eastern box turtle, green anole, broad-headed skink, gray rat snake, southern toad, green tree frog, and marbled salamander (SCE&G, 2005; Mead and Hunt, 2000).

The abundant open- and shallow-water habitats within the project area support a variety of aquatic and semi-aquatic wildlife such as beaver, river otter, muskrat, and possibly mink. Shallow, often vegetated areas in creekmouths, backwaters, and along reservoir shorelines are used for foraging and cover by migratory and resident waterfowl and wading birds (e.g. wood duck, great blue heron, great egret). These areas also provide important breeding habitat for most amphibian species (e.g. marbled salamander, red salamander, bullfrog), and year-round habitat for aquatic reptiles (e.g. red-bellied water snake, brown water snake, musk turtle). Open water areas are often utilized by such species as bald eagle, kingfisher, osprey, and various gulls for foraging (SCE&G, 2005).

A particularly notable wildlife habitat exists at Lunch Island on Lake Murray, also known as Doolittle or Bomb Island, which is one of the largest pre-migratory roosting sites for purple martins in the United States (Russell and Gathreaux, 1999). The purple martin is a neotropical migrant, meaning that it migrates annually from its normal range in South America, the West Indies, and portions of Central America, northward to breeding grounds across North America (Brown, 1997). Each year this species uses Lunch Island during the summer months as a breeding site and communal roost. Congregations may number up to 800,000 individuals at this time (Mead and Hunt, 2000). As a result, SCE&G, SCDNR, and the Columbia Chapter of the National Audubon Society have designated the eastern end of the island as North America's first purple martin sanctuary (SCE&G, 2005).

4.4.4 Rare, Threatened, and Endangered Species

An assessment of federally listed rare, threatened, and endangered (RT&E) species was conducted in support of relicensing the Saluda Project. This RT&E Report is included in the Final Application for New License for the Project, and indicates that only two species have the potential of occurring in the Lake Murray area (within the PBL). They consist of two birds: the bald eagle and the wood stork. Recently, the bald eagle was removed from protection under the Endangered Species Act of 1973 (ESA) (72 Fed. Reg. 37345, 37372). However, it is still protected under the Bald and Golden Eagle Protection Act of 1938, as well as by the State of South Carolina. The wood stork is protected both federally, under the ESA, and by the State of South Carolina. Although there are several more RT&E species known to occur within the four counties where the Saluda Project is situated (Lexington, Richland, Saluda, and Newberry), the habitats necessary for their support are absent within the Project boundaries (SCE&G, 2005). Brief descriptions of the bald eagle and wood stork follow.

Bald eagle (*Haliaeetus leucocephalus*) Federally Protected, State Endangered – This large raptor is found throughout North America, typically around water bodies, where they feed and scavenge primarily on fish and carrion. Eagles nest in large trees near water and typically use the same nest for several years, making repairs to it annually (Degraaf and Rudis, 1986). Bald eagles have used Lake Murray for foraging and nesting since its construction in 1930, with peak usage likely occurring during the winter months. A substantial increase in nesting activity and productivity (young produced) by bald eagles on Lake Murray has been documented between 1996 and 2003 (Wilde et al., 1996; Wilde et al., 2003).

Wood stork *(Mycteria Americana)* Federally Endangered, State Threatened – These colonially-nesting birds feed in flocks around freshwater and brackish wetlands along the coastal plain (USFWS, 1996). They typically use tall cypresses or other trees near waterbodies for colonial nest sites.

Storks feed primarily on small fish. They capture prey using sense of touch, or tactilocation. They are particularly drawn to depressions where fish become concentrated during periods of falling water levels (USFWS, 1996). Declines in wood stork populations are attributed primarily to loss of suitable foraging and nesting habitat.

Currently, nesting of the species in the U.S. is thought to be limited to the coastal plain of South Carolina, Georgia, and Florida (USFWS, 1996). Wood stork activity has been reported by local residents at several locations within the Lake Murray area since approximately 1999 (Personal Communication, E. Eudaly, USFWS, August 2004 in SCE&G, 2005). Aerial surveys conducted during the summer of 2004 documented approximately 60 storks feeding at various locations in the middle Saluda River area and the upper portion of Lake Murray (SCE&G and Kleinschmidt, 2004a). SCE&G, in coordination with the USFWS and SCDNR, has initiated a 5-year study to document wood stork use within the Saluda PBL and in the Project vicinity (SCE&G and Kleinschmidt, 2004a). Results of the first two years of the five-year study (2005-2006), have failed to identify use of the Project area by wood stork. Further, it is suggested that the 2004 sighting of a large group of individuals feeding in Lake Murray was an atypical event, and likely attributable to the favorable feeding conditions created by the drawdown of the lake during construction of the Saluda Backup Dam. The USFWS and SCDNR concurred that use of the area by woodstorks was limited to post-dispersal/ feeding activities and that no critical rookery or similar habitats were utilized within the project area (Kleinschmidt, 2007).

4.4.5 Cultural Resources

In recent years, numerous archaeological and historical studies have been conducted within the Project boundary: Trinkley and Southerland (2001), Hendrix and Bailey (2003), Lansdell and Bailey (2003), Norris et al. (2005), and Green et al. (2007). The most recent of these, Norris et al. (2005) and Green et al. (2007), represent the most comprehensive survey of cultural

resources within the Area of Potential Effect (APE). As a result of these studies, 156 archaeological sites, 42 isolated finds, and eight aboveground historic resources were investigated. Of these resources, three archaeological sites and one historic structure were determined eligible for inclusion in the National Register of Historic Places (NRHP). In addition, seventeen other archaeological sites were determined to be potentially eligible for the NRHP. The remaining 136 archaeological sites, seven surveyed structures, and 42 isolated finds were determined ineligible for the NRHP and no additional work is necessary in these areas (Green et al. 2007).

Currently, SCE&G has worked with all relevant agencies, including the State Historic Preservation Office and any federally-recognized Indian tribes that have a traditional connection to the land, to form Historic Properties Management Plan (HPMP). The HPMP is designed to provide appropriate protection to historic resources and archaeological sites during the life of the Project License. The HPMP will include provisions for future consultation in the event of discovery of previously unrecorded cultural resources and will outline the necessary steps to allow compliance with Section 106 of the National Historic Preservation Act.

4.4.6 Land Use and Aesthetics

Land uses for the Project area consist of residential, commercial, recreation, and conservation uses. In order to guide Future Development and land management, there is a Land Management Classification system that classifies all project lands according to their approved uses. See Section 6.0 for an explanation of this system. Richland and Lexington Counties are among the most densely populated counties in the state. Lexington County, in particular, is served by several major transportation routes connected to the capital city (South Carolina Association of Counties, 2004). Due to its close proximity to the Columbia Metropolitan area, Lake Murray provides a primary source for recreation to the surrounding communities as well as to visitors of the state.

Lake Murray is characterized by an irregularly shaped perimeter with numerous peninsulas, inlets and islands; most of which are either developed or forested. It is the fifth largest lake in South Carolina, following Lakes Marion, Thurmond, Hartwell, and Moultrie. Since the lake's development in 1930, it has become a valued recreational destination for both residents and tourists. During the early 1970s, development pressure on the lake began to increase significantly. Today, residential and commercial developments, Project operations, and recreation properties make up a large part of the shoreline.

The eastern, main body portion of Lake Murray affords an expansive view over several miles of open water and a few large inlets. The shoreline is sporadically tree-covered and interspersed with extensive development, ranging from individual private docks and large houses to marinas, landings, and park sites. A few large forested islands are located in the main body of the reservoir. The light to moderate tree covered shoreline and the lake's forested islands dominate most distant views across the open water and soften the contrasting view of shoreline development (FERC, 2002). The Project's dam and five large intake towers are clearly visible from the main body of the reservoir.

The western portion of the lake branches out into narrow arms that extend up into many drainage ways and creeks. Views in this area are varied and reduced by the encroaching shoreline and the increased number of small coves, creek beds, and drainage ways. Overall, the western shoreline contains less intensive development and more trees and vegetation than the main body of the reservoir. Much of the development in this area includes individual private boat docks and small houses. Typically, the upper ends of the coves in this area are narrow, undeveloped, and heavily vegetated.

Highway 6, a state highway with north and southbound lanes, traverses both dams and provides a generally pleasing view of the open water and distant reservoir shoreline.

During normal water levels, portions of the lake bottom along the periphery of the reservoir shoreline and islands and bars are exposed. At elevation 350' PD, the reservoir has a surface area of about 40,066 acres and about 10,800 acres of lake bottom is exposed. The lake bottom appears as a dark band of organic substrate around the periphery of the reservoir and around islands and bars. Exposed aquatic vegetation, tree stumps, and woody debris are present throughout much of the dewatered area. In general, the shoreline around the main body of the reservoir, including the back ends of small coves, has a gentle gradual slope. The shoreline along upper reaches of the lake, including the longer, narrower coves and inlets, tends to have moderate to highly steeped slopes.

4.4.7 Recreation Facilities and Use

Numerous private, public, and commercial recreation sites have been developed around the shoreline of Lake Murray. There are numerous formal recreation sites dispersed around Lake Murray that support boat launches, marinas, boat slips, wet and dry storage, campgrounds, picnic areas, beaches, fishing areas and piers, trails, and playgrounds. Fifty-seven sites around the lake are operated privately and are available to limited membership. Many of the private marinas and landings exist in conjunction with subdivisions located around the lake, private clubs, or condominium associations. There are 15 public access sites on Lake Murray, 11 of which are boat launch sites. One site, Dreher Island, is a State Park and is the only site to offer both day use opportunities such as boat launches, picnic facilities, and beaches, and overnight uses such as camping and villa rentals. Commercial sites around Lake Murray offer significant lake access and services to the public, and include marinas, campgrounds, restaurants, cabins and resorts. There are 30 public marinas and landings dispersed along Lake Murray that typically provide boat ramps and launching facilities, fuel services, groceries and food, boat sales, rentals and/or repair, bait and tackle, and boat storage (SCE&G, 2007).

According to the 2006 Recreation Survey, Lake Murray supported an estimated 316,810 recreation days from data gathered at SCE&G public access areas during the period from May 27 (Memorial Day) through September 30, 2006 (SCE&G, 2007). Lake Murray supports both land and water-based recreational opportunities although water-based activities are most common. Fishing and boating are the most popular activities of users of Lake Murray and the lake is widely known to be a superb fishing locale (SCE&G, 2007). Lake Murray is host to numerous national and local fishing tournaments, most of which are hosted at Dreher Island State Park. In addition, the lake is used as a focal point for holiday and tourist events.

The shoreline around Lake Murray is used primarily to access the lake water; land-based activities are considerably less common than are water-based activities. However, there are a few notable recreational opportunities afforded by Project lands. Along the western section of Lake Murray, there are approximately 6000 acres leased to the S.C. Department of Natural Resources as part of the statewide Wildlife Management Areas Program, which provide hunting opportunities to the general public. Around Lake Murray, hunting is primarily focused on waterfowl species including mallard, scaup, and ring-neck duck; Canada goose; and coot (SCWA, 2007). In addition, bird watching at Lunch Island (a.k.a. Bomb Island) is a unique experience due to the fact that the island hosts one of the largest documented roosting colonies of purple martins in the country. It is the first designated sanctuary for this species in North America. Also, picnicking, sightseeing, and camping are supported at a variety of sites, both informally and at designated locations such as Dreher Island State Park. All project lands excluding those used for project operations are open and available for public recreational opportunities.

5.0 HISTORY OF THE LAKE MURRAY SHORELINE MANAGEMENT PLAN

Construction of the Saluda Hydroelectric Project was started in 1927 by the Lexington Water Power Company. Construction was completed in 1930, and the Lexington Water Power Company was issued a 50-year operating license by the Federal Energy Regulatory Commission. The license was transferred to SCE&G in 1943. Since that time, several advancements have been made in the management of project lands. These milestones are summarized in Table 5-1, and described in the following sections.

The 1940s and 1950s saw increased development pressure along the shoreline of the land such that by the mid-1970s, FERC hosted hearings to identify the effects of development on public use of project lands and waters. In 1979, FERC ordered SCE&G to prepare a shoreline management plan (7 FERC ¶ 61,180). SCE&G subsequently filed the project's first shoreline management plan with FERC, which included five general land classifications and seven sub-classifications and associated mapping. The plan identified permissible uses for each land classification, control measures for environmental protection, and conveyance conditions to be attached to any interests in project lands that are sold. This plan was designed to compliment an already existing program for permitting docks, marinas, launching facilities and other shoreline development. The plan has been reviewed and modified since initial implementation.

FERC approved the plan in 1981 (16 FERC ¶ 62,479), and in doing so, required SCE&G to examine future use of project lands in consultation with agencies. SCE&G complied with this order in 1983, recommending no amendments to the plan at that time, but committed to review the plan every five years, in consultation with appropriate state and local agencies. When the project's new license was issued in 1984 (27 FERC ¶ 61,332), the shoreline management plan was included as part of Exhibit R.

Table 5-1: Lake Murray Land Use Management Plan Milestones

		1927	Lexington Water Power Company is issued a license by the Federal Power Commission for the construction of the Saluda Hydro Project.
Lexington Water Power Company merges with SCE&G. SCE&G acquires license to the Saluda Hydroelectric Project.	1943		
		1979	FERC orders SCE&G to prepare the Project's first shoreline management plan.
First Land Use Management Plan for Lake Murray is approved. The plan must be updated every 5 years.	1981		
		1984	Land Use Management Plan is incorporated into new project license.
First update of Land Use Management Plan approved as part of the 5-year review cycle.	1991		
		1994	Second update of Land Use Management Plan approved, which includes a GIS database created by SCE&G to facilitate land management.
Third update of Land Use Management Plan is approved as part of the 5-year review cycle.	2004		
		2004	SCE&G initiates relicensing activities for the Saluda Project. A special team is created to assist in review of the Land Use Management Plan.
Woody Debris Management Plan takes effect, to support Land Use Management Plan. Submittal of ESA Inventory of Easement Property per FERC Order, June 23, 2004.	2006		
		2007	Erosion and Sediment Control Plan takes effect, to support Land Use Management Plan.
Rebalancing process results in modification of land management classifications.	2007		
		2009	SCE&G Submits the fourth update of the Shoreline Management Plan as part of the new license application.

Saluda Hydroelectric Project (FERC NO. 516). Dates shown represent the dates of FERC orders of approval.

5.1 Past SMP Reviews

During 1988 and in consultation with agencies, SCE&G engaged in an extensive review of the Shoreline Management Plan, that included discussions on re-balancing shoreline uses, detailing additional shoreline management goals, defining criteria for review of permit requests, and identifying information needs for and associated data collection requirements. SCE&G subsequently filed an application for license amendment on January 2, 1990, with the results of this consultation, which comprised the first five-year review. In the application, SCE&G proposed to reclassify selected lands in support of the development of new recreation sites, and transfer of lands from those reserved for Future Development to forest management. In addition, SCE&G proposed to modify procedures for reviewing and processing permits, and introduced a proposed water quality monitoring program. The revised shoreline management plan was approved in 1991 (56 FERC ¶ 62,194) with the requirement that SCE&G inventory shoreline properties and propose revisions for better management of Future Development and public recreational needs, and to ensure protection of environmental resources.

During their second five-year review in 1994, SCE&G made significant improvements in land management with the development of a GIS database for project lands. This database allowed better mapping and a more comprehensive inventory of project lands. The inventory was filed in late 1994 and was approved by FERC in 1997 (Letter dated September 22, 1997).

The third five-year update occurred in 2000. Again, revisions to the shoreline management plan were recommended. These included refinements to the common dock policy, boatlift restrictions, slip dock requirements, new flotation requirements (for encapsulated flotation), establishment of Environmentally Sensitive Areas, revisions to silviculture practices within the forest management classification, and re-balancing land use classifications. After provision of additional information to FERC in 2002, FERC issued an Environmental Assessment on the proposed shoreline management plan update in 2003 and subsequent approval of the revised plan in June of 2004 (107 FERC ¶ 62,273). In approving the revised plan, FERC required

SCE&G to accomplish the following: prepare a sedimentation and erosion control plan; identify and protect intermittent streams on lands classified for future development; update the list of environmentally sensitive areas; prepare a woody debris and stump management plan for areas classified as Future Development; establish a procedure for land reclassification (part of rebalancing); prepare a Buffer Zone restoration plan; identify and designate wood stork roosting and foraging habitats as natural areas; establish Two Bird Cove and Hurricane Hole Cove as special recreation areas; and designate waterfowl hunting areas. In the above stated order, FERC required in Ordering Paragraph F that re-balancing of shoreline uses to take place during the comprehensive relicensing process.

In addition, FERC required SCE&G to file a comprehensive consolidated shoreline management plan as part of its relicensing application (109 FERC ¶ 61,083). FERC further stated that during prefiling consultation SCE&G was to inventory all developed shoreline within the project boundary for structural encroachments and determine if the property is still needed for project purposes.

5.2 Current Document

This document, submitted in conjunction with SCE&G's license application, represents a consolidated, comprehensive shoreline management plan for project lands surrounding Lake Murray. Land use classifications have been consolidated and renamed to simplify the management plan and clarify its intent, while adhering to the historical management prescriptions agreed to and developed with agencies and stakeholders.

5.2.1 Rebalancing

In fall of 2006, the Lake and Land Management TWC began discussing reclassification of project lands according to more appropriate, updated land use designations; a process called "land rebalancing." In particular, the group sought to reevaluate and reclassify lands to better balance the distribution of developed and undeveloped lands on the project shoreline.

Roughly 60 percent of the project shoreline is considered developed, and most of that development is on the mid to downstream section of the lake. Rebalancing allowed SCE&G to protect remaining, selected lands identified as providing recreation, natural resource and scenic values.

The focus of the rebalancing process was to determine the appropriate land use classifications of primarily Future Development parcels based on their suitability to serve overall Project needs and purposes. Examples of functions that serve Project purposes are public recreation access and opportunities; flowage maintenance; shoreline control; aesthetics; and the protection of environmental resources including fish and wildlife habitat.

During rebalancing, the Lake and Land Management TWC sought to consider relevant interests, including economics, wildlife and fisheries, and recreation, among others, when assigning new land use classifications. When possible, some members of the TWC emphasized preservation of large, contiguous blocks of lands to minimize land use fragmentation. The rebalancing process began with creation of two sets of evaluation criteria to numerically score land parcels according to economic and natural resource considerations. Aerial photos were used to assess the parcels and assign scores. The following table lists the factors that were agreed to provide the best basis on which to evaluate the land parcels (Table 5-2).

Table 5-2: Rebalancing Evaluation Criteria for Lands Reserved for Future Development on Lake Murray

NATURAL RESOURCE VALUE FACTORS	ECONOMIC VALUE FACTORS
Fish spawning and nursery habitat	Local government interests (property tax revenue, recreation, economic growth, etc.)
Length of shoreline	SCE&G interest (land sale value, recreation, ESA)
Mean width of lands reserved for future development	Back property owners interest (lake access, dock permit, developmental potential)

NATURAL RESOURCE VALUE FACTORS	ECONOMIC VALUE FACTORS
Waterfowl hunting opportunity	Proximity to utilities
Regional importance	Proximity to road access
Land use (amount of natural habitat present)	Proximity to amenities (fire protection, schools, groceries, etc.)
Recreational values	Water usability and topography for boating
Adjacency (to undeveloped land)	Market value
Environmentally sensitive areas and other natural areas	Size/width
Unique habitat, threatened or endangered species	Dock qualifications

Source: (Meeting notes 1-26-2007)

Rebalancing Project lands as ordered by the FERC has resulted in the reclassification of approximately 1135 acres of SCE&G owned lands along approximately 40 miles of shoreline. In addition, approximately 658 acres are being brought into the project for Public Recreation, and approximately 2754 acres of non project property that borders the PBL will made available to the public for public recreation. Rebalancing has resulted in protecting from development almost 9,200 acres of land and 185 miles of currently undeveloped shoreline. These lands are identified as natural areas, recreation, and forest management. A summary of the acreage and mileage of lands rebalanced can be viewed in Table 5-3 and Table 5-4. Descriptions of the shoreline management classification structure and the lands within each classification are provided below.

Table 5-3: Rebalancing Summary in Miles

	NATURAL AREAS	RECREATION	FOREST MANAGEMENT	AREAS LEASED TO SCDNR
Lake Murray Protected Shoreline	22.58	47.03	109.59	
Non-Project Lands				
LSR Lands		5.8		
Sub-totals	22.58	52.83	109.59	
Grand Total of Protected Shoreline Miles: **185 Miles**				

Table 5-4: Rebalancing Summary in Acres

	NATURAL AREAS	RECREATION	FOREST MANAGEMENT	AREAS LEASED TO SCDNR
Lake Murray Protected Acreage	506.23	955.17	3776.39	
Non-Project Lands		658.2		2754
LSR Lands		540.86		
Sub-totals	506.23	2154.23	3776.39	2754
Grand Total of Protected Lands on Lake Murray and the LSR: **9190.85 Acres**				

5.2.2 Project Boundary

It has been the standard practice of SCE&G, dating back to before the first shoreline management plan, to retain lands sold for private development within the project boundary. Except for the removal of the property below the project dam that accommodates the McMeekin Steam Station and lands used for the construction village, the project boundary remains basically the same as it was established under the Project's initial license issued in 1927.

Though transfers of interest in project lands for non-project uses do not necessarily require the project boundary to be redrawn, it is generally preferable for private residential development to be excluded from the project boundary unless the lands are clearly needed for project purposes. In 2004, FERC ordered (109 FERC ¶ 61,083) that during pre-filing consultation in its relicensing proceeding, SCE&G was to inventory all developed shoreline within the project boundary for structural encroachments and determine if the property is needed to serve the project purpose.

After consultation with legal counsel, and performing the required inventory of the developed shoreline properties, SCE&G determined that removing from the Project boundary shoreline properties which have been sold may detrimentally affect flowage rights on some or all of the properties in question, and could expose SCE&G to additional liability should the

reservoir surcharge at some future time due to flood conditions beyond SCE&G's control.

6.0 LAND MANAGEMENT CLASSIFICATIONS

To identify and redefine land management classifications, the TWC analyzed existing resources and land use patterns adjacent to the Lake Murray shoreline. The TWC also evaluated existing classifications established in previous SMP efforts to determine where redefinition and/or new classification might be more relevant to current and anticipated development patterns and uses. Existing land use patterns reflect areas where particular types of facilities and activities are concentrated. The TWC identified five distinct land management classifications consisting of Forest Management, Public Recreation, Natural Areas, Project Operations, and Multi-purpose. Multi-purpose is further divided into four sub-classifications: 75' Buffer Zone, commercial, easement, and Future Development. The acreages and parcels for each of the classifications are provided in Table 6-1.

Table 6-1: Shoreline Miles and Acreages by Land Use Classification Following Rebalancing
Source (SCE&G, 2008)

CLASSIFICATION			SHORELINE MILES	ACRES
Public Recreation			47.03	955.17
Forest Management			109.59	3,776.39
Natural Areas			22.58	506.23
Project Operations			1.63	1,057.53
Multi-purpose:	Miles	Acres	474.72	9,583.45
75' Buffer Zone	29.95	263.77		
Commercial	6.05	114.28		
Easement*	387.61	8,247.22		
Future Development	51.11	958.18		
		Total	655.55	15,878.77

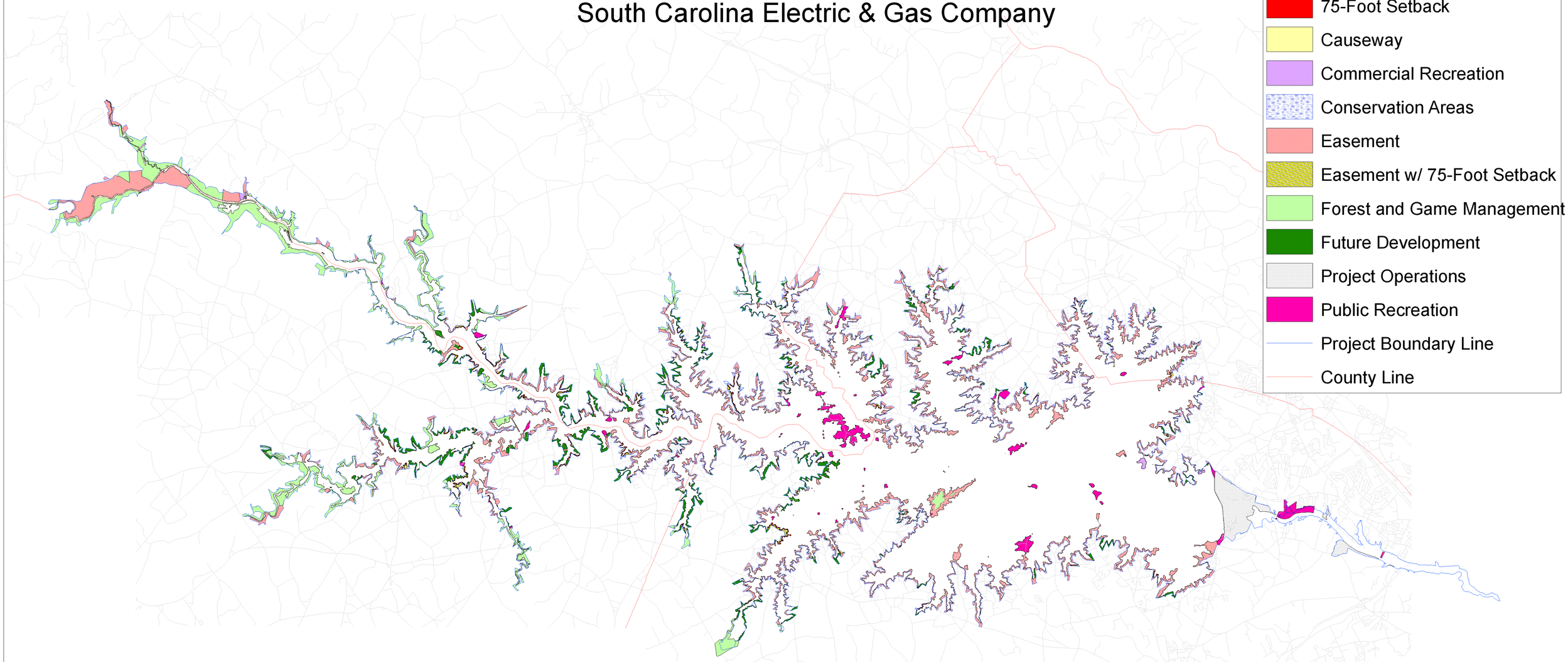
*Easement property values include mileage and acres associated with causeways

Although SCE&G aims to manage their lands according to this classification system, the public has the right to access SCE&G-owned lands regardless of classification, with the exception of lands reserved and used for Project operations. The sections below explain/define the land management classifications. Figure 6-1 depicts their distribution around the lake. Section 7.0 describes management prescriptions for SCE&G-owned lands within each classification.

Figure 6-1 Shoreline Classification Map

Classification Map

Saluda Hydroelectric Project No. 516
South Carolina Electric & Gas Company



SCE&G® A SCANA COMPANY

1 inch equals 1 mile

6.1 Forest Management

SCE&G manages forest resources on its lands that are available for public recreation, although recreation is only one of several uses for these lands. These lands have been set aside for timber management and compatible recreation, scenic, aesthetic, watershed quality and wildlife habitat purposes. SCE&G forest resources are managed according to the South Carolina Forestry Commission's Best Management Practices. SCE&G restricts its timber management operations in certain areas, such as on cliffs or steep slopes, or in atypical groups of trees. Limited dock access may be allowable on Forest Management property under very specific situations as determined by SCE&G Lake Management (see Permitting Handbook).

6.2 Public Recreation

Project lands under this classification serve as recreational resources for the public and include areas that are managed expressly for recreation as well as those with recreation as a secondary usage. Public recreation lands include the following:

- State parks;
- Public beaches, public boat launches, and other areas currently being managed as public access;
- Islands owned by SCE&G;
- Properties owned by SCE&G that are set aside for future recreational development.

The following areas are also available for recreation as a secondary usage:

- Forest management lands leased to SCDNR as part of the statewide Wildlife Management Area (WMA) Program that are open to the public for hunting or other recreational activities. These areas may also be managed for timber production, recreation, wildlife habitat, new timber growth, and quality watershed conditions. For additional

information on these areas please visit the SCDNR website at www.scdnr.gov;

- Forest management lands managed by SCE&G for timber production, recreation, wildlife habitat, new timber growth, and quality watershed conditions.

6.3 Natural Areas

Natural areas consist of lands that warrant special protection because they provide important habitat for various wildlife species, including the recreational fishery. Large wetland areas, areas protected because they have cultural and/or historical significance, and may contain Environmentally Sensitive Areas (ESA)'s. Natural Areas consist of 22.58 miles of shoreline encompassing 506.23 acres within the Project boundary.

ESAs are areas that have been designated as warranting special protection because they contain one or more of a variety of characteristics. They consist of habitat areas known to be occupied by rare, threatened, or endangered species; rare or exemplary natural communities; significant land forms and geological features; wetlands and shallow coves; and other areas determined to be critical to the continued existence of native species, such as spawning and nesting habitat. SCE&G identifies and evaluates Natural Areas, including ESAs. As SCE&G identifies these special areas, it transfers the lands from other land management classifications to the Natural Areas classification where SCE&G retains and protects them.

Since their first inventory in 1994, the classification of ESAs has undergone revisions. The latest survey for ESAs occurred in 2005, in response to FERC's June 23, 2004, (107 FERC ¶62,273) Order requiring that SCE&G update the list of ESAs at the Saluda Project (ordering paragraph 'D'). At this time, SCE&G submitted an updated set of ESA maps identified during surveys conducted by SCE&G and SCDNR representatives (USFWS was invited but could not attend). Mileage for the surveyed ESAs is provided in Appendix F.

During the current relicensing process, the Lake and Land Management TWC further refined the ESA classifications and developed descriptions aimed at facilitating the identification and management of areas requiring ESA protections. They consist of the following four groupings:

- Continuous Vegetated Shoreline - Continuous vegetated linear shoreline at least 66 feet in length with vegetation greater than 5 feet wide measured perpendicular to the shoreline. The vegetation community is primarily buttonbush and willow species, as described in Section 4.4.1.
- Intermittent Vegetated Shoreline - The vegetation community is also primarily buttonbush and willow species (as described in Section 4.4.1). This class can have gaps that are between 8 and 20 feet in length with little or no vegetation below the normal high water mark (360' PD contour). Areas with gaps larger than 20 feet in length are termed "breaks" and will not be considered vegetated shoreline.
- Shallow Coves with Stream Confluence - Includes areas where streams enter the lake and form coves where lake water are predominately above the 355' PD contour line. The upgradient portion of shallow coves is typically vegetated with buttonbush and willow. Where this overlap occurs, shoreline will be given a vegetative shoreline classification. The vegetation community is described under Shallow Cove in Section 4.4.1.
- Bottomland Hardwood and Wet Flats - Continuous linear shoreline coverage of bottomland hardwood and wet flats at least 66 feet in length (see Section 4.4.1 Terrestrial Resources for definitions of Bottomland Hardwood and Wet Flats).

6.4 Project Operations

Areas under this classification include SCE&G-owned and managed lands required for operation of the Saluda Project. Public access to these lands is restricted to ensure public safety or to assure the security of the infrastructure system.

6.5 Multi-Purpose Development

Project lands under this classification include lands owned by SCE&G as well as lands that have been sold by SCE&G but which remain within the PBL. Generally, SCE&G divides them into four general types: a) easement, b) commercial c) Buffer Zone, and d) Future Development lands.

6.5.1 Easement

This sub-classification includes lands that SCE&G has sold/or has never owned but holds and retains easements on within the PBL. These lands may support a variety of uses including privately run commercial ventures, residential developments, and causeways. Easement property may or may not be developed at this time. They include the following:

- Single and multi-family residential developments;
- Residential docks and trails or paths used for shoreline access;
- Private undeveloped, non-residential lands;
- Privately owned, for profit, commercial recreational facilities (*e.g.* campgrounds etc.); and
- Privately-owned industrial facilities.

6.5.2 Commercial

This sub-classification includes the following:

- Commercial and private marinas and boat clubs (for-profit and nonresidential);
- Commercial RV parks, hotels, resorts, bait shops, boat tours, etc.;
- Restaurants, eateries and bars with shoreline access such as docks, decks, etc.;
- Golf courses with lake access facilities;
- Industrial facilities; and
- Commercial docks, boat ramps, bulkheads, and other supporting facilities.

6.5.3 Buffer Zone (previously known as the 75 – Foot Setback which was est. between 1984-2007)

The 1984 FERC license order required SCE&G to maintain ownership up to a 75-foot-wide[1] Buffer Zone between the 360' PD contour (high water mark) and the adjoining back property line (Project boundary line). Buffer Zone lands are protected under the SCE&G permitting program as vegetated areas. The goal is to protect and enhance the Project's scenic, recreational, and environmental values in the area bordering the Lake Murray shoreline. These areas serve many functions including trapping and filtering runoff and contaminants, providing habitat and woody debris for fish and wildlife species, reducing bank erosion, and preserving the shoreline's scenic and recreational values.

[1] There are some areas where the width of land between the 360' PD contour and the PBL is less than 75', and thus the buffer zone is less than 75'.

SCE&G delineates and documents the Buffer Zone as part of the sale of "Future Development" properties. The Buffer Zone is the property between the 360' PD contour and the adjoining back property line. The Buffer Zone classification applies only after a land sale. That is, as land is sold from Future Development, the adjoining retained SCE&G land is placed in the Buffer Zone sub-classification.

Management of the land within the Buffer Zone depends on the purchase date of the adjoining property and establishment of the setback. After issuance of the 1984 license, SCE&G placed particular restrictions on the Buffer Zone, which have been revised with the submittal of the current SMP. More information on management restrictions for the Buffer Zone is provided in the Section 7.1.3.

6.5.4 Future Development

Lands classified as Future Development are SCE&G-owned and located between the 360' PD contour and the PBL. They are generally undeveloped and may be saleable down to the 75' Buffer Zone. Once SCE&G sells lands within the Future Development sub-classification, they are transferred to the commercial or easement sub-classifications. Properties classified as Future Development have historically also been referred to as "fringeland." Fringeland is any land owned by SCE&G that is within the PBL and above the 360' PD elevation. It is not restricted to Future Development.

7.0 LAND MANAGEMENT PRESCRIPTIONS

SCE&G developed land management prescriptions over time in consultation with agencies and the public. They consist of the guiding principles regarding management of the SCE&G-owned lands within each classification.

SCE&G administers management prescriptions through its Shoreline Permitting Program. Activities that require permits and consultation with SCE&G include excavation; construction, maintenance and placement of docks, boatlifts, boat ramps, shoreline stabilization; limited brushing; and other shoreline activities (SCE&G, 1995). SCE&G provides a detailed Permitting Handbook that contains the permitting processes and specifications for various shoreline developments. Persons interested in shoreline development should contact SCE&G's Land Management Department (803) 217-9221, http://www.sceg.com/en/my-community/lake-murray/lake-management) to obtain permitting guidance and a copy of the Permitting Handbook. Section 9.3 of this document discusses the Shoreline Permitting Program in greater depth. General information regarding permitting requirements is included where applicable within the scope of each management prescription below.

7.1 Multi-purpose Prescriptions

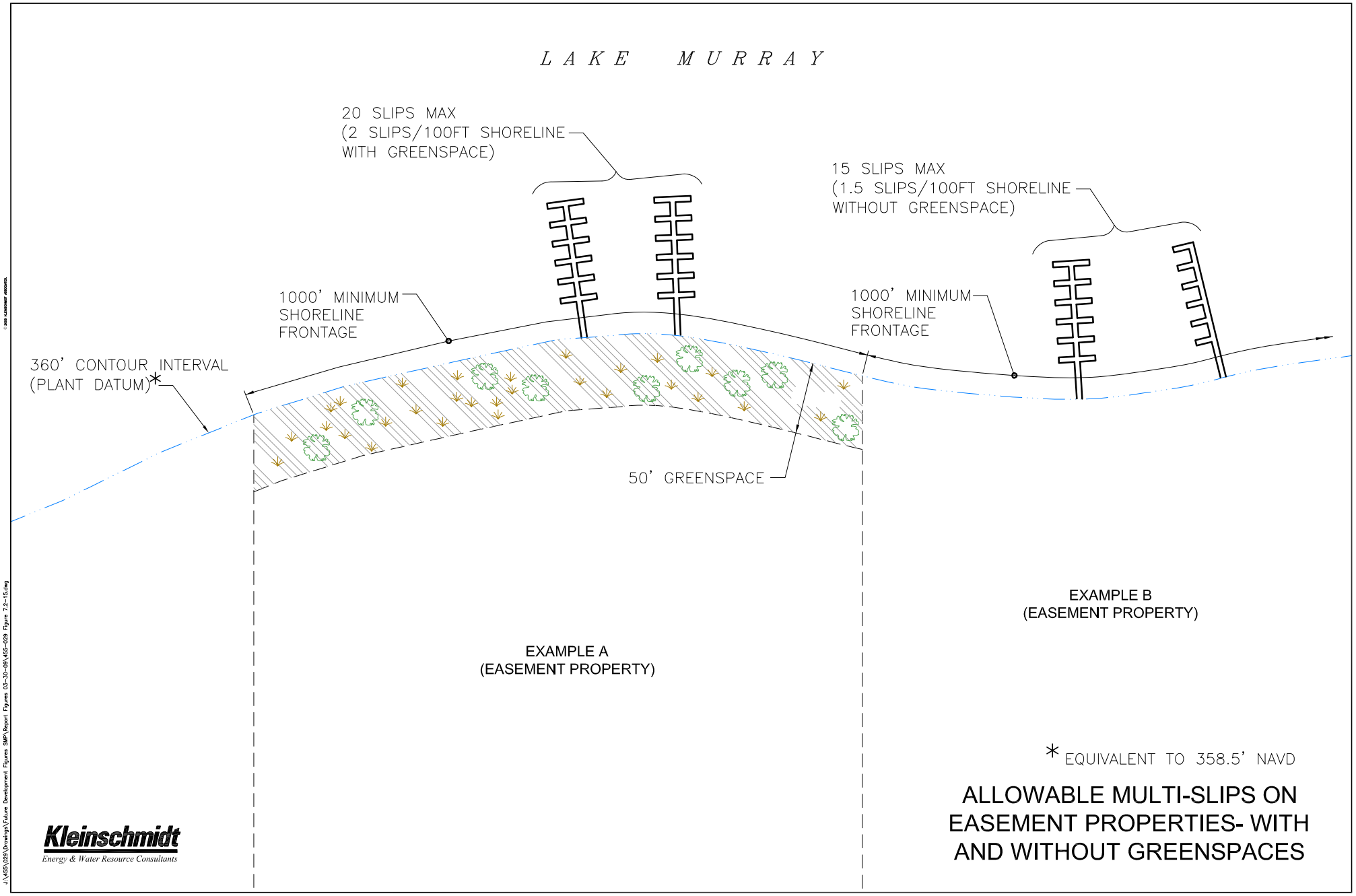
Management of properties within the Multi-purpose classification is dependent on sub-classification as follows:

7.1.1 Easement

SCE&G does not own lands classified as "easements" and thus does not manage them. SCE&G only maintains flowage rights on the properties with shoreline frontage. Because restrictions apply to land use in the Buffer Zone and below the 360' PD contour (high water mark); back property owners wishing to construct or modify shoreline structures, or perform limited brushing in the land bordering their property must submit an application through SCE&G's permitting program. Examples of allowable multi-slip

facilities are depicted in Figure 7-1 and described in more detail in the Permitting Handbook. More information on land management of SCE&G-owned properties that border easements (i.e., Buffer Zone and below 360’ PD contour) is provided in figures 7-4, 9-4, 9-8 and 9-11.

Figure 7-1: Allowable Multi-slips on Easement Properties – with and without Greenspaces



7.1.2 Commercial Prescriptions

SCE&G manages lands they own within this sub-classification primarily through their permitting program, which guides new or modified developments (e.g., expansion of existing facilities). During permitting review, new commercial-related uses of SCE&G-owned lands must meet SCE&G requirements, as outlined in the SCE&G Permitting Handbook (available at www.sceg.com/en/my-community/lake-murray/lake-management). The necessary federal, state and local permits must be obtained before final approval by SCE&G and FERC.

It is the responsibility of the commercial project applicant to provide SCE&G with all information necessary for its application to the FERC.

7.1.3 Buffer Zone

As explained, a Buffer Zone, located between the 360' PD contour and the back property development, is maintained adjacent to all easement lands sold by SCE&G after the issuance of the 1984 license. Use of SCE&G's Buffer Zone is entirely at the discretion of SCE&G as landowner. Owners of adjoining lands (back property owners) are given the right of access by foot to and from the lake through the Buffer Zone, but are not permitted to encroach with improvements, place any water-oriented encroachments (docks, ramps, etc.), change the contour of the land, or post the property, without written consent from SCE&G. Access to Buffer Zone lands by the public is allowed for passive activities such as bird and wildlife viewing and shoreline fishing. However, prohibited uses include overnight camping, building fires, hunting, discharge of firearms, motorized vehicles, or any activity that may adversely impact the land.

SCE&G intends to maintain well-vegetated lands within all areas designated as Buffer Zones, and has developed specific principles and guidelines for vegetation management. Vegetation management, however,

varies according to the date the adjoining property was sold and the Buffer Zone established. Easement lands sold by SCE&G fall into three groups that affect how the Buffer Zones are managed: 1) lands sold prior to the 1984 license that lack Buffer Zones, 2) lands sold after 1984 but before approval of the 2007 SMP, and 3) lands sold after approval of this 2007 SMP. A summary of the central differences among management of Buffer Zones is as follows.

(1) Land purchased prior to 1984 – Owners who purchased their land prior to 1984 do not have a Buffer Zone associated with their properties. Prior to this date, SCE&G sold land within the PBL that extended to the 360' PD contour interval (high water mark). Above the 360' PD contour, property owners are encouraged to plant or allow native vegetation to flourish to protect and enhance the Project's scenic, recreational, and environmental values. Dock permitting requirements and vegetation management on SCE&G-owned lands are explained in greater detail in the Permitting Handbook, and also in Appendix B and Section 9.3 of this document.

(2) Buffer Zones established between 1984 and 2007 – As explained above, SCE&G began a program to establish vegetated Buffer Zones on the lakeward side of all SCE&G properties sold between 1984 and 2007. Management of these Buffer Zones allowed for limited brushing by back property owners within the Buffer Zone to remove only exotic and invasive vegetation, which is managed by SCE&G through their permitting program (See Permitting Handbook and Section 9.3 and Appendix B of this document for information on limiting brushing). Property owners are encouraged to plant or allow native vegetation to flourish to protect and enhance the project's scenic, recreational, and environmental values.

(3) Buffer Zones designated after 2007 – For lands sold after approval of the current SMP, SCE&G will maintain a "no disturbance" policy on all Buffer Zones designated after that date. Thus, for newly designated Buffer Zones, limited brushing will not be allowed. Only construction of a meandering path, designed according to SCE&G specifications, will be allowed through the Buffer Zone to provide access to the shoreline. This "no disturbance" policy will allow native vegetation to flourish and will protect and enhance the project's scenic, recreational, and environmental values.

Back property owners who own land closer than 75 feet from the 360' PD contour and wish to construct a dock along the shoreline are required to deed SCE&G so much of their property as to create a uniformly 75-foot deep Buffer Zone. The deeded land is subsequently subject to the environmentally protective measures and requirements outlined for Buffer Zones. Subject to meeting this condition, SCE&G will consider permitting a dock, if the property and dock meets all other permitting requirements. Dock permitting requirements and vegetation management on SCE&G-owned lands are explained in greater detail in the Permitting Handbook, and also in Appendix B and Section 9.3 of this document.

Management prescriptions regarding Buffer Zones were submitted as the Buffer Zone and Riparian Zone Management Plan (FERC Order issued August 8, 2007, 120 FERC ¶ 62,105). It provides details on management of Buffer Zones. The Buffer Zone and Riparian Zone Management Plan has since been revised from input from the TWC and is included as Appendix C for approval.

7.1.4 Future Development Prescriptions

Future Development lands are saleable real estate and, as such, fall under the responsibility of the SCE&G. As landowner, SCE&G retains the discretion to determine availability of parcels for sale on an individual basis, however, the lands are available for purchase only by the adjoining back property owner. Purchased Future Development lands will have non-development and vegetation management restrictions included in each deed. Also, SCE&G generally retains title to the Buffer Zone, adjacent to and on the lakeward side of Future Development lands.

Residential landowners whose property adjoins SCE&G Future Development lands may be issued a permit to construct an access to and from the lake by a single, 10 foot wide meandering path. However, SCE&G will not allow back property owners to encroach with shoreline improvements, cut any trees or shrubs, place any water-oriented encroachments (dock or ramp) or otherwise alter the lands without written consent from the Lake Management Department. SCE&G will initiate appropriate action to address violations. Enforcement of the SMP and consequences of violations are discussed in more detail in Section 11.0. An exception to the open access of parcels under this sub-classification is in the case of municipality operations involved with water withdrawal activities. These areas have restricted public access.

SCE&G may perform selective timber harvesting in Future Development areas. However, SCE&G maintains a no-cut policy within 100 ft of the 360’ PD contour elevation. An exception may be made, with the approval of SCE&G, for the removal of dying or diseased trees and trees determined to pose a safety hazard to the public. This practice is to ensure a suitable buffer exists around the lake.

SCE&G will retain as an element of its shoreline management program, the policy of considering on a case by case basis, requests for sale of individual parcels of fringe land down to the 360’ contour and with a 50 foot

building setback, in the following circumstance: the property is located in a previously developed area (usually a subdivision); the properties in the immediate area of the considered parcel already are owned by individuals down to the 360’ contour and developed; and the size and/or configuration of the property is such that no meaningful ecological benefit to the area would result in requiring the new, non-disturbance buffer requirements. In appropriate circumstances, protective requirements may be imposed through covenants or other mechanisms.

Figures displaying future development land management prescriptions are included as Figure 7-2 through 7-3, and Figure 7-5 through Figure 7-7 and described in more detail in the Permitting Handbook.

Figure 7-2: Land Management Restrictions for SCE&G-owned Future Development Properties

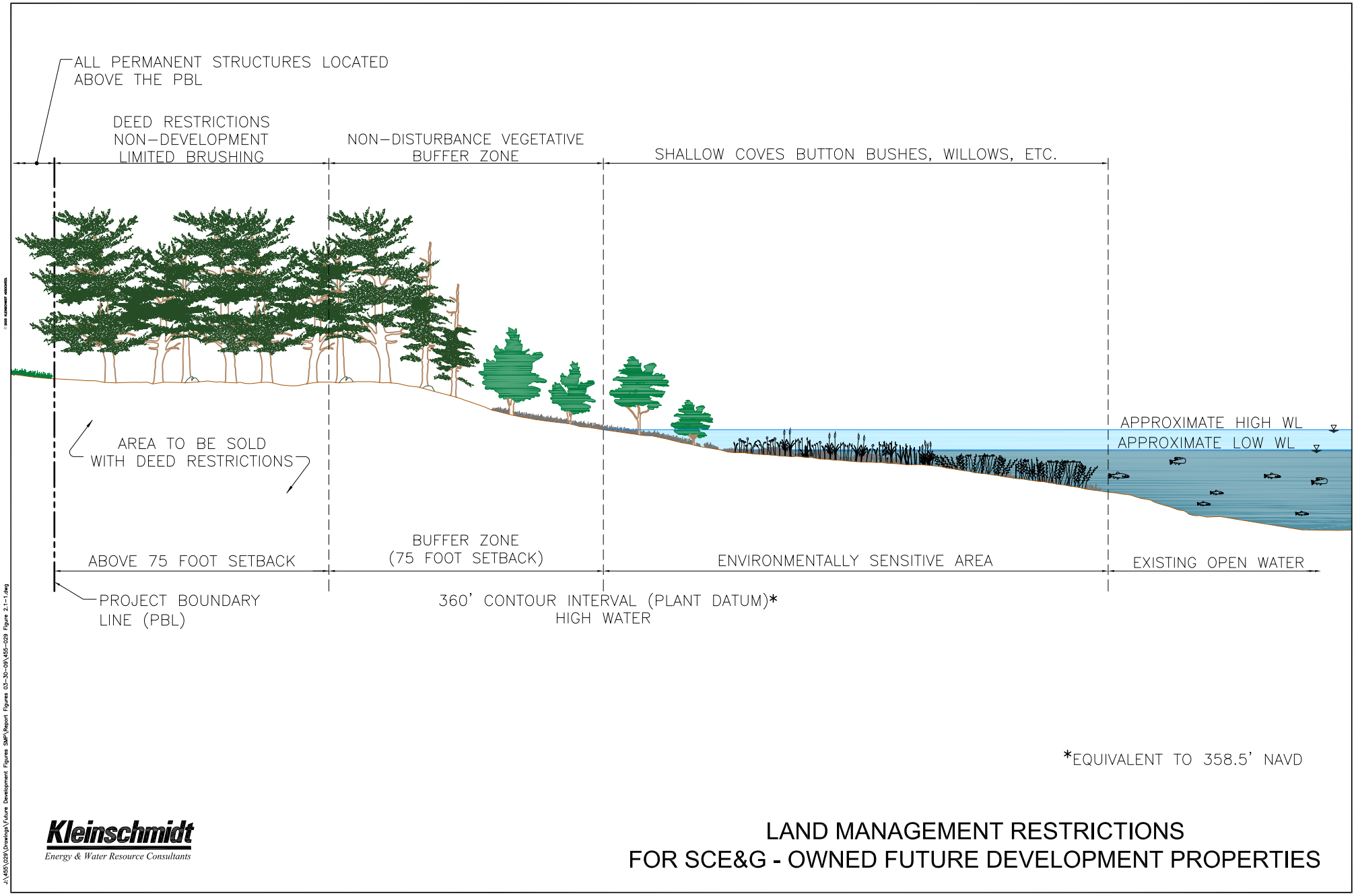


Figure 7-3: Land Management Prescription for SCE&G-owned Future Development Properties

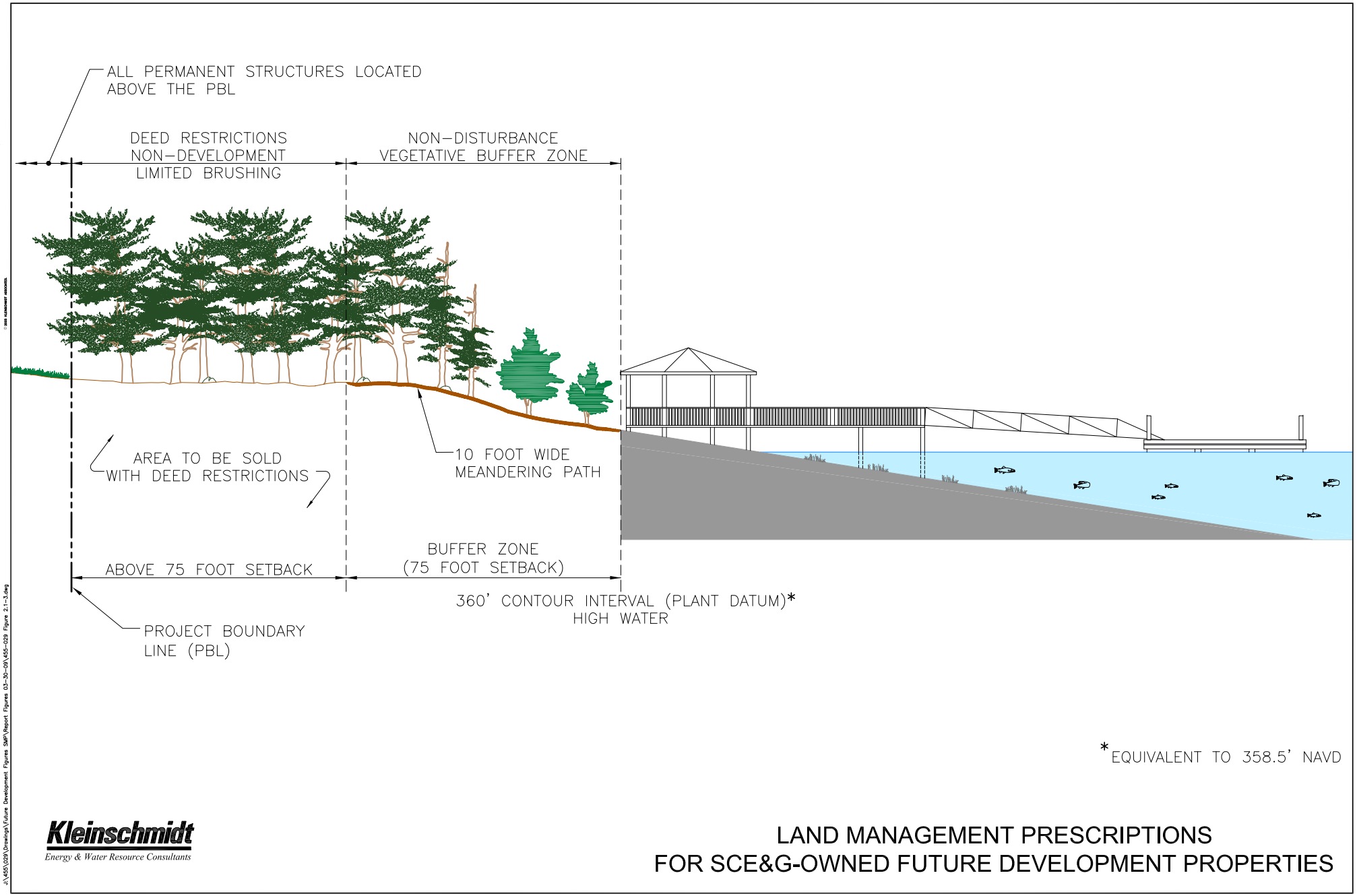


Figure 7-4: Typical Layout of Individual Docks on Easement Properties

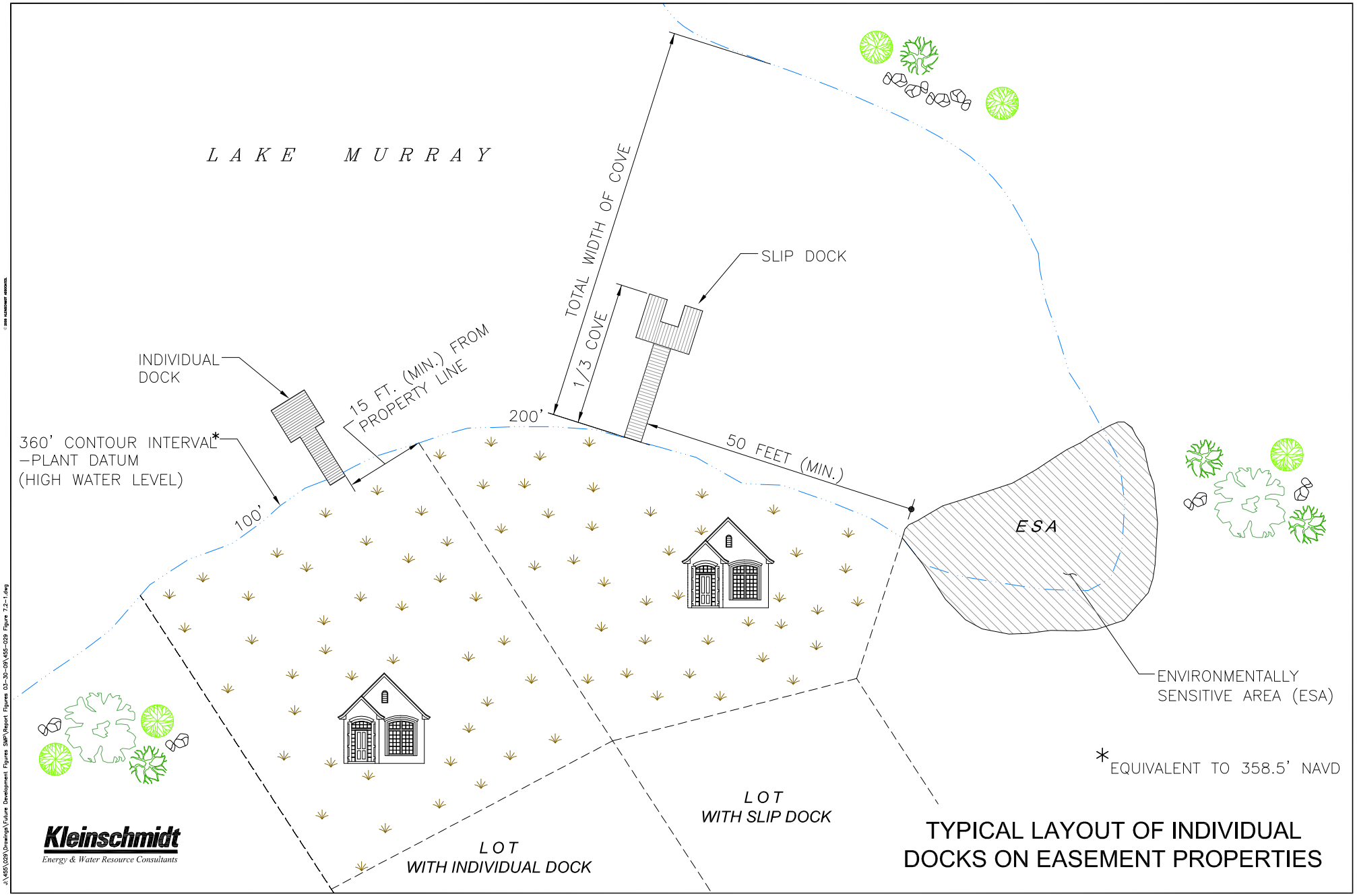


Figure 7-5: Typical Layout of Individual Docks on Pre-2007 Future Development Properties

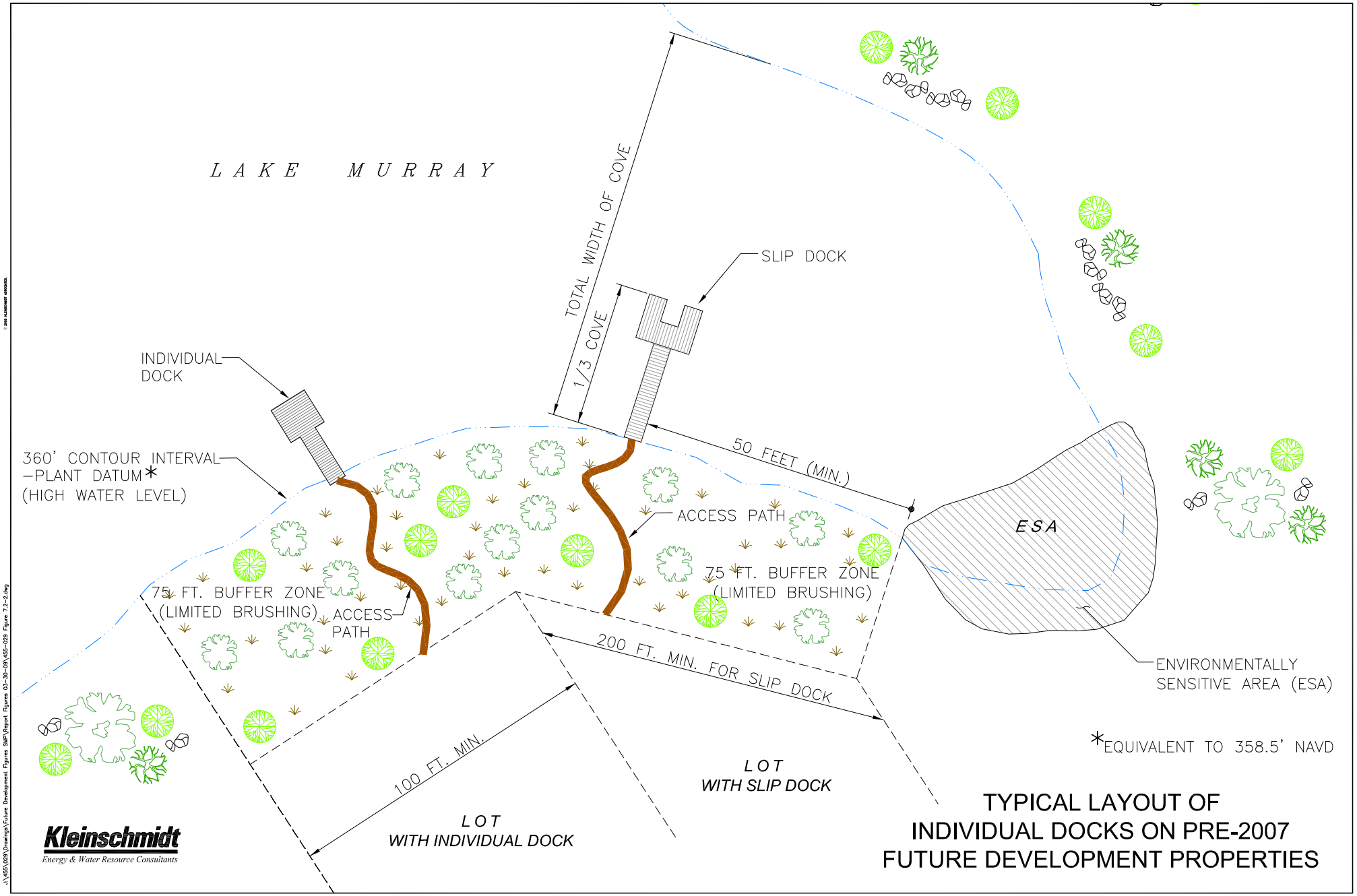


Figure 7-6: Typical Layout of Individual Docks on Post-2007 Future Development Properties

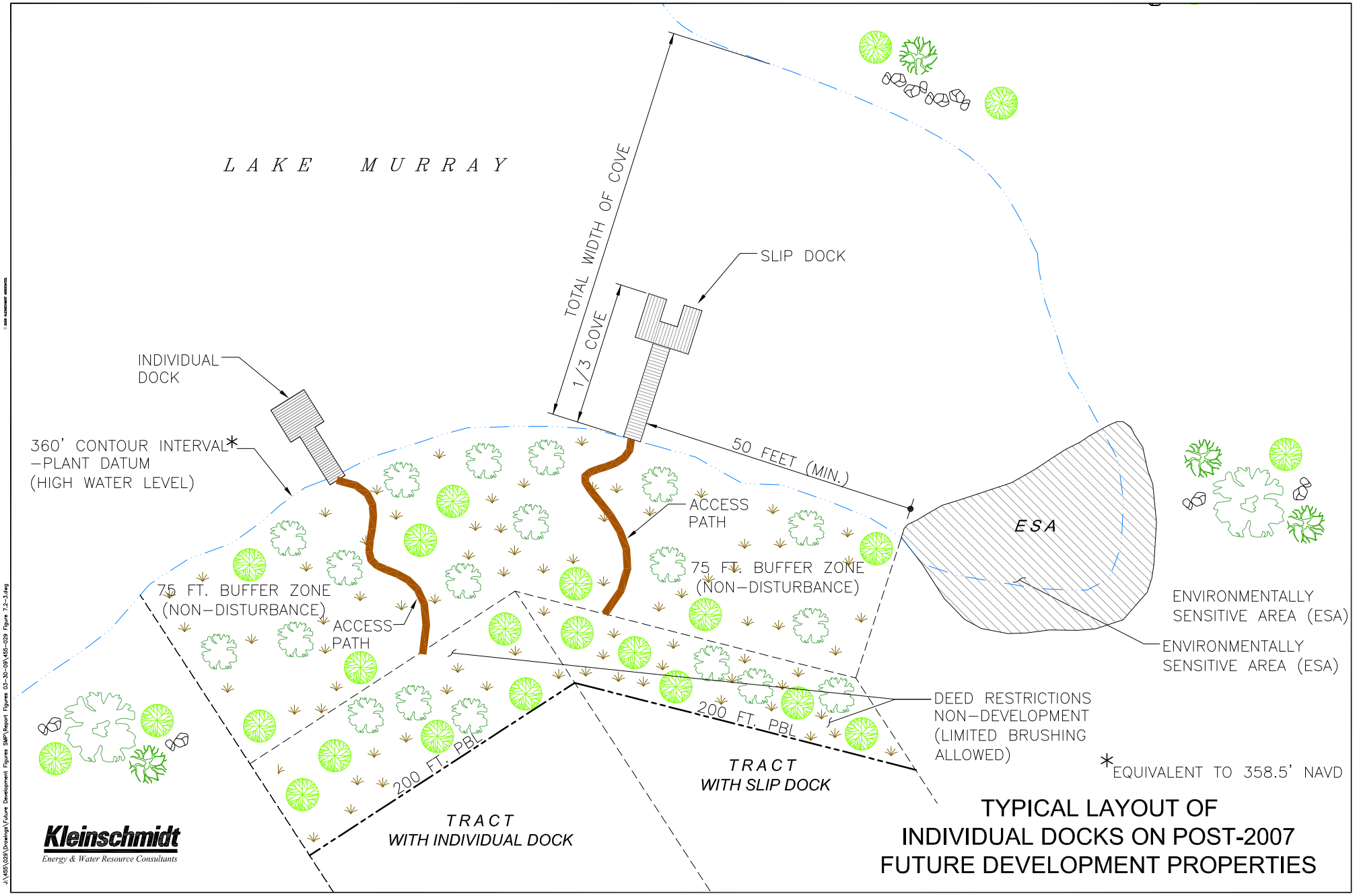
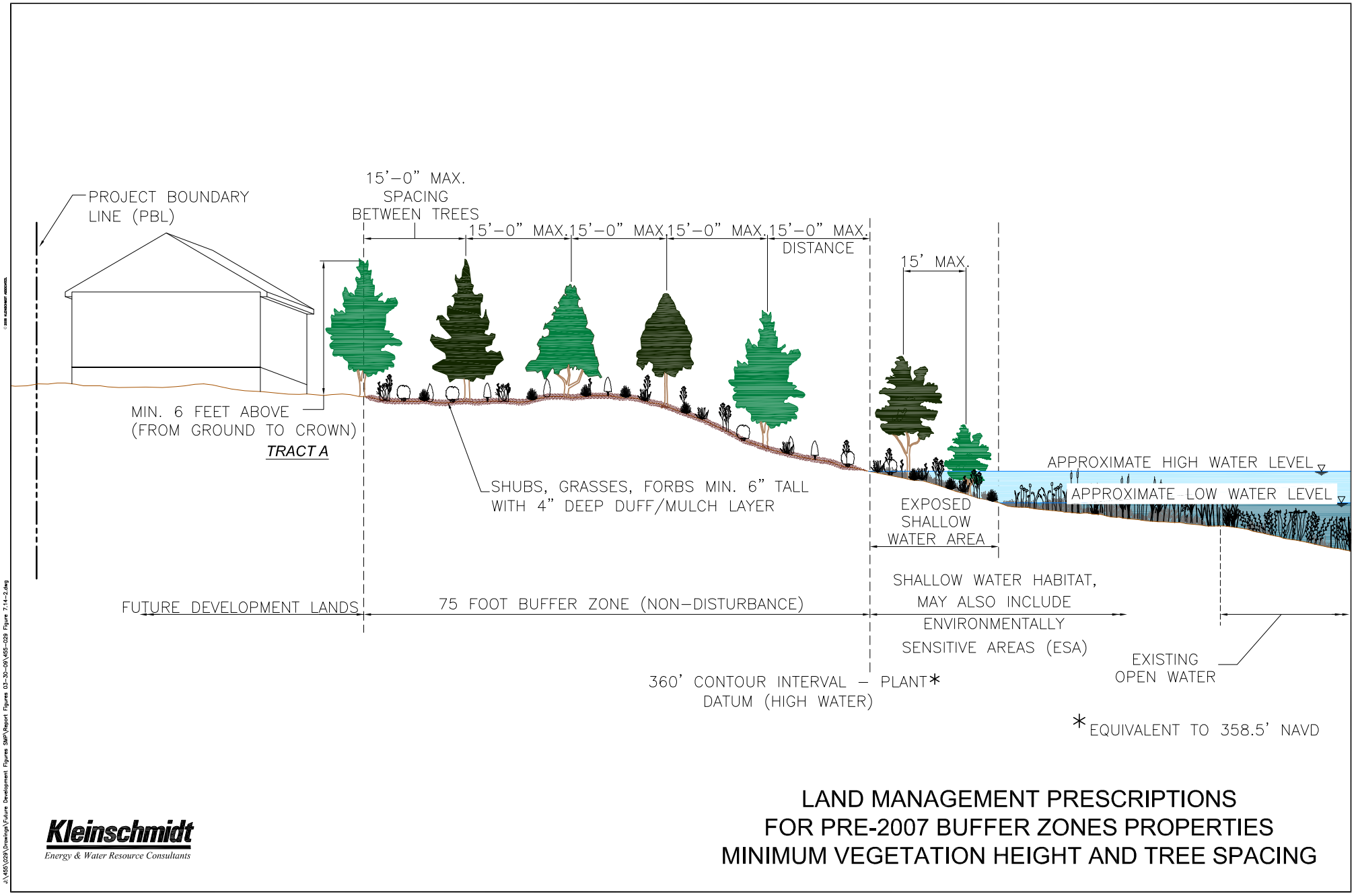


Figure 7-7: Land Management Prescriptions for Future Development Properties - Minimum Vegetation Height and Tree Spacing



7.2 Public Recreation Prescriptions

Project lands devoted to public recreation include developed parklands, properties set aside for future recreational development, and publicly available islands owned by SCE&G. SCE&G manages the areas individually based on the specific, designated recreational activities including swimming, fishing, picnicking, and boat launching. SCE&G designs and manages all areas to support public access to the lake. Dreher Island State Park is the only site that provides formal camping; however, individuals may also camp on SCE&G-owned islands and other lands such as Bundrick Island, River Bend, and Sunset (SCE&G, 2007). Camping on SCE&G-owned lands is limited to no more than seven consecutive days.

On its lands, SCE&G also manages forest resources that are available for public recreation although recreation is only one of several uses. All SCE&G forest resources are managed according to the South Carolina Forestry Commission's Best Management Practices. SCE&G does not allow logging in certain areas, such as cliffs, steep slopes, or atypical groups of trees.

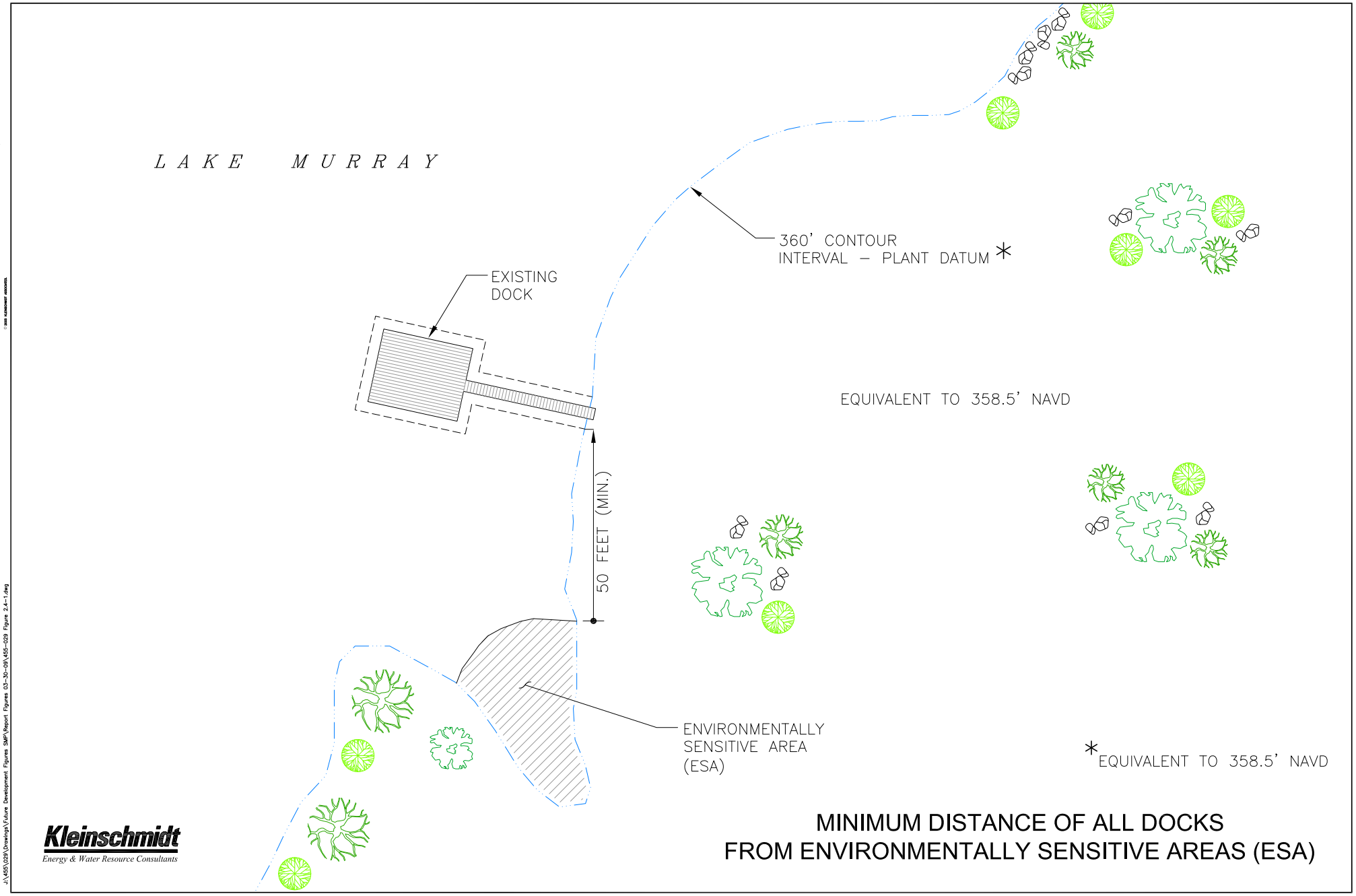
7.3 Forest Management Prescriptions

SCE&G manages forest resources on its lands that are available for public recreation, although recreation is only one of several uses for these lands. These lands have been set aside for timber management and compatible recreation, scenic, aesthetic, watershed quality and wildlife habitat purposes. SCE&G forest resources are managed according to the South Carolina Forestry Commission's Best Management Practices. SCE&G restricts its timber management operations in certain areas, such as on cliffs or steep slopes, or in atypical groups of trees. Limited dock access may be allowable on Forest Management property under very specific situations as determined by SCE&G Lake Management (see Permitting Handbook).

7.4 Natural Areas Prescriptions

As described above, natural areas consist of lands that warrant special protection because they provide important habitat for various wildlife species, including the recreational fishery. Large wetland areas, areas having cultural and/or historical significance, and Environmentally Sensitive Areas (ESAs) also are included in the natural areas classification and are protected. ESAs consist of habitat areas known to be occupied by rare, threatened, or endangered species; rare or exemplary natural communities; significant land forms or geological features; wetlands and shallow coves; and other areas determined to be critical to the continued existence of native species, such as spawning and nesting habitat. Natural Areas are not available for sale. Docks, excavations, or shoreline activities that require permits are not allowed in these areas. In addition, docks may be located no closer than 50-feet from the nearest ESA (Figure 7-8). SCE&G prohibits clearing of vegetation within ESAs or within the associated buffer.

Figure 7-8: Minimum Distance of All Docks From ESA's



7.5 Project Operations Properties

Properties classified as Project Operation contain project works critical to the operation of the Saluda Project. Public access to these lands is restricted for reasons of safety and security.

7.6 Shoreline Structures

Back property owners that desire access to, or wish to construct shoreline structures such as docks, boat ramps, and multi-slips may apply for a permit through SCE&G's permitting program. SCE&G may allow such structures but strictly regulates their placement and construction.

To address aspects of shoreline structures, SCE&G has developed permitting application procedures and associated dock specifications guidelines. These guidelines are summarized in Section 9.0 and are detailed in SCE&G's Shoreline Permitting Handbook.

8.0 ACTIVITIES AND STRUCTURES PERMITTED WITH SCE&G APPROVAL

Through its permitting program, SCE&G maintains a strong commitment to managing the Lake Murray shoreline for multiple resources by considering the impact of various activities on the environmental, aesthetic, and recreational character of the lands. As a result of careful consideration, SCE&G has determined the following activities and structures to be compatible with the goals of the Shoreline Management Program. The activities consist of items requiring SCE&G approval through the permitting program.

Activities/Structures Requiring SCE&G Approval Through the Shoreline Permitting Program:

- Construction or modifications to docks
- Boat ramps
- Marine railways
- Boat lifts
- Shoreline Stabilization Methods (including rip-rap, bio-engineering, and retaining walls)
- Limited brushing (diseased tree removal and landscape modification)
- Water withdrawals that require shoreline structures for water access
- Excavations

9.0 EVALUATION PROCESS FOR NEW SHORELINE FACILITIES OR ACTIVITIES

Property owners considering new shoreline facilities or activities within the Project boundary will follow a standard procedure for initiating, permitting, and completing their proposed projects. These procedures are described in depth in SCE&G's Permitting Handbook, which was developed by the Lake and Land Management TWC to support the SMP (available at www.sceg.com/en/my-community/lake-murray/lake-management or by calling (803) 217-9221). The Permitting Handbook is the framework for the General Permit, and as such must go through the public review process and be approved by SCDNR.

As described in Section 6.0, land management classifications and their distribution around the Lake Murray shoreline have been identified, defined, and mapped. Further, there are associated management prescriptions for each classification that help guide its development and land use. In order to carry out a project, the project applicants must obtain the following information:

- Land management classification and management prescriptions for the proposed project location;
- Types of shoreline facilities and activities allowed and prohibited at the proposed project location; and
- Relevant permitting procedures for their project.

9.1 Land Management Classification of Proposed Project Location

The first step a project applicant must take in planning a new shoreline facility/activity is to determine the land management classification for their proposed project location. The location must be proposed in a Multi-purpose, Forest Management, or Public Recreation classification as new developments are not permitted in either Project Operations or Natural Area classifications. Property locations have been mapped according to land management classification, which are available from the SCE&G Lake Management Department, to assist project

applicants in this first step. The maps will show whether the location is in a Buffer Zone or below the 360' PD contour, and thus subject to specific regulations. Project applicants are urged to consult the maps early in the planning stage to determine where the subject property is in relation to protected environmental resources and other land management types. The Lake Management Department will provide assistance in understanding the type, location, and specific requirements for proposed shoreline facilities and activities.

If a proposed facility/activity is intended to support a commercial use, and meets SCE&G permitting requirements, FERC regulation will require that additional analysis be undertaken prior to assessing conformity of use and may require FERC review and approval. In deciding whether or not to approve such commercial applications, FERC may require that the project applicants show that the project will meet certain criteria. Such criteria include, but are not limited to, showing that the project will not be a detriment to general public safety or navigation, that it will not contribute to new or ongoing shoreline soil erosion, that it will be aesthetically blended with surrounding uses, and that it will be environmentally defensible. It is the responsibility of the commercial project applicant to provide SCE&G with all information necessary for its application to the FERC.

9.2 Allowable and Prohibited Facilities and Uses for Proposed Project Location

After determining the land management classification of the subject property, the project applicant must determine what type of facility or activity defines their project and whether it is allowed at the proposed location. Some activities may be allowed within a specific land management classification, but not at the precise location proposed. For example, development is not allowed within the Buffer Zone on properties sold after 1984 (as described in Section 7.0).

Most new projects can be grouped according to the most commonly permitted activity. Although many projects will fall into one category, some may include facilities or activities that fall into more than one. In such cases, further clarification and review may be necessary to establish whether a particular facility or activity is

allowed at the proposed location. In general, most proposed shoreline facilities and activities fall into one of the following activities types:

- *Construction and modification of docks* - These activities include all new dock installations (both floating and pier supported) as well as any modifications to the size, shape, or location of existing structures.
- *Shoreline stabilization* - Shoreline stabilization to prevent shoreline erosion and slumping may include rip-rap, or bioengineered methods such as plantings. Shoreline stabilization techniques are discussed in Appendix D.
- *Excavation* - Removal of materials/soils from the lakebed; typically performed during drawdowns.
- *Atypical erosion control activities* - Areas undergoing unusual or unanticipated erosion that may require special attention or stabilization efforts. Identified erosion areas will be addressed on a case by case basis.
- *Landscape modification/enhancements (including limited incidental clearing of vegetation on Project land adjacent to private properties)* - Subject to conditions that will be specified in the permit, SCE&G may permit limited clearing of brush or vegetation from Project shoreline lands for the above activities.

9.3 Shoreline Permitting Procedures

SCE&G operates its shoreline permitting activities under a general permit issued by the US Corps of Engineers and the South Carolina Department of Health and Environmental Control. This permit authorizes SCE&G to be the residential permitting authority on Lake Murray. Project applicants must obtain the proper permit(s), per the SCE&G's Shoreline Permitting Program, prior to the initiation of any construction or activity on the Lake Murray shoreline, which consists of the lands below the 360' PD contour interval or designated Buffer Zones. In addition, some activities also have local, state, and/or federal permit requirements.

Different uses of project lands have different associated permit and review processes, as defined by the Standard Land Use Article contained in SCE&G's FERC license. FERC has delegated to SCE&G the authority to review and approve certain types of uses such as those that involve relatively routine activities, such as docks, and erosion control. Uses that involve the conveyance of easements, right-of-ways, or leases and include uses such as the replacement or maintenance of bridges and roads; storm drains and water mains; telephone, gas, and electric distribution lines; minor access roads; and other similar activities require consultation with the appropriate state and federal agencies, and can ultimately be approved by SCE&G after these reviews and consultations are complete. Finally, uses that involve the conveyance of fee title, easements or right-of-ways, and leases, and typically include more substantial activities such as the construction of new roads and bridges, sewer lines that discharge into project waters, marinas, and other similar uses also require review by SCE&G and consultation with the appropriate local, state, and federal agencies, but also must be submitted to the FERC for their review.

Whether the non-project use is approved under the Standard Land Use article or through prior FERC approval, SCE&G is responsible for ensuring that the use is consistent with the purposes of protecting or enhancing the scenic, recreational, and other environmental values of the project. To assist project applicants in the permitting process, the staff at the SCE&G Lake Management Department is available to answer questions regarding documentation, permits, and specification requirements for their particular project. Specifically, permits are required for the following activities:

- perform limited brushing in Buffer Zones and below 360' PD contour where an approved dock will be located;
- remove lake water;
- excavate soil/earth;
- apply shoreline stabilization;
- install docks;
- install ramps;

- install marine railways;
- install boat lifts.

It is advisable to begin the consultation process with SCE&G Lake Management staff at the conceptual stage of larger complex or resource-sensitive projects. SCE&G staff are available to address inquiries regarding the location of specific resources and the proximity of proposed new facilities or activities. SCE&G staff will also be able to discuss specific permitting requirements with the property owner. Depending on the proposed new facility or activity, local, state and federal resource agencies may impose requirements on construction start/stop dates, the placement of erosion control devices, treatment plans, remedial measures, submittal of start construction notifications, and/or best management practices. Any permit applicant should be aware of such conditions, as violations may nullify a permit.

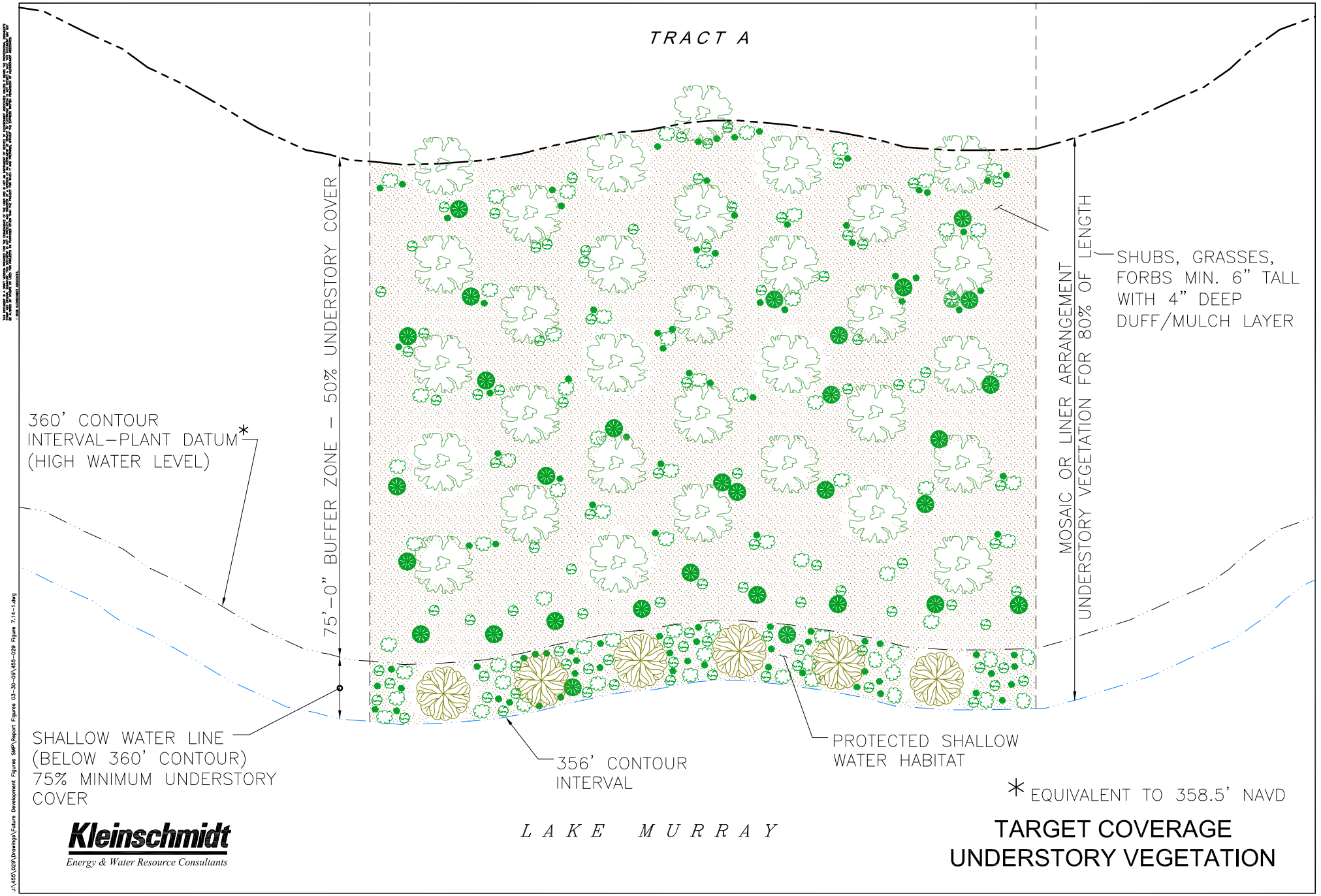
A summary of permits required to perform the above listed activities or construct/modify structures are summarized below. Detailed information on SCE&G's Shoreline Permitting Program, which includes the permitting process, guidelines, and specifications, are provided in SCE&G's Shoreline Permitting Handbook (available at www.sceg.com/en/my-community/lake-murray/lake-management or by calling (803) 217-9221).

9.3.1 Limited Brushing Below 360' PD Contour or in Buffer Zones

In general, SCE&G maintains a policy of non-disturbance of any vegetation below the 360' PD contour or within a Buffer Zone without approval from SCE&G. Furthermore, for Buffer Zones established after approval of the 2007 SMP, limited brushing will not be allowed and SCE&G will implement a **non-disturbance** policy. In some cases, however, limited brushing of adjacent properties by the back property owner will be allowed to remove exotic and invasive vegetation that occurs adjacent to their property. Permission will only be granted by SCE&G Lake Management after a site visit with the applicant to assess the need for brushing. Once limited brushing

is completed according to the permit, the applicant may maintain the site in said condition. However, back property owners are encouraged to allow native vegetation to flourish (See Appendix B for more detailed information on limited brushing regulations and Figure 9-1 for an example of target coverage for understory vegetation).

Figure 9-1: Target Coverage of Understory Vegetation



9.3.2 Woody Debris & Stump Management

In 2006, in accordance with FERC requirements (FERC, 2004), SCE&G developed and filed a plan for managing woody debris below the 360' PD contour of Lake Murray for fish habitat restoration and public safety. The plan was subsequently approved by FERC (117 FERC ¶ 62,213). During the current relicensing process, the plan was revised by the Lake and Land Management TWC. The revised plan is included as Appendix A.

As a baseline, SCE&G maintains a policy of no disturbance for any woody debris. However, woody debris may pose a boating hazard or be an impediment to navigation. Also, debris just below water level, particularly stumps, can pose serious safety risks, especially during recreation performed at high speeds such as with water skiing and jet skiing, or with activities such as swimming, where jumping from fixed or floating facilities such as docks might occur. Consideration for safety and navigation is a priority and so selective woody debris removal may be approved if it is judged necessary to remedy safety or navigation concerns. In such case, the hazardous woody debris must be reviewed by SCE&G's Lake Management Department personnel, who may permit the removal of only the portion of woody debris that poses the concern (the remaining woody debris must be left intact). A copy of the Woody Debris and Stump Management Plan is contained in Appendix A.

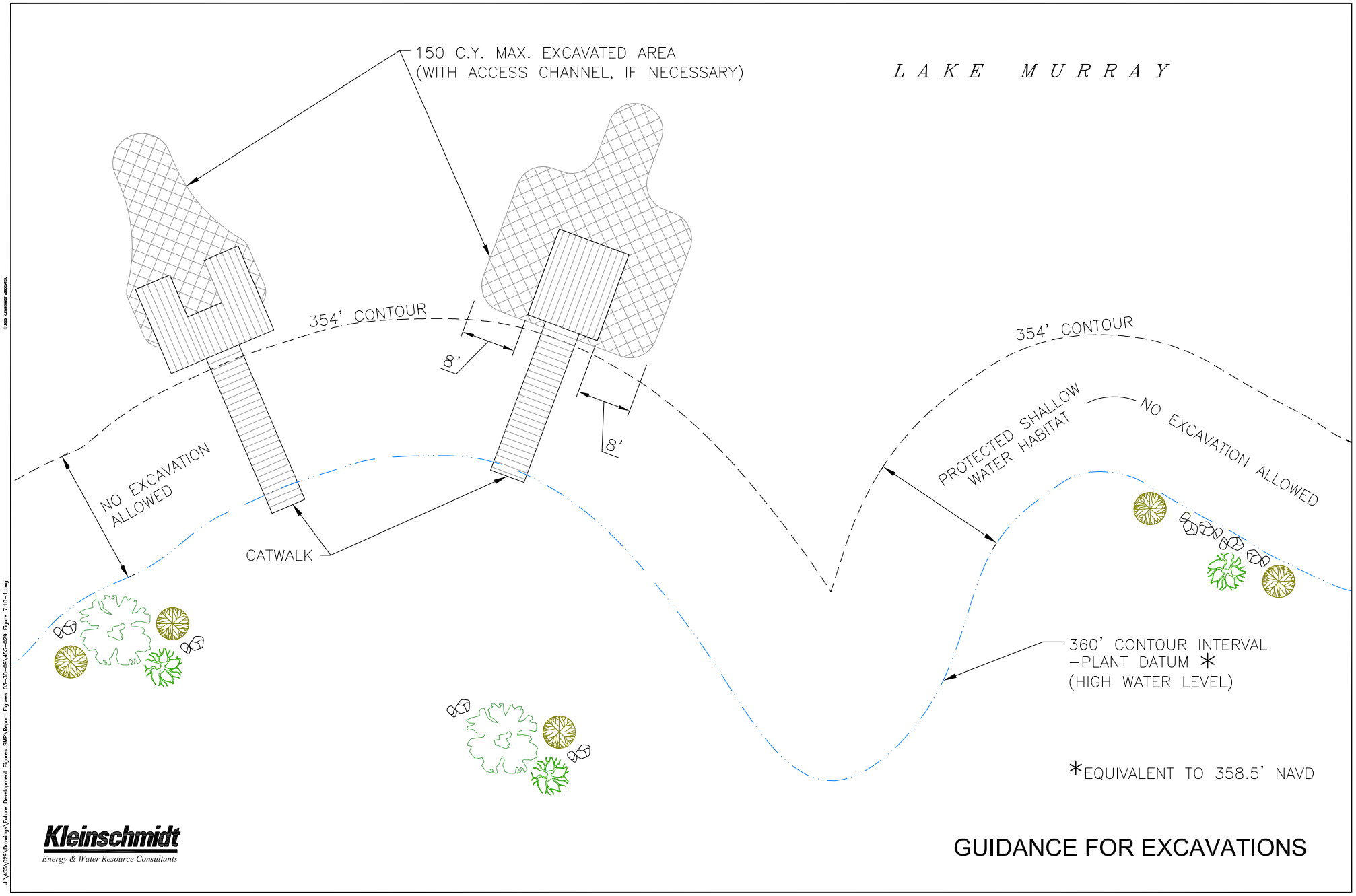
9.3.3 Residential & Commercial Water Withdrawals

Commercial and residential water withdrawals that require piping and other delivering equipment placed along the shoreline or in the littoral zone fall under the management of this SMP. Water removal permits for residential property will be for irrigation purposes only. Applications for a commercial permit to remove water must be submitted to SCE&G for review. Large commercial water withdrawal applications will be forwarded to the FERC for approval. SCE&G may authorize water withdrawals up to 1 million gallons per day (MGD) without the requirement of FERC approval. SCE&G will impose limits in granting permits for approved applications (see Permitting Handbook). The applicant will be required to bear the expenses of filing the application and to compensate SCE&G for water withdrawn. SCE&G reserves the right to prohibit irrigation during times of drought or water drawdown.

9.3.4 Excavation

Because eroded soil from construction and other activities can threaten the lake's aquatic and shoreline environments, as well as the watershed, SCE&G monitors excavation activities by requiring a permit be obtained for work performed below the 360' PD contour. All authorized excavations must be in accordance with SCE&G specifications and requirements, which may include an environmental assessment plan or report. Any permitted excavation work must meet the specifications outlined in the Permitting Handbook. Figure 9-2 also depicts general guidance for excavations.

Figure 9-2: Guidance for Excavations



9.3.5 Shoreline Stabilization

All shoreline stabilization efforts within the 360’ PD contour must be approved in writing by SCE&G Lake Management and all necessary governmental permits must be obtained prior to implementation. Bioengineering methods of stabilization are preferred, however, rip-rap or possibly retaining walls may be approved to resolve serious erosion problems. Regardless of techniques proposed, prior approval of work by SCE&G is required. More information on shoreline stabilization is provided in Section 12.0 and in the Permitting Handbook.

9.3.6 Docks

A permit must be obtained for the creation, replacement, or addition of any dock. At a minimum, dock construction is not to create a nuisance, or otherwise be incompatible with overall Project recreation use. Impact on navigation will be a strong determining factor. These types of docks include private individual, private common, community access areas, private multi-slip, and commercial public marinas. Figures describing permitting policies for docks are included below (Figures Figure 9-3 through Figure 9-17). See Permitting Handbook for more details.

Figure 9-3: Permanent Structures for Individual Docks on Post-2007 Future Development Properties

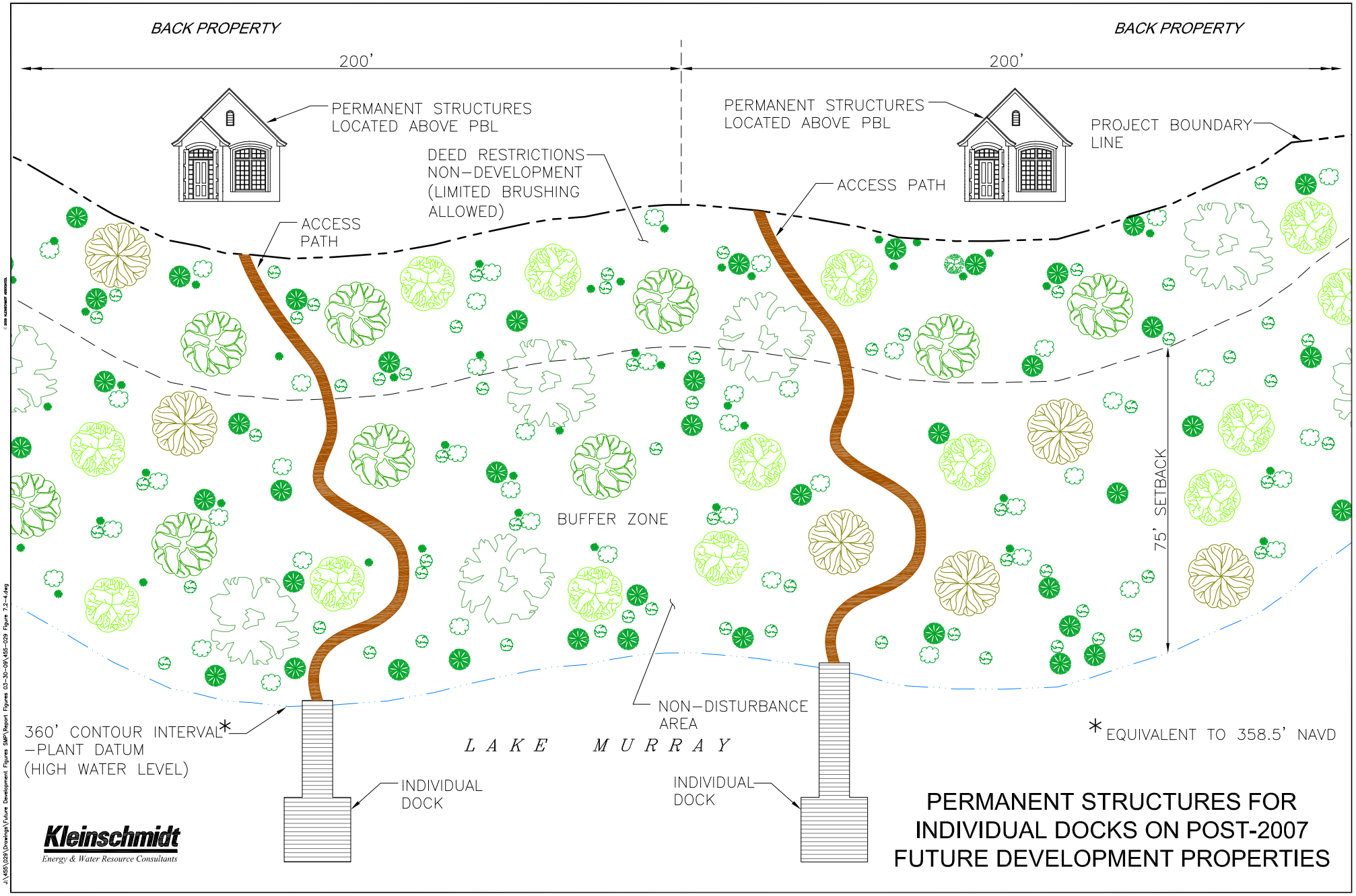


Figure 9-4: Example of Common Dock Layout on Easement Properties

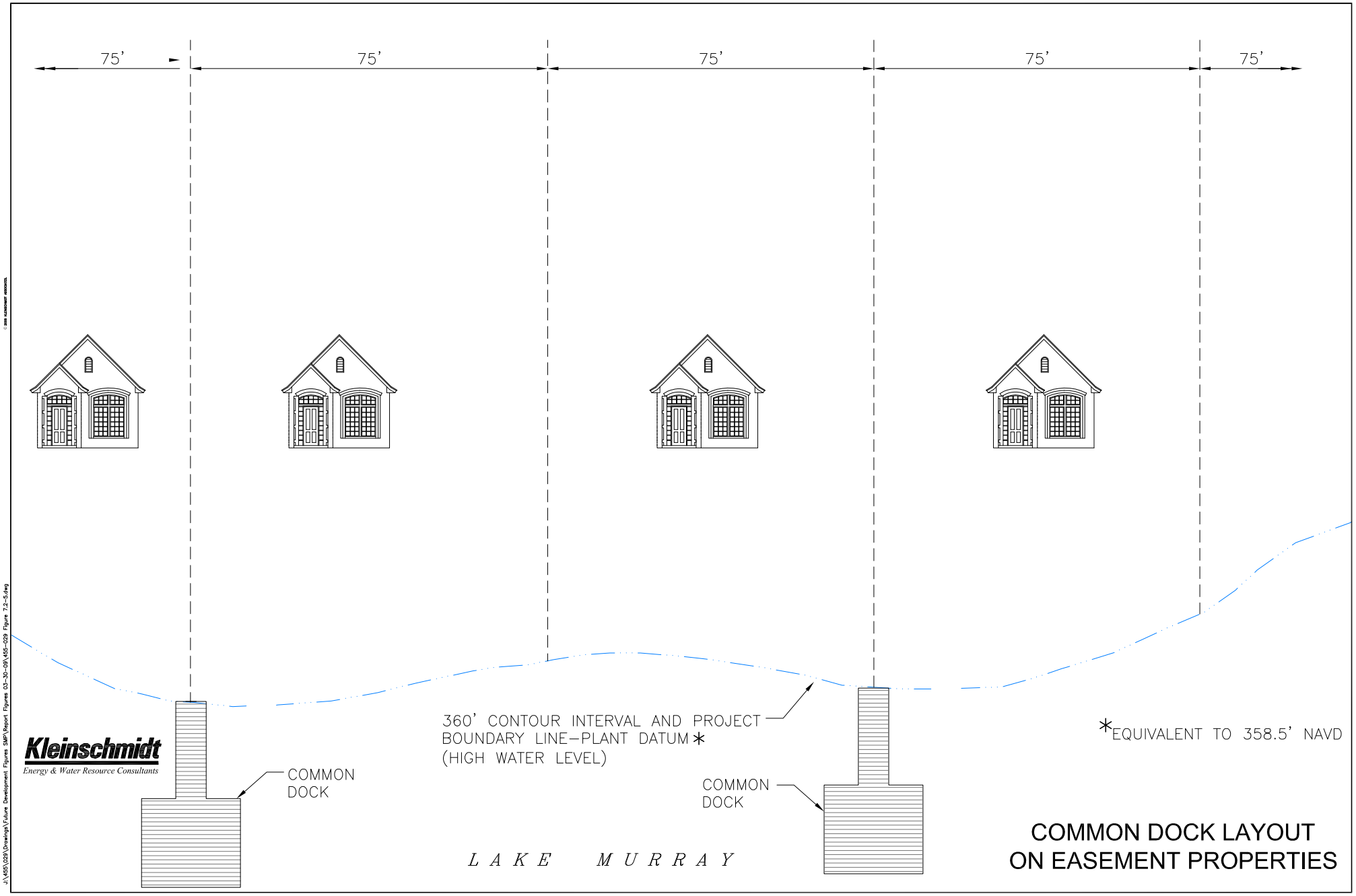


Figure 9-5 Example of Common Dock Layout on Pre-2007 Future Development Properties

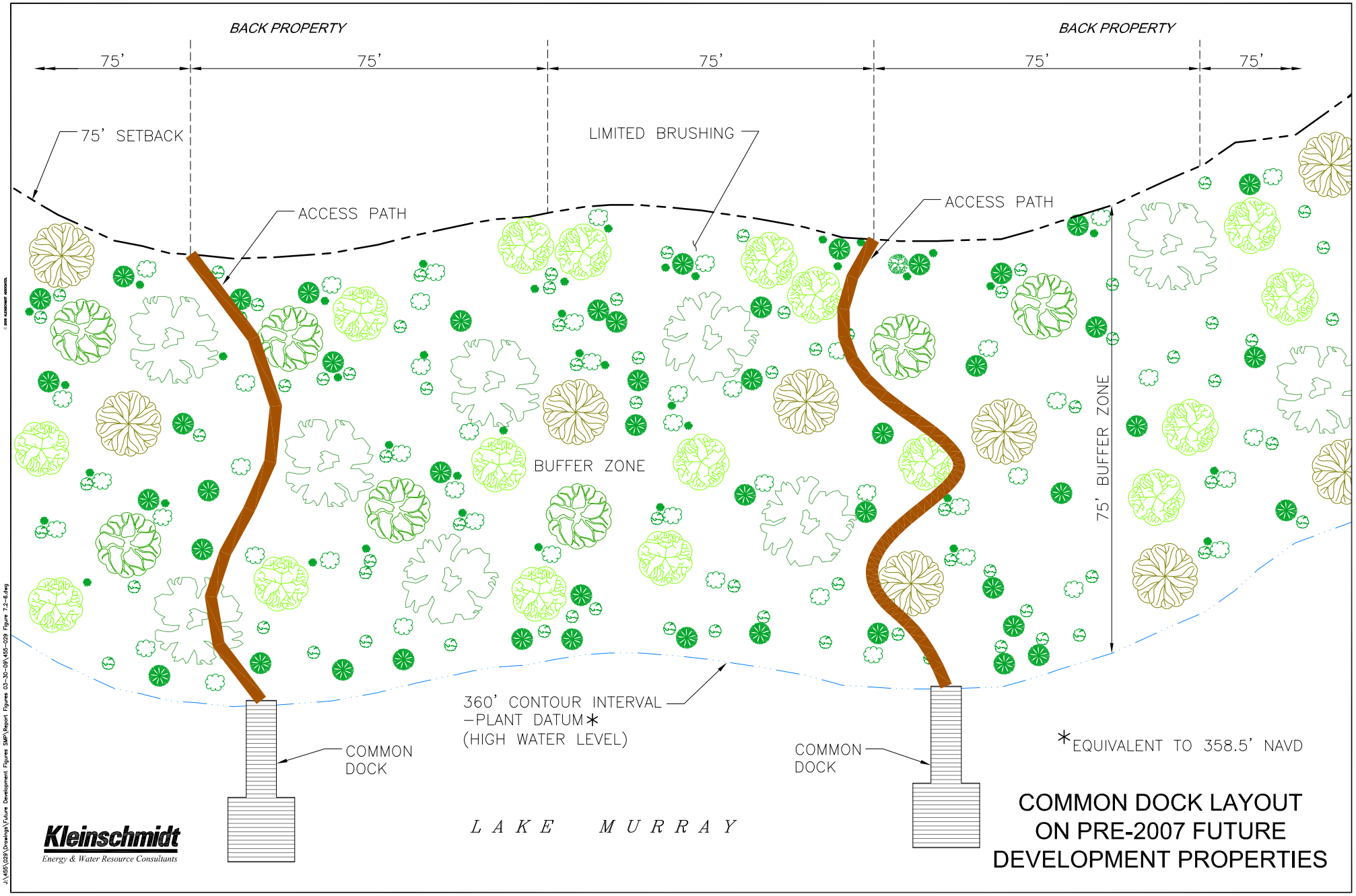


Figure 9-6: Example of Common Dock Layout on Post-2007 Future Development Properties

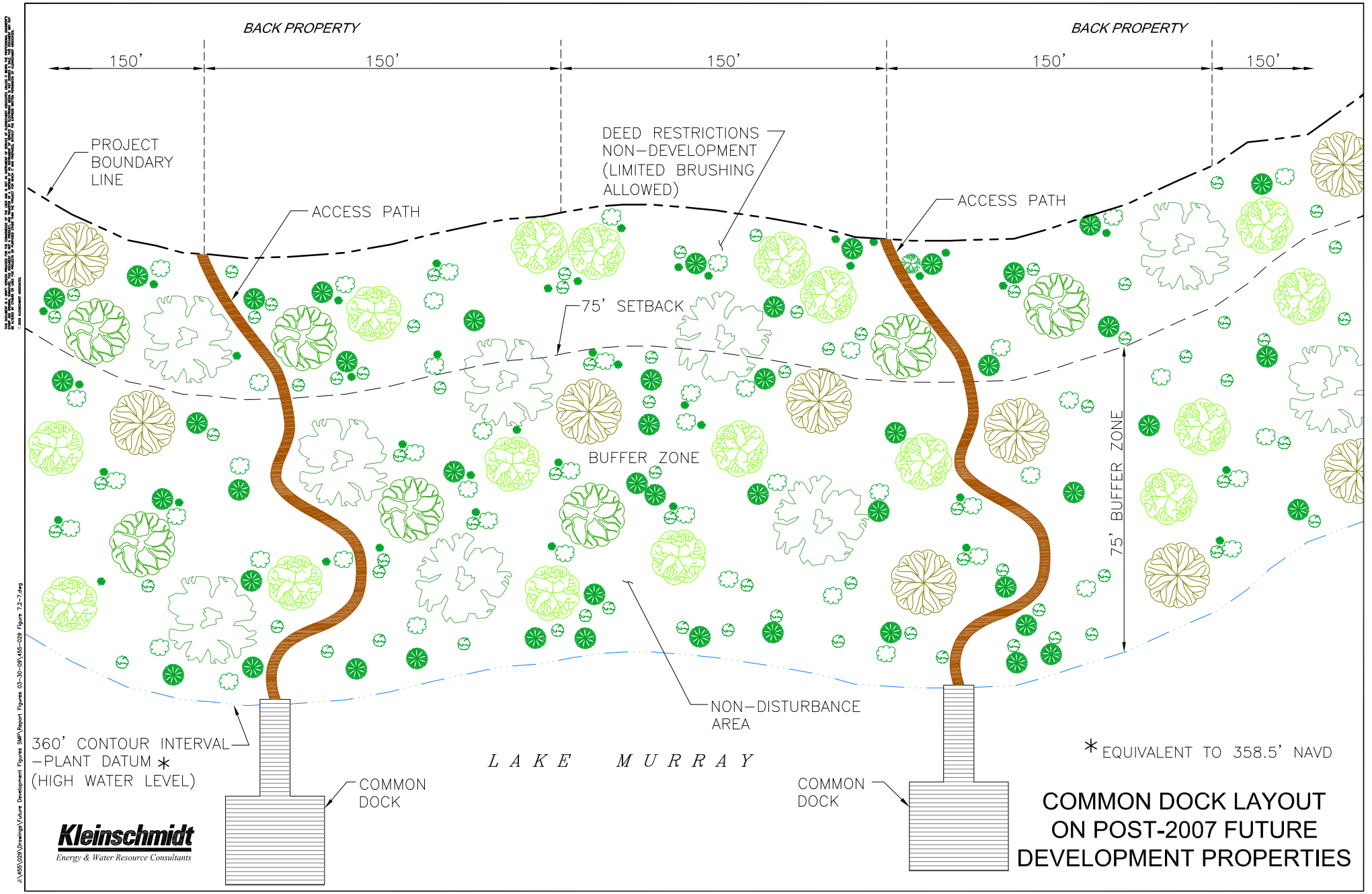


Figure 9-7: Clearances in Coves for Community Access Docks

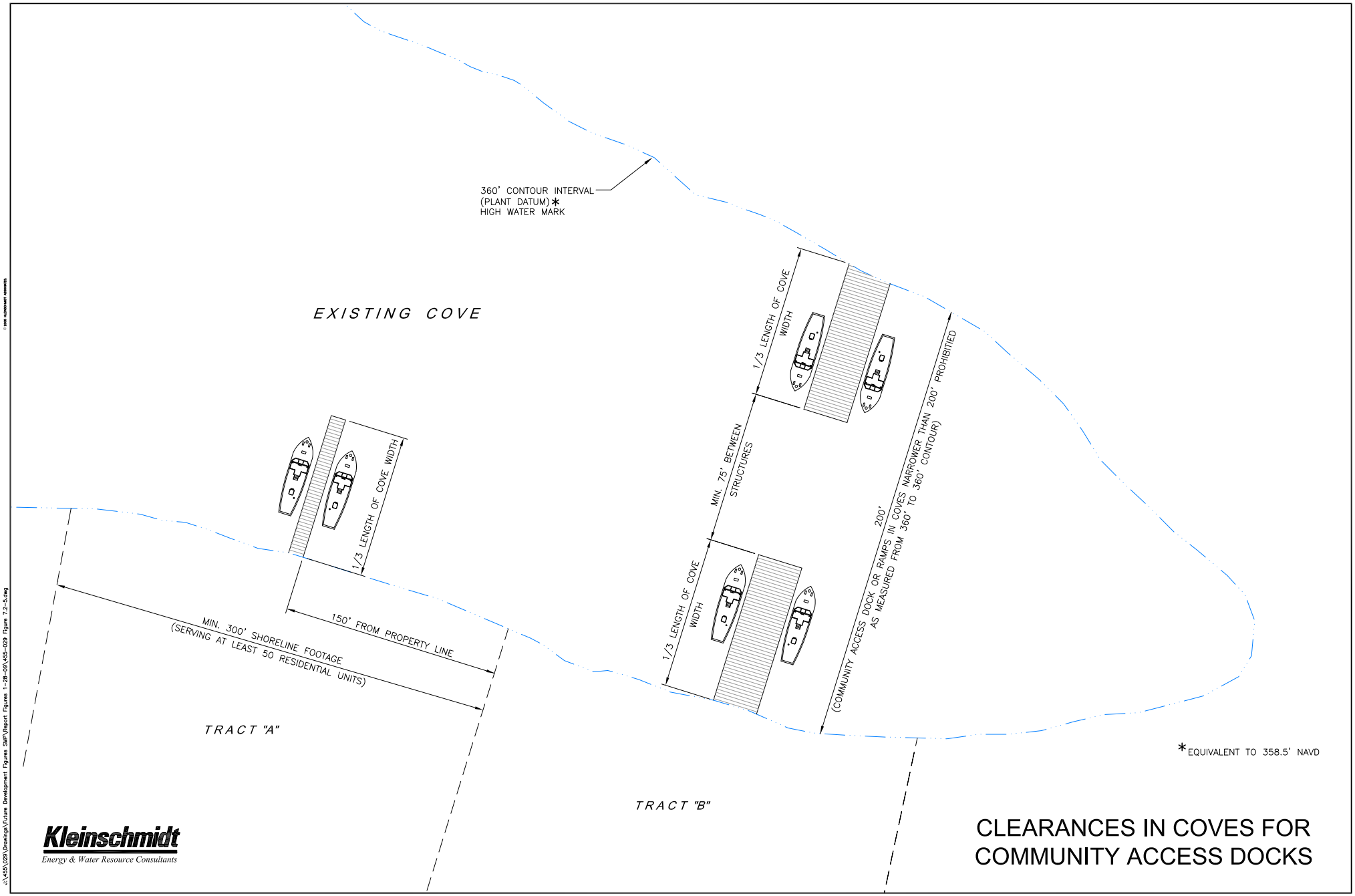


Figure 9-8: Example of Community Boat Ramp and Courtesy Dock on Easement Properties

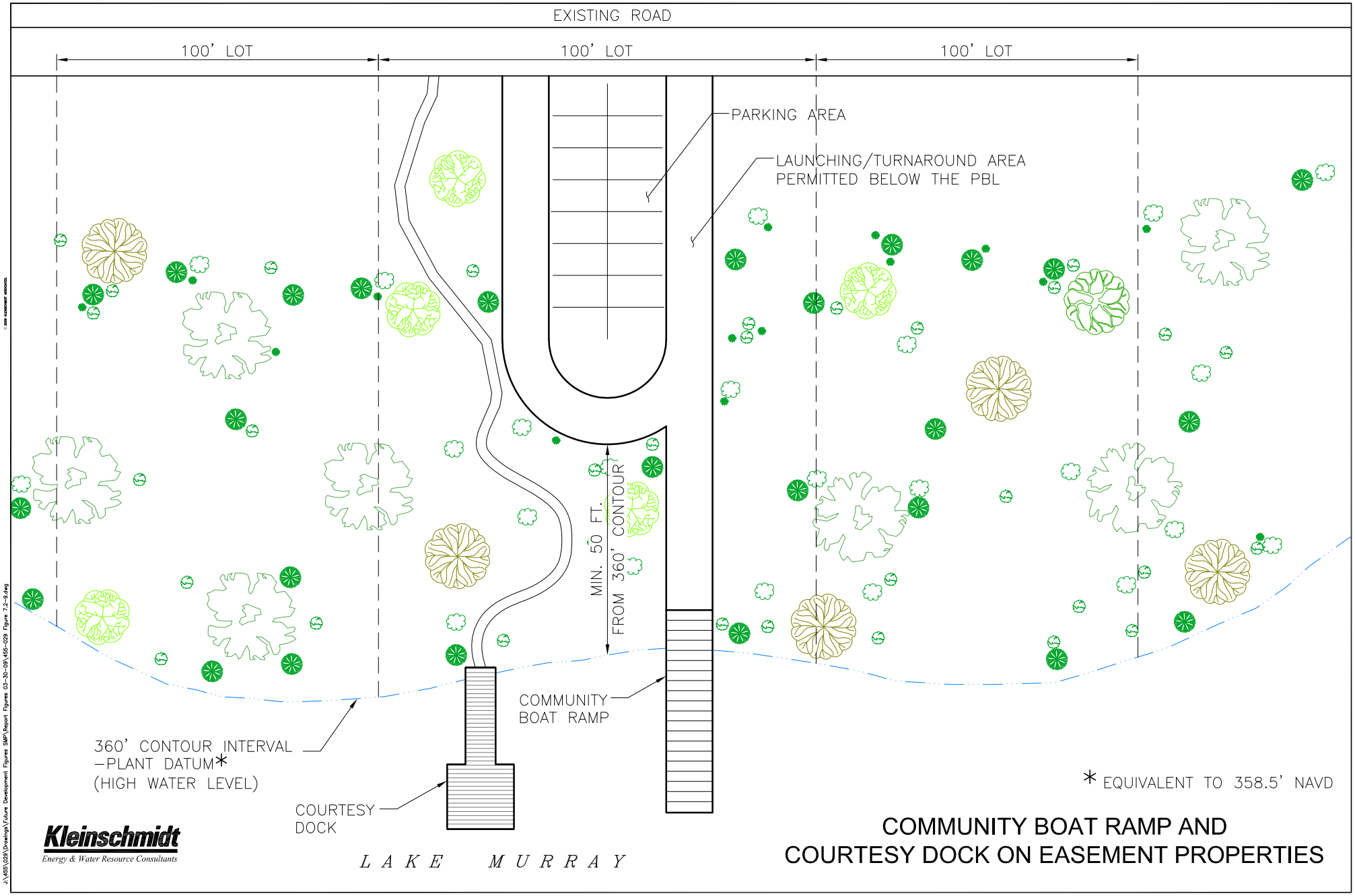


Figure 9-9: Example of Community Boat Ramp and Courtesy Dock on Pre-2007 Future Development Properties

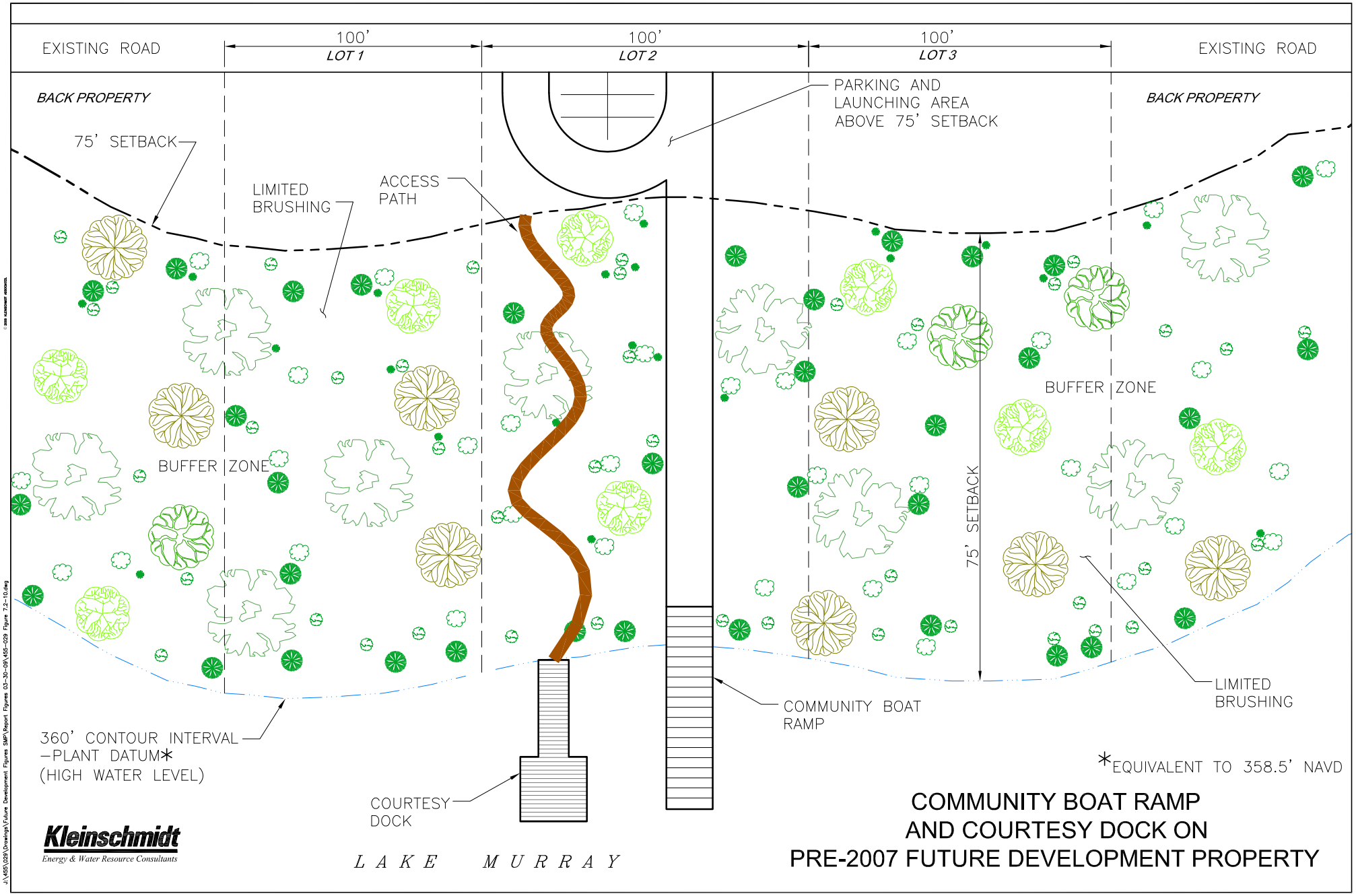


Figure 9-10: Example of Community Boat Ramp and Courtesy Dock on Post-2007 Future Development Properties

Figure 9-11: Example of Multi-slip Dock Layout on Easement Properties

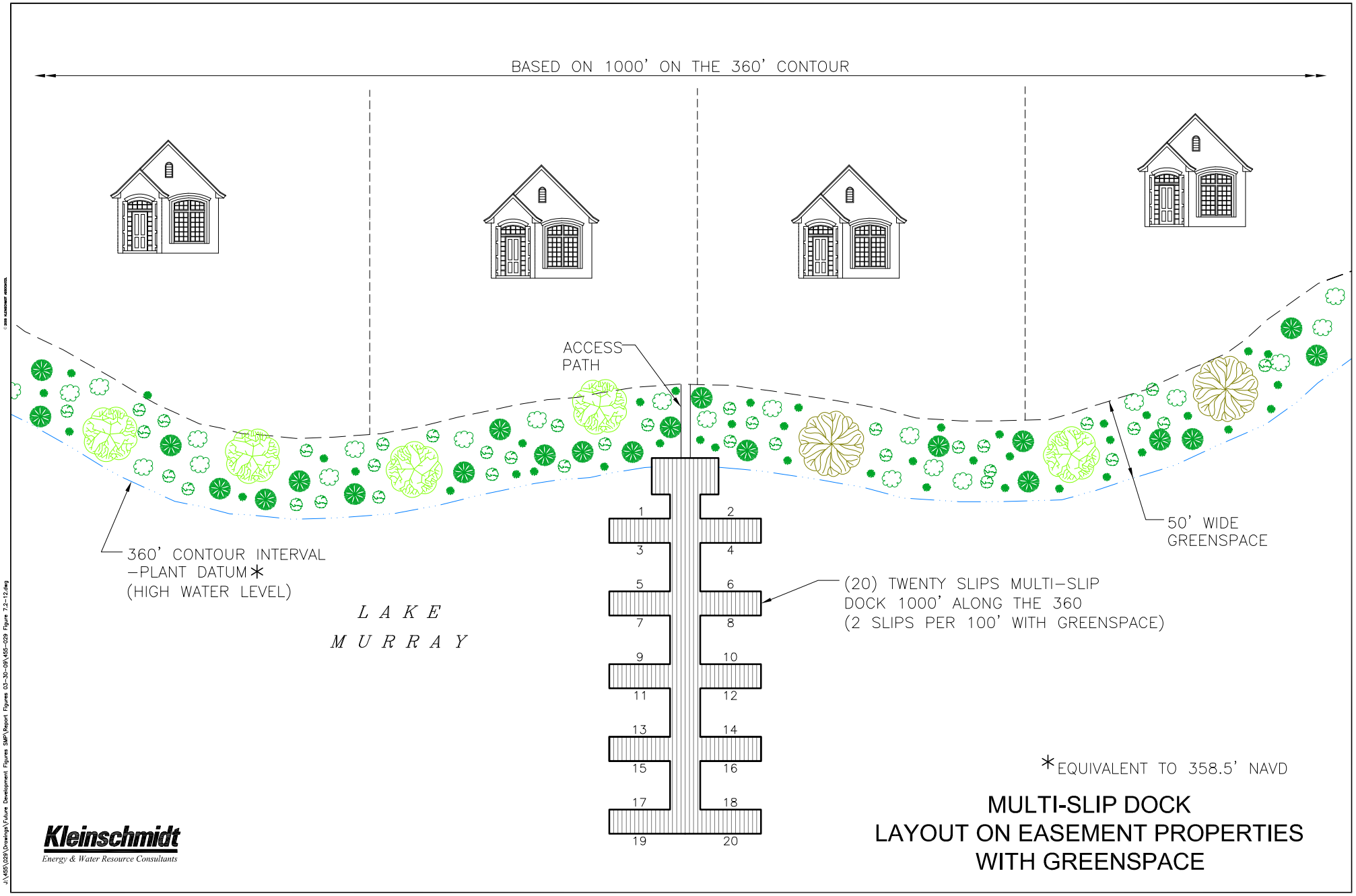


Figure 9-12: Example of Multi-slip Dock Layout on Pre-2007 Future Development Properties

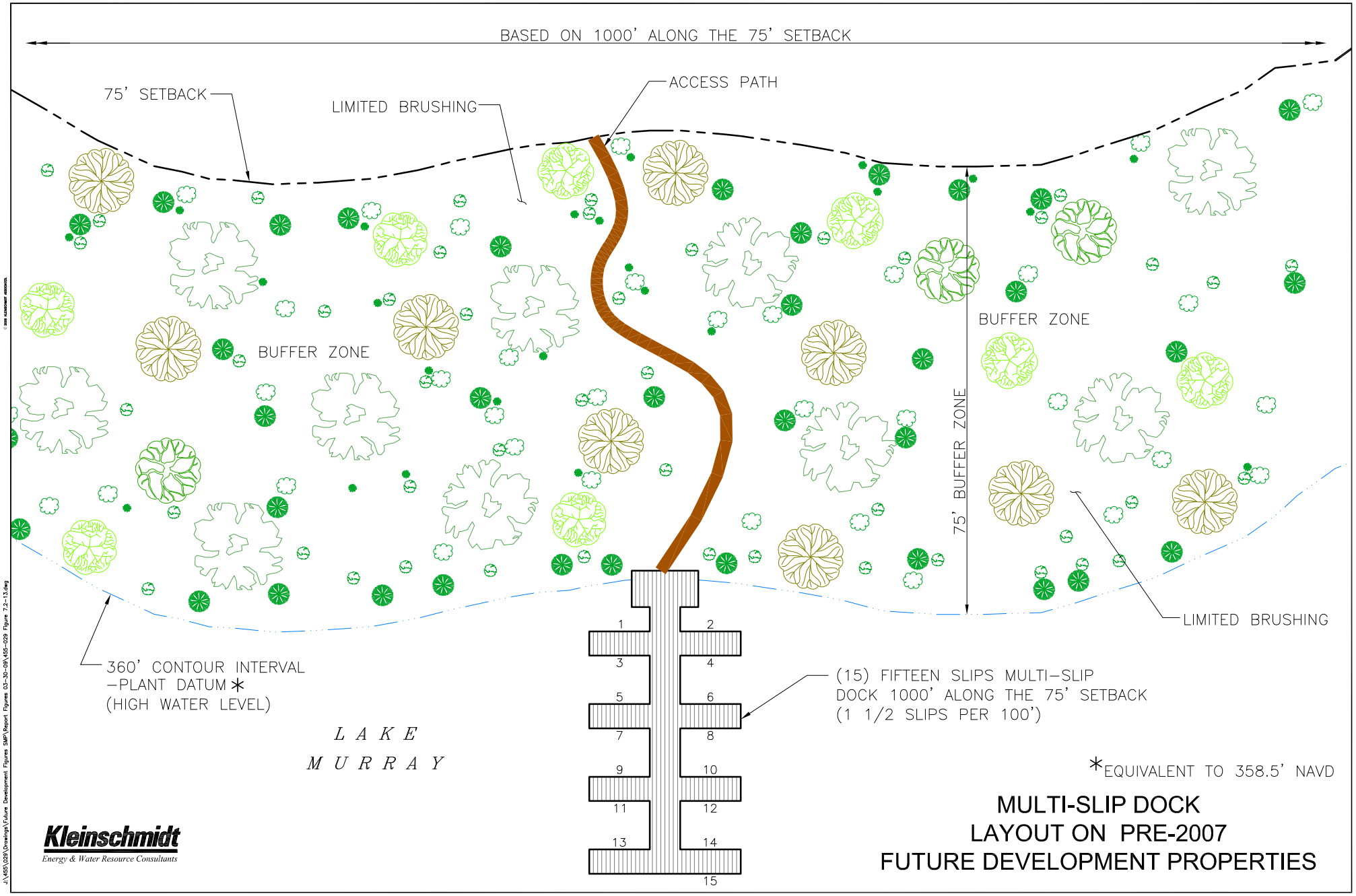


Figure 9-13: Example of Multi-slip Dock Layout on Post-2007 Future Development Properties

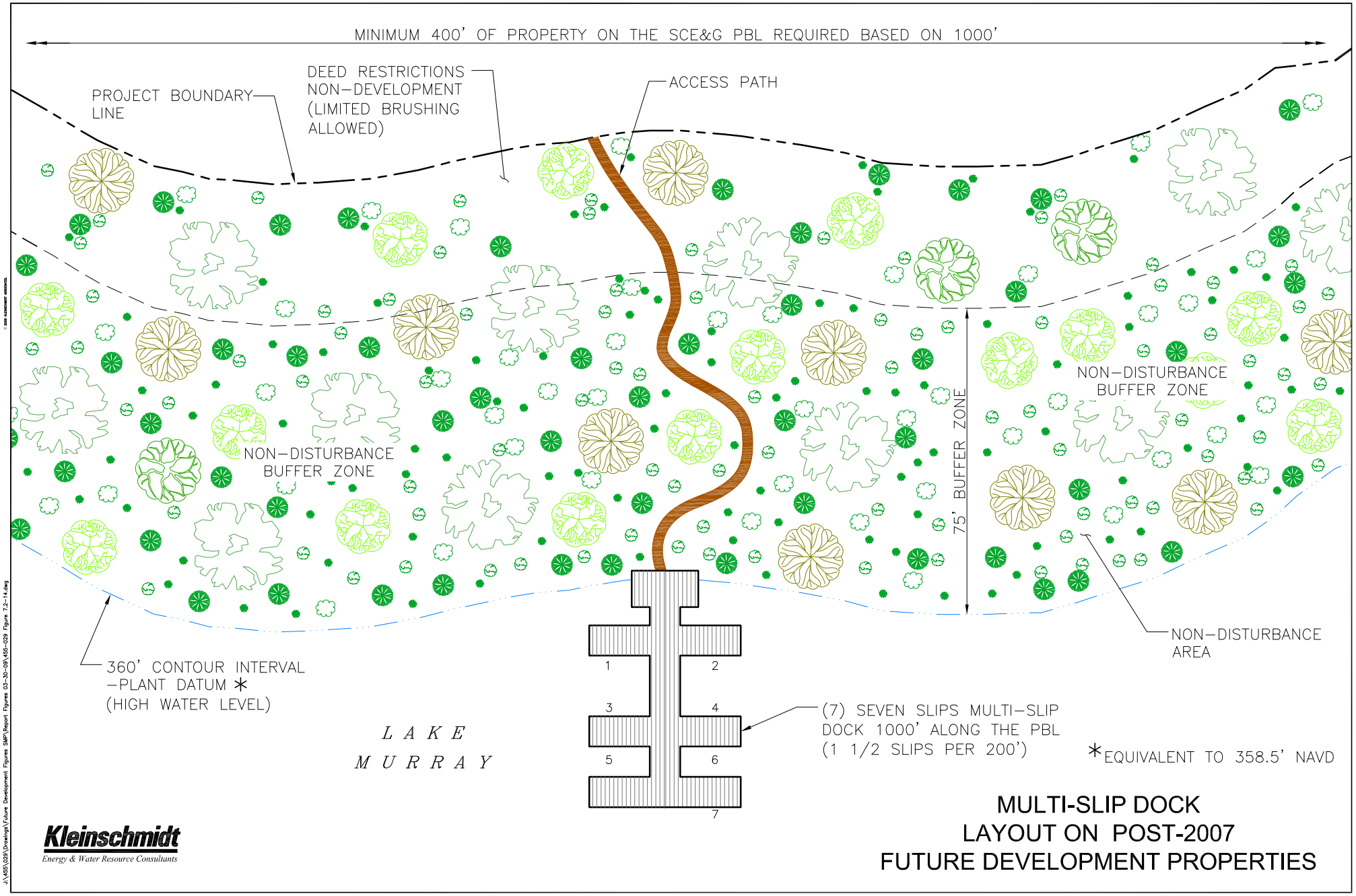


Figure 9-14: Potential Layout for Commercial Marina Facility Accommodating 20 or Fewer Watercraft

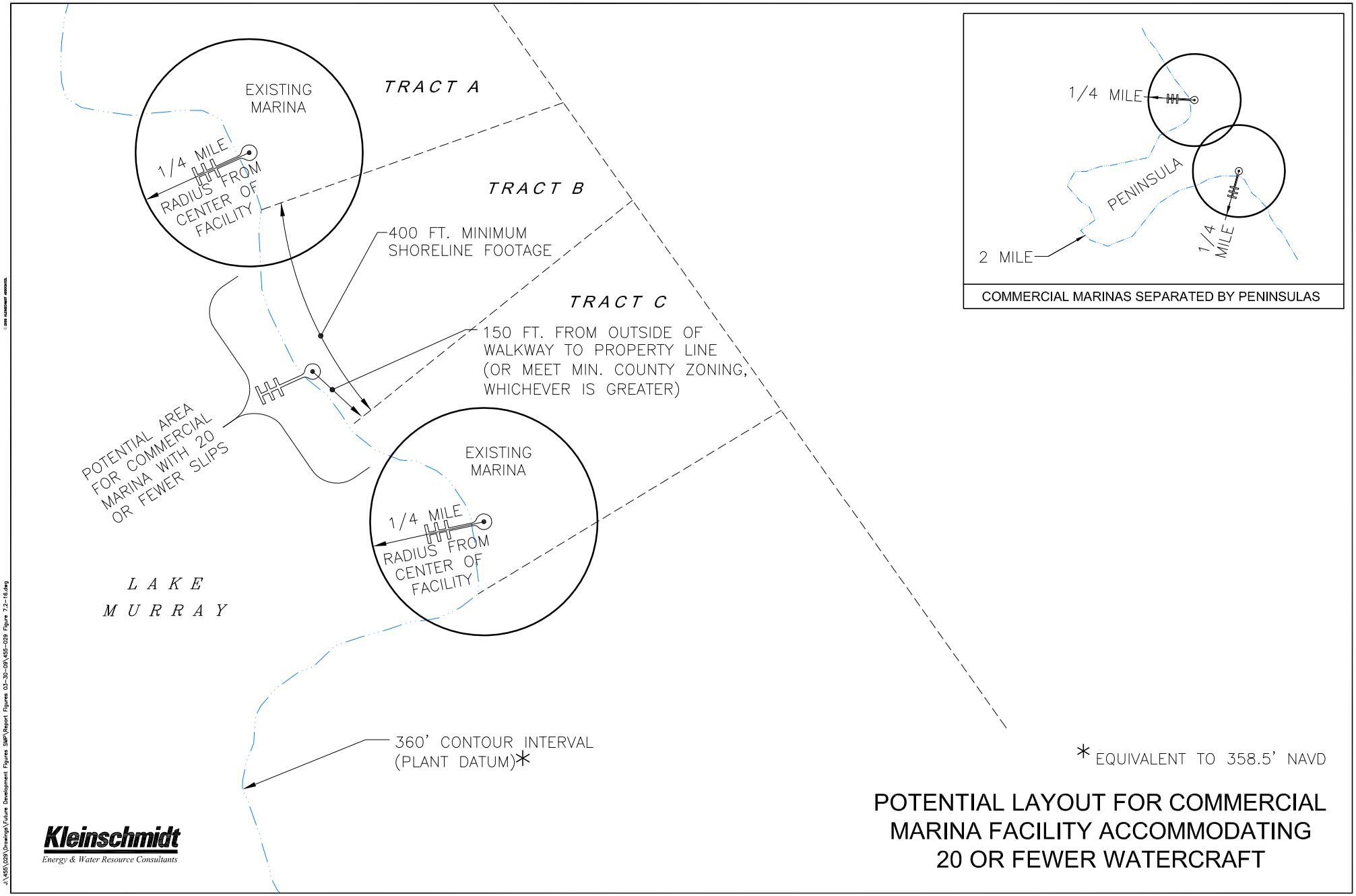


Figure 9-15: Potential Layout for Commercial Marina Facility Accommodating 21 to 100 Watercraft

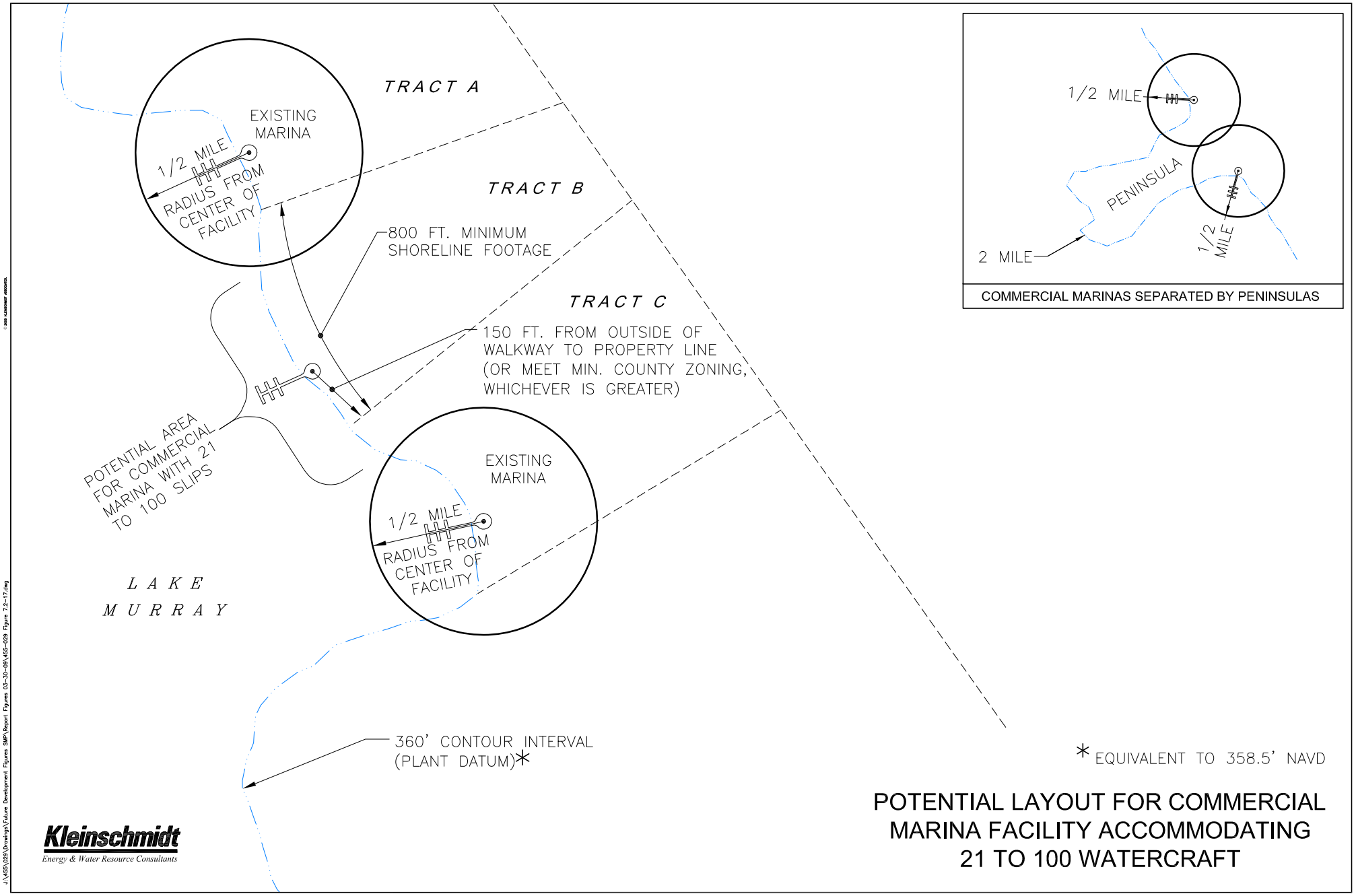


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Figure 9-16: Potential Layout for Commercial Marina Facility Accommodating 101 to 250 Watercraft

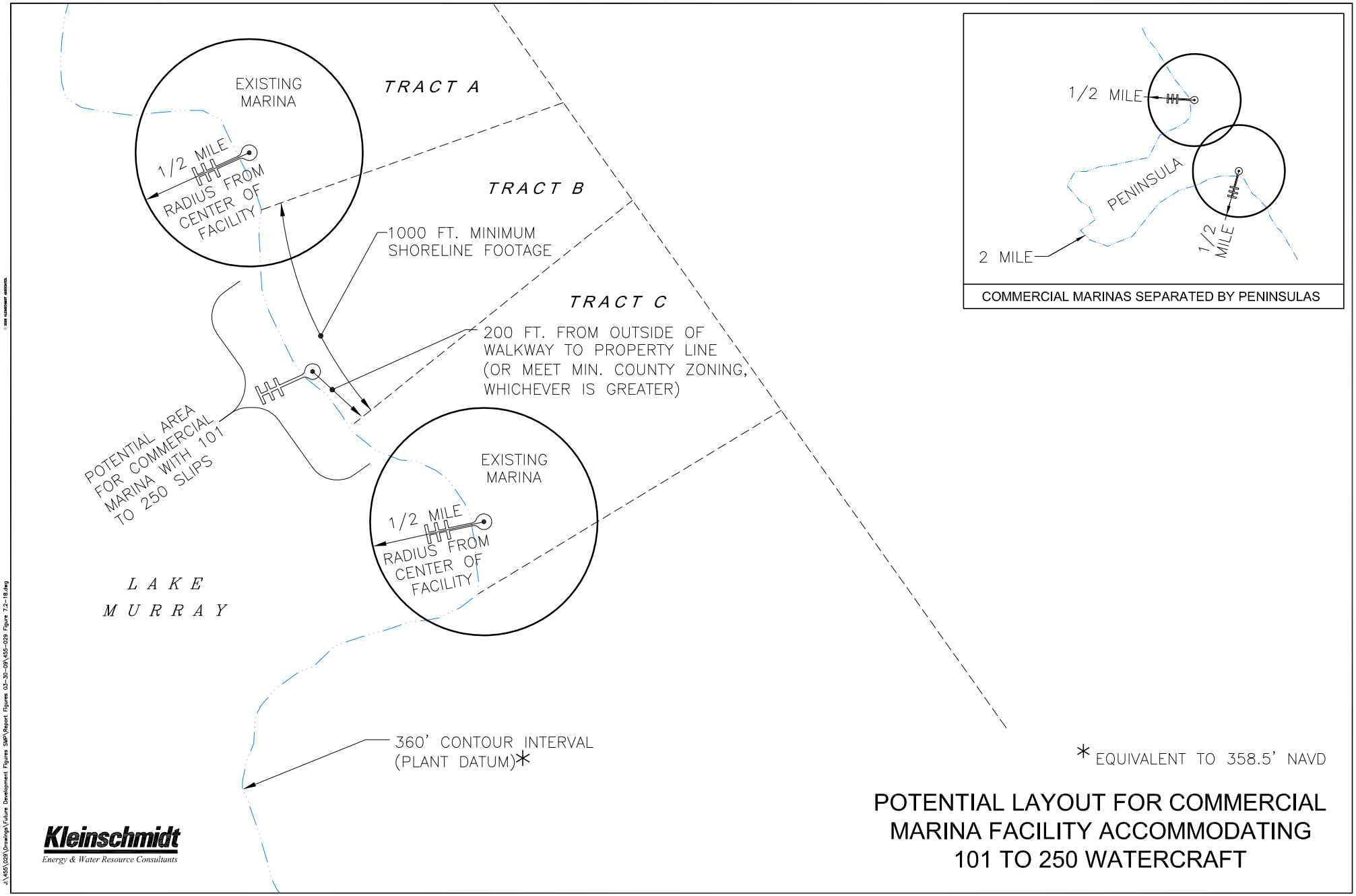
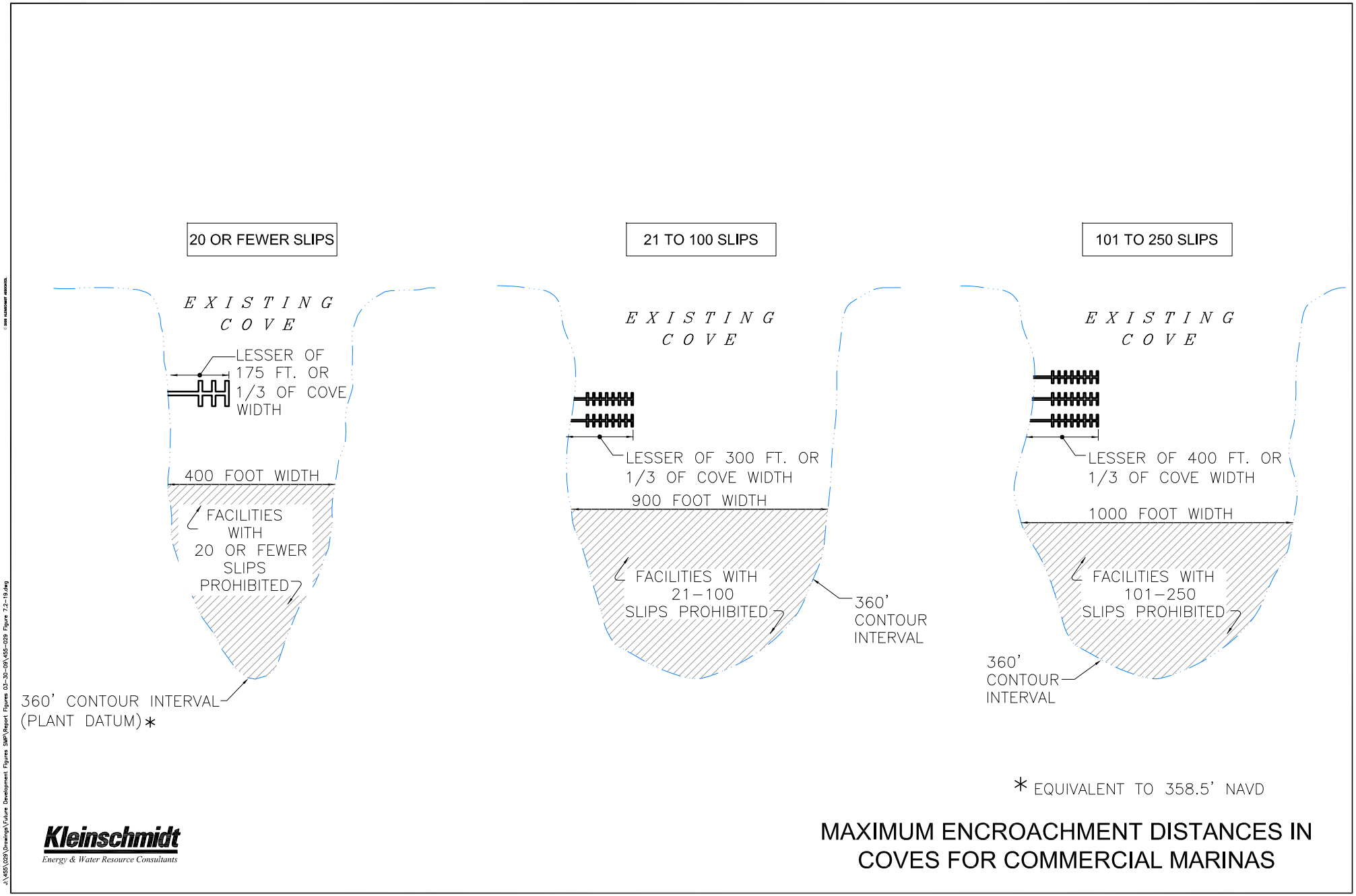


Figure 9-17: Maximum Encroachment Distances in Coves for Commercial Marina Facilities



9.3.7 Boat Ramps, Boat Lifts, Marine Railways, Etc.

A permit application must be submitted to SCE&G for the construction or modification of boat ramps, boat lifts, personal watercraft lifts and/or marine railways. SCE&G encourages the use of boat ramps at public and semi-public facilities versus construction of private ramps. No individual boat ramps will be permitted on Buffer Zone property and where a subdivision has a common access area with a ramp. See the Permitting Handbook for more details.

10.0 SCE&G PERMITTING FEE POLICIES

FERC allows SCE&G the right to charge a reasonable fee to cover the costs of administering its Shoreline Permitting Program, which adds significant management responsibilities and costs to SCE&G's operation. This will ensure that activities occurring on Project lands are consistent with the overall goals for the project. Such fees can be a one-time or annual cost.

SCE&G will give adequate public notice through appropriate communication avenues before changing the fee structure. Failure to comply with this policy may result in the revocation of existing permits, fines, or legal action, as well as loss of consideration for future permits.

11.0 ENFORCEMENT OF SHORELINE MANAGEMENT PLAN

11.1 Violations of Shoreline Management Plan

SCE&G conducts annual surveys of the land below the 360' PD contour to inventory and inspect docks built and permitted throughout the year. They also make note of unauthorized structures and urge residents and other lake visitors to report what they believe may be unauthorized activity below the 360' PD contour as well as in Buffer Zones. If one believes that an activity that violates the Shoreline Management Plan is occurring, one should contact SCE&G Lake Management at (803) 217-9221.

SCE&G Lake Management representatives will issue Stop Work Directives for any violations detected on SCE&G property. Any unauthorized clearing of the trees or underbrush will result in the immediate cancellation of an individual's dock permit as well as possible legal action to require re-vegetation of the affected area. Removal of merchantable timber will require reimbursement to SCE&G subject to valuation of the Forestry Operations Department. Additionally, consequences for violations may include legal action, fines, and loss of consideration for future permits.

12.0 BEST MANAGEMENT PRACTICES

In its ongoing commitment to protect natural resources at the Project, SCE&G actively supports programs to protect and improve the Lake Murray shoreline through the use of Best Management Practices (BMPs). BMPs are actions taken to lessen potential impacts to a particular resource resulting from its direct or indirect use. SCE&G has developed several management plans designed to preserve the health of the shoreline, and they also promote the use of BMPs through their Shoreline Permitting Program, which has been discussed previously in Section 9.3. In addition, SCE&G encourages property owners to protect the shoreline by incorporating voluntary BMPs. Below are management plans that support SCE&G's goal to employ greater use of BMPs as well as voluntary landowner-recommended BMPs.

12.1 SCE&G Shoreline Management

12.1.1 Shoreline Permitting Program

As described previously, SCE&G maintains a Shoreline Permitting Program as a means to monitor and regulate development and other activities along the Lake Murray shoreline. As a part of its permitting process, SCE&G requires that BMPs be employed when a permit recipient seeks to construct or perform any permitted activity or development. In particular, permits and consultation with SCE&G are required to build structures, perform excavation, apply any erosion control means, or remove vegetation or woody debris below the 360' PD contour and in Buffer Zones. If activities such as these are not carried out carefully, they can threaten shoreline and lake resources through soil erosion, water pollution, and habitat degradation. Removal of vegetation and woody debris weakens shoreline stability and eliminates valuable wildlife habitat.

12.1.2 Erosion Control

Shoreline erosion is a concern in some areas where the lakeshore is exposed to prolonged or recurrent wind and wave action. Such erosion, if in excess, can lead to sedimentation of the lake destroying aquatic habitats and clogging drainage ditches, stream channels, water intakes, and the reservoir in general. In 2002, SCE&G instituted a Sedimentation and Erosion Control Plan that is aimed at identifying, prioritizing, and stabilizing severely eroded shoreline on recreation lands and SCE&G-owned islands. A new Sedimentation and Erosion Plan, which recently has been revised by the Lake and Land Management TWC (Appendix C), was filed with the FERC in 2006.

In addition, SCE&G supports voluntary efforts to address shoreline erosion by back property owners. To ensure that appropriate and effective techniques are used, SCE&G monitors erosion control projects through their Shoreline Permitting Program, as discussed in Section 9.3. Private property owners who wish to employ erosion control measures must use SCE&G-approved methodologies appropriate for the specific situation.

Because shoreline vegetation serves several important functions (i.e., soil integrity, wildlife habitat, water cleansing functions, and aesthetic value) it is preferable to implement vegetative shoreline stabilization techniques to address soil erosion problems, whenever possible. These techniques are referred to as *soil bioengineering*, and consist of installing living plant material as a main structural component in controlling problems of land instability. Plants used should consist of native species that, ideally, have been collected in the immediate vicinity of a project site to ensure that they are well-adapted to site conditions. The ultimate goal in using bioengineering techniques is for the natural establishment of a diverse plant community to stabilize the site through development of a vegetative cover and a reinforcing root matrix.

Bioengineering techniques are most effective at sites with limited exposure to strong currents or wind-generated waves. Areas experiencing strong erosional pressure may also warrant the use of structural erosion control methods, such as rip-rap, seawalls, or retainer walls. Areas with high-gradient banks or those in advanced stages of erosion may also benefit from a structural component. The optimal solution at a given location often involves using a combination of techniques that provides both structural and environmental benefits to the shoreline. Numerous bioengineering methodologies and devices are available to address various erosion problems. Examples of erosion control designs that utilize both vegetation and structural elements are provided in Figure 12-1 and Figure 12-2. As depicted in the figures, sheetpile and rip rap can provide immediate shoreline stability while plantings become established to add root-based soil integrity. The number of erosion control designs is numerous, and the most appropriate methodology depends on the slope and erosion pressure at a particular spot as well as homeowner preferences. Figure 12-3 and Figure 12-4 depict general guidance on using rip rap and retaining walls. SCE&G's Lake Management Department is available to provide technical assistance and help homeowners choose the design right for them and the lake environment.

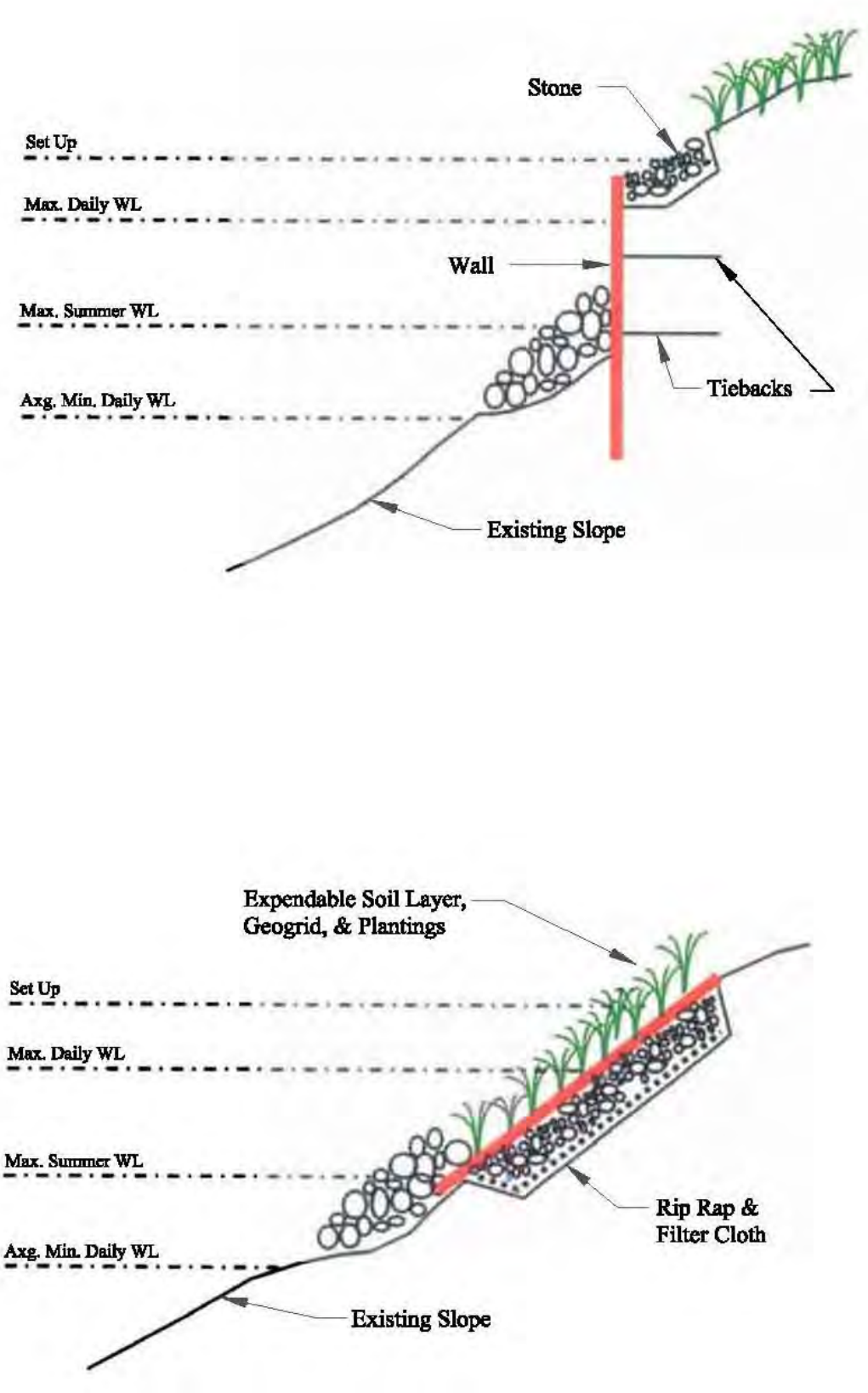


Figure 12-1: Examples of Shoreline Erosion Control Designs Utilizing Bioengineering and Structural Technologies (a)

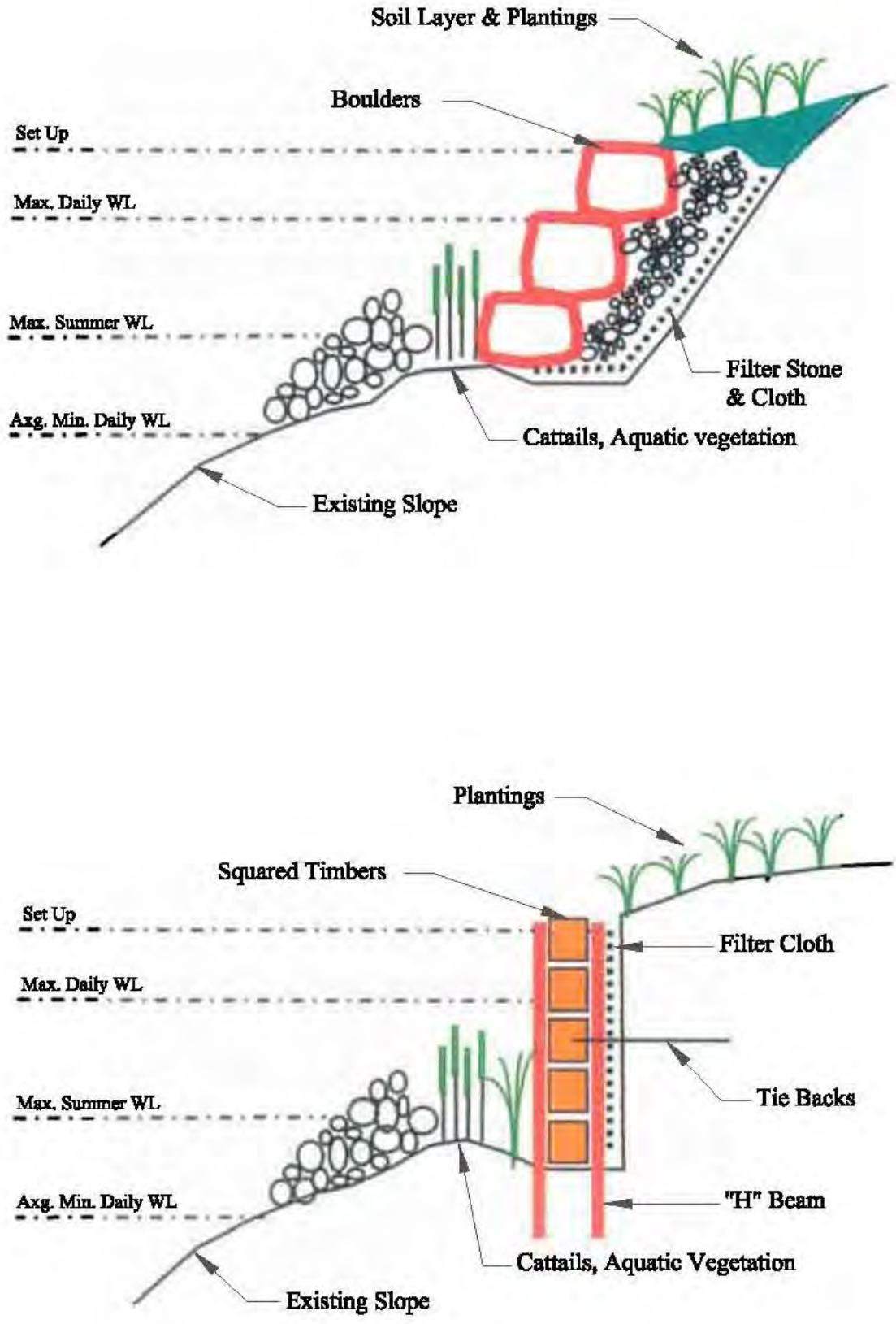


Figure 12-2: Examples of Shoreline Erosion Control Designs Utilizing Bioengineering and Structural Technologies (b)

Figure 12-3: General Guidance for Typical Shoreline Stabilization Retaining Wall

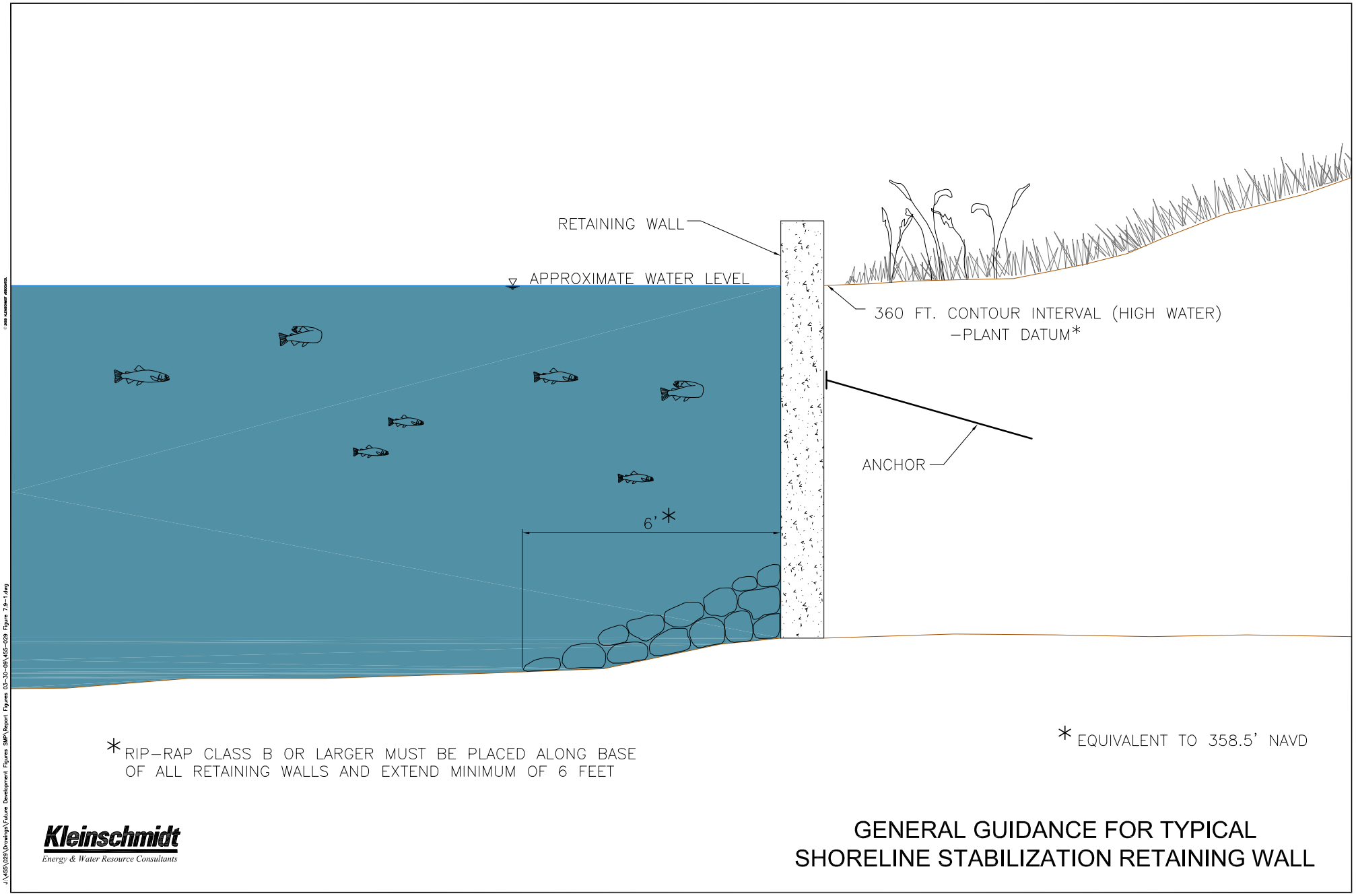
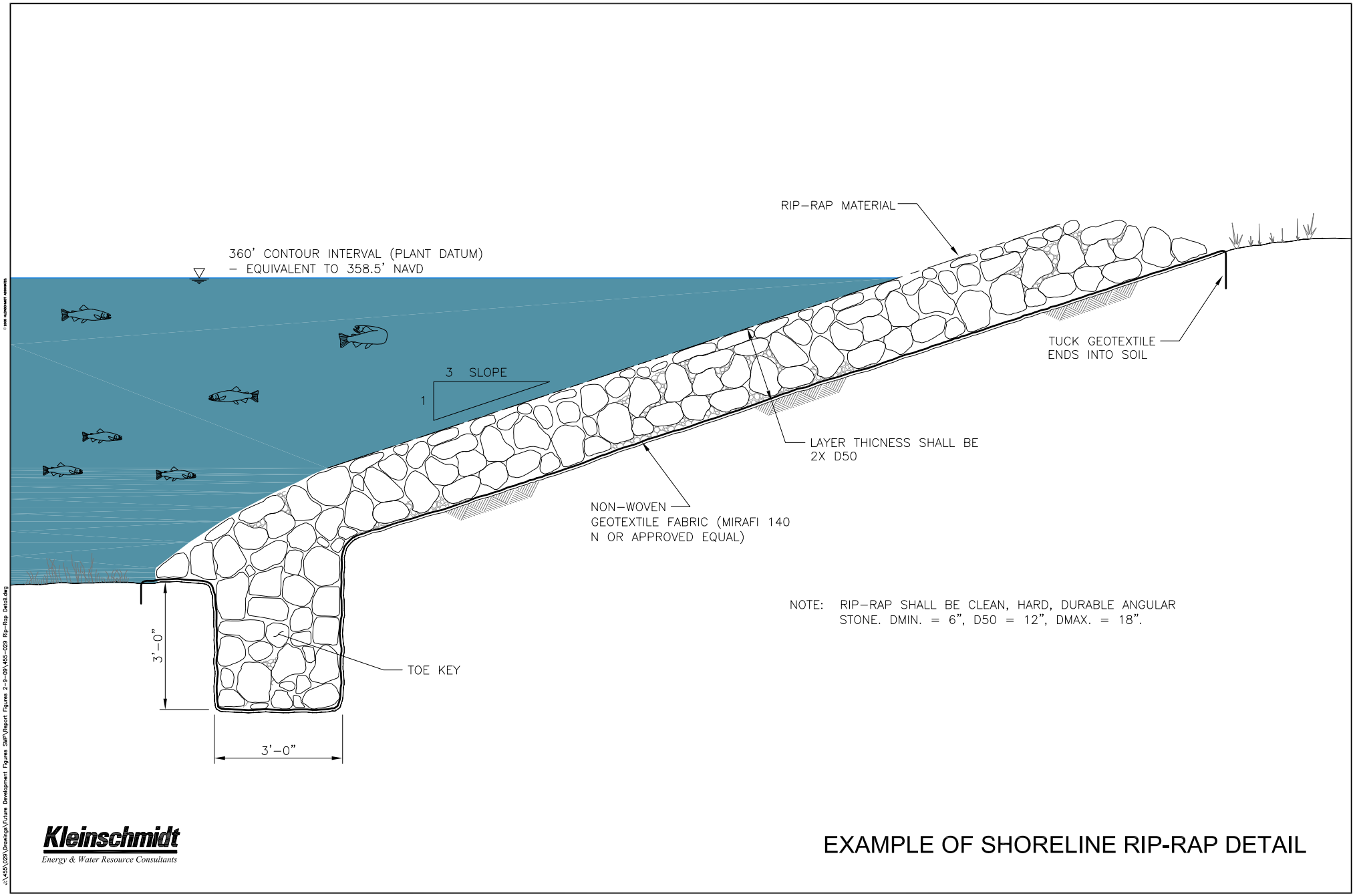


Figure 12-4: Example of Shoreline Rip-rap Detail



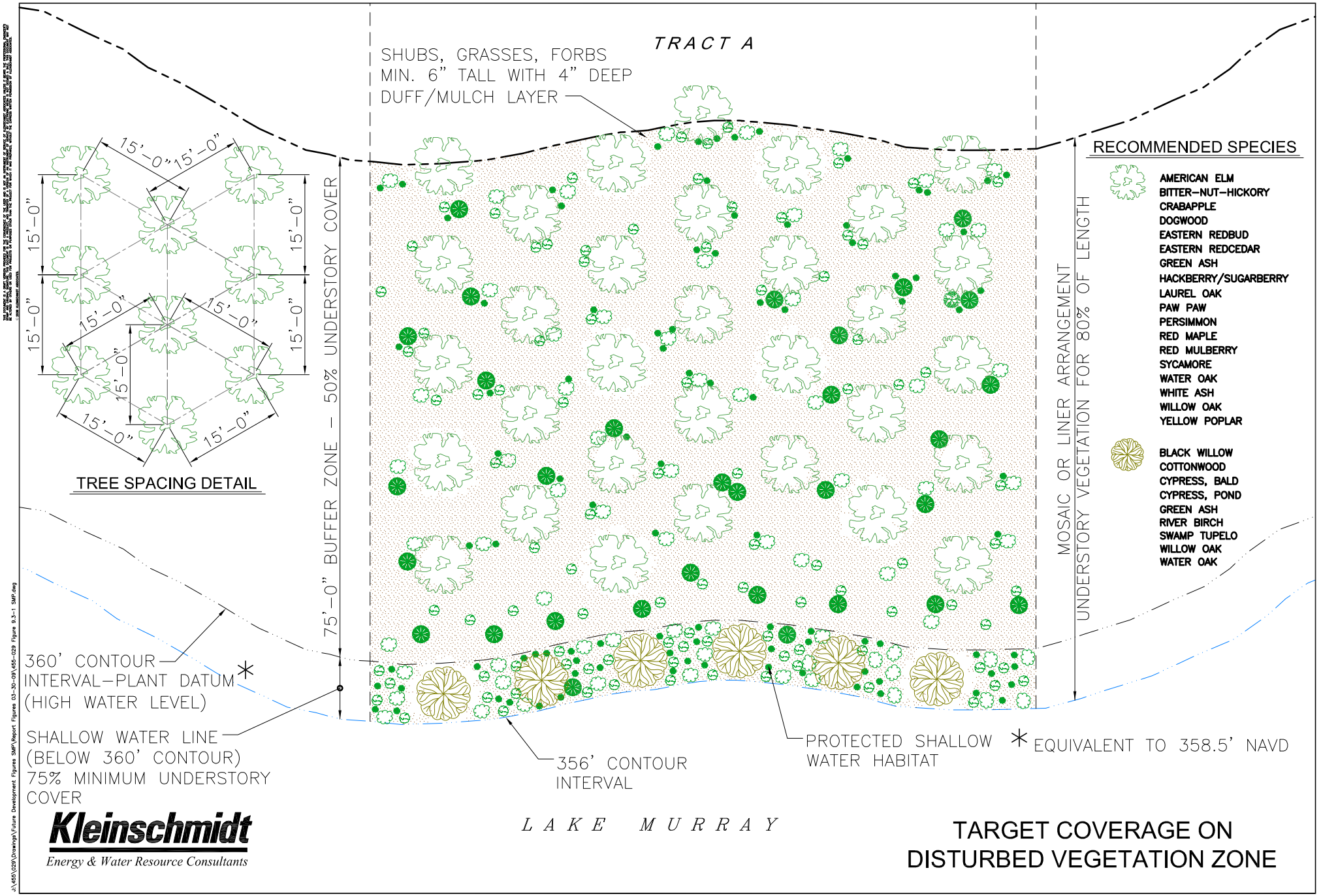
12.1.3 Re-Vegetation of Disturbed Areas

Vegetation along the shoreline is an important component of a healthy reservoir ecosystem. SCE&G sets limits for clearing vegetation below the 360' PD contour and in Buffer Zones. Occasionally, however, vegetation in these areas is disturbed beyond what is permitted in the guidelines. Regardless of whether a disturbance is man-made or natural, intentional or unintentional, SCE&G encourages re-vegetation of these areas. Implementation of a re-vegetation plan is recommended to enhance vegetated buffers, thereby improving biodiversity, providing erosion protection, adding or maintaining filtering capacity, and protecting the aesthetics of a "natural" shoreline.

In the event of disturbance within the Buffer Zones, the landowner is encouraged to submit a site-specific re-vegetation plan to SCE&G for approval and complete replanting during the subsequent growing season. Essentially, the plan will serve as a guiding document to ensure that the disturbed areas are stabilized using native forbs, grasses, shrubs and trees as needed, and to allow natural succession to continue.

A re-vegetation plan must, at a minimum, comply with guidelines set forth by SCE&G (see Appendix B). Plant species and density used to re-vegetate a particular location will be determined based on the inherent properties of the area, such as topographic slope, as well as whether it is in the riparian or upland zone. The re-vegetation guidelines also provide requirements on percent plant cover, mulch depth, recommended native species, and tree removal (Figure 12-5). Buffer Zones that have been restored are inspected annually to check survival of planted species and compliance with the re-vegetation plan. Landowners are required to provide annual photo documentation of planted area for a period of 5 years. Failure to comply with the re-vegetation plan could result in the termination of the violator's dock permit.

Figure 12-5: Target Coverage on Disturbed Vegetation Zone



12.1.4 Shoreline Enhancement Program

Since 1995, SCE&G has worked with the SCDNR and other lake interest groups to improve the Lake Murray shoreline through the *Lake Murray Shoreline Habitat Enhancement Project*, which was designed to re-establish shoreline vegetation, protect water quality, and provide improved habitat for fish and other wildlife. Through this program, SCE&G gives away and/or plants thousands of trees annually along the Lake Murray shoreline. In particular, it actively sponsors an annual planting of native, aquatic plants such as water willow, bald cypress trees, and button bushes along the shoreline as part of a joint effort with the Lake Murray Association (LMA), Lake Murray FISH, Bassmasters of South Carolina, and the SCDNR. Information on SCE&G's Lake Murray Shoreline Enhancement Project can be found www.sceg.com/en/my-community/lake-murray/lake-management.

12.1.5 Aquatic Plant Management Activities

Certain species of aquatic plants can become a significant nuisance to recreation and project operations if their populations are not kept in check. Some of the common problem species found in Lake Murray include hydrilla, water primrose, and several species of pondweed. When managing invasive and exotic aquatic plants it is important to also protect the aquatic ecosystems and fish habitat. This requires the integration and use of specific BMPs appropriate to the regional and local conditions.

SCE&G's Lake Management Department, in cooperation with the South Carolina Aquatic Plant Management Council, manages the Aquatic Weed Program on Lake Murray. Because aquatic weed control techniques can harm fish and native plant species, it is unlawful, per state and federal regulations, for individuals to spray or treat aquatic growth in the waters of Lake Murray. Thus, SCE&G asks that any aquatic vegetation problems recognized by lake visitors or back property owners should be reported to SCE&G's Lake Management Department and the SCDNR. In addition, to

help curb the spread of invasive aquatic species, SCE&G asks that lake visitors remove all vegetation from boats and trailers before and after placing them into the waters of Lake Murray.

12.2 Recommended Land Owner Best Management Practices (BMPs)

In addition to development activities, the environment around Lake Murray is susceptible to degradation due to residential and recreational activities that include improper fertilizer/pesticide use, boat maintenance, and debris disposal. Back property owners can make a significant positive contribution to the lake environment, and ultimately the watershed, by employing BMPs that preserve bank integrity and minimize non-point sources of pollution and contamination. It is important for back property owners to understand that using BMPs will preserve the scenic, environmental, and recreational qualities of the lake that they so highly value. Examples of effective BMPs recommended to back property owners are provided in the following sections. SCE&G is available to provide more information and to assist landowners in determining appropriate BMPs for activities on their properties. Also, contact the Natural Resource Conservation Service or local county extension office (http://www.sc.nrcs.usda.gov/contact/).

12.2.1 Minimizing Non-Point Source Pollution

Lake pollution is attributable to various activities related to residential development, agriculture, forestry, and construction. Pollutants and contaminants enter the lake and tributaries from overland flows that accumulate substances following rain events. This runoff water contains sediment, bacteria, oil, grease, detergents pesticides, fungicides, fertilizers, and other pollutants. Excessive amounts of pollution can overwhelm a lake's natural ability to filter and process chemicals and nutrients, which leads to degraded water quality and aquatic environments.

Although a single person or action may seem insignificant in its effect on the lake, the additive effects of the volume of people that live and use the resource are considerable. With this in mind, SCE&G encourages adjacent land owners to be mindful that they are a member of a larger community that uses the lake. Employing the following BMPs can go a long way in preserving and improving lake water quality:

- Use permeable paving materials and reduce the amount of impervious surfaces, particularly driveways, sideways, walkways, and parking areas;
- Dispose of vehicle fluids, paints, and/or household chemicals as indicated on their respective labels and do not deposit these products into storm drains, project waters, or onto the ground;
- Use soap sparingly when washing your car and wash your car on a grassy area so the ground can filter the water naturally;
- Use a hose nozzle with a trigger to save water and pour your bucket of used soapy water down the sink, not in the street;
- Maintain septic tanks and drain fields according to the guidelines and/or regulations established by the appropriate regulatory authority;
- Remove and dispose of pet waste properly in an area that does not drain to the lake; and
- Use only low or no phosphorous fertilizer on lawns near the lake.

12.2.2 Vegetation Management

As mentioned previously, vegetated shorelines are an important component of a healthy lake ecosystem. Their root systems help to stabilize the shoreline and to trap and filter runoff pollutants. Vegetation also provides valued wildlife habitat and increases the natural aesthetic quality of the shoreline. However, not all vegetation is equally beneficial, and many

gardening and lawn maintenance activities can harm the lake ecosystem if not applied properly. Some relatively simple ways that back property owners can ensure that their property contributes to the health of the lake environment include employing the following BMPs:

- Maintain native vegetation near the lake and drainage ways;
- Plant native trees, shrubs, and flowers for landscaping and gardens. Native species adapted to the climate will require less watering and chemicals (i.e., fertilizers, pesticides, herbicides, fungicides);
- Grow plants that provide food, shelter and habitat for birds, butterflies, and other wildlife, which play a part in maintaining a healthy, natural environment;
- Enrich the soil by using natural soil amendments such as compost, manure, and mulch;
- Minimize the area of lawn located near the shoreline. When planting lawn, use a low maintenance, slow growing grass that is recommended for your soil conditions and climate;
- Maintain the grass as high as possible to shade out weeds and improve rooting so less fertilizing and watering are required;
- Avoid dumping leaves or yard debris on or near the shoreline;
- Avoid applying excessive herbicides, fungicides, and pesticides. Apply them according to the instructions on their labels and never apply them just before a precipitation event; and
- Create and maintain a *rain garden* in the landscape to naturally filter runoff. A rain garden is an infiltration technique that captures water in specialized gardens containing native plantings. Rain gardens allow the water to slowly filter into the ground rather than run off into storm sewers.

13.0 PUBLIC EDUCATION AND OUTREACH

As explained previously, the Standard land use article within SCE&G's license directs them to oversee shoreline activities and to take action to prevent unauthorized uses of Project shorelines. This SMP is intended to establish proper shoreline use and development consistent with the FERC license, as well as the protection of public safety and environmental quality (water quality, natural habitat, aesthetics, etc.). To garner support and compliance from the public and lake users, it is key to educate them of the need to protect shoreline resources. Additionally, the public must be aware of the management and permitting programs put in place to provide this protection. To accomplish the task of increasing public awareness of the goals and objectives of this SMP SCE&G has developed an education and outreach program that includes the components described below.

13.1 SMP Education

SCE&G's Public Education and Outreach program aims to educate the public on various aspects of the management of Lake Murray, including the Shoreline Permitting Program, recommended BMP use, relevant Project Operations information, and the Safety Program. To accomplish this, SCE&G uses various public education measures including informational pamphlets, public meetings, newsletters, and an internet webpage.

The Internet, in particular, offers an excellent opportunity for disseminating information and improving awareness. Currently, SCE&G maintains a website that is designed to provide information on the SMP and the Shoreline Permitting Program. Hard copies of the following materials can also be obtained by contacting SCE&G Lake Management at (803) 217-9221. Information and materials that will be available at the website include the following:

- Permitting Handbook;
- Permit application forms;
- Examples and information on Best Management Practices (BMPs);

- Alternative and example designs for shoreline stabilization; and
- Useful links and other related information.

Additional outreach mechanisms that SCE&G intends to use to help implement the SMP are the following:

- Conduct a SMP Implementation Workshop;
- Conduct annual training workshops for construction contractors, realtors, and property owners;
- Speak at homeowner and other organizations' meetings;
- Continue to provide information to realtors and encourage that this information be provided to all potential lake shore property buyers; and
- Develop and distribute a new "user friendly" brochure that will include general lake information, permitting process, shoreline BMPs, and relevant contact information.

13.2 BMP Education

Because the use of BMPs outside of the Shoreline Permitting Program is voluntary, SCE&G recognizes that educating the public to their necessity is vital. With assistance from relicensing stakeholders and other interested parties, SCE&G supports public education efforts to encourage the adoption of shoreline BMPs as well as any other BMPs promoted by state and/or regulatory authorities.

As a means to encourage BMP use by all back property owners, SCE&G hosts annual information meetings with local contractors, home owner organizations, and other interested parties to ensure all are made aware of the notification and permit requirements prior to work and encouraging the use of all BMPs for sustainable shoreline management. Appropriate literature will be given to property owners and their contractors illustrating BMPs suggested practices for any construction work. SCE&G will also provide technical assistance during the permitting process for any

construction projects. In addition, literature will be provided advising property owners about buffers, protecting native vegetation and native weed beds and other shoreline management BMPs.

13.3 Backyard Habitat Programs

Natural vegetation that provides habitat and filtering qualities can be administered by the homeowner under the South Carolina Wildlife Federation's (SCWF) Backyard Wildlife Habitat Program. The SCWF in association with the National Wildlife Federation provides information to South Carolina residents on ways to enhance and restore wildlife habitat on their property and in the community. Various combinations of native vegetation are suggested to provide cover, food, nursery and wetlands habitat for wildlife species. These habitat projects can be certified by the National Wildlife Federation through an application process. Further details on the Backyard Wildlife Habitat Program can be found at www.scwf.org/index.php?option=com_content&task=view&id=14&Itemid=29.

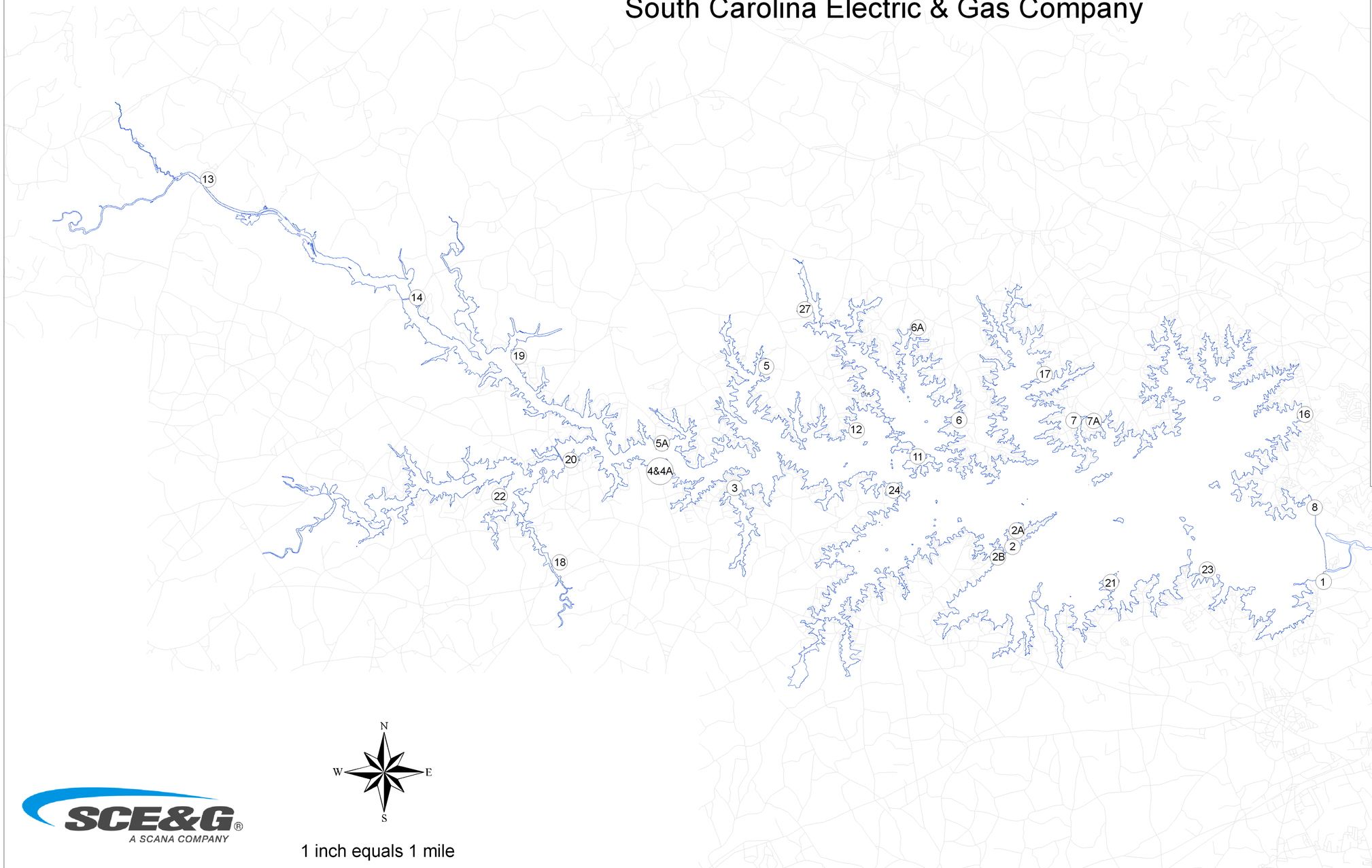
13.4 Public Access Area Maps

A figure depicting existing and future Public Access Areas is included below.

Figure 13-1: Public Access Area Map

Public Access Areas

Saluda Hydroelectric Project No. 516
South Carolina Electric & Gas Company



Existing Park Sites	Number	Acres
Dreher Island State Recreation Area	11	348
Dam Site - Irmo Side	8	6.8
Higgins Bridge	13	1.1
Hilton	7	4.4
Kempson Bridge	14	2.9
Lake Murray Estates Park	22	7.5
Macedonia Church	12	4.8
Murray Shores	3	1.6
Park Site - Lexington Side	1	17.9
River Bend	4&4A	11.6
Rocky Point	6	1.7
Larry L. Koon Boat Landing	2	1.8
Shull Island	2B	0.36
Sunset	5	2.3

Special Recreation Areas	Number	Acres
Two-Bird Cove	23	0
Hurricane Cove	24	0

Existing Future Park Sites	Number	Acres
Shull Island	2A	22.4
Simpson's Ferry	5A	11.58
Long Pine	6A	31.4
Hilton	7A	27.86
Water Treatment Plant	16	4.3
Stone Mountain	17	26.47
Cloud's Creek	18	3.04
Big Creek	19	22.34
Little Saluda Point	20	15.4
Bundrick Island	21	87.89

Lower Saluda Park Sites	Number	Acres
James R. Metts Landing	10	1
Gardendale	15	4.7
Saluda Shoals Park	9	160

N
W E
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1 inch equals 1 mile

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13.5 Public Service Announcements (PSA)

SCE&G will periodically issue Public Service Announcements through the use of the SCANA website, and/or the news media, on an as needed basis. Public Service Announcements may include topics regarding Lake and Land Management, as well as other issues affecting the Project.

13.6 Safety Programs

During the most recent Saluda Relicensing Process, the Safety Technical Working Committee, which was inclusive of agencies and public representatives, developed a Safety Program to be filed with FERC. This Safety Program was designed to complement the SMP and can be found at www.sceg.com/en/my-community/lake-murray/lake-management.

14.0 MONITORING AND REVIEW PROCESS

14.1 Overall Land Use Monitoring

Because SCE&G has recently modified its land management classification system, it will be important to monitor land use in the future to ensure the new system is appropriate. Also, as demographics and user groups change within the Project area, changes in residential and commercial areas may occur. Often this type of use change is incremental and cumulative, occurring over a period of years or decades. To monitor land use around Lake Murray, SCE&G will use a geographic information system (GIS) to compare new and existing permit applications against GIS data for the land management classifications. Such monitoring will provide long-term data useful in identifying areas experiencing change. Every ten years, during the SMP review process (see Section 14.2 on Review Process below), SCE&G will report on changes in land use for the various land management classifications in conjunction with Form 80 surveys. If it is found that major changes within the Project boundary have occurred that are not consistent with the current SMP goals, amendments to the SMP may be warranted. Such situations include large changes in land ownership, major commercial upgrades or uses, or new residential uses or pressures.

14.2 Review Process

Prior to the current License Application, SCE&G conducted a review of the SMP every five years, per the original license requirements. This small time interval proved to be ineffective because the review and revision process, which included gathering input and addressing issues from stakeholders, required several years to complete. In addition, it resulted in viewing conditions and activities around the lake at too fine a scale to identify true trends rather than temporary circumstances. In the new License Application, SCE&G proposed a change in the SMP review cycle to a 10 year interval. As in the past, SCE&G will solicit input from interested parties in addressing issues that arise and have a bearing on lake management. This includes keeping lines of communication open during the time between review periods. Concurrently with the FERC SMP review process, SCE&G will review annually with

interested stakeholders the Shoreline Permitting Program to ensure its effectiveness; however, changes to the permitting process may be made periodically, as needed, outside of the scheduled review periods.

The ten-year SMP review period allows for SCE&G to assess new issues that arise as a result of development around the lake, and allows for the analysis of cumulative affects. The review process will begin sufficiently in advance so that it will be completed within the 10 year time frame. One month prior to the scheduled start of the review process, its occurrence will be advertised in various media formats (e.g., web site, newsletter, contact with homeowner associations, etc.). SCE&G will use the same media avenues to issue a report on the outcome of the review process. Although SMP reviews will be scheduled every 10 years, SCE&G is always willing to listen to concerned stakeholders, particularly if unforeseeable circumstances warrant a review of particular sections of the SMP.

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APPENDIX A

WOODY DEBRIS & STUMP MANAGEMENT PLAN

SOUTH CAROLINA GAS & ELECTRIC COMPANY

COLUMBIA, SOUTH CAROLINA

SALUDA HYDROELECTRIC PROJECT

FERC NO. 516

FERC COMPLIANCE ARTICLES

WOODY DEBRIS MANAGEMENT PLAN

JANUARY 2006

SOUTH CAROLINA GAS & ELECTRIC COMPANY
COLUMBIA, SOUTH CAROLINA

SALUDA HYDROELECTRIC PROJECT
FERC NO. 516

FERC COMPLIANCE ARTICLES

WOODY DEBRIS MANAGEMENT PLAN

JANUARY 2006

SOUTH CAROLINA ELECTRIC & GAS
SALUDA HYDROELECTRIC PROJECT
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SOUTH CAROLINA ELECTRIC & GAS
SALUDA HYDROELECTRIC PROJECT
(FERC PROJECT NO. 516)

FERC COMPLIANCE ARTICLES

WOODY DEBRIS MANAGEMENT PLAN

This plan was prepared in compliance with the requirements of the Federal Energy Regulatory Commission's (FERC or Commission) Order Approving Land Use and Shoreline Management Plan for FERC Project No. 516, issued and effective June 23, 2004 and subsequent Order Clarifying and Modifying the June Order, issued and effective October 28, 2004. Paragraph E of the June 23 Order and Paragraph F of the October 28 Order require South Carolina Electric & Gas (SCE&G) to develop and file a plan, by June 23, 2005, for managing large woody debris, for fish habitat restoration and public safety on Lake Murray. On May 31, 2005, SCE&G requested a time extension until January 31, 2006.

This plan addresses management of woody debris below the 360' foot contour (Plant Datum) (the 360).

1.0 BACKGROUND

In 1980, pursuant to a FERC order in FERC Docket No. E-7791, SCE&G established a shoreline management plan (SMP), a part of which consisted of a shoreline classification system. Among other things, this classification system included a category of lands classified as "future private development." In 1984, as part of the new license issued by the FERC for Project No. 516, the Commission re-approved, with modification, the 1980 SMP. Future private development lands (Future Development Lands) include properties classified such that they could be considered for future sale.

Woody debris consists of both large and small woody vegetation that is floating or submerged, stationary or transitory, exposed or transported by lake fluctuations and flows, and is subject to decay.

- *Submerged woody debris* is stationary and generally consists of submerged or partially submerged tree stumps or deadfalls.
- *Floating woody debris* is considered transitory and enters the watershed either through flooding or by felling of shoreline vegetation. Floating debris is generally distributed by wind and wave action and collects in coves and inlets on the lake.
- *Shoreline woody debris* is generally considered to include trees and other woody litter that falls partially into the water from the shoreline (trees fall over or snap off). Shoreline woody debris may remain high enough on the bank so that it is not dislodged during periods of high water. Shoreline woody debris that does not remain stable is considered "floating" woody debris; shoreline woody debris that falls completely in the water and rests on the bottom of the lake is considered "submerged" woody debris.

Submerged and shoreline woody debris provides habitat for many species of fish, macroinvertebrates, birds, reptiles and mammals. Even floating debris may eventually settle and provide aquatic habitat for some species. Woody debris may also pose a boating hazard or be an impediment to navigation.

2.0 GOAL

The goal of this plan is to identify and implement options to manage woody debris to maintain fish and wildlife habitat value and to minimize potential navigational and safety hazards. This plan provides management guidelines below the 360 foot contour for (a) areas of stable (stationary and established for more than 2 years) submerged woody debris that may be sufficient in area and density to provide significant fish and wildlife habitat adjacent to future development areas; (b) transitory (floating) woody debris in Lake Murray; and (c) shoreline woody debris adjacent to lands classified for future development. Existing woody debris located on property identified as Forest and Game Management property and some Recreation property will not be disturbed.

Management strategies undertaken for woody debris management must comply with SCE&G's permitting program, erosion and sedimentation program, buffer zone management and

other management prescriptions detailed in the Shoreline Management Plan. Additional restrictions may apply if the woody debris is in an area identified as an environmentally sensitive area (ESA).

3.0 MANAGEMENT ACTIONS

As a baseline, SCE&G maintains a policy of no disturbance for any and all woody debris unless its removal is necessary for reasons of health and human safety, or the debris is so minimal that it is insignificant in the provision of fish or wildlife habitat.

3.1 Submerged Woody Debris

SCE&G's Shoreline Management Program allows limited removal of shoreline vegetation necessary for the construction and installation of docks and other permitted shoreline amenities. Shoreline property owners must obtain permission from SCE&G prior to removing shoreline woody debris below the 360 foot contour. If a dock is proposed for an area that contains significant, stable woody debris, SCE&G may propose an alternate location for the dock. For tree stumps which pose a material threat to safety, landowners may be allowed to cut them off to an appropriate level, depending on expected water depth and proximity to docks and other activity-related facilities.

While the presence of woody debris is considered to provide some fish and wildlife habitat, it can also present a safety hazard to those engaged in activities on the lake. Debris just below water level, particularly stumps, can pose serious safety risks, especially at the high speeds associated with water skiing and jet skiing, or with activities such as swimming, where jumping from fixed or floating facilities such as docks might occur. As such, consideration for safety and navigation needs is given priority with respect to woody debris management. SCE&G's woody debris management policy prohibits the removal of woody debris below elevation 360' unless it poses a clear safety or navigation concern, is brought to the attention of SCE&G's Lake Management Department personnel (Lake Management), and is approved by Lake Management. SCE&G will only allow removal of the portion of woody debris that poses the concern; the remaining woody debris is to be left intact.

3.2 Floating Woody Debris

Floating woody debris, may be removed by SCE&G, SCDNR, or any member of the boating public when encountered if it is reasonably considered a material public safety issue or impediment to navigation. The debris is typically removed from open water areas and taken to the shoreline. SCE&G encourages that it be secured onshore in undeveloped areas, preferably in areas not readily available to boaters for high speed navigation, such as the backs of coves and/or undeveloped lands.

3.3 Shoreline Woody Debris

Shoreline woody debris is managed in a manner similar to submerged woody debris. Limited removal of shoreline woody debris may be permitted to accommodate construction and installation of docks or other permitted shoreline amenities. However, should a dock be proposed for an area that contains significant shoreline woody debris, SCE&G may propose an alternate location for the dock or prohibit the dock altogether. Shoreline property owners must obtain permission from SCE&G to remove shoreline woody debris below the 360' foot contour. Unauthorized removal of stable shoreline woody debris may result in the cancellation of dock permits and/or other shoreline amenity permits and a requirement that there be appropriate mitigation for the improper woody debris removal.

Shoreline woody debris agreed by SCE&G to be a navigation hazard may be removed.

APPENDIX B

BUFFER ZONE MANAGEMENT

SOUTH CAROLINA ELECTRIC & GAS COMPANY

COLUMBIA, SOUTH CAROLINA

SALUDA HYDROELECTRIC PROJECT

FERC PROJECT NO. 516

BUFFER ZONE AND SHALLOW WATER HABITAT MANAGEMENT PLAN

DRAFT

SEPTEMBER 2007

Prepared by:

Kleinschmidt

Energy & Water Resource Consultants

SOUTH CAROLINA ELECTRIC & GAS COMPANY
COLUMBIA, SOUTH CAROLINA

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(FERC PROJECT NO. 516)

FERC COMPLIANCE ARTICLES

BUFFER ZONE MANAGEMENT PLAN

DRAFT

1.0 INTRODUCTION

This plan addresses management and re-vegetation of areas within the 75' foot buffer zone above the 360' foot contour (Plant Datum) ("the 360," or "El. 360") adjacent to lands sold after 1984.

Shoreline vegetation along Lake Murray primarily consists of buttonbush, alder, willow, river birch, green ash, and loblolly pine with limited occurrence of oaks and other hardwood trees. Forested, riparian buffers along reservoir shorelines are generally acknowledged to provide a variety of environmental functions and ecological values. These environmental functions include trapping and/or filtering sediment runoff, reducing bank erosion, removing phosphorous and other nutrients and sequestering contaminants such as pesticides. Ecological values include contribution of leaves and other nutrient sources to the lake, maintenance of habitat for fish and aquatic organisms by moderating near shore water temperature, providing woody debris and providing habitat for amphibians and other terrestrial organisms. Buffers also provide societal values such as maintaining a more "natural" aesthetic appearance of shoreline.

In 1981, FERC approved the first Shoreline Management Plan (16 FERC62,479), however, it was not until issuance of the 1984 Saluda Hydroelectric Project license that FERC required SCE&G to establish and maintain a 75-foot vegetated buffer zone on all Fringeland conveyed after the issuance of the 1984 license. The buffer zone, which extends inland from the 360 foot (Plant Datum) contour, creates an expanded vegetated, aesthetic buffer between back property development and the Lake Murray shoreline that protects and enhances the Project's scenic, recreational and environmental values. The 75-foot vegetated buffer zone represents the normal limit to which SCE&G may sell land between the PBL and the lake. SCE&G retains ownership of the 75-foot setback area. It comes into existence "in front of" (between the PBL

and the 360’ contour) all Fringeland sold. In addition, buffer zones exist along all perennial and intermittent streams in both Future Development and Forest and Game Management land as a result of the June and October 2004 FERC Orders.

Although the 360 foot contour is the normal maximum surface elevation specified in the license, historically, the pool elevation has been managed for normal operations between the 350-352 foot level and the 358-358½ foot elevation. Depending upon the shoreline contour in a particular area, this means that the water can be a few feet to hundreds of feet away from the 360 foot contour. Accordingly, the “buffer” between shoreline development and the water of Lake Murray may be from slightly more to several times more than 75 feet in width. Some of these areas below the 360 foot contour are heavily timbered and otherwise vegetated.

2.0 GOALS

The goal of the Buffer Zone Management Plan is to maintain and to encourage vegetated areas along the shoreline. A natural, vegetated shoreline provides numerous critical functions that contribute to the health and integrity of the lake ecosystem. Vegetated buffers provide water quality functions by trapping and filtering run-off and contaminants from upland sites. The shrubs, hollow logs, and tree branches provide nesting, denning, and refugia for birds, mammals, reptiles, and amphibians. For aquatic species such as fish and invertebrates, a vegetated shoreline provides important habitat elements including woody debris, leaves, and seeds/fruits. Perhaps one of the more critical functions of a well established vegetated shoreline is that it helps to maintain shoreline integrity by providing a root system that binds soil and decreases the risk of bank erosion and bank collapse. Finally, the vegetated shoreline has aesthetic and recreational value. For many people, a visit to the lake is an opportunity to take a break from an urban environment and enjoy more natural scenery, as well as to participate in activities such as wildlife viewing, fishing, and hunting.

3.0 DEFINITIONS

- Buffer Zone – As defined in 18 CFR 4.41(f) (7) (iii) is an area within the project boundary, above the normal maximum surface elevation of the project reservoir, and of sufficient width to allow public access to project lands and waters and to protect the scenic, public recreational, cultural, and other environmental values of the reservoir shoreline.
- Future Development Lands – Licensee-owned properties within the project boundary that have been identified as lands available for possible sale and/or use up to and including development.
- Easement Property – The term used to describe Fringeland that has been sold to the back-property owner, over which, therefore, Licensee maintains only easement and shoreline management rights
- Environmentally Sensitive Areas (ESAs) – Generally located below the 360-foot contour. ESAs include areas of wetlands and shallow coves, typically populated by willow trees and buttonbushes, and other areas determined to be critical to the continued existence of indigenous or threatened species, such as spawning and nesting habitat. Willow trees and buttonbushes are the "target vegetation" for defining which shoreline areas are to be considered ESAs by virtue of vegetative cover; ESAs are sub-classified as follows:

    - *Shallow Coves with Stream Confluence* – Areas where streams enter the lake to form coves where water elevations in areas outside the historical stream channel are predominately above the 355 foot contour line. The up gradient portion of shallow coves is typically vegetated with buttonbush and willow.
    - *Continuous Vegetated Shoreline* – Continuous vegetated linear shoreline at least 66 feet in length, with vegetation greater than 5 feet deep (horizontal depth of strip not vertical depth of water), measured perpendicular to the shoreline.
    - *Intermittent Vegetated Shoreline* – Linear shoreline coverage of vegetation at least 66 feet in length. This class can have gaps. (Gap is defined as 8 to

20 feet in length where there is little or no vegetation below the normal high water mark.) Areas with gaps more than 20 feet in length are termed "breaks" and are not to be considered vegetated shoreline.

- *Bottomland Hardwood and Wet Flats* – Continuous linear shoreline coverage of bottomland hardwood (excluding sweetgum) and wet flats at least 66 feet in length.

4.0 MANAGEMENT ACTIONS

Shoreline Property: Generally speaking, prior to 2004, SCE&G managed its properties within and adjacent to the PBL, including Future Development Lands, according to its Forest Management Plan. Where applied, the Forest Management Plan provided for the protection of the watershed and its wildlife and fishery habitat and reduced insect- and disease-related tree mortality. Since 2004, SCE&G forestry practices prohibit selective thinning or timber management within 100 feet of the 360-foot contour on Future Development Lands.

Buffer Zone: A Buffer Zone, located between the 360-foot contour and the back property development, was delineated and documented adjacent to all easement lands sold by SCE&G after the issuance of the 1984 license. The buffer zone extends upland from the edge of the 360-foot contour elevation a minimum distance of 75 feet measured horizontally. This area can include fast growing softwood trees, but generally should include at least 20% deciduous hardwoods or shrubs. The buffer zone also contains filter strips comprised of grasses, legumes and/or other forbs. This vegetation is an important component of a buffer zone where protection from excessive sediment or nutrients is needed.

SCE&G intends to maintain well-vegetated lands within all areas designated as Buffer Zones, and has developed specific principles and guidelines for vegetation management. Vegetation management, however, varies according to the date the adjoining property was sold and the Buffer Zone was established: 1) lands sold prior to the 1984 license that lack Buffer Zones, 2) lands sold after 1984 but before approval of the 2007 SMP, and 3) lands sold after approval of this 2007 SMP.

Land purchased prior to 1984 – Owners that purchased their land prior to 1984 do not have a Buffer Zone associated with their properties. Prior to this date, SCE&G sold land within the PBL that extended to the 360-ft contour interval (high water mark). Following is the specifications for these back property owners:

- For lands that adjoin their property and are below the 360-foot contour, they are allowed to conduct limited brushing, which involves voluntarily removing only

exotic and invasive vegetation, Such vegetation removal is monitored by SCE&G through there their permitting program.

- Above the 360' contour, property owners are encouraged to plant or allow native vegetation to flourish to protect and enhance the project's scenic, recreational, and environmental values.
- Back property owners who own land closer than 75 feet from the 360' contour and wish to construct a dock along the shoreline are required to deed SCE&G so much of their property as to create a uniformly 75-foot deep buffer zone. The deeded land is subsequently subject to the environmentally protective measures and requirements outlined for Buffer Zones after 2007 (see below) (dock permitting requirements on SCE&G-owned lands is explained in greater detail in the Permitting Handbook).

Buffer Zone (1984 license - 2007 SMP)[1]: As part of the sale of Future Development property, the 75-foot buffer zone, became the lake-ward property boundary for the Easement Property owner. SCE&G maintains GIS based maps of each established 75-foot vegetated buffer zone. Where available, aerial photography may have been used for site documentation. This provided a baseline to assist in future monitoring.

SCE&G maintains special use restrictions within the 75-foot vegetated buffer zone. The use of SCE&G's 75-foot vegetated buffer zone is entirely permissive and at the discretion of SCE&G as landowner. Owners of adjoining lands (back property owners) are given the right of access by foot to and from the lake over the buffer zone, and are allowed access for passive activities such as bird and wildlife viewing and shoreline fishing. However, prohibited uses include overnight camping, building fires, hunting, discharge of firearms, motorized vehicles, or any activity that may adversely impact the land. Also prohibited, without written consent from SCE&G, are any improvements to the land that involve cutting significant trees or shrubs, placing water-oriented encroachments (docks, ramps, etc.), changing the contour of the land, or posting the property. Any modification to the lands within the buffer zone approved by SCE&G has to comply with all applicable requirements of SCE&G's Shoreline Management Program.

[1] The initial Shoreline Management Plan was approved in 1981, however buffer zones did not exist prior to 1984.

Special use restrictions within the 75-foot vegetated buffer zone established after 1984 and before the 2007 SMP included the following (additional restrictions may have applied if the property was adjacent to ESAs):

- Upon the sale of any Fringeland, a purchaser was allowed to perform limited brushing so long as the purchaser adhered to SCE&G's established guidelines as described below. Once a purchaser had completed the permissible limited brushing, a subsequent property owner only could maintain the work that had been completed. No further brushing or clearing was allowed, whether by permit or otherwise.
- Trimming or limbing of trees higher than ten feet above the ground was prohibited without prior approval and permits.
- "Privatization" and structural encroachments were prohibited.
- After 1994, individual boat ramps were prohibited. However, community boat ramps were encouraged and approved, provided existing guidelines were met.
- Removal of vegetation greater than 3 inches in diameter measured at breast high (4') was prohibited without a permit.
- Boat docks were allowed provided they complied with SCE&G's standard boat dock guidelines and appropriate permits were obtained.
- Additional restrictions may apply if the property is adjacent to ESAs.

Buffer Zones (after 2007 SMP – Present) – For lands sold after approval of the current SMP, SCE&G will maintain a 'No Disturbance' policy on all Buffer Zones established after that date. This "No Disturbance" policy will allow and encourage native vegetation to flourish so that it may provide the numerous potential functions of a vegetated shoreline and, ultimately, protect the project's environmental, scenic, and recreational values. Thus, for newly established Buffer Zones, no removal of vegetation, including limited brushing, will be allowed. Only construction of a meandering path through the Buffer Zone, designed according to SCE&G specifications, will be allowed to provide access to the shoreline. Specifications of trail design are as follows:

- To prevent erosion and to protect the aesthetics of the shoreline the route used to create an access trail should not be direct and instead will have a meandering design.
- No trees larger than 10 inches in diameter at breast height (dbh) can be removed within the access path.
- A Lake Management representative must identify and designate the location of access paths.

5.0 SHALLOW WATER HABITAT MANAGEMENT

"Shallow water habitat" is the term used to describe the vegetated, shallow water area located below the 360-ft contour elevation. With few exceptions, lands below El. 360 are owned and managed by SCE&G who maintain a policy of no disturbance for any and all target vegetation below El. 360', unless its removal is necessary for reasons of health and human safety or in compliance with the Woody Debris Management Plan. Furthermore, ESAs are generally located below the 360-foot contour interval and SCE&G maintains a strict policy of non-disturbance for vegetation within ESAs. This non disturbance policy applies to the 50-foot setback areas associated with all ESAs as well.

6.0 MONITORING & COMPLIANCE

Bffer zones and lands below the 360-foot contour are inspected annually by SCE&G staff for compliance with approved management practices. Boundaries have been painted and signs have been posted to identify these areas. On approximately a five-year rotation, a physical inspection of the buffer zones to monitor for violations and replace damaged or worn signs is conducted. At all times, upon observation or notification that a property owner may be in violation of these management criteria, SCE&G field checks the property and, in cases of confirmed violations, provides written notification of the violations and requests for corrective actions to the land owners

7.0 RE-VEGETATION PLAN

Occasionally, vegetation in protected areas (i.e., buffer zones, setbacks, and below the 360-foot contour) is disturbed beyond what is permitted in the guidelines. Regardless of whether a disturbance is man-made or natural, intentional or unintentional, it is the intent of the SCE&G to require re-vegetation of such areas. The principal objective in requiring re-vegetation projects is to stabilize disturbed areas along the shoreline by planting forbs, grasses, shrubs and trees as needed, and to allow natural succession to continue. Protected vegetated areas that have been restored are inspected annually to check survival of planted species and compliance with the re-vegetation plan. The re-vegetation guidelines will be used to encourage all landowners to develop a buffer zone or correct any violations of existing buffer zones. The re-vegetation guidelines are provided as Appendix A.

8.0 CORRECTIVE ACTIONS AND PENALTIES

8.1 Corrective Actions

Affected landowners are required to submit re-vegetation plans to SCE&G for review and approval, and to complete re-vegetation during the next growing season. A re-vegetation plan must, at a minimum, comply with the following specifications and the guidelines set forth in Attachment A, which details approved species and arrangement of plantings. A five year monitoring period will be set by SCE&G following written approval of the re-vegetation plan. The requirements of submitting and implementing a re-vegetation plan are as follows is provided in Appendix A:

- Landowners found to have violated the buffer zone requirements or landowners adjacent to buffers that have been significantly affected by natural conditions (storm, pestilence, fire, etc.) must submit a re-vegetation plan to SCE&G within 30 days of being notified by SCE&G of the violation or "natural" conditions warranting mitigation.
- SCE&G reserves the right to take legal action to require re-vegetation of the affected areas, seek damages, and seek its administrative and legal costs for doing so.
- If the buffer has been significantly affected by natural conditions, then SCE&G will work with the landowner to restore vegetation in the buffer zone.
- SCE&G's Lake and Land Management Department will review the final plan for adequacy and completeness and provide the landowner with a request for modifications and/or approval within 30 days of receipt of the plan.
- If the plan requires modification, the landowner may be given no more than fifteen business days following SCE&G's modification request to make the modifications and re-submit a conforming plan.
- The landowner must submit an approvable plan to SCE&G as soon as reasonably possible and, in no case, longer than 50 days for violations or 90 days for natural condition mitigation. The submission timeframes shall

be measured from the date of SCE&G's notification letter to the landowner.

- SCE&G reserves the right to require more than the minimum re-vegetation requirements should it determine that additional vegetation is needed, based on site characteristics or extenuating circumstances.
- The nature of the violation or the response of the landowner is two such extenuating circumstances that will be considered.
- The landowner must comply with these changes or risk penalties.
- Once a re-vegetation plan has been approved, the landowner must implement the plan during the next planting season. SCE&G defines the planting season to be from November to February.
- Should the landowner not implement the plan within the specified time frame, the plan will become null and void and the landowner will be found in violation and subject to penalties.
- Individuals are required to provide photo documentation of planted areas for a period of 5 years following re-vegetation. Photos will be taken during the spring, at roughly the same time each year, and from stationary locations used consistently during each monitored year so as to photograph the same perspective for comparison purposes.
- SCE&G will perform a follow-up inspection after the 5 year improvement period.

8.2 Penalties

In most cases, SCE&G is able to work with the landowner to resolve areas of nonconformance, particularly if the buffer zone modification is a result of natural causes. SCE&G reserves the right to require additional plantings that go beyond the minimum guidelines in Attachment A.

Landowners found in violation of the 75-foot buffer zone management restrictions or management restrictions below El. 360, as a result of the removal of vegetation, encroachment into the buffer zone, or un-permitted changes to property contours, may be subject to any or all of the following:

- Repeat violations by landowners may result in the permanent cancellation of their dock permit and loss of lake access across SCE&G property.
- Revocation of existing shoreline dock and/or ramp permits for a period of no less than five years.
- Denial of future permits and denial of access across SCE&G's property to the lake, perhaps even in the form of positive barriers.
- Removal of marketable timber within the buffer zone by the landowner will require, in addition to such other penalties prescribed herein as SCE&G determines to be appropriate, payment equal to triple stumpage, according to valuation by SCE&G's Land Department.
- Reimbursement of costs, in cases where SCE&G finds it necessary to undertake itself to restore affected buffer zones. Such a decision may result from landowners' failure to submit a re-vegetation plan in a timely fashion, or from SCE&G's determination that conditions require immediate attention to prevent serious shoreline problems.

9.0 VOLUNTARY IMPROVEMENT PROGRAM

In those areas where landowners own down to the 360’ PD contour, SCE&G encourages the improvement of buffer areas through voluntary action. Property owners are encouraged to plant or allow native vegetation to flourish above the 360’ PD contour to protect and enhance the Project’s scenic, recreational, and environmental values. Examples of recommended native plantings are included in Table 1 of Appendix A, below. Landowners can receive more information on the voluntary improvement of their property by contacting the SCE&G Lake Management Department.

ATTACHMENT A

75-FOOT BUFFER ZONE GOALS AND CRITERIA FOR RE-VEGETATION OF DISTURBED AREAS

BUFFER ZONE GOALS AND MINIMUM CRITERIA FOR RE-VEGETATION OF DISTURBED AREAS

FERC PROJECT NO. 516

LAKE MURRAY – SCE&G

MINIMUM BUFFER ZONE AND SHORELINE VEGETATION

1. Improvement Goals and Recommendations

The following guidelines shall be adhered to as minimum criteria for application in the restoration of disturbed vegetation in protected areas along the shoreline perimeter of Lake Murray. The protected vegetated areas consist of two zones: (1) the shallow water habitat along below the high water mark, also referred to as the '360-foot contour' elevation, and (2) the 75-foot buffer zone, which is the land adjacent to the 360-foot contour extending inland 75 feet. Each zone will be managed with the desired plant species, based on the inherent properties and ecological functions of each zone.

As protected vegetated areas, the 75-foot Buffer Zone and the land below the 360-foot contour elevation are protected from any activities that would cause disturbance to their vegetated nature. Removal of target vegetation is strictly forbidden. In cases where disturbances to the vegetated status of these lands occurs, SCE&G will require re-vegetation of the lands according to specific criteria, as outlined here and coordinated with SCE&G. The following criteria applies to re-vegetation of the Buffer zone and lands below the 360-foot contour that have a slope of ***2 to1 or flatter***. In cases where the topography is steeper than 2 to 1, there is greater concern for potential erosion and sedimentation, thus, a specialized plan developed in conjunction with SCE&G must be developed for steep areas. Further, although re-vegetation plans may be approved for the shallow water areas below the 360-ft contour interval, this is critical and sensitive habitat and projects will be assessed on a case-by-case basis and involve significant oversight and consultation with SCE&G.

Implementation of the management goals below is recommended to enhance vegetated buffers, thereby improving biodiversity, providing erosion protection, adding or maintaining filtering capacity, and protecting the aesthetics of a "natural" shoreline.

2. Minimum Criteria for Re-vegetation of Disturbed Areas

A. Shallow Water Habitat - Below the 360-foot Contour Interval

Because this zone is inundated during portions of the year, timing of re-vegetation and methods to ensure establishment are of primary importance, and it is necessary to develop the re-vegetation plan with site-specific factors in mind. For example, specific topographic, soil, and energy inputs (i.e., amount of wave action, etc.) of a particular location must be considered when determining the most effective plant species to use and their arrangement. When at all possible, the re-vegetation plan of a particular location should be developed based on a reference condition. This may be information of the pre-disturbance condition at the location in terms of species, arrangements, and density of plants, or information on such factors obtained by assessing a nearby location under the same setting but with similar attributes (slope, aspect, soil, etc.).

As explained previously, re-vegetation of shallow water habitat areas requires significant oversight by SCE&G and projects will be developed based on site-specific factors on a case-by-case basis. These guidelines apply generally to areas that have a slope of 2 to 1 or flatter. Slopes exceeding 2:1 require special design and stabilization considerations that take into account an unstable shoreline and increased potential of land sloughing, erosion, and sedimentation of the lake. SCE&G will provide guidance on acceptable measures that may be used to stabilize the shoreline.

B. Buffer Zone

The buffer zone exists upland of the high water mark (360-foot contour), as such it does not become inundated or experience fluctuating water levels. The buffer zone is generally characterized by riparian species that function to protect the shoreline and lake waters. As the interface between the water and upland development, the vegetation in the buffer zone is important as it provides shoreline stabilization and water quality protection as well as wildlife habitat.

C. Understory Vegetation

Re-vegetation of protected areas will include establishing a suitable understory cover of native plantings of grasses, forbs, and shrubs with a height of at least 6 inches, with a layer of duff or natural mulch layer at least 4 inches thick applied between plantings. All shrubs, grasses and forbs used to meet the understory requirement must be native species from the approved species list in Table 1. The leaves from the leaf drop of the trees must be left on the surface to provide ground cover and filtering, although dead limbs in the buffer zone may be removed. No pesticides or nutrients are to be applied within the buffer or below the 360-foot contour zones without written approval from SCE&G.

Required area coverage of understory vegetation depends on the zone where disturbance occurs. For areas below the 360-foot contour interval, the understory layer must provide at least 75% coverage. The buffer zone must have an understory layer of least 50% coverage. In addition to these cover requirements, the understory cover in both shallow water habitat (below 360-ft contour) and in buffer zones shall be in a mosaic or linear arrangement that extends across at least 80% of the length of the buffer. Figure 1 depicts the understory cover requirements of re-vegetation plans.

D. Replacement Trees

A tree-lined shoreline is the desired condition for the Lake Murray shoreline. As such, removal of trees below the 360-foot contour or in the buffer zone is strictly forbidden with the exception of dead or diseased specimens approved by SCE&G. Unless an exception is granted by SCE&G, any tree removed in this zone must be replaced.

To maintain desired tree densities, replacement trees and other trees planted during re-vegetation projects must meet minimum spacing distances. Spacing between any two trees shall not exceed 15 feet. Further, trees are to be maintained along the 360-foot contour elevation and plantings should be within 15 feet of the 360-ft contour interval. As mentioned previously, dead trees or trees weakened by disease, insects,

natural events, etc. may be selectively cut. However, cut trees must be replaced, regardless of their spacing, to meet these spacing requirements. Existing pines may be credited towards meeting the spacing requirements. However, pines are not included in the list of acceptable replacements because they tend to experience higher mortality due to pest and climate extremes than hardwood species. All replanted trees must be of a height between 6 to 8 feet above the ground (measure from the first sign of exposed bark exiting the soil to the top of the tree). Specifications for minimum tree spacing and tree height are depicted graphically in Figure 1. A table listing recommended species is provided in Table 1 in the following section.

3. Recommended Species for Planting in the Vegetated Buffer

The particular species used in re-vegetation projects is an important consideration and should consist of local native plants that provide the specific food, habitat and structural attributes that naturally occur at Lake Murray. Using local native plant stocks will facilitate successful establishment as local species are adapted to temperature and other environmental conditions of the area. Below is a list of tree, shrub and herbaceous species recommended for re-vegetation of buffer zones and below the 360-foot contour (Table 1). The list includes only native species that are commercially available, with the most readily available species indicated by an asterisk "*". Note that the native botanical community may include other acceptable species that typically are not commercially available.

Table 1: Recommended Plant Species for Use During Re-Vegetation Projects

ZONE	RECOMMENDED SPECIES		
	Trees	**Shrubs**	**Grass & Forbs**
Shallow water habitat - Below 360 feet elevation	Black Willow* Cottonwood* Cypress, Bald* Cypress, Pond Green Ash* River Birch* Swamp Tupelo Willow Oak* Water Oak*	Buttonbush* Silky Dogwood* Swamp Azalea Wax Myrtle* Alder	Maidencane Switchgrass (Alamo)* Bushy Bluestem Switchcane Hibiscus Water willow

ZONE	RECOMMENDED SPECIES		
	Trees	**Shrubs**	**Grass & Forbs**
Buffer Zone - from 360-foot contour upland a distance of 75 feet	American Elm* Bitter-nut Hickory Crabapple* Dogwood* Eastern Redbud* Eastern Redcedar* Green Ash* Hackberry/Sugarberry Laurel Oak* Paw Paw Persimmon* Red Maple* Red Mulberry Sycamore* Water Oak* White Ash* Willow Oak* Yellow Poplar*	American Strawberry Bush American Beautyberry* American Holly* Carolina Rose Native Azaleas Wax Myrtle*	Big Bluestem* Broomsedge Eastern Gamagrass* Little Bluestem* Indiangrass* Purpletop Switchgrass* Illinois Bundleflower* Partridge Pea* Purple Coneflower*

4. Maintenance and Monitoring

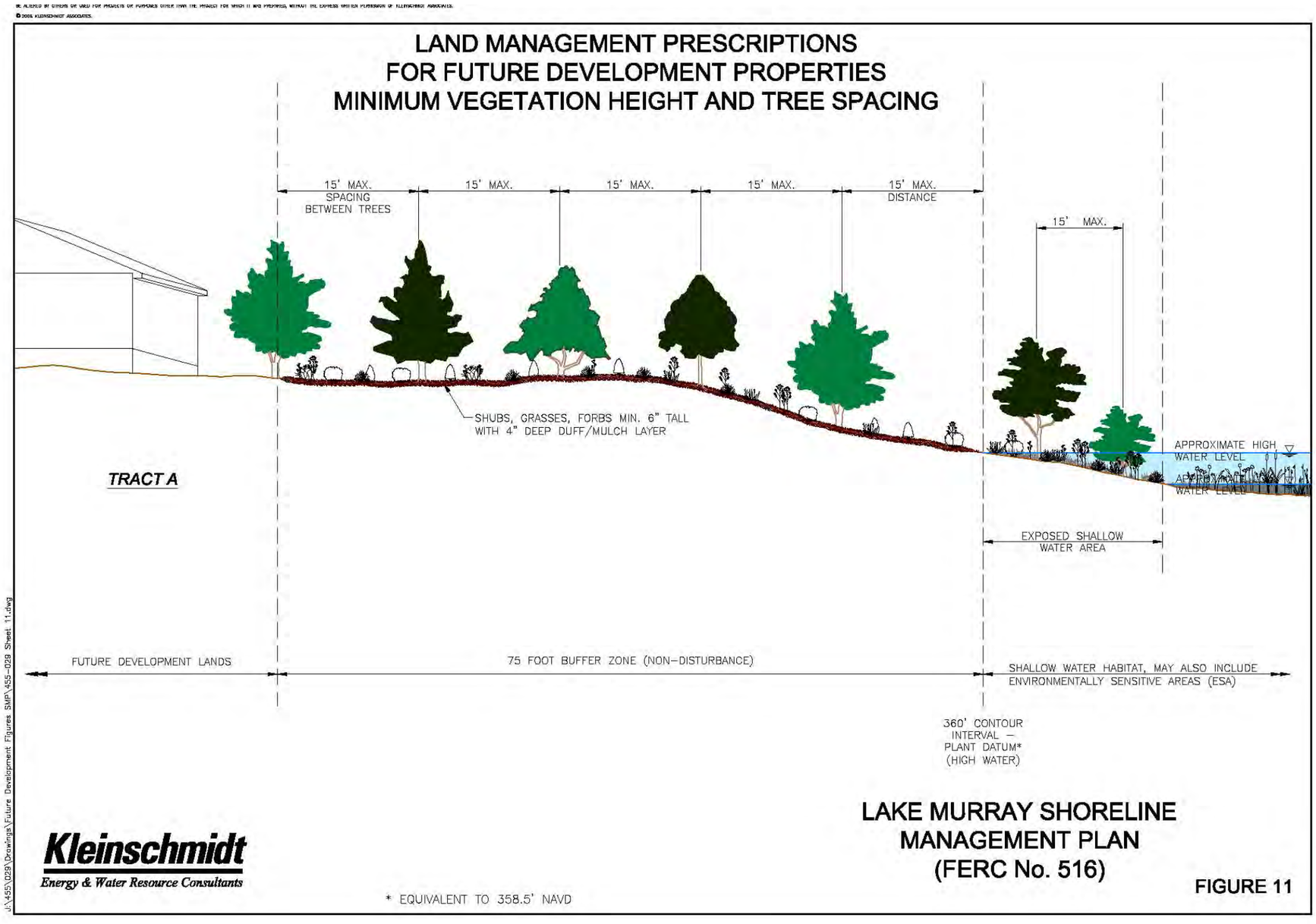
The monitoring period for re-vegetation plans will be established at five years. This provides adequate time to ensure that the new plantings have become established and the restored vegetation community is thriving. Because re-vegetation will be accomplished through plantings instead of by seeding, losses through such problems as germination failure are lessened, and thus there is some degree of predictability. Nevertheless, the restored areas need to be monitored so potential problems affecting the vegetated condition and/or shoreline integrity can be addressed early and resolved.

SCE&G requires that the back-property owners responsible for re-vegetation projects conduct annual photo-documentation of the restored areas. Stationary photo-points should be established where photographs can be taken at the same angle and perspective and at the same time each year. This will allow comparisons of the site between years. Photo-documentation must be thorough enough to reflect the condition of the entire restored site.

Potential problems that may arise during the monitoring period include planting failures, where plants perish and the required vegetation coverage or tree spacing is not maintained, or invasion by weeds and nuisance vegetation. Plants that fail to establish must be replaced during

the season that failure is detected. Non-native and nuisance vegetation that becomes established and appears to be or has the potential to be problematic must be removed using the effective methods for the particular species. Most likely this will involve manual removal. As mentioned previously, no pesticides, fungicides or nutrients may to be applied within the buffer or below the 360-foot contour zones without written approval from SCE&G. Depending on the particular problems encountered, the responsible individual will work with SCE&G to address the problem. In general, it is the responsibility of the back-property landowner to ensure that the re-vegetation project is successful and meets the approval of SCE&G who may conduct periodic site inspections during the five-year monitoring period.

Figure 1: Land Management Prescriptions for Future Development Properties – Minimum Vegetation Height and Tree Spacing



APPENDIX C

SEDIMENTATION AND EROSION CONTROL PLAN

SOUTH CAROLINA GAS & ELECTRIC COMPANY

COLUMBIA, SOUTH CAROLINA

SALUDA HYDROELECTRIC PROJECT

FERC NO. 516

FERC COMPLIANCE ARTICLES

SEDIMENTATION AND EROSION CONTROL PLAN

JANUARY 2006

Prepared by:

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SOUTH CAROLINA GAS & ELECTRIC COMPANY
COLUMBIA, SOUTH CAROLINA

SALUDA HYDROELECTRIC PROJECT
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SOUTH CAROLINA ELECTRIC & GAS
SALUDA HYDROELECTRIC PROJECT
(FERC PROJECT NO. 516)

FERC COMPLIANCE ARTICLES

SEDIMENTATION AND EROSION CONTROL PLAN

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SOUTH CAROLINA ELECTRIC & GAS
SALUDA HYDROELECTRIC PROJECT
(FERC PROJECT NO. 516)

FERC COMPLIANCE ARTICLES

SEDIMENTATION AND EROSION CONTROL PLAN

This plan was prepared in compliance with the requirements of the Federal Energy Regulatory Commission's (FERC or Commission) Order Approving Land Use and Shoreline Management Plan for FERC Project No. 516, issued and effective June 23, 2004 and subsequent Order Clarifying and Modifying the June Order, issued and effective October 28, 2004. Paragraph B of the June 23 Order and Paragraph B of the October 28 Order require South Carolina Electric & Gas (SCE&G) to develop and file a plan, by June 23, 2005, for addressing erosion and sedimentation on Lake Murray. On May 31, 2005, SCE&G requested a time extension until January 31, 2006.

1.0 BACKGROUND

In 2002, SCE&G completed a shoreline erosion survey for Lake Murray to identify and prioritize certain areas (existing and future recreation sites) susceptible to erosion and in need of monitoring for possible protective measures. In total, 60 areas were identified as areas of concern. SCE&G ranked the severity of the erosion (light, moderate, severe) at each site, and designated top priority to those sites where erosion is severe and may potentially significantly damage property or habitat, or cause a safety concern. The design of the Shoreline Erosion Survey Plan was developed in consultation with the United States Fish and Service (USFWS) and South Carolina Department of Natural Resources (SCDNR). The Shoreline Erosion Survey Plan is found in Appendix A.

2.0 GOAL

The primary purpose of this Sedimentation and Erosion Control Plan (Plan) is to identify and provide management guidelines for erosion on existing and future recreation areas and SCE&G owned islands and to address possibly related sedimentation and the potential for material impacts to fish and wildlife habitat and water quality of Lake Murray. This plan includes identification, mitigation, and monitoring strategies for those identified areas exhibiting significant erosion.

3.0 MANAGEMENT ACTIONS

SCE&G has a variety of programs in place designed at least in part to address shoreline erosion around Lake Murray. These programs, incorporated here by reference, include:

1. Shoreline Management Program: On non-SCE&G private lakeside property (Private Property), erosion issues are addressed through a permitting process. Compliance with related permit conditions is the responsibility of the shoreline property owner permittees. SCE&G requires Private Property owners to apply for and receive permits from its Lake Management Department prior to their initiation of shoreline construction or land/vegetation disturbing activity, such as the installation of boat docks or ramps, walls or riprap (bulkheads are not allowed and retaining walls are not permitted below the 360 ft contour) SCE&G requires Private Property owners to sign a Shoreline and Vegetative Protection Agreement as a pre-condition to the issuance of permits. Private Property owners who wish to employ erosion control measures not previously identified as appropriate by SCE&G are required to provide explanations and justifications of such "alternative" shoreline stabilization measures. These alternative shoreline stabilization measures must be approved by SCE&G. If they are not, they may not be used.
2. Public Outreach and Education: SCE&G provides public education materials and opportunities for Private Property owners. This is accomplished through collaboration with governmental agencies such as the Natural Resources Conservation Service (NRCS), the South Carolina Department of Natural Resources (SCDNR), and non-governmental organizations (NGO's) such as the Lake Murray

Association and Harbor Watch, and from time to time, others. In coordination with the NRCS, SCE&G developed and offers a demonstration project at its Boat Ramp #3. This demonstration project illustrates conservation alternatives for shoreline stabilization using a combination of open cell block rip-rap and native vegetation.

3. Tree Planting and Giveaway: SCE&G actively sponsors an annual planting of native aquatic-friendly/compatible plants such as bald cypress trees and button bushes along the shoreline of Lake Murray as part of a joint effort periodically with the Lake Murray Association, Lake Murray FISH, Bassmasters of South Carolina and the SCDNR. One principal objective of this effort is to reduce shoreline erosion and improve fish habitat. SCE&G also gives away and/or plants thousands of trees annually through its shoreline enhancement program, initiated in 1995.

4. Forest and Game Management Property: Approximately 106 miles of shoreline have been classified as Forest and Game Management property and will not be sold or developed.

4.0 MITIGATION

Even with these management actions, significant erosion can occur. The significance of specific areas of shoreline erosion, more often than not, is highlighted by potentially affected adjoining Private Property owners. To protect their property interests, they often seek permission and guidance to address areas of the shoreline adjacent to their fringe land property. That permission is usually granted. Peripheral to, but nevertheless potentially important to the erosion issue, as a part of the current relicensing process, all SCE&G owned islands have been designated as sites needing Stage II (intensive) archeological investigations under Section 106 Historic Preservation Act consultation requirements. As a result of those archaeological investigations, SCE&G may determine a need to mitigate areas on some islands that are shown to contain important archaeological sites at significant risk from erosion. In that limited circumstance, it may be determined that there is a need to address the erosion issue for that site.

SCE&G also provides Private Property owners with a list of vegetation species best suited for replanting and revegetating the Lake Murray shoreline. SCE&G is currently developing and will implement an enhanced outreach program to better educate the public on buffer zones and

their environmental benefits to the overall lake and land management needs of the shoreline of Lake Murray. SCE&G plans to offer and to incorporate this expanded program into the next revision of the Shoreline Management Plan, which will be prepared during the current relicensing and must be submitted to the Commission by August 31, 2008.

Where the Company is requested by Private Property owners, on islands as described above, or at designated public access points it determines a desire or need to address an erosion circumstance, SCE&G will work with homeowners, public agencies, or through its own shoreline management personnel as appropriate to mitigate erosion. For all such shoreline, the following steps are taken:

1. Assessments are made to select appropriate shoreline stabilization methodologies, based on the severity of the erosion and other shoreline circumstances/conditions. When possible, control methods employ best management practices and planting of appropriate native vegetation:

    a. Areas with light or moderate erosion are more likely to be encouraged to be maintained by enhancing the vegetative cover or employing bioengineering methods, i.e. combining the use of rock or engineered block/mats and vegetation for shoreline stabilization.
    b. Areas of heavy erosion are almost universally to be controlled by riprap. Rip-rap for erosion control at and below the 360 foot contour must be comprised of aesthetically and structurally acceptable materials (no solid concrete blocks, bricks, or building materials).

2. SCE&G has implemented a non-disturbance buffer policy for properties currently designated for future development and not already approved for sale by the FERC under preexisting policy guidelines. Where applied, this forward-looking policy allows Private Property owners only to have a 10 foot wide meandering path through the buffer area to a dock or other permitted shoreline amenity. There may be no other removal of vegetation in the buffer area. Where applied this should provide a robust buffer zone, thereby significantly limiting the potential for landside activity related

erosion. This will help to insure, going forward, a proper balance in shoreline uses, and will directly affect approximately 95 miles of shoreline around Lake Murray.

5.0 MONITORING OF COMPLIANCE WITH EXISTING POLICIES AND OF SHORELINE STABILIZATION PROJECTS

Shoreline erosion control permitting is managed by SCE&G, with coordination with jurisdictional resource and regulatory authorities as appropriate.

Compliance with SCE&G's management prescriptions for its various land classifications is monitored and enforced by SCE&G, as detailed in the Buffer Zone Management Plan, and the Shoreline Management Plan.

SCE&G currently evaluates and updates the shoreline management plans as a part of its FERC-mandated five year review process in consultation with appropriate agencies and NGO's.

Once identified, SCE&G plans to survey the highly erodable areas every five (5) years and the light to moderate areas every ten (10) years. Surveying of these properties will be conducted under the guidelines established in the March 2002 Shoreline Erosion Survey Plan prepared in coordination with the SCDNR and USFWS. Those areas classified as future or existing public recreation areas exhibiting severe erosion would be considered for a stabilization project. SCE&G would coordinate any stabilization activities with the SCDNR, USFWS and other appropriate state or federal agency as necessary.

6.0 REFERENCES

South Carolina Department of Natural Resources. 2000. News Release #00 – 52, DNR News. March 6, 2000. [Online] URL: http://www.dnr.state.sc.us/cec/news/mar0600.html. Accessed May 18, 2005.

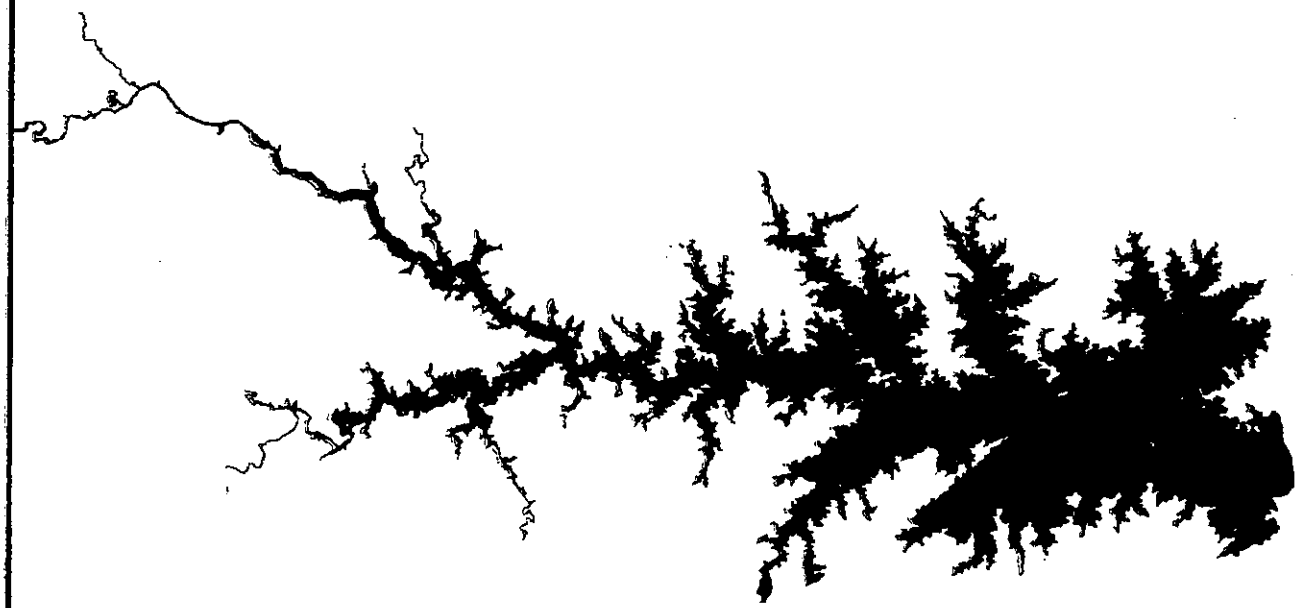
APPENDIX A

SHORELINE EROSION SURVEY PLAN

SHORELINE EROSION STUDY PLAN

SALUDA HYDROELECTRIC PROJECT
FERC Project No. 516

Lake Murray



March 20, 2002

SOUTH CAROLINA ELECTRIC & GAS COMPANY
COLUMBIA, SOUTH CAROLINA

EXHIBIT AIR5-A

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APPENDICIES

1.0 INTRODUCTION

This Study Plan details methodology to be used in identifying shoreline erosion along current and future recreation areas of Lake Murray; a fifty thousand (50,000) acre hydroelectric reservoir located northwest of Columbia, South Carolina. Milliken Forestry Company, Inc. (MFC) will conduct the inventory under contract with South Carolina Electric & Gas Company.

Study Plan was developed in response to a letter dated September 13, 2000 from the Federal Energy Regulatory Commission which contained an additional information request (AIR). Item 5 of the AIR requested that SCE&G "conduct a lake wide shoreline erosion assessment that classifies the shoreline based on its potential to erode.

2.0 PRE - FIELD WORK CONSULTATIONS

A meeting was held prior to development of the Study Plan in order to ensure scope of work satisfied the needs/requirements of interested regulatory agencies. Meeting was held in SCE&G's office in Columbia with representatives from South Carolina Department of Natural Resources and US Fish and Wildlife Service. During the meeting, and in subsequent telephone conversations, it was determined that regulatory agencies were extremely interested in performing the study on the parts of the shoreline classified as current and future recreation and SCE&G owned islands. It was also determined that, because the lake has been in existence for over fifty (50) years, areas with the potential to erode have already eroded. Accordingly, and in agreement with regulatory agencies, Study Plan was limited to those areas of shoreline classified as current and future recreation and SCE&G owned islands. Eroded areas will be identified based on the following criteria.

- Islands less than five (5) acres in size will not be classified.
- Eroded areas less than one hundred (100) feet in length will not be classified.
- Eroded areas will be classified as **moderate** or **severe**. Moderate erosion is defined as those areas with vertical faces greater than five (5) feet and less than eight (8) feet in height. Height

will be measured from the bottom of the vertical face. Severe erosion is defined as those areas with vertical faces equal to or greater than eight (8) feet in height.

3.0 METHODOLOGY

3.1 Field Work

MFC will conduct a 100% visual inventory on that portion of the shoreline classified as current and future recreation and islands. Visual inventory was accomplished by boat. Regulatory personnel will be invited to accompany crew. Start and stop points for each eroded area identified along the shoreline will located using Global Positing System (GPS) equipment capable of submeter accuracy. Data describing type of erosion will be incorporated into each GPS point.

3.2 Data Processing

GPS points will differentially corrected and exported into Trimble .cor files. These files will be emailed to Orbis, the SCE&G contractor handling the Geographic Information System (GPS) work. Orbis used the data to update shoreline information. The updated shoreline date will be forwarded to MFC for error checking and returned to Orbis.

Appendix A

Draft Study Plan

SALUDA HYDROELECTRIC PROJECT NO. 516
DRAFT STUDY PLAN
FEBRUARY 14, 2002

SHORELINE EROSION IDENTIFICATION

Study Goal

- Identify and classify eroded areas along current and future recreation sites (including SCE&G owned islands) on Lake Murray.

Criteria

- Islands less than five (5) acres in size will not be classified.
- Eroded areas less than one hundred (100) feet in length will not be classified.
- Eroded areas will be classified as **moderate** or **severe**. Moderate erosion is defined as those areas with vertical faces greater than five (5) feet and less than eight (8) feet in height. Height will be measured from the bottom of the vertical face. Severe erosion is defined as those areas with vertical faces equal to or greater than eight (8) feet in height.

Data Collection

- Eroded shoreline will be identified visually during boat trips on the lake with SCE&G and regulatory personnel. Start and stop points will be located using Global Positing System (GPS) equipment.

Data Management

- GPS points will be incorporated as a separate layer into existing GIS database.

Appendix B

Regulatory Agency Agreement

South Carolina Department of
Natural Resources

Paul A. Sandifer, Ph.D.
Director
John V. Miglarese
Deputy Director for
Marine Resources

March 4, 2002

Mr. Tommy Boozer
Lake Management Programs
South Carolina Electric & Gas Company
Columbia, SC 29218

Re: Lake Murray
Shoreline Erosion Identification - Draft Study Plan
FERC Project Number 516

Dear Mr. Boozer:

The South Carolina Department of Natural Resources (SCDNR) has reviewed the draft outline for Shoreline Erosion Identification dated February 14, 2002. The outline represents concepts that were discussed during a meeting attended on November 6, 2001. The goals, criteria, data collection methods and data management, as outlined in the draft, will provide a valuable tool for identifying shoreline areas within recreation sites with erosion problems. Therefore, we recommend the plan go forward as outlined.

We would like to thank SCE&G on their efforts to coordinate with us on shoreline management issues. The Department looks forward to future coordination with SCE&G on developing a shoreline erosion plan that will be beneficial to the public resources while providing for the applicant's needs.

Sincerely,

Robert E. Duncan
Environmental Programs Director

cc: Dick Christie
Ron Ahle
Amanda Hill – USFWS

Post-it® Fax Note 7671	Date	# of pages ▶
To Norman Stephenson	From Ron Ahle	
Co./Dept.	Co.	
Phone #	Phone # 734-2128	
Fax # 803-788-0540	Fax #	

United States Department of the Interior

FISH AND WILDLIFE SERVICE
176 Croghan Spur Road, Suite 200
Charleston, South Carolina 29407

March 11, 2002

Mr. Norman Boatwright
Milliken Forestry Company, Inc.
P.O. Box 23629
Columbia, SC 29224-3629

Re: Lake Murray Erosion Study Plan

Dear Mr. Boatwright:

The U.S. Fish and Wildlife Service (Service) has reviewed the draft Shoreline Erosion Identification study plan submitted on February 14, 2002 for the Saluda Hydroelectric Project No. 516. We concur with the proposed erosion study for the designated present and future recreation sites (including SCE&G owned islands) on Lake Murray.

We appreciate the opportunity to review the proposed study and look forward to working with SCE&G and Milliken Forestry, Inc. in the future. If you have any questions please contact Ms. Amanda Hill of my staff at (843)727-4707, ext. 24.

Sincerely yours,

Roger L. Banks
Field Supervisor

RLB/AKH/km

APPENDIX D

BASELINE ENVIRONMENTAL MONITORING PLAN FOR LAKE MURRAY MARINAS

EXHIBIT #29

BASELINE ENVIRONMENTAL MONITORING PLAN
LAKE MURRAY MARINAS

Prior to beginning construction of a marina, baseline water quality and aquatic biology data shall be collected in the vicinity of the proposed development. Baseline sampling of all parameters shall be collected prior to any construction on a weekly basis for the month of August. The number of sampling locations is site specific and will be determined by South Carolina Electric & Gas Company and the appropriate regulatory agencies when a site is selected.

Annual sampling shall be conducted subsequent to the baseline sampling on a weekly basis during the month of August. The annual sampling shall be conducted for a minimum of five (5) years after all construction is completed and 100% slip occupancy has occurred. The need to continue beyond this point shall be determined by SCE&G and the appropriate regulatory agencies.

The following parameters shall be sampled at all locations.

WATER QUALITY

WATER COLUMN

Dissolved Oxygen Temperature Conductivity	Each shall be monitored weekly at the surface, mid-depth, and bottom of the water column three times during the day; before 8:00 a.m., mid day, and 4:00 - 6:00 p.m.
Fecal Coliform pH	Each shall be monitored weekly at mid-day within one foot of the surface

AQUATIC BIOLOGY

Benthic Macroinvertebrates - Ponar grab samples shall be collected at two locations - one in the area impacted by the marina and one in the vicinity with similar substrate characteristics not impacted by the marina. Benthic sampling shall coincide with a water quality sampling during August. The total number of benthic fauna shall be quantified by Taxon and diversity index values calculated. If results indicate an adverse impact on the benthic community, then sediment sampling may be required.

APPENDIX E

LAKE MURRAY WATER QUALITY MONITORING PLAN

LAKE MURRAY WATER QUALITY MONITORING PLAN

EXHIBIT #30

PARAMETER	FREQUENCY	WATER COLUMN LOCATION
Temperature	M	P
Dissolved Oxygen	M	P
pH	M	T,B
Conductivity	M	T,B
Secchi Disc	S	
Alkalinity	S	T,B
Turbidity	S	T,B
Total Dissolved Solids (TDS)	S	T,B
Hardness ($CaCO_3$)	S	T,B
Chlorophyll a	S	T
Fecal Coliform	S	T
Ammonia	S	T,B
Nitrite & Nitrate	S	T,B
Total Phosphorous	S	T,B
Fe	S	T,B
Cd	S	T,B
Cu	S	T,B
Zn	S	T,B
Cr	S	T,B
Pb	S	T,B
Hg	S	T,B
Ni	S	T,B

M = Monthly S = Semiannually (February and August)
P = Profile in water column at 1 meter intervals including T
T = Top (.3 meters) B = Bottom (1.0 meters off bottom)

LAKE MURRAY SAMPLING LOCATIONS

LMWQ001	South side of #5 Penstock at old river bed
LMWQ002	Tailrace Saluda Hydro
LMWQ003	Marker 131
LMWQ004	Marker 25
LMWQ005	Marker 111
LMWQ006	Marker 100A
LMWQ007	Marker 43
LMWQ008	Little Saluda River at Hwy. 391 Bridge

APPENDIX F

ENVIRONMENTALLY SENSITIVE AREAS REPORT

Due to the sensitive nature of this material, the Environmentally Sensitive Areas Report is not included in the Public version of this document.