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June 1, 2004

Forest Management  
c/o Business Controls Unit  
Progress Energy, Real Estate Dept.  
P.O. Box 1551  
Raleigh, NC 27602

Dear Mr. Hunter:

Enclosed is an updated forest management system for all of Progress Energy's land developments. These developments include: Almond Development, Astor Tract, Blewett Falls Development, Buchanan Development, Cape Fear Development, Crystal River Energy Complex, Eastern NC Developments, Harris Development, Mayo Development, Robinson Development, Roxboro Development, Suwannee River Plant, and Tillery Development. The forest management system entails the following information:

- Sound forest management objectives
- Description of the Forest Management Process
- 2004 updated timber volumes and values of all developments
- Current Timber Budget & Harvest Schedule

Please examine the documents closely, and let us know if there is any additional information that you should require. Feel free to contact us with any questions that you might have.

Sincerely,



Jason B. Kiker  
Associate Forester  
KIKER FORESTRY & REALTY, INC.



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## **Introduction**

The purpose of this document is to provide the landowner, Progress Energy, with a sound forest management system for all land developments. These land developments include: Almond Development, Astor Tract, Blewett Falls Development, Buchanan Development, Cape Fear Development, Crystal River Energy Complex, Eastern NC Developments, Harris Development, Mayo Development, Robinson Development, Roxboro Development, Suwannee River Plant, and Tillery Development.

This document will provide detailed descriptions of how the company's objectives will be met through sound forest management practices. Descriptions of management activities, costs, revenues, timing of activities, impact on wildlife habitat, and the environmental impact of forest management activities will be discussed.

## **Objectives of Management**

Management of Progress Energy's Land Developments will be carried out such that the objectives of the landowner will be met in the most efficient way possible. These objectives include:

- 1) *Forest Investment.* The majority of the timberland composed within each development will be managed as a forest investment. Areas where timber is to be harvested will be intensively managed to maximize timber income from the resources currently on the development, as well as from all future resources of the development.
- 2) *Land Trades, Acquisitions and Disposals.* The Geographic Information System database created as part of the forest management system will allow KF&R to keep up with the ever-changing needs of Progress Energy. As land is traded, acquired, and disposed of, the GIS database will be edited to reflect any changes in timber volumes and values.
- 3) *Changing Management Objectives.* As with any large corporation, the needs and objectives of Progress Energy are always changing. The GIS database will enable KF&R to efficiently achieve any changes in the management objectives.
- 4) *Communication.* It has become increasingly important for Progress Energy to be able to communicate various management activities both within the company and to outside cooperatives.
- 5) *Wildlife Management.* Progress Energy also wishes to establish areas that will receive a minimal amount of disturbance from forest management activities. The majority of the land in the wildlife management areas is to be composed of stands that contain primarily hardwood timber, since many wildlife species can benefit from the hard mast producing hardwood tree species. The majority of the Streamside Management Zones (SMZ's) designated on the tracts will be larger than needed to act as corridors for wildlife travel, as well as give added protection to water quality.
- 6) *Protection of the Waterways in and Around the Developments.* The protection of the water quality as a result of forest management activities is also an objective of

Progress Energy. Streamside Management Zones (SMZ's) will be designated along all riparian zones, along perennial and intermittent streams, wetland areas, and other bodies of open water within and/or in the vicinity of the tract, where extra precaution is needed in performing forest management activities. The purpose of the SMZ is to slow and spread the surface water flow, and trap and filter out sediment before it reaches the stream channel or body of water. The SMZ also provides stream shade and functions as a buffer when fertilizers, pesticides, etc. are applied to the adjacent lands.

## **Constraints of Management Activities**

Constraints incorporated in the management system of the Progress Energy Land Developments include economical, social, and environmental constraints. These types of constraints change with time and must be considered in order to meet the objectives of the forest management system.

### **Economical Constraints**

Timber markets are continuously changing. All income from standing timber and costs associated with activities are based on current market stumpage prices and current silvicultural expenses. Average timber prices were used in estimating income on the future rotations.

### **Social Constraints**

Society today is looking closely at the forest industry and the practices used to remove standing timber. Environmental groups often cause changes concerning management activities. Since many of the land developments are located in semi-rural areas, or areas that are gradually becoming urbanized, all activities will be performed in a manner that does not cause any environmental harm. Changes that may occur due to social pressures will result in changes in the overall forest management system.

### **Environmental Constraints**

Environmental conditions change as time progresses. One condition that changes is soil erosion. Improper timber harvesting operations may create more favorable conditions for soil erosion and may cause a nutrient deficiency in the soil. Such activities would result in lower production with regards to timber yields. If steps are not taken to minimize such characteristics, the landowner's objectives would not be met.

Global weather patterns change as the seasons come and pass. Droughts decrease the survival of seedlings and saplings. If such seedlings and saplings are lost, they must be replanted which will increase budgeted expenses. Another condition that must be examined is the chance of any severe storms such as tornadoes and hurricanes. These types of storms often result in a tremendous loss of timber and results in the need for salvage harvests. This will also affect the budgeted income and expenses associated with management.

Wildfires and pest outbreaks are often other factors that may be a constraint to the management objectives. Wildfires can destroy both young and mid-rotation pine plantations. Pest outbreaks often occur following a wildfire, due to the extreme stress the fire places on the trees. These factors can result in large amounts of timber destroyed. If these factors do occur, salvage harvests would have to be performed, which also will increase the overall cost associated with management.

## Timber Stand Types and Description

As part of the forest management system, a new “stand typing” system was created. This system is more descriptive than the previous typing system. The new stand types are listed in Table 1.

**Table 1: Timber Stand Types**

Hardwood	Stand is composed almost entirely of hardwood timber
HP (Hardwood-Pine)	Stand is composed primarily of hardwood timber, with a small component of pine timber
PH (Pine-Hardwood)	Stand is composed primarily of pine timber, with a small component of hardwood timber
Pine	Stand is composed almost entirely of natural pine timber
CBO-year	Planted cherrybark oak with reference to the year planted
LB-year	Planted loblolly pine with reference to the year planted
LL-year	Planted longleaf pine with reference to the year planted
SL-year	Planted slash pine with reference to the year planted
NPR-year	Natural pine regeneration with reference to the estimated year of establishment
SMZ/Wildlife	Streamside Management Zone and/or wildlife habitat area

### **Hardwood**

The hardwood stand type is present on each of the land developments. The upland hardwood stands are composed primarily of white oak, maple, yellow poplar, hickory, and sweetgum. Bottomland hardwood stands contain various species of red oak, ash, maple, and sweetgum. Most of these hardwood species are climax forest species. As part of the overall management objectives, portions of these stands will reside as wildlife habitat areas.

### **HP (Hardwood-Pine)**

The HP stand type is applied to stands that contain a mixture of both hardwood and pine timber, but the overall makeup of the stand contains more hardwood timber than pine timber. Depending on site location, these stands are composed of the same species of hardwood as the hardwood timber type, but also have a small component of loblolly pine. Pines are the early successional species that initially dominate the forest canopy. Eventually hardwoods, which are longer lived, will overtake the pines as the climax forest species. Where appropriate, portions of stands with this timber type will also reside as wildlife habitat areas.

### **PH (Pine-Hardwood)**

Similar to the HP stand type, the PH stand type is also applied to stands that have a mixture of both pine and hardwood timber. The PH stand type, however, contains more pine timber than hardwood timber. Most of these stands are currently in the transitional

stage of succession; the pines are dying out and the hardwoods are taking their place as the climax species.

## **Pine and Hardwood Plantations**

As can be seen in Table 1, all of the stand types for the various pine and hardwood plantations are specific to the individual species planted and the year the stand was established. With more plantations established annually, knowledge of the year these stands were established will be an important part of the forest management system through the future.

## **Pine**

The pine stand type is the predominant stand type overall for the Progress Energy land developments. The pine stand type is applied to stands that contain natural pine timber. The majority of these stands are semi-mature or mature in age (45-65 years old). Most of the current timber value for each development is contained within the pine stand type.

## **SMZ/Wildlife**

The SMZ/Wildlife stand type recognizes streamside management zones. Both the North Carolina and the South Carolina Division of Forest Resources require that streamside management zones remain along perennial and intermittent streams to protect water quality. The streamside management zones (SMZs) will be managed with intentions of protecting water quality and providing habitat for wildlife. Harvesting operations will be minimized in these areas. The width of an SMZ depends on such factors as the water-carrying capacity of the stream, slope of the land, and timber type present. Whenever possible, the SMZs designated on the tracts will be larger than required to act as corridors for wildlife travel, as well as give added protection to water quality.

## **Forest Resources**

The forest resources available on each of the Progress Energy Land Developments as well as the timber volumes and values are located in Appendix B.

### **Timber Inventory**

At least a two percent timber cruise was performed on each individual stand of mature and merchantable timber on each land development. Inventory was determined using systematic random sampling and 1/10 acre fixed radius plots. Data was collected by timber product and species and included: diameter at breast height (DBH), tree height (measured in logs and half logs for sawtimber, and total height to nearest 10 feet for pulpwood), and density (basal area and trees per acre). Table 2 below lists the data generated from the inventory cruise for each individual stand.

#### **Table 2: Timber Inventory**

*Data Generated for each Product Class/Species*

*Volumes were determined on per acre basis and total volume per stand*

Trees Per Acre	Board Feet Per Tree
Cubic Feet	Pounds Per Unit (MBF & cords)
Tons	Pounds Per Tree
Board Feet	Average Diameter (DBH)
Trees Per Cord	Average Total Height

For all non-merchantable and mid-rotation plantations, inventory was determined using systematic random sampling and 1/10 acre fixed radius plots. Again, data was collected by timber product and species including: diameter at breast height (DBH), tree height (measured in logs and half logs for sawtimber, and total height to nearest 10 feet for pulpwood), and density (basal area and trees per acre). The merchantability specifications used for the inventory cruise can be seen in Table 3 in Appendix A.

This data was then used to run growth and yield models for each plantation to obtain volumes and values over the next 40 years. The volumes and values from two thinnings and a final harvest were estimated for all non-merchantable timber stands. The volumes and values from a second thinning and a final harvest were estimated for all mid-rotation timber stands.

### **40-year Sustained Gross Timber Income**

The volumes and values of the mature timber, mid-rotation plantations, and non-merchantable plantations are summarized for each land development. The total for all land developments was then divided by 40 years to obtain an estimated sustained gross yearly timber income. The summary of these values is shown in Table 4 below.

**Progress Energy**  
**Timber Values By Development**

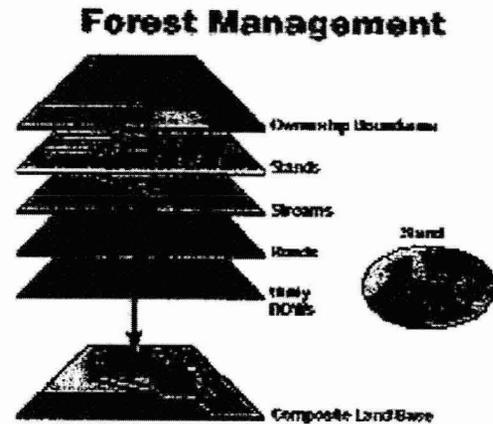
Development	Mature Timber Value	40-Year Plantation Income
Almond Development	\$ 449,369.78	\$ 391,309.48
Astor Tract	\$ 372,168.30	\$ 1,615,383.51
Blewett Falls Development	\$ 1,771,020.59	\$ 1,099,189.43
Buchanan Development	\$ 1,359,706.59	\$ 5,621,977.11
Cape Fear Development	\$ 5,700,764.72	\$ 11,136,682.91
Crystal River Energy Complex	\$ -	\$ -
Eastern NC Developments	\$ -	\$ -
Harris Development	\$ 22,241,772.23	\$ 12,668,543.23
Mayo Development	\$ 837,065.87	\$ 3,382,761.69
Robinson Development	\$ 1,042,314.77	\$ 1,806,887.22
Roxboro Development	\$ 11,110,125.00	\$ 3,357,585.71
Suwannee River Plant	\$ 0.00	\$ -
Tillery Development	\$ 487,104.30	\$ 1,279,352.67
<b>Total Values</b>	<b>\$ 25,774,221.14</b>	<b>\$ 42,309,229.66</b>

**Total Estimated 40-Year Income**      **\$ 87,731,085.10**  
**Estimated Yearly Sustained Gross Income**      **\$ 1,993,277.13**

# **Geographic Information System (GIS) Database**

## **Background Information on GIS**

GIS stands for geographic information system. Simply put, GIS combines layers of special and tabular information about features of a place to give a better understanding of that place. GIS is not just an automated decision making system, but a tool used to query, analyze, and map data in support of the decision making process. GIS stores information about the world as a collection of themed layers that can be used together. The GIS data contains an explicit geographic reference called "geocoding." This allows the GIS to know exactly where this data is located in relationship to the rest of the world.



## **Progress Energy's Geographic Information System (GIS) Database**

The Geographic Information System (GIS) Database created for all of the Progress Energy land developments is the key to the forest management system. The GIS contains various layers of information that are essential to making sound forest management decisions. These layers include: property boundaries, timber stand types, woods roads, streams, wildlife food plots, state roads, railroads, etc. Each layer contains an entire database of information specific to that layer. These layers can be viewed individually and together to show how they interact.

The GIS allows KF&R to intensively manage all land developments as a whole. All past, current, and future management activities are tracked and accounted for in the GIS database. As it is well known, there is a vast difference between seeing data in a table of rows and columns, and seeing it presented in the form of a map. It turns out that the way data is seen has a profound effect in the connections you make and the conclusions you draw from it. The GIS allows KF&R to provide Progress Energy with an up-to-date financial analysis of forest investments, produce harvest schedules and candidate harvest blocks, analyze the economic impact of different harvest strategies, analyze the impact of harvest strategies on wildlife, determine the direction and hazard of smoke produced from site preparation and silvicultural burns. GIS maps can also be exported as digital images that can be attached to emails and viewed in presentations for improved communication of management activities. GIS is by far the most efficient system available today to manage Progress Energy's land developments.

### ***Timber Stand Types***

The timber stand types GIS database is the most important of all layers. This database contains all of the per acre and total stand inventory data for each individual stand on each land development. Forest management is an ever-changing process. As mature timber is clearcut, mid-rotation stands thinned, and stands are reforested, the GIS database is edited to reflect these changes. It allows KF&R to continuously track, analyze, and maintain current knowledge of the timber volumes and values of all the land developments under management with Progress Energy. These developments will be managed together as part of one large forest management system.

### ***Land Trades, Acquisitions, and Dispositions***

Presently, Progress Energy is constantly trading, acquiring, and disposing of various tracts of land. The GIS will allow KF&R to actively track these land exchanges. As land exchanges are made, the GIS database will be edited to reflect these changes, always maintaining current knowledge of the timber volumes and values of all land developments.

## **Forest Management**

### **Timber Sales**

Timber sales have always been, and will continue to be, the driving source of income for Progress Energy's Land Management Department. Sales are specifically designed to achieve the owner's objectives of management, and are conducted to receive the highest possible price for the timber offered as part of the sale. Although receiving the highest possible price for the timber is our primary goal, protecting the integrity of the property and preserving its long-term management options are also key factors that affect timber sale options.

### ***Timber Sale Areas***

Timber sale areas are designated by identifying property boundaries or timber sale boundaries with paint, or by using obvious natural boundaries such as premerchanted stands, roads, transmission line right of ways, creeks, fields, etc. All streamside management zones (SMZ's) are identified within the timber sale area with a painted boundary. All timber sale boundaries are mapped out using the existing GIS database and input from GPS units to provide the location of sale boundaries that are not currently shown in the GIS. It has always been KF&R's policy, as established in accordance with representatives from Progress Energy, that when harvesting timber, to selectively remove the high-value sawtimber from within the SMZ, but only to the extent that the integrity of the buffer can be maintained.

### ***Clearcuts***

Clearcuts are the most efficient harvest method to reset succession. KF&R has limited clearcuts to only harvesting mature, old growth, or damaged timber within Progress Energy's land developments. Clearcuts are often the most profitable type of timber sale, utilizing high volumes of timber within a confined acreage. These timber sales are also the best way to ensure good reforestation.

Clearcut areas are designated as described above, and are designed to fit topographic configurations and utilize natural boundaries where feasible. This method avoids the use of strict geometric patterns. The timber sale is inventoried using one of several methods, or possibly a combination of several methods. The timber inventory sampling, often referred to as "cruising," is designed to provide a statistical significant sampling of at least 10% of the timber sale acreage. Depending on the uniformity of the forest resources within the sale area and sale acreage, some smaller timber sales may require that as much as 25% of the acreage be sampled. Extremely high valued timber may require a 100% tree count of the timber sale area to obtain accurate timber volume and value information.

### ***Select-Cut Harvests & Thinnings***

Select-cuts or thinnings may be used in a variety of harvesting operations, including:

- Natural regeneration harvests (seed tree cuts and shelterwood cuts)
- Crop-tree thinnings (thinning of mature timber)
- Pulpwood thinnings
- Removal of timber from within SMZ's
- Residential development harvests
- Wildlife habitat improvement harvests

These partial harvests often require some type of designation of either the trees to be removed or the trees to leave. The desired trees are most often identified with paint, both at chest height and at the stump. Pine pulpwood thinnings (most often first thinnings) involve the removal of every fourth or fifth row of planted trees, or harvesting corridors spaced approximately every 40-50 feet. These harvests are then followed by selecting the damaged, diseased, suppressed trees for removal until the desired stocking of trees is reached.

### ***Streamside Management Zones (SMZ)***

The protection of the water quality as a result of forest management activities has always been, and continues to be one of the primary objectives of management for all of Progress Energy's land developments under contract with KF&R. Streamside Management Zones (SMZ) will be designated along all riparian zones, along perennial and intermittent streams, wetland areas, and other bodies of open water within and/or in the vicinity of the tract, where extra precaution is needed in performing forest management activities. The purpose of the SMZ is to slow and spread the surface water flow and trap and filter out sediment before it reaches the stream channel or body of water. The SMZ also provides stream shade and functions as a buffer when fertilizers, pesticides, etc. are applied to the adjacent lands.

KF&R has always paid special attention to the placement of streamside management zones (SMZ) on all of Progress Energy's land developments. With the production of power being the primary business of Progress Energy, virtually all land developments encompass or border large bodies of water that are used as part of the energy production process. Many of these bodies of water are utilized by the public for recreation, meaning that the public is constantly scrutinizing all timber activities. In situations such as these, KF&R has always placed wider than needed buffers along lake edges and riverbanks to give added protection to water quality, and to conceal the temporary displeasing view of clearcuts.

With wildlife management being one of the primary objectives of management, it has always been KF&R's policy to establish wildlife management areas on all land developments. Many of these wildlife management areas reside in larger than needed SMZ's. These areas contain mostly hardwood timber, and act as corridors for wildlife

travel in areas that are intensively managed for timber production. They provide safe travel, food, nesting, denning, and foraging sites, as well as cool refuges during the hot summer months. These corridors often connect similar habitats together to help offset the effects of other forest management activities. The key to successfully managing SMZ's as wildlife habitat areas is to provide an open understory to facilitate travel by wildlife and maintain a condition similar to the interior forest habitat.

### ***Timber Sale Process***

Clearcuts are typically sold on a lump-sum, sealed bid basis, and include a 100% payment from the buyer upon the signing of the contract or timber deed. Select-cuts and thinnings (aside from timber to be selectively harvested as part of a lump-sum timber sale) are most often sold on a negotiated basis. This allows KF&R to negotiate the thinning sales only with timber companies that have reputable loggers. The quality of a thinning operation is extremely important towards the future growth and value of a timber stand. It is typical for KF&R to require timber buyers to pay an advanced deposit of 30%-50% of the anticipated harvest income from which the initial weekly stumpage is deducted on all thinning sales. Once the advance payment is depleted, weekly stumpage checks are issued through the completion of the harvest.

Timber contracts and agreements stipulate the terms and conditions of the timber sale for clearcuts, select-cuts, and thinnings. These terms and conditions are designed specifically for each individual sale to ensure that Progress Energy's property is protected. Once a successful buyer is determined, timber contracts are signed, and consideration is paid, KF&R then supervises all logging activities and enforces the terms and conditions of the sale.

### ***Best Management Practices (BMP's)***

All timber sales are designed to protect site productivity and water quality by adhering to the Best Management Practices (BMP's) as outlined by each state's department of forestry. BMP's can be looked at as "common sense" practices such as leaving buffers along streams, installing water retention bars to prevent soil erosion, and controlling stream crossings by logging equipment. The buffers left along streams is explained in the above Streamside Management Zones (SMZ's) section. Water retention bars are constructed on sections of logging roads, skid trails, and firelanes to control soil erosion. The purpose of a "water bar" is to slow the travel of water down steep slopes and divert it off traveled surfaces to prevent soil erosion. These practices help preserve the soil and water quality of the property, meet state logging guidelines (where required), and have little, if any, negative effect on timber sale income.

### **Reforestation**

Reforestation remains one of the most important aspects of the forest management process. This process is designed to match site capabilities and Progress Energy's objectives, and is based on species, condition, and quality of the present timber stand as

well as competing vegetation. All records of the reforestation process, including site preparation techniques used, timing of such applications, year of planting, and survival data is tracked in the GIS database.

### ***Reforestation Prescriptions***

Regeneration practices are divided into two general categories: natural regeneration methods and artificial regeneration methods. Natural methods rely on natural sources to begin the next stand. Artificial methods involve planting the desired species in the harvested area. This allows the use of genetically improved planting stock and systematic spacing of the seedlings to insure stocking levels that maximize the growth potential of the whole stand.

Since one of the primary objectives of management is to intensively manage Progress Energy's land developments as a forest investment, virtually all stands are reforested using artificial regeneration methods. This allows KF&R to intensively manage these stands through the future to maximize timber income. Natural regeneration methods are mostly limited to hardwood stands where the site of the timber sale is favorable to hardwood growth and there is a good source of high value species present on the site before the harvest.

Reforestation prescription decisions on whether to use natural or artificial regeneration methods are most often made prior to the harvest of the existing stand of timber. Other reforestation prescriptions, such as site preparation techniques, are normally made during or after the timber harvest is complete. Site preparation techniques include some or all of the following activities:

- Chemical site preparation of the area to kill competing species before planting
- Mechanical site preparation to remove competing vegetation and logging debris before planting
- Controlled burning of the site to remove logging debris, improve access by planting crews to the site, improve seedling survival, and control natural regeneration
- Bedding of wet-natured sites
- Fertilization
- Disking or sub-soiling sites with excessive logging damage to soil quality
- Planting genetically improved seedlings matched to the site location
- Applying herbaceous weed control after planting to release seedlings from unwanted competition

Techniques used are dependent upon such factors as the time of year the harvest of the previous stand is completed, make-up of the previous stand, weather conditions, location, species to be reforested, and timber budget constraints.

### ***Herbicide Applications***

Since the early 1990's, KF&R has applied herbicides to harvested tracts either as a site preparation tool or a release to control herbaceous vegetation. KF&R works with the chemical contractors to make decisions on which chemicals should be used, the rates to be applied, and the timing of the application.

All contractors receive tract maps that show the location of the area where the herbicide is to be applied, SMZ's, as well as any other sensitive areas (power plants, transmission line R/W, houses, etc.). Vicinity maps are also provided to show the location of the tract as it relates to the surrounding community. KF&R also exports the GIS data for these same maps in a format that can be utilized by the aerial crew with a GPS unit.

KF&R will have a member of our firm on site with the chemical contractor at all times during the actual herbicide application process. This ensures that any problems that may arise are negotiated and resolved on site.

### ***Controlled Burning***

Performing a controlled burn remains to be one of the most efficient ways to site prepare a tract prior to planting. The controlled burn aids to remove logging debris, control natural regeneration, improve access by planting crews, and improve seedling survival by preparing the seed bed. This site preparation technique combined with an herbicide application, either prior to the burn or following planting as a release, aids to establish an excellent growing stock of trees on the site through the future.

KF&R performs its own controlled and prescribed burns on Progress Energy land developments; no burning is subcontracted. This ensures that all the proper steps are taken to make sure that no mistakes are made; mistakes made while performing a controlled or prescribed burn can often be drastic in consequence. KF&R possesses a valid North Carolina Burn Boss Certification as well as all other certification needed to burn in other states. Due to the volume of controlled and prescribed burns performed by the firm, KF&R is a permitting agent by the North Carolina Forest Service, allowing the company to write its own open burning permits. KF&R has a controlled burning form that is used to document the necessary conditions needed to perform the burn, the conditions present at the time the burn is performed, as well as a post-burn checklist that is used to ensure that the burn met the necessary pre-burn specifications.

### ***Tree Planting***

Prior to planting, all tracts that are to be reforested are checked to make certain that all the prescribed site preparation activities have taken place. KF&R identifies any portions of the tract that are to be removed and/or added to the reforestation process and adjusts the acreage accordingly. KF&R receives bids for all tree planting work, on both private and corporate clients, from reputable tree planting contractors.

KF&R works closely with representatives of the various International Paper Supertree Seedling Nurseries to obtain second-generation genetically improved tree seedlings. The number of seedlings needed is dependant on the species planted, the desired stocking, and whether it is being planted for the first time or remediation. Planting schedules are then created to ensure that tree planting crews are efficient in moving from one tract to another, as well as from one region to another. KF&R works with freight services to transport the tree seedlings in refrigerated cargo trailers to ensure tree seedling survival. The freight service moves the cargo trailer from one planting region to another, acting as a hub from which planting crews can be supplied. KF&R devotes at least one full-time employee to oversee the entire tree planting process. This employee's job is to aid in locating tree planting crews to the various tracts, monitoring planting conditions (humidity, soil moisture), perform quality checks of the planting, and to supply the tree planting crews with seedlings.

All planted areas are checked the following fall, after frost, to determine if seedling survival is sufficient or if remedial activities are required. Survival checks are performed on a systematic basis, usually providing at least one 1/100<sup>th</sup> plot for every two acres planted. The survival check accounts for the number of planted trees and natural trees per acre. These figures are then supplied for each individual tract to Progress Energy. The estimated stocking is also noted in the database, and can be used through the future in the production of growth and yield projections and thinning regimes.

### **Pine Straw Sales**

KF&R manages the sale of pine straw on several Progress Energy land developments. The sale of pine straw is largely limited to tracts of land that have sandy soil types. The sandy soil reduces the amount of understory vegetation and makes the pine straw easier to harvest. Most pine straw is harvested from stands that contain longleaf pine timber. Although the long needles produced from longleaf pines are preferred, many contractors have begun harvesting pine straw from stands of loblolly pine as well.

Pine straw can be sold on bids or negotiated with perspective buyers. Most pine straw sales are negotiated to ensure that the buyer can be trusted to perform the work. Negotiated sales are normally traded on a per bale rate, and require the buyer to pay a deposit on the sale. Weekly settlements are then deducted from the deposit. Once the deposit is depleted, weekly settlement checks are issued throughout the harvest. KF&R also coordinates our prescribed burning program with the harvest of pine straw to aid in reducing the amount of understory vegetation within pine straw harvest areas.

### **Hunting Leases**

Progress Energy recently began leasing the hunting rights for portions of its land developments. Hunting leases have become a standard practice for most private landowners, forest industries, as well as many other public utility companies. There are

many benefits that come from leasing the hunting rights for a tract of land. These include:

- Additional source of income
- Stipulations in the hunting lease place restrictions on where vehicles can travel, reducing road maintenance costs
- Lessees take greater care of the land than the general public

KF&R currently manages the entire leasing process on behalf of Progress Energy, excluding the actual lease preparation. This process involves the advertising of available hunting leases, preparation and receiving of bid notices, and hunting lease map preparation. KF&R's knowledge of the land allows our firm to better stipulate certain restrictions or guidelines within lease agreements that might otherwise be overlooked.

KF&R made the decision to maintain good public relations with hunting clubs that lease lands adjacent to some land developments by negotiating lease agreements with those hunt clubs. This relationship is beneficial for Progress Energy in that the access to many portions of some developments is limited. Maintaining good relationships ensures that Progress Energy will continue to be allowed access across adjoining hunting clubs and landowners to perform forest management activities.

KF&R also monitors the lessee's use of the land to ensure that they are complying with the terms and conditions of the hunting lease agreement. Any problems that may arise are also negotiated by KF&R on Progress Energy's behalf and recommendations are communicated back to the Land Management Department.

### **Prescribed Burning Program**

KF&R has always maintained an active burning program on all land developments under management. Topography, soil types, the presence of standing water, tree species, and other factors dictate whether or not prescribed burning can be used as a forest management and wildlife management tool. The prescribed burning program provides numerous benefits to the forest including:

- Reduction of wildfire potential
- Wildlife habitat improvement
- Release of soil nutrients
- Control of understory vegetation

Since most of Progress Energy's land is in the Gamelands Program, the public travels over it often for recreational purposes. The constant public traffic increases the threat of wildfires. The threat of wildfires is almost completely eliminated by routinely performing a prescribed burn on various stands throughout each land development annually. Prescribed burning reduces fuel levels, minimizing the amount of damage caused by a wildfire.

Prescribed burning is also extremely beneficial to the improvement of wildlife habitat. Burning controls woody vegetation, releases nutrients, and enhances seed germination

and growth of soft mast (seeds and berries) producing shrubs and herbaceous vegetation. It makes wildlife browse (leaves, shoots, and vines) more digestible, palatable, and nutritious by increasing the protein content and decreasing the fiber content. Prescribed burning in stands of fire resistant species sets back succession just as a raging wildfire would do, but without the damage to potential timber crop trees. The burn creates variety in the vegetation types and structure, adding to the overall biodiversity of the stand.

Most wildlife habitat improvement burns are low intensity, conducted during the winter months. KF&R also uses these burns in hardwood forests to favor oak regeneration, which produce hard mast (nuts and acorns). It has been necessary on portions of certain land developments to conduct a growing season burn to more aggressively control woody vegetation. KF&R has always avoided burning during the primary nesting seasons of such wildlife species as bob white quail and turkey.

KF&R has constructed over 100 miles of firelanes on Progress Energy's land for use with prescribed burns. The firelanes are constructed to keep the fire from spreading to areas where burning is not appropriate. The majority of firelanes are stabilized by establishing various types of wildlife food plots on them. The GIS database is used to track the location of firelanes, the timing and location of prescribed burns, and which stands have been and will be burned. The database is also useful to determine the direction and hazard of smoke produced from controlled and prescribed burns.

## **Road Maintenance**

KF&R has always emphasized the importance of road maintenance and upkeep on all of Progress Energy's land developments. It has been KF&R's policy that Progress Energy installs all access roads at its expense. This ensures that all access roads are constructed to standards that will allow them to serve as permanent access roads in the future.

The road maintenance process begins as soon as an access road is installed. All access roads are "ditched and crowned" to ensure that rainwater will drain from the center of the road to the outside edges. Portions of roads that contain steep slopes may be rocked to prevent soil erosion. Water retention bars are also installed on steep slopes to slow the travel of rainwater and divert it off traveled surfaces to prevent soil erosion. Most stream and creek crossings contain culverts to allow the water to flow under the road. Close attention is paid to the size of the stream to ensure that the culvert installed is of adequate size to handle all levels of water flow produced by the stream. In many instances, rock is placed over culverts to prevent the soil from sinking and crushing the culvert.

It has become a standard practice of Progress Energy to place rock/stone where logging access roads intersect with major public roads. This practice reduces the amount of soil and debris tracked onto public roads by logging trucks and is more pleasing to the public eye. Once the access road construction is complete, the road surface is stabilized using perennial grasses. KF&R uses a mixture of wheat/oats (planted as a cover crop), fescue,

and sericia lespedeza. This seed mixture is very similar to the one used by the Department of Transportation when stabilizing roadsides and slopes.

KF&R monitors the condition of access roads before, during, and following any timber harvest operation. It is stipulated in all timber sale contracts that all access roads used during the harvesting process are to be left in "as good or better" condition than prior to use. Again, this ensures that the access road is maintained to the standards held by Progress Energy.

Numerous access roads are maintained on an annual basis. The need for roads to be maintained is largely created due to public trespassing and/or use of certain access roads. Other miscellaneous road maintenance is often coordinated with other activities occurring on the property. For example, if firelanes are being installed around a clearcut for the purpose of a controlled burn, KF&R may also allow the subcontractor to perform any miscellaneous road maintenance that is in the general vicinity. This reduces the amount of moving costs charged by the subcontractor associated with transporting heavy equipment.

### **Safety and Environmental Compliance**

KF&R actively maintains and abides by our own safety program that is in accordance with Progress Energy's standards. KF&R always maintains compliance with all state and federal law, guidelines, and recommendations pertaining to all forest management activities taking place on any of our clients' property(s). We have worked closely with government agencies such as the US Fish and Wildlife Service and the North Carolina Wildlife Resource Commission on issues pertaining to red-cockaded woodpeckers and bald eagles. Our staff is required to complete all training and continuing education courses that are required for maintaining and/or renewing all licenses, certifications, and professional memberships.

### **Visual Quality**

The visual quality of management activities on land owned by Progress Energy, Inc. has always been an important part of public relations. The forest management system calls for adherence to a moderate to high level of visual quality. The use of pine plantations is fundamental to modern, intensive forest management practices. Genetically improved seedlings will be used to optimize economic returns. Furthermore, the majority of the pine plantations will be managed on a sawtimber regime, which will include the use of thinnings.

Certain facets of the forest management system may, however, cause temporary low visual quality to the land. Final harvests will temporarily reduce visual quality. Timing of adjacent final harvests will be offset where aesthetics are of special importance. This will allow a harvested stand to be site prepared and replanted before an adjacent stand is harvested. Certain precautions, however, will be taken into

consideration before, during, and following harvests to minimize the reduction in aesthetics. These include:

- Adhering to state and federal Best Management Practices (BMP's)
- Minimizing the number of skid trails used during harvests
- Repairing roads to their original condition when harvests are complete
- Performing site preparation burns to remove slash and debris

## **Wildlife Management**

Wildlife management continues to be one of Progress Energy's primary management objectives. There is a profound relationship between forest management and wildlife habitat. Different species of wildlife require different stages of forest growth to meet their needs. One of the most important roles of forest management is controlling succession (both of crop trees and understory vegetation). Wildlife habitat areas are categorized into three different stages of succession: early successional habitat, mid-successional habitat, and late successional habitat. The key to wildlife diversity is habitat diversity.

### **Young Forests – Early Successional Habitat**

Early successional wildlife species benefit from the grasses, shrubs, and low herbaceous vegetation that is found in young forests. The most common young forest habitat created by forest management activities is a clearcut. Clearcuts reset succession, creating early successional wildlife habitat. Such species as bobwhite quail, whitetail deer, turkey, mourning dove, and rabbit all benefit from early successional habitat areas.

### ***Forest Edge Habitat***

The shape, and not so much the size of harvest areas, is extremely important in controlling the amount of edge habitat and the distance to cover. KF&R strives to create irregular shaped harvest areas on Progress Energy's land developments by leaving larger than needed streamside management zones. These irregular shaped buffers significantly increase the edge habitat of the area.

Firelanes are most often constructed along forest edges to perform controlled and prescribed burns. KF&R maintains and manages the firelanes through the establishment of wildlife food plots such as kobe or Korean lespedeza, partridge pea, and bicolor lespedeza on these areas.

### **Middle-Aged Forests – Mid-Successional Habitat**

Middle-aged forests provide more shaded habitat than young forests. Whitetail deer, turkey, gray squirrel, and bobwhite quail all benefit from mid-successional habitat. This type of habitat is most often manipulated by forest management through thinning operations. From a forest management stand point, thinning stands is extremely important because it improves tree growth and vigor. The thinning process removes the suppressed, diseased, poorer grade trees allowing the more dominated trees to continue growing.

For wildlife management purposes, thinning stands allows more sunlight to reach the forest floor resulting in more vigorous understory growth. This harvest type encourages regeneration of understory vegetation and growth, yet leaves some mid-successional and late successional trees in the overstory. The effects of thinning, however, are only

temporary. As the trees continue to grow, the canopy closes again and the understory growth is reduced.

KF&R works with the loggers to pile the slash and debris produced during the thinning operation near a clearing where understory vegetation is scarce to provide additional feeding and cover habitat for numerous species of wildlife. Creating brush piles near feeding areas or water sources provides cover for wildlife to escape from predators. Brush piles also serve as nesting habitat and corridors for wildlife to travel from one type of cover to another.

### **Mature Forests – Late Successional Habitat**

Late successional habitat areas have an overstory that is composed of mature tree species. These mature forests are characterized by having den and cavity trees, mast trees snags, and downed logs. Most den trees have one or more cavities that are used by various birds, mammals, and reptiles for roosting, nesting, or denning. Managing timber for quality sawtimber, on long term rotations produces large diameter den trees.

Mast trees produce fruits and nuts that are used by numerous wildlife species. Such tree species as hickory, oak, beech, persimmon, blackgum, holly, and dogwood are all valuable to wildlife as mast producers. Most of the streamside management zones and wildlife management areas contain a large percentage of mast producing tree species.

Snags can be defined as dying or dead trees that are still standing. Snags are good for late successional habitat by providing perch trees for birds of prey; serve as a food source for insect-eating birds, reptiles, amphibians, and mammals; and serve as den trees for various wildlife species. The dead bark that falls from the dead trees is used by bats, amphibians, small reptiles, and insects to protect themselves from predators and adverse weather conditions. KF&R works with harvesting operations and site preparations crews working on Progress Energy's property to leave snags or potential snags unharmed if they do not present a hazard.

Downed logs are a valuable resource for wildlife by providing food and cover for insects, amphibians, reptiles, and mammals. Hollow logs may be used as den sites for opossums, foxes, or raccoons.

### **Wildlife Food Plots**

Establishing wildlife food plots has always been an important part of Progress Energy's overall management objectives. These food plots provide ground cover vegetation that enhances wildlife habitat, aids in controlling erosion, and improves water quality. Wildlife food plots are installed on old logging decks, along forest roads and edges, transmission line r/w's, firelanes, and other forest openings. Seeding and establishment recommendations vary widely depending on geographic region, soil type, moisture, availability, and fertility. Numerous wildlife food plots currently exist on most

of Progress Energy's land developments. As part of the forest management plan, existing food plots will be maintained, and additional food plots will be planted.

### **Road Construction and Maintenance**

Several miles of roads are constructed and maintained on Progress Energy's land developments each year. One practice used by KF&R as part of the road construction/maintenance process that benefits wildlife is referred to as "daylighting." This process removes trees shading the road, allowing sunlight to reach the ground. The sunlight on the road surface enhances the growth of grasses and weeds which are valuable food plants for wildlife. Insects attracted to the vegetation are also an important food source for many wildlife species.

Progress Energy restricts vehicle traffic on most access roads through the use of various gates and cables. This practice increased wildlife use of the road, especially during nesting season.

### **Waterfowl**

Many of Progress Energy's land developments are adjacent to lakes, rivers, and other major bodies of water. These land developments also contain other wetland habitat areas such as beaver ponds and swamps. These areas provide abundant food, cover, and roosting areas for migratory waterfowl species.

Progress Energy is partnering with the North Carolina Waterfowl Association Wood Duck Production Project to enhance wetland dependent bird populations. The current proposal calls for 1,000 wood duck boxes to be installed on various land developments over the next ten years. With the installation of 1,000 wood duck nesting boxes on Progress Energy property, over 5,000 ducklings could be produced annually.

## **Maintenance of Forest Management Plans**

The most important part of maintaining the forest management plan is updating the GIS database. This database contains all forest inventory data, thinning regimes, and reforestation data. As timber is harvested, either clearcut or selectively thinned, the database is updated by KF&R to reflect these changes in the overall timber inventory. For clearcuts, these updates are performed once the timber has been completely harvested from the sale area. Selective thinning sales are updated monthly to reflect the inventory changes.

It is KF&R's recommendation that certain stands on all land developments be inventoried approximately every four years to reflect changes in volume due to tree growth. These forest inventory studies will largely be concentrated towards the faster growing pine plantations. The forest inventory studies will be used to update volumes following thinning operations, clearcuts, and to inventory stands that were previously premerchtable.

As has occurred frequently over the last eight years, Progress Energy continues to acquire and dispose of portions of land developments. As land is acquired or divested, these changes also need to be reflected in the overall management plan. If land is divested, the areas of divestiture are deleted from the GIS database. When a parcel of land is deleted, all forest inventory data is also deleted from the database. These changes in the database can then be used to update the overall management plan at any time.

KF&R tracks all changes in forest inventory data using a Microsoft Access Database. These changes are presented to Progress Energy at the end of each quarter and include the following information:

- Volume of timber at the beginning of the period
- Volume of timber harvested during the current period
- Volume of timber remaining at the end of the current period
- Depletion percentage
- Income and expense figures for the period including gross income, total expenses, and net income
- Income and expense figures for the year-to-date including gross income, total expenses, and net income
- Various maintenance charges
- Reforestation and site preparation expenses
- Current year reforestation expenses related to timber sales from the previous year

## **Conclusion**

The author of this document feels that the proposed forest management system is the most efficient and effective way to meet the desired management objectives of Progress Energy. Each of the management objectives set by Kiker Forestry & Realty, Inc. can be met through the use of sound, modern forest management practices.

The opportunities on all of the Progress Energy Land Developments are extremely interesting, and over time will grant the company with the desired production of sustained yearly gross timber income. It has been a pleasure to have had the opportunity to develop this forest management system, and we look forward to implementing this system through the future. Please feel free to contact any member of Kiker Forestry & Realty, Inc. with any questions or comments you may have.

## Harris Development

### *Acreages of Land Features*

<b>Stand Type</b>	<b>Total Acres</b>
CP&L Energy & Environmental Facilities	54.88
Cutover	107.28
Greentree Impoundment	6.77
Harris Auxillary Lake	405.37
Harris Lake	3,682.54
Island	0.94
Logging Deck	10.59
Natural Gasline R/W	7.86
Old Railroad R/W	13.46
Old Transmission Line R/W	46.95
Open Area	98.42
Open/Scattered Pines	126.84
Ponds	67.22
Public Access Area	10.87
Railroad R/W	37.47
State Road R/W	154.58
Shearon Harris Nuclear Plant	453.09
Transmission Line R/W	340.15
Unowned Area	1,444.00
US Highway 1 R/W (260')	134.37
Wake County Training Facilities	30.66
Woods Road R/W	138.51
Mature Timber	12,541.18
Non-Merchantable Plantations	2,894.61
Miscellaneous Areas	481.57

<b>Total</b>	<b>23,290.18</b>
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**Harris Development**  
***2004 Timber Values***

Mature Timber Value	\$	22,241,772.23
Future Thinning & Final Harvest Income	\$	8,647,976.90
Non-Merchantable Plantations Future Income	\$	4,020,566.33

<b>Total</b>	<b>\$</b>	<b>34,910,315.46</b>
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**Harris Development**

**2004 Timber Inventory**

**Non-Merchantable Pine Plantations**

**Non-Merchantable Loblolly Pine Plantations**

Stand Type	Acres	First Thinning (age 17-20) Pine Volumes (tons)		Second Thinning (age 28-32) Pine Volumes (tons)		Final Harvest (age 38-45) Pine Volumes (tons)	
		Pulpwood	Sawtimber	Pulpwood	Sawtimber	Pulpwood	Sawtimber
LB-1990	16.73	463.92	57.89	400.52	214.65	0.00	1,250.90
LB-1993	26.71	740.67	92.42	639.44	342.69	0.00	1,997.11
LB-1994	122.49	3,396.65	423.82	2,932.41	1,571.55	0.00	9,158.58
LB-1998	460.02	12,756.35	1,591.67	11,012.88	5,902.06	0.00	34,395.70
LB-1998 w/ Scattered Hwd.	15.04	326.82	47.53	345.02	147.84	0.00	1,034.30
LB-1999	315.8	8,757.13	1,092.67	7,560.25	4,051.71	0.00	23,612.37
LB-2000	679.83	18,851.69	2,352.21	16,275.13	8,722.22	0.00	50,830.89
LB-2001	242.32	6,719.53	838.43	5,801.14	3,108.97	0.00	18,118.27
LB-2002	472.67	13,107.14	1,635.44	11,315.72	6,064.36	0.00	35,341.54
LB-2003	91.32	2,532.30	315.97	2,186.20	1,171.64	0.00	6,828.00
LB-2005	154.54	4,285.39	534.71	3,699.69	1,982.75		11,554.96
<b>Totals</b>	<b>2,597.47</b>	<b>26,644.37</b>	<b>3,324.54</b>	<b>23,002.75</b>	<b>12,327.71</b>	<b>0.00</b>	<b>71,842.75</b>

Total First Thinning Income	\$ 229,657.56
Total Second Thinning Income	\$ 557,984.81
Total Final Harvest Income	\$ 3,232,923.95
	<b>\$ 4,020,566.33</b>

**Non-Merchantable Longleaf Pine Plantations**

Stand Type	Acres	NPV (\$/Acre)	Total Stand Value
LL-1995	3.39	\$ 912.67	\$ 3,093.95
LL-1998	34.27	\$ 884.97	\$ 30,327.92
LL-1999	37.77	\$ 849.57	\$ 32,088.26
LL-2000	162.17	\$ 816.47	\$ 132,406.94
LL-2001	59.54	\$ 788.36	\$ 46,938.95

<b>Totals</b>	<b>297.14</b>	<b>\$ 244,856.03</b>
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**Harris Development**

*2004 Timber Inventory*

*Merchantable Pine Plantations*

*Future Thinning & Final Harvest Income*

Stand Type	Acres	Second Thinning (age 28-32) Pine Volumes (tons)		Final Harvest (age 38-45) Pine Volumes (tons)	
		Pulpwood	Sawtimber	Pulpwood	Sawtimber
LB-1969	102.80	0.00	0.00	0.00	7,686.36
LB-1970	162.35	0.00	0.00	0.00	12,138.91
LB-1972	133.48	0.00	0.00	0.00	9,980.30
LB-1973	13.69	0.00	0.00	0.00	1,023.60
LB-1976	424.26	10,156.78	5,443.26	0.00	31,721.92
LB-1977	46.66	1,117.04	598.65	0.00	3,488.77
LB-1979	798.32	19,111.78	10,242.45	0.00	59,690.39
LB-1982	157.10	3,760.97	2,015.59	0.00	11,746.37
LB-1984	339.91	8,137.45	4,361.05	0.00	25,415.07
LB-1986	21.61	517.34	277.26	0.00	1,615.78
LB-1988	52.44	1,255.41	672.81	0.00	3,920.94

<b>Totals</b>	<b>2,252.62</b>	<b>44,056.78</b>	<b>23,611.05</b>	<b>0.00</b>	<b>168,428.40</b>
<b>Total Value</b>		<b>\$ 2,171,371.30</b>	<b>\$ 626,816.77</b>		<b>\$ 1,544,207.63</b>

**Total Second Thinning Income**      \$ 1,068,699.02  
**Total Final Harvest Income**        \$ 7,579,277.88  
**\$ 8,647,976.90**

**Harris Development**  
2004 Timber Inventory

Mature/Merchantable Timber

Stand Type	Acres	Pulpwood (tons)		Pine	Hard Hwd.	Hardwood Sawtimber (tons)				Total Stand Value
		Pine	Hardwood	Sawtimber (tons)		Oak	Poplar	Ash/Maple	Other	
HP (Hardwood-Pine)	2,843.57	16,758.36	59,755.64	64,174.42	14,385.85	36,186.12	15,549.51	947.03	19,058.62	\$ 5,378,790.16
Hardwood	35.88	153.78	706.47	483.48	5.04	494.71	385.31	25.54	238.41	\$ 56,151.18
LB-1969	102.80	5,452.88	657.57	5,975.75	8.46	6.04	116.36	0.00	0.00	\$ 274,916.08
LB-1970	162.35	2,691.98	51.05	6,104.31	0.00	0.00	0.00	0.00	0.00	\$ 259,080.39
LB-1972	133.48	10,594.77	113.19	9,704.19	0.00	97.43	1,094.83	0.00	8.96	\$ 488,528.72
LB-1973	13.69	258.49	87.73	1,603.24	0.00	19.44	3.90	2.14	3.30	\$ 66,593.16
LB-1976	424.26	19,416.35	829.03	12,172.53	0.00	201.21	102.12	0.00	69.57	\$ 607,009.29
LB-1977	46.66	2,172.94	0.00	730.23	0.00	0.00	0.00	0.00	0.00	\$ 41,160.37
LB-1979	798.32	19,534.71	81.15	6,719.20	0.00	0.00	0.00	0.00	0.00	\$ 376,371.21
LB-1982	157.10	6,906.12	0.00	2,204.11	0.00	0.00	0.00	0.00	0.00	\$ 126,148.06
LB-1984	339.91	19,651.35	10.67	9,594.63	0.00	11.15	5.72	1.94	5.04	\$ 492,555.02
LB-1986	21.61	1,302.65	0.00	183.25	0.00	0.00	0.00	0.00	0.00	\$ 14,494.58
LB-1988	52.44	1,961.09	0.00	199.15	0.00	0.00	0.00	0.00	0.00	\$ 18,752.00
PH (Pine-Hardwood)	1,900.68	30,133.12	22,668.25	126,968.35	1,586.33	8,736.97	5,614.33	267.37	4,119.70	\$ 5,909,415.21
Pine	3,602.56	42,020.99	22,436.22	181,163.39	1,922.74	10,295.42	2,970.21	195.50	5,179.36	\$ 8,131,806.84
SMZ/Wildlife	1,905.87	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$ -

**\$ 22,241,772.23**

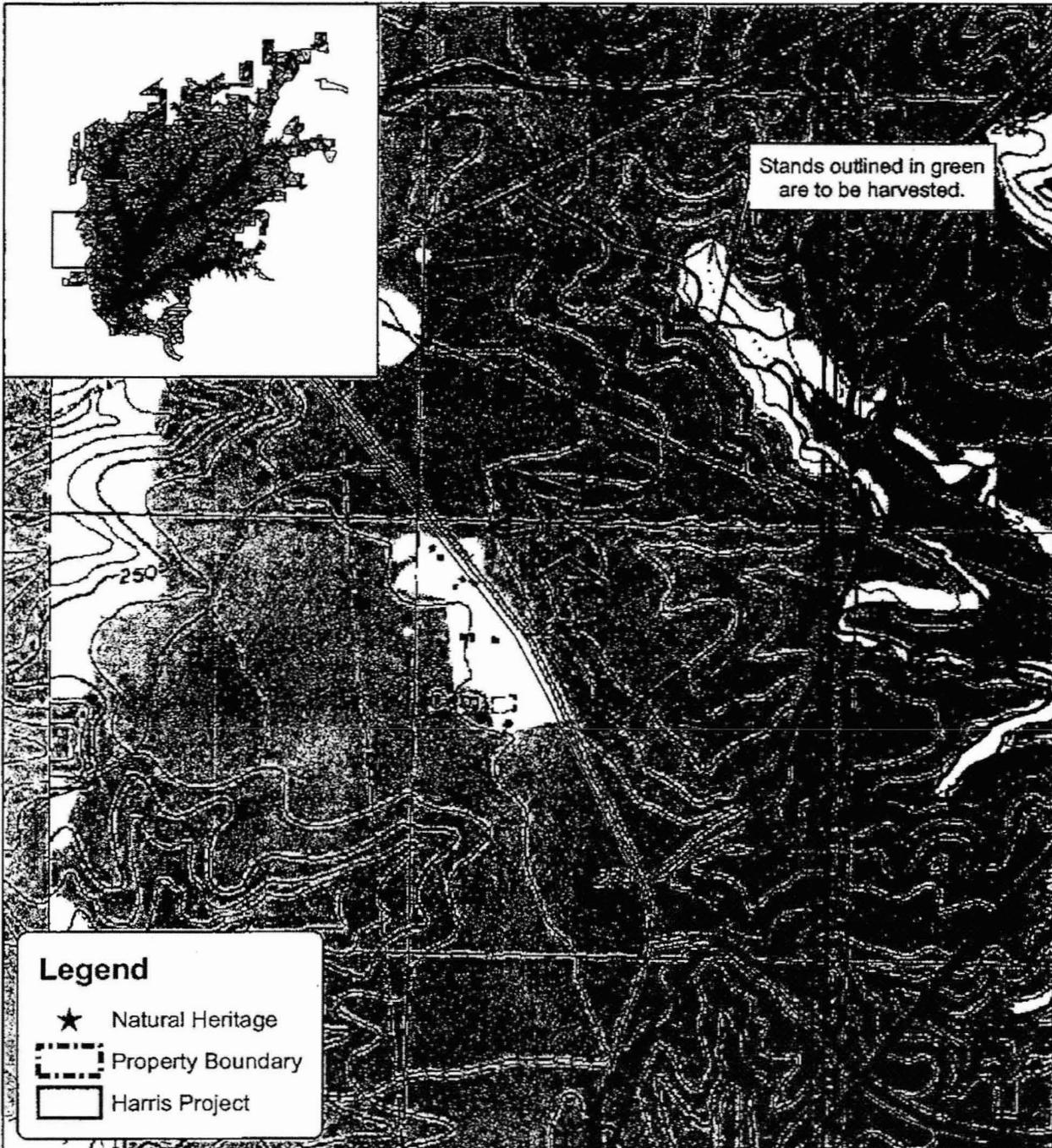
## Harvest Plan

### Sale No. 19-2005 Cape Fear Lands

State: North Carolina  
County: Chatham  
River Basin: Cape Fear  
Acres: 189  
Type of Harvest: Clearcut  
Expected Harvest Value: \$650,000  
Buyer: Not determines as of this date  
Harvest effective Date: Effective upon execution of contract.  
Harvest Termination Date: June 30, 2006

- Area identified for harvest per the Forest Management Plan.
- Timber in this harvest area is predominately pine and mixed hardwood about 60 years old and has never been thinned.
- Timber is to be cruised and SMZ's to be delineated, GPS and mapped in 2nd<sup>1</sup> quarter 2005 in accordance with NC BMP's on table 2, page 15.
- Stream crossings to be located on sale map.
- Logging decks to be located on sale map.
- Harvest area reviewed and approved by Environmental Services on January 6, 2005 with the following recommendation to be performed prior to harvest activity:
  - Eagle survey- To be verified in the field during preharvest inspection. Aerial survey will be contracted.
  - T&D Species verification by either document review or actual field survey.
- Pre-harvest area "site inspection" will be conducted and documented prior to loggers mobilizing to harvest area. Inspection shall be performed by either forestry consultant or Progress Energy's Senior Forester or his designee.
- During pre-harvest site inspection, the following will be verified:
  - SMZ delineation,
  - Location of logging decks
  - Road and stream crossing locations
  - Cutting boundaries painted properly
- Activate Communication Plan at least ten days before harvest activity begins.
- Progress of harvest and contract compliance checked at least once a week while the loggers are working by either by consulting forester or senior forester or his designee.
- Final or post harvest inspection will be conducted by both forestry consultant and Progress Energy's Senior Forester or his designee.
- Final "site inspection" report will be completed and filed in the corresponding Timber Sale file.
- Close out Timber Sale file and ensure that all contracts, amendments, inspection reports, (including pre-harvest, weekly inspections and post harvest inspections) and all correspondence concerning the timber harvest exists in the file.

# Exhibit "A"



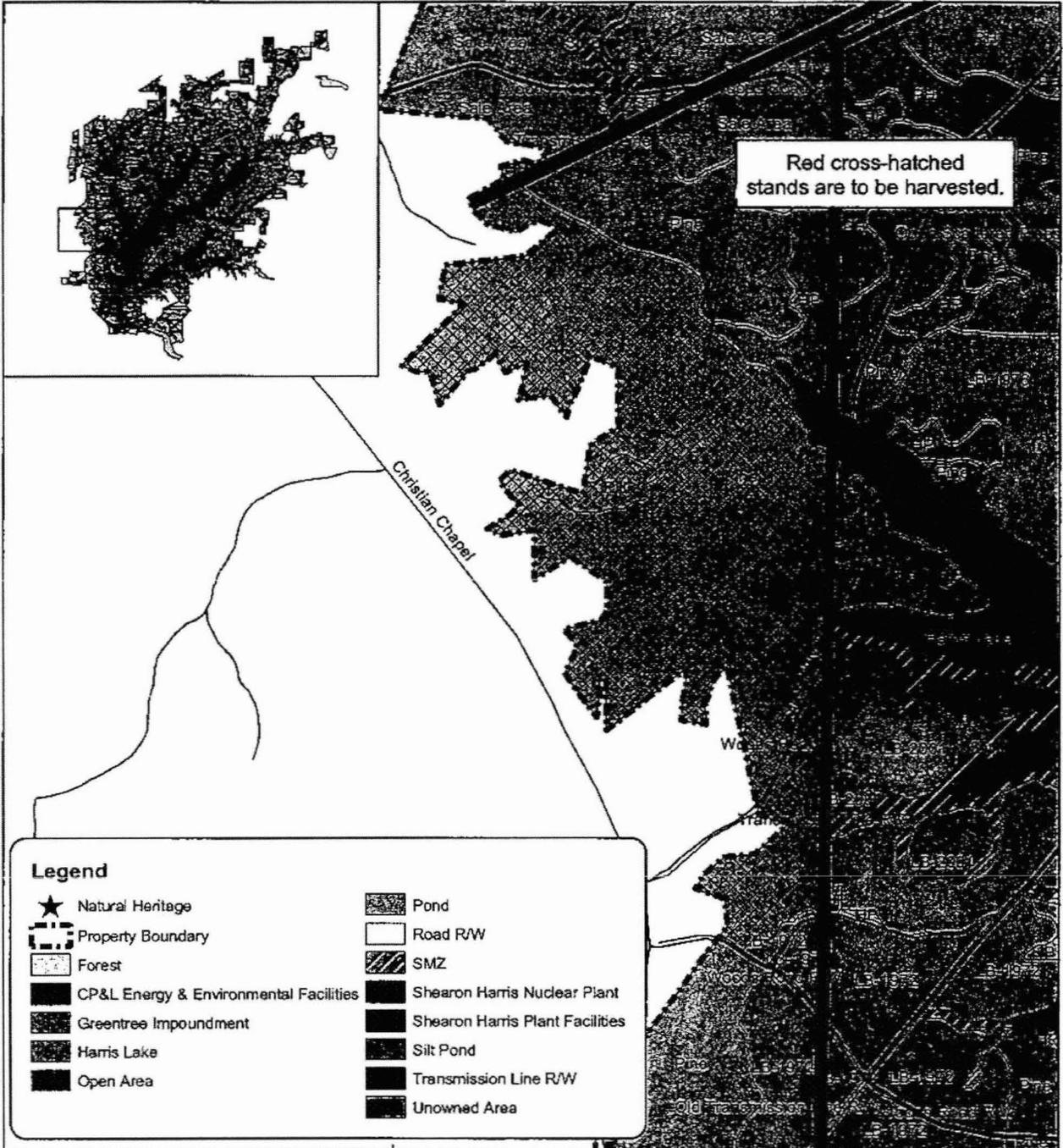
**Harvest Area = 188.84 Acres**

PDF File: Sale No. 19, 2005 (Topo).pdf

 **Progress Energy**  
**Sale No. 19, 2005**

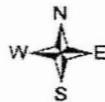
Harris Project  
Unit 1  
Chatham County, NC  
Cape Fear River Basin  
January, 2005  
Drawn By: Chris Childers

# Exhibit "A"



### Legend

- |  |                                 |
|--|---------------------------------|
| Natural Heritage                       | Pond                            |
| Property Boundary                      | Road R/W                        |
| Forest                                 | SMZ                             |
| CP&L Energy & Environmental Facilities | Shearon Harris Nuclear Plant    |
| Greentree Impoundment                  | Shearon Harris Plant Facilities |
| Harris Lake                            | Silt Pond                       |
| Open Area                              | Transmission Line R/W           |
|  | Unowned Area                    |



**Harvest Area = 188.84 Acres**

PDF File: Sale No. 19, 2005.pdf



**Sale No. 19, 2005**

Harris Project

Unit 1

Chatham County, NC

Cape Fear River Basin

January, 2005

Drawn By: Chris Childers



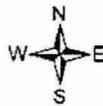
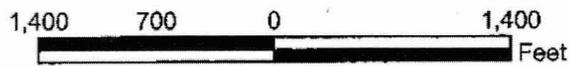
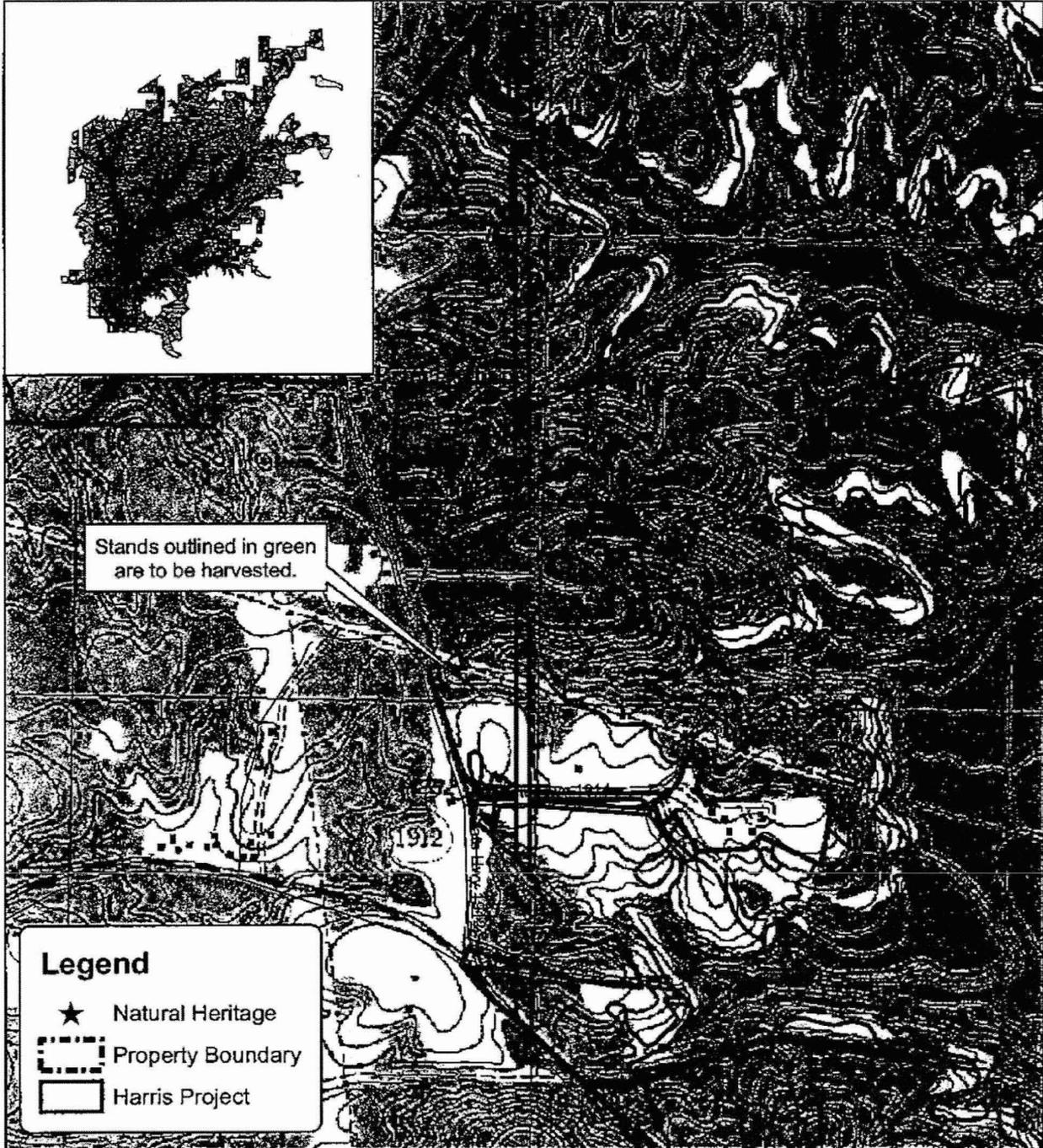
## Harvest Plan

### Sale No. 24-2005 Cape Fear Lands

State: North Carolina  
County: Chatham  
River Basin: Cape Fear  
Acres: 165  
Type of Harvest: 1<sup>st</sup> Thinning  
Expected Harvest Value: \$80K  
Buyer: Not determines as of this date  
Harvest effective Date: Effective upon execution of contract.  
Harvest Termination Date: June 30, 2006

- Area identified for thinning per the Forest Management Plan.
- Timber in this harvest area is predominately 20 year old pine
- SMZ's and sale boundaries to be delineated, GPS and mapped in 2<sup>nd</sup> quarter 2005 in accordance with NC BMP's on table 2, page 15.
- Stream crossings to be located on sale map.
- Logging decks to be located on sale map.
- Harvest area reviewed and approved by Environmental Services on January 6, 2005 with the following recommendation to be performed prior to harvest activity:
  - Eagle survey- To be verified in the field during preharvest inspection. Aerial survey will be contracted.
  - T&D Species verification by either document review or actual field survey.
- Pre-harvest area "site inspection" will be conducted and documented prior to loggers mobilizing to harvest area. Inspection shall be performed by either forestry consultant or Progress Energy's Senior Forester or his designee.
- During pre-harvest site inspection, the following will be verified:
  - SMZ delineation,
  - Location of logging decks
  - Road and stream crossing locations
  - Cutting boundaries painted properly
- Activate Communication Plan at least ten days before harvest activity begins.
- Progress of harvest and contract compliance checked at least once a week while the loggers are working by either by consulting forester or senior forester or his designee.
- Final or post harvest inspection will be conducted by both forestry consultant and Progress Energy's Senior Forester or his designee.
- Final "site inspection" report will be completed and filed in the corresponding Timber Sale file.
- Close out Timber Sale file and ensure that all contracts, amendments, inspection reports, (including pre-harvest, weekly inspections and post harvest inspections) and all correspondence concerning the timber harvest exists in the file.

# Exhibit "A"



**Thinning Areas = 165.21 Acres**

PDF File: Sale 24, 2005 (topo).pdf

 **Progress Energy**  
**Sale No. 24, 2005**

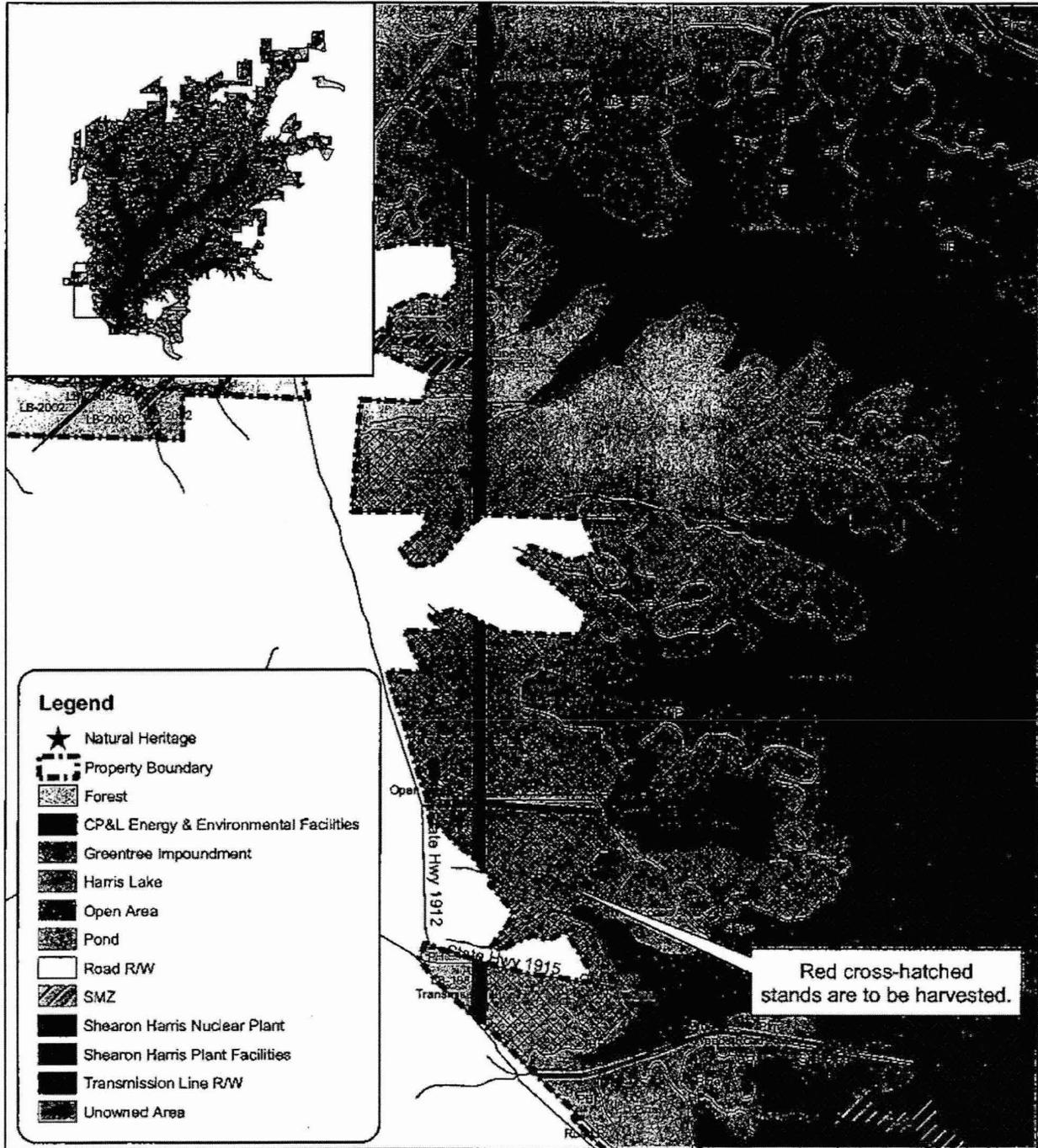
Harris Project  
Unit 1  
Chatham County, NC  
Cape Fear River Basin  
January, 2005  
Drawn By: Jason B. Kiker

ArcMap File: Sale 24, 2005 (topo).mxd

Date: 1-31-2005

**Kiker Forestry & Realty, Inc.**  
Since 1978 

# Exhibit "A"



## Legend

- ★ Natural Heritage
- ▬ Property Boundary
- ▨ Forest
- ▬ CP&L Energy & Environmental Facilities
- ▬ Greentree Impoundment
- ▬ Harris Lake
- ▬ Open Area
- ▬ Pond
- ▬ Road R/W
- ▨ SMZ
- ▬ Shearon Harris Nuclear Plant
- ▬ Shearon Harris Plant Facilities
- ▬ Transmission Line R/W
- ▬ Unowned Area

Red cross-hatched stands are to be harvested.



**Thinning Areas = 165.21 Acres**

PDF File: Sale 24, 2005.pdf

**Progress Energy**  
**Sale No. 24, 2005**

Harris Project  
 Unit 1  
 Chatham County, NC  
 Cape Fear River Basin  
 January, 2005  
 Drawn By: Jason B. Kiker

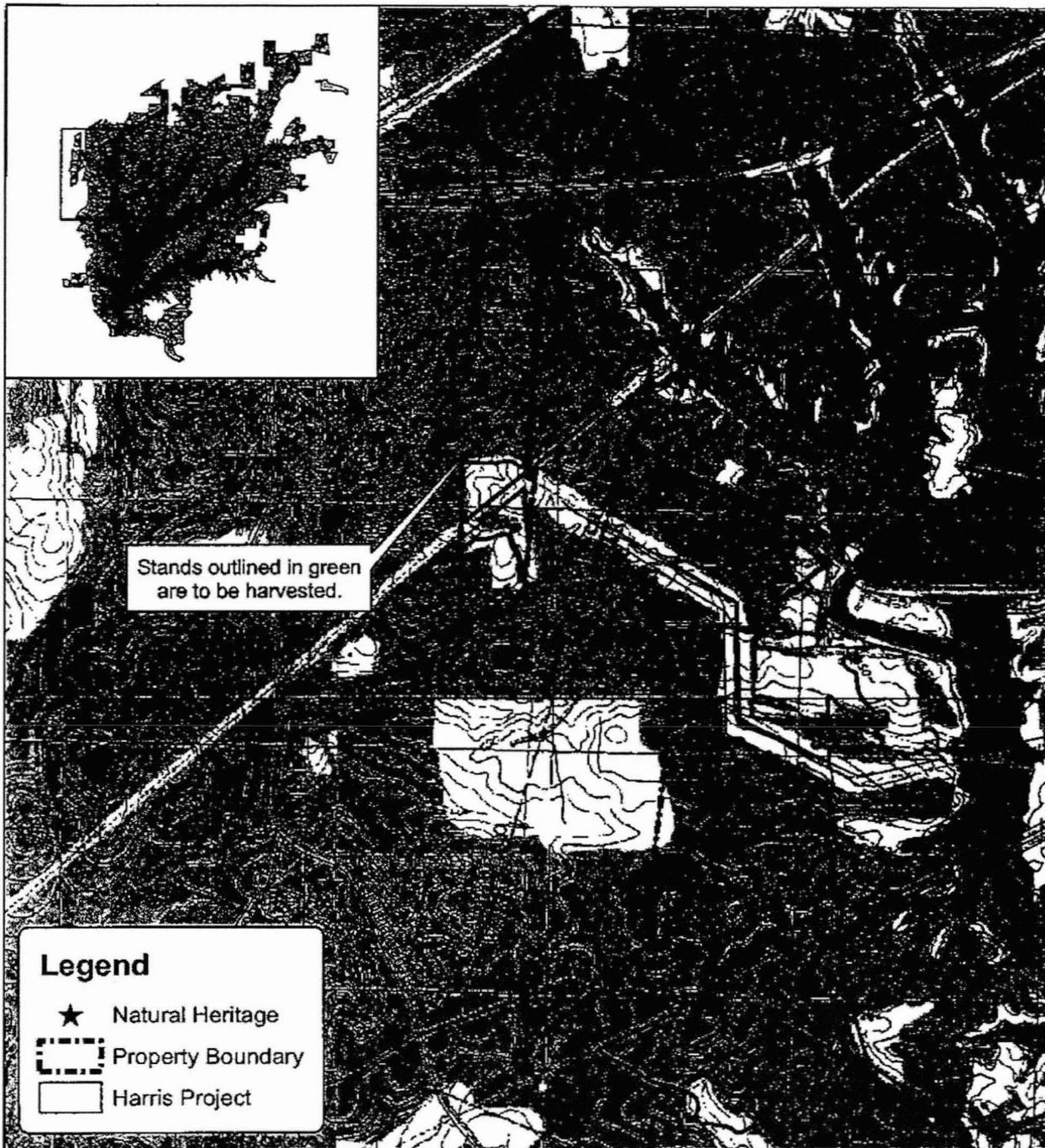
## Harvest Plan

### Sale No. 25-2005 Harris Lands

State: North Carolina  
County: Chatham  
River Basin: Cape Fear  
Acres: 271  
Type of Harvest: Thinning  
Expected Harvest Value: \$200K  
Buyer: Not determines as of this date  
Harvest effective Date: Effective upon execution of contract.  
Harvest Termination Date: June 30, 2006

- Area identified for thinning per the Forest Management Plan.
- Timber in this harvest area is predominately 25-30 year old pine
- SMZ's and sale boundaries to be delineated, GPS and mapped in 2nd<sup>nd</sup> quarter 2005 in accordance with NC BMP's on table 2, page 15.
- Stream crossings to be located on sale map.
- Logging decks to be located on sale map.
- Harvest area reviewed and approved by Environmental Services on January 6, 2005 with the following recommendation to be performed prior to harvest activity:
  - Eagle survey- To be verified in the field during preharvest inspection. Aerial survey will be contracted.
  - T&D Species verification by either document review or actual field survey.
- Pre-harvest area "site inspection" will be conducted and documented prior to loggers mobilizing to harvest area. Inspection shall be performed by either forestry consultant or Progress Energy's Senior Forester or his designee.
- During pre-harvest site inspection, the following will be verified:
  - SMZ delineation,
  - Location of logging decks
  - Road and stream crossing locations
  - Cutting boundaries painted properly
- Activate Communication Plan at least ten days before harvest activity begins.
- Progress of harvest and contract compliance checked at least once a week while the loggers are working by either by consulting forester or senior forester or his designee.
- Final or post harvest inspection will be conducted by both forestry consultant and Progress Energy's Senior Forester or his designee.
- Final "site inspection" report will be completed and filed in the corresponding Timber Sale file.
- Close out Timber Sale file and ensure that all contracts, amendments, inspection reports, (including pre-harvest, weekly inspections and post harvest inspections) and all correspondence concerning the timber harvest exists in the file.

# Exhibit "A"



**Thinning Areas = 318.51 Acres**

PDF File: Sale 25, 2005 (topo).pdf

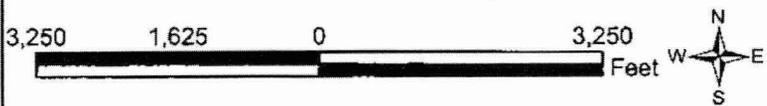
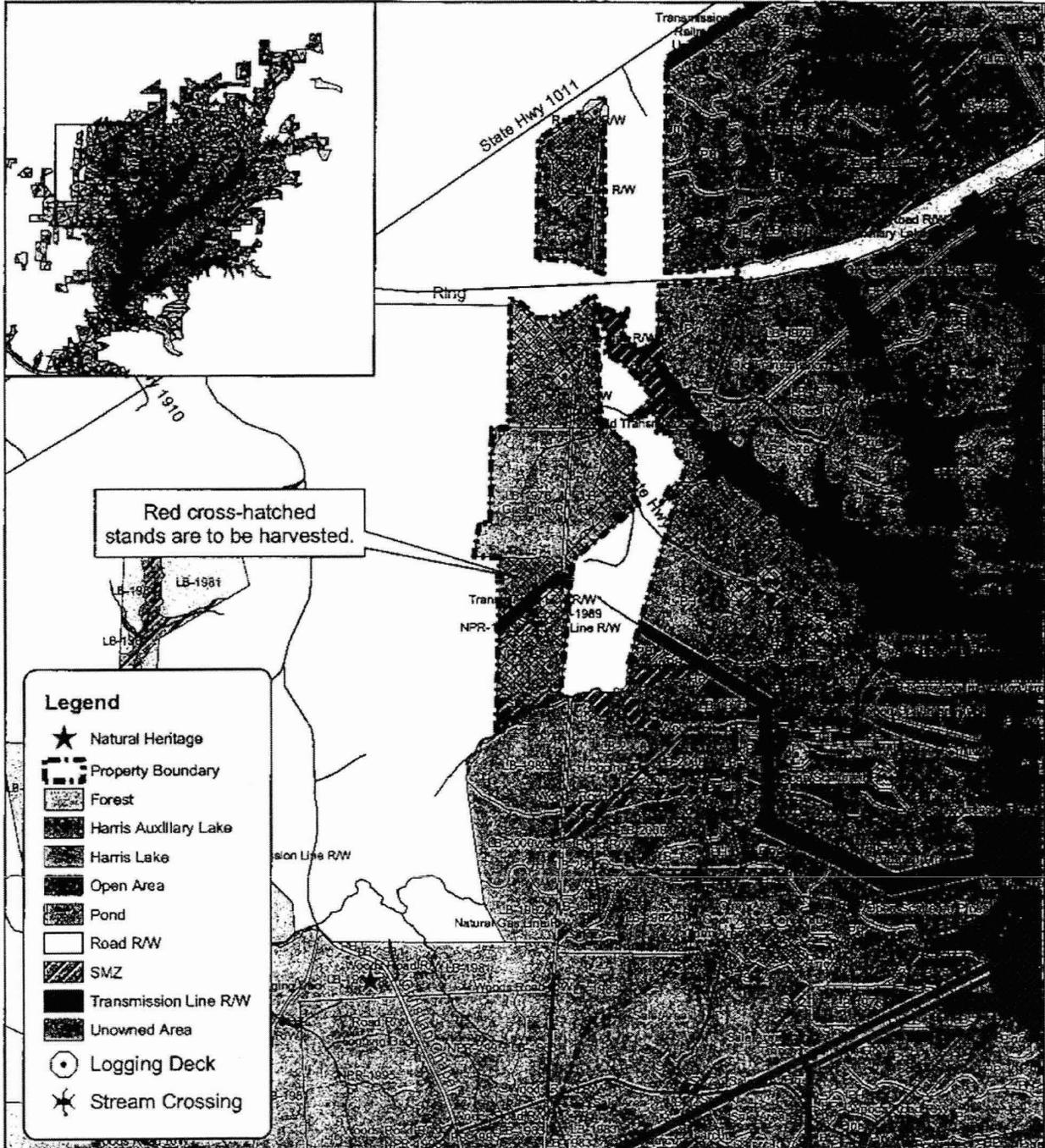
**Progress Energy**  
**Sale No. 25, 2005**  
Harris Project  
Unit 1  
Chatham County, NC  
Cape Fear River Basin  
January, 2005  
Drawn By: Jason B. Kiker

ArcMap File: Sale 25, 2005 (topo).mxd

Date: 1-31-2005

**Kiker Forestry & Realty, Inc.**  
Since 1978

# Exhibit "A"



**Thinning Areas = 271.00 Acres**

Note: All stream crossing and logging deck locations are approximate. Stream crossings are done in compliance with BMP Guidelines.  
 PDF File: Sale 24, 2005 (planning).pdf

**Progress Energy**  
 Sale No. 25, 2005

Harris Project  
 Unit 1  
 Chatham County, NC  
 Cape Fear River Basin  
 Drawn By: Jason B. Kiker

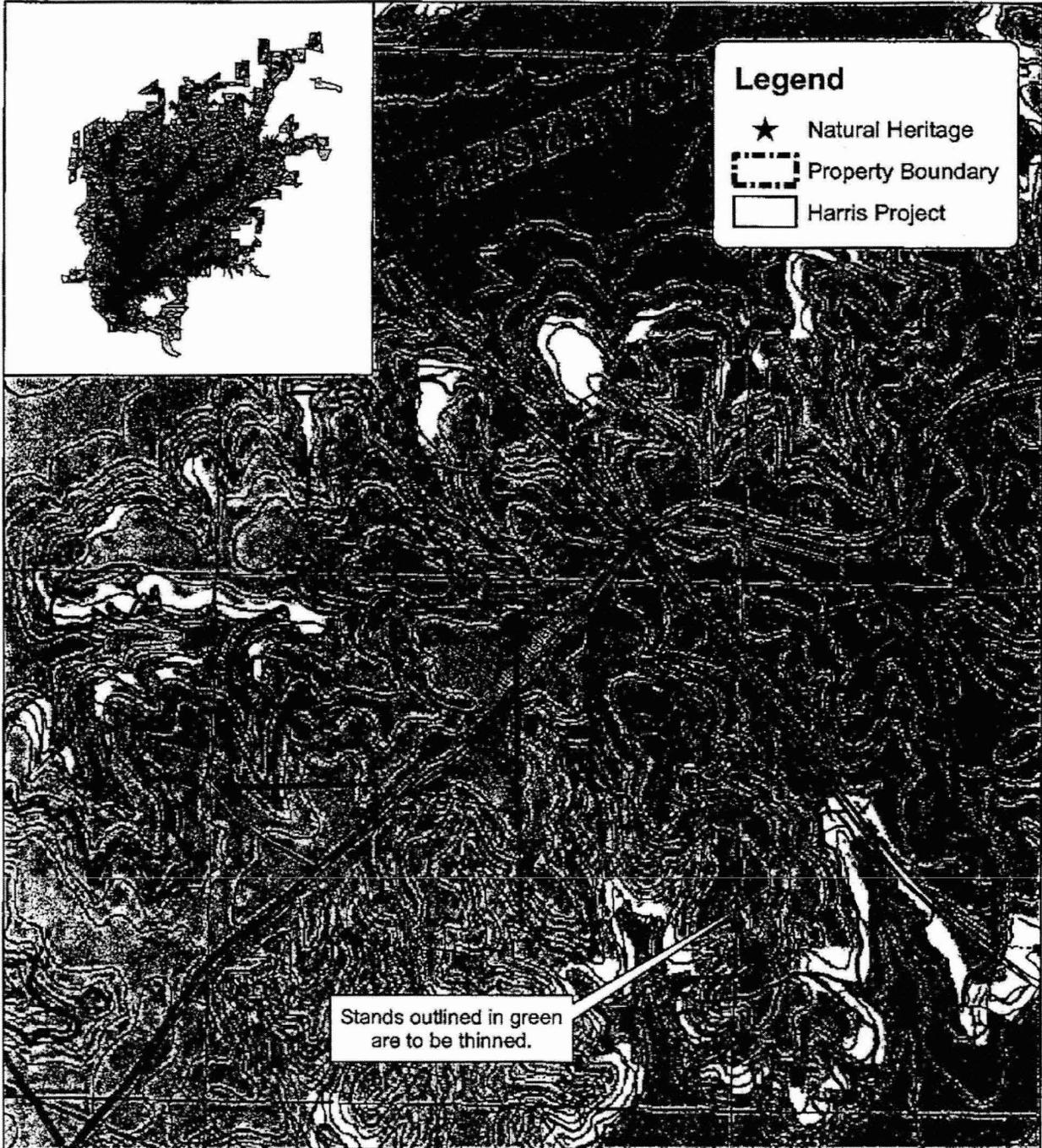
## Harvest Plan

### Sale No. 26-2005 Harris Lands

State: North Carolina  
County: Wake  
River Basin: Cape Fear  
Acres: 165  
Type of Harvest: 2nd Thinning  
Expected Harvest Value: \$80K  
Buyer: Not determines as of this date  
Harvest effective Date: Effective upon execution of contract.  
Harvest Termination Date: June 30, 2006

- Area identified for thinning per the Forest Management Plan.
- Timber in this harvest area is predominately 25-30 year old pine
- SMZ's and sale boundaries to be delineated, GPS and mapped in 2nd<sup>1</sup> quarter 2005 in accordance with NC BMP's on table 2, page 15.
- Stream crossings to be located on sale map.
- Logging decks to be located on sale map.
- Harvest area reviewed and approved by Environmental Services on January 6, 2005 with the following recommendation to be performed prior to harvest activity:
  - Eagle survey- To be verified in the field during preharvest inspection. Aerial survey will be contracted.
  - T&D Species verification by either document review or actual field survey.
- Pre-harvest area "site inspection" will be conducted and documented prior to loggers mobilizing to harvest area. Inspection shall be performed by either forestry consultant or Progress Energy's Senior Forester or his designee.
- During pre-harvest site inspection, the following will be verified:
  - SMZ delineation,
  - Location of logging decks
  - Road and stream crossing locations
  - Cutting boundaries painted properly
- Activate Communication Plan at least ten days before harvest activity begins.
- Progress of harvest and contract compliance checked at least once a week while the loggers are working by either by consulting forester or senior forester or his designee.
- Final or post harvest inspection will be conducted by both forestry consultant and Progress Energy's Senior Forester or his designee.
- Final "site inspection" report will be completed and filed in the corresponding Timber Sale file.
- Close out Timber Sale file and ensure that all contracts, amendments, inspection reports, (including pre-harvest, weekly inspections and post harvest inspections) and all correspondence concerning the timber harvest exists in the file.

# Exhibit "A"



**Thinning Areas = 165.99 Acres**

PDF File: Sale 26, 2005 (topo).pdf

 **Progress Energy**  
**Sale No. 26, 2005**

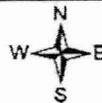
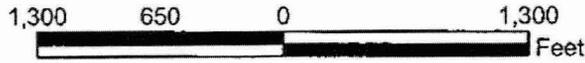
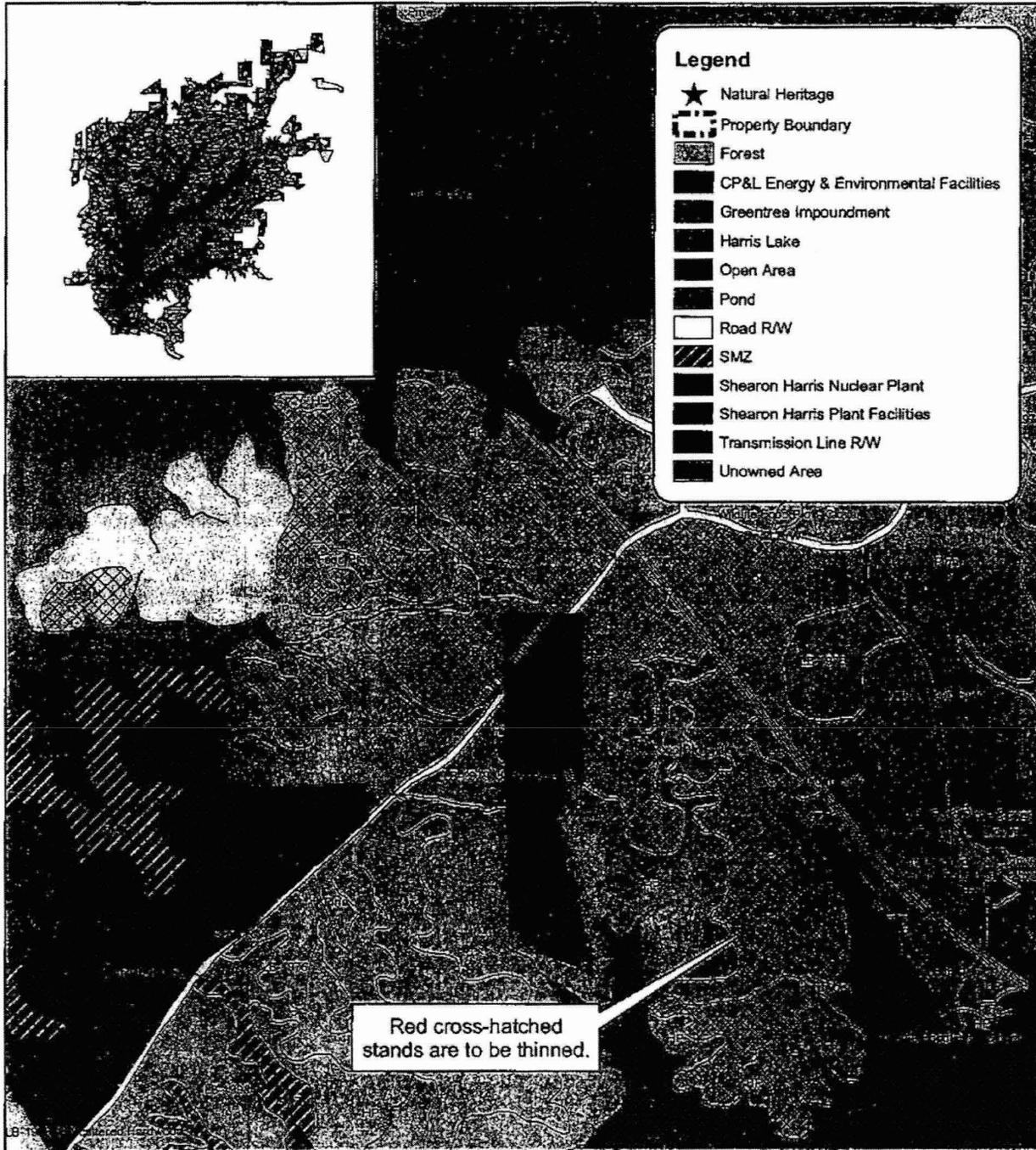
Harris Project  
Unit 8  
Wake County, NC  
Cape Fear River Basin  
January, 2005  
Drawn By: Jason B. Kiker

ArcMap File: Sale 26, 2005 (topo).mxd

Date: 1-31-2005

**Kiker Forestry & Realty, Inc.**  
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# Exhibit "A"



**Thinning Areas = 165.99 Acres**

PDF File: Sale 26, 2005.pdf

**Progress Energy**  
**Sale No. 26, 2005**

Harris Project  
 Unit 8  
 Wake County, NC  
 Cape Fear River Basin  
 January, 2005  
 Drawn By: Jason B. Kiker

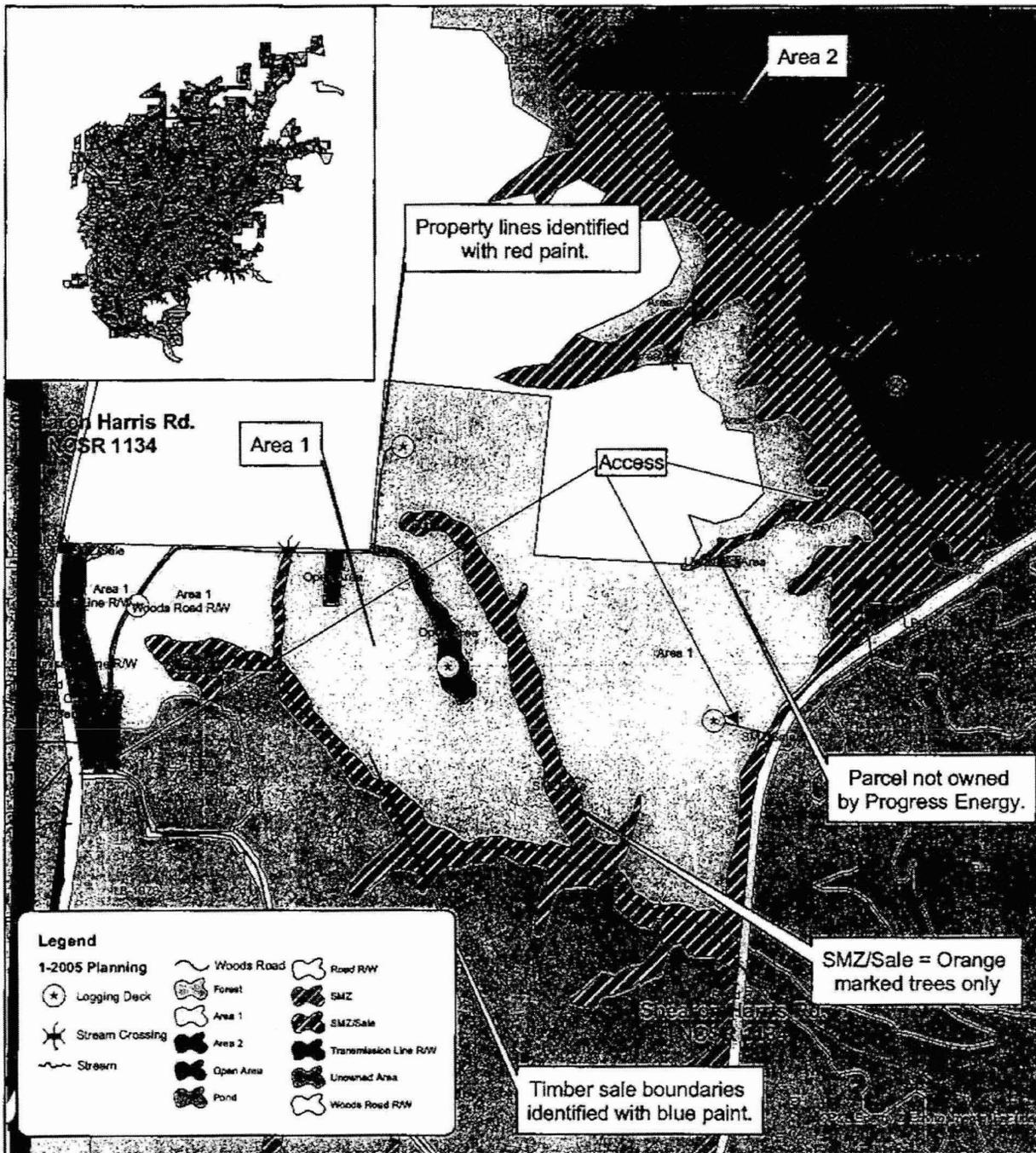
## Harvest Plan

### Sale No. 1-2005 Harris Lands

State: North Carolina  
County: Wake  
River Basin: Cape Fear  
Acres: 111  
Type of Harvest: Clearcut  
Buyer: New South Lumber Company  
Successful Bid Amount: \$449,307.00  
Harvest effective Date: Effective upon execution of contract  
Harvest Termination Date: June 30, 2006

- Area identified for harvest per the Forest Management Plan.
- Timber in this harvest area is mixed pine and hardwood about 75 years old and about 80 acres have never been thinned.
- Stream crossings located on sale map.
- Logging decks located on sale map
- Timber was cruised and SMZ's delineated, GPS and mapped in 1<sup>st</sup> quarter 2005 in accordance with NC BMP's on table 2, page 15.
- Harvest area reviewed and approved by Environmental Services on January 6, 2005 with the following recommendation:
  - RCW survey- On March 23, inspection for presence of RCW was conducted by Progress Energy's Senior Forester. No evidence of RCW was found. Low site index in old field pine stands and heavy undergrowth was found not be conducive to RCW habitat.
  - T&D Species Survey verification by either document review or actual field survey
- Pre-harvest area "site inspection" will be conducted and documented prior to loggers mobilizing to harvest area. Inspection shall be performed by either forestry consultant or Progress Energy's Senior Forester or his designee.
- During pre-harvest site inspection, the following will be verified:
  - SMZ delineation,
  - Location of logging decks
  - Road and stream crossing locations
  - Cutting boundaries painted properly
- Activate Communication Plan at least ten days before harvest activity begins.
- Progress of harvest and contract compliance checked at least once a week while the loggers are working by either by consulting forester or senior forester or his designee.
- Final or post harvest inspection will be conducted by both forestry consultant and Progress Energy's Senior Forester or his designee.
- Final "site inspection" report will be completed and filed in the corresponding Timber Sale file.
- Close out Timber Sale file and ensure that all contracts, amendments, inspection reports, (including pre-harvest, weekly inspections and post harvest inspections) and all correspondence concerning the timber harvest exists in the file.

# Exhibit "A"



Area 1 = 97.30 Acres  
Area 2 = 13.43 Acres

**SMZ = Orange Marked Trees Only**

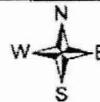
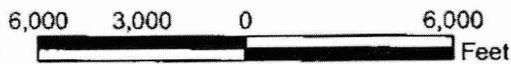
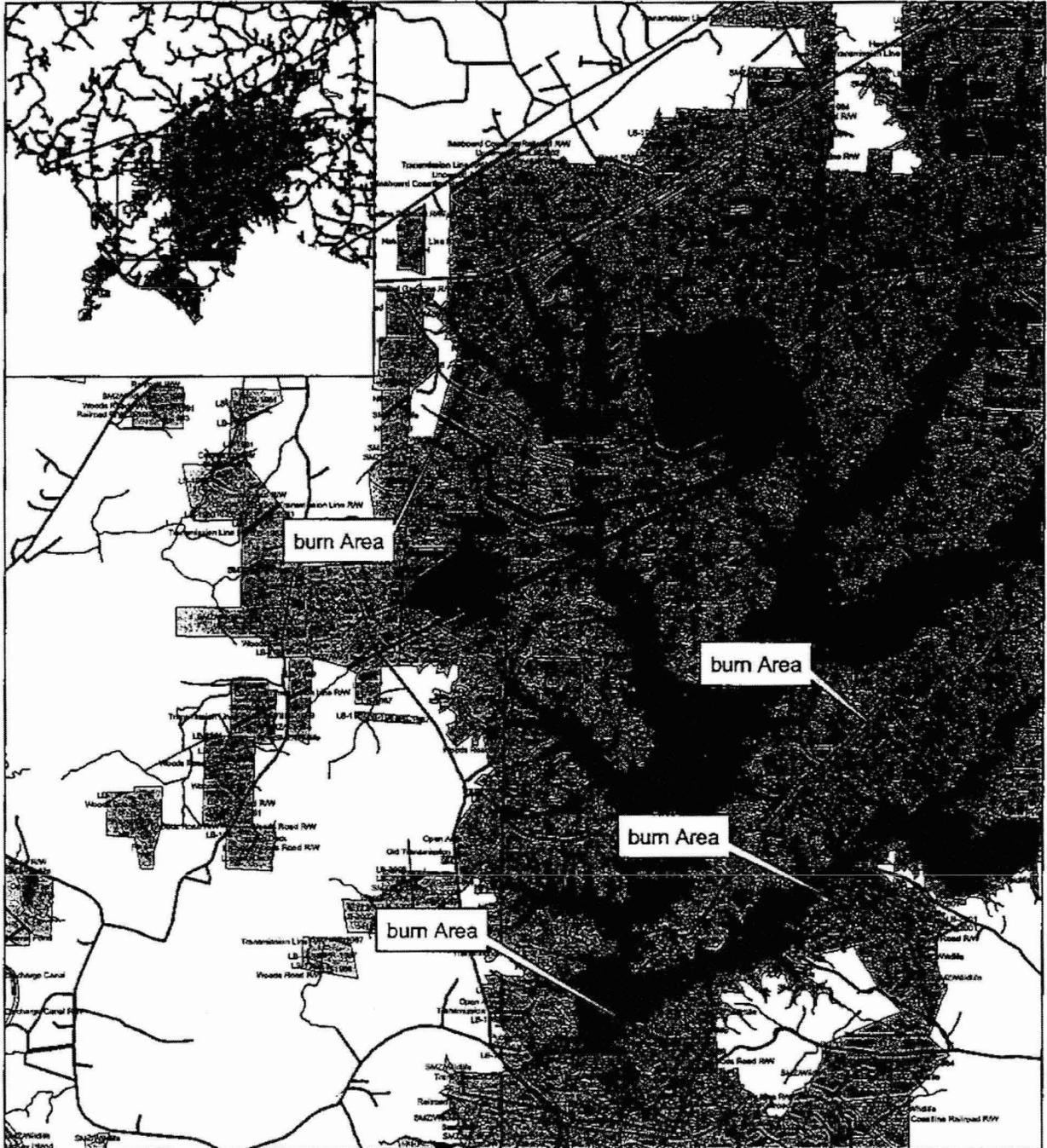
Note: All stream crossing & logging deck locations are approximate.  
Stream crossings are done in compliance with BMP Guidelines.

PDF File: Sale No. 1, 2005 (planning).pdf

**Progress Energy**  
Sale No. 1, 2005

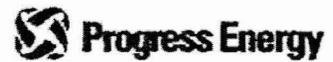
Harris Project  
Unit 3  
Wake County, NC  
Cape Fear River Basin  
Drawn By: Jason B. Kiker

# Harris Development



**Prescribe Burn Area = +/- 1000 Acres**

PDF File: Harris, 2005 Prescribe Burn Map, 9-27-2004.pdf



## 2005 Prescribe Burn Map

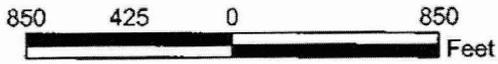
Harris Development  
Wake County, NC  
September, 2004  
Drawn By: Jason B. Kiker

Date: 9-27-2004

ArcMap File: Harris Dev.mxd

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# Harris Development



**Herbicide Application & Burn = 151 Acres**

PDF File: Harris, 2005 Herbicide & Burn Map.pdf

 **Progress Energy**  
**2005 Herbicide &  
Burn Map**

Harris Development  
Unit 1  
Chatham County, NC  
September, 2004  
Drawn By: Jason B. Kiker

Date: 9-27-2004

ArcMap File: Harris Dev.mxd

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