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Milburnie Park Site

Prepared for: City of Raleigh

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1. Introduction

1.1 Purpose of the System Integration Plan

The System Integration Plan is an important component of the overall park development process. The objective of the System Integration Plan is to develop a set of guidelines for the interim management of parkland prior to the initiation of a Master Plan, to document existing site conditions and constraints, to establish the park's classification consistent with the Comprehensive Plan, and if applicable, any special intent for the park (Resolution (2003) – 735). The System Integration Plan is not intended to restrict the Master Plan process.

1.2 Site Description and Setting

The Milburnie future park site is situated on both sides of the Neuse River at the former community of Milburnie, about one-half mile north of US 64 east of Raleigh (Figures 1 and 2). The site encompasses seven parcels totaling approximately 91.76 acres. Six parcels, five of which are contiguous, are located on the west side of the Neuse River and one parcel is located on the east side of the Neuse River. West of the river Milburnie West), the site is located on the north side of Raleigh Beach Road. East of the river (Milburnie East), the site is located at Old Milburnie Road and Loch Raven Parkway. These parcels are in the Raleigh corporate limits. The surrounding area is primarily residential.

The Milburnie West site (six parcels) is primarily wooded. This site consists primarily of upland ridges and slopes, but includes a narrow segment of floodplain along the Neuse. The site is vacant, with the exception of a mobile home, which remains from a former mobile home park. A second mobile home is surrounded by the future park site. This "in-holding" includes three parcels totaling approximately 1.05 acres. Access to these properties is provided through an access easement (Allen Drive).

Site elevations range from approximately 250 feet above mean sea level (msl) to 160 feet msl along the Neuse River (USGS 7.5-minute topographic quadrangle map – Raleigh East, NC). A power line traverses the site from the northeast to the southwest. A sewer easement roughly parallels the Neuse River.

The Milburnie East site is also wooded. The site slopes towards the Neuse River, with elevations ranging from 238 feet msl at the corner of Old Milburnie Road and Loch Raven Parkway to approximately 160 feet msl along the river (USGS 7.5-minute

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topographic quadrangle map – Raleigh East, NC). The site includes a public canoe launch with a parking area. Access is provided via a dirt drive from Loch Raven Parkway. A wastewater treatment plant is located along the drive on the southern portion of the site. In addition, a power line easement crosses the site, and a sewer easement roughly parallels the Neuse River.

The Milburnie location is noted for the presence of one of the principal sets of falls on the Neuse, and was historically considered the first hydropower site of importance as one ascended the Neuse (Swain et al. 1999:121). Between the Milburnie East and West sites is a privately-owned 8.25 acre tract that includes the Milburnie dam and mill seat, which most recently functioned as a hydroelectric plant.

2. Existing Conditions

Existing Conditions information provides the framework for developing a System Integration Plan for the future park property. The Existing Conditions section documents the existing resources, including natural and human environmental resources and will provide guidance to the City in developing the Milburnie site as a public park. The Existing Conditions section contains information regarding wetlands, streams, surface waters, rare and protected species, biotic community description including a floral and faunal inventory, initial cultural resource assessment, and critical natural elements.

Published information and resources were collected prior to initiating the site investigations. Data were collected for use during site investigations and in preparation of the Existing Conditions Report, which is incorporated in this System Integration Plan. Data sources include:

- United States Geologic Survey (USGS) 7.5-minute topographic quadrangle map (Raleigh East, North Carolina)
- United States Fish and Wildlife Service (USFWS) National Wetland Inventory (NWI) Map (Raleigh East, North Carolina)
- Soil Survey of Wake County, North Carolina (Cawthorn 1970)
- North Carolina Department of Environment and Natural Resources (NCDENR)

 Division of Water Quality (NCDWQ) Neuse River Basinwide Water Quality Management Plan (NCDWQ 2002)

- USFWS list of rare and protected species (April 2006)
- North Carolina Natural Heritage Program (NCNHP) database of rare species and unique habitats (August 2006)

Site investigations were conducted in September and October 2006. Water resources were identified, and their physical characteristics were recorded. For the purposes of this study, a preliminary habitat assessment was performed within the proposed park site. Plant communities and wildlife were identified using a variety of observation techniques, including active search, visual observation, and identification of characteristic signs of wildlife (sounds, tracks, scat, and burrows). Terrestrial community descriptions generally follow Schafale and Weakley (1990), where applicable. Plant taxonomy and descriptions generally follow Radford et al. (1968) unless more recent data is available. Animal names and descriptions generally follow Martof et al. (1980), Potter et al. (1980), and Webster et al. (1985). Scientific nomenclature and common names (when applicable) are provided for each plant and animal species listed. Subsequent references to the same organism include the common name only.

Jurisdictional wetland delineations were performed using the three-parameter approach described in the *1987 Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987). Supplemental technical literature describing the parameters of hydrophytic vegetation, hydric soils, and wetland hydrological indicators was also utilized. Wetlands were mapped with sub-meter accuracy using Trimble Global Positioning System (GPS) equipment at the time of the delineation.

For the purposes of the Existing Conditions section, the project study area is defined as the 92.78-acre area described in Section 1.1. The project vicinity is defined as a larger area, extending approximately one-half mile on all sides of the study area. The project region is the area more or less represented on a standard 7.5-minute USGS topographic quadrangle map with the project study area occupying the center of the map.

2.1 Physical Resources

Soil and water resources that occur in the project study area are discussed with respect to possible environmental concerns and also with respect to general environmental conditions that may be useful during plan development.

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Wake County is situated in the east-central portion of the state. The county is mostly contained within the Piedmont physiographic province; however, a small portion of the county is located within the Coastal Plain physiographic province. The project study area is located in the eastern portion of the county. Elevations in the project study area range from approximately 160 feet above mean sea level (MSL) to approximately 250 feet above MSL, as depicted on the Raleigh East, North Carolina USGS topographic quadrangle map. Land use in the project vicinity is primarily residential.

Geologically, the project study area is located within the Raleigh Belt and over kyanite and staurolite Paleozoic metamorphic facies (NCGS 1985). The intrusive rocks are composed of foliated to massive granitic rock that is megacrystic and equigranular (NCGS 1985). Soils underlying the project study area have developed from these geologic formations.

2.1.1 Soils

The process of soil development depends on both biotic and abiotic influences. These influences include past geologic activities, nature of parent materials, environmental and human influences, plant and animal activity, time, climate, and topographic position. The project study area is underlain by one soil association: Appling-Louisburg-Wedowee association. Eleven soil mapping units are mapped within the project study area. Four of the eleven soils onsite are listed as a hydric soil, Chewacla soils, Mantachie soils, Wehadkee silt loam, and Wehadkee and Bibb soils. A hydric soils is defined as a soil that is saturated, flooded, or ponded long enough in the growing season to develop anaerobic conditions that favor the growth and regeneration of hydrophytic vegetation (Cowardin et al. 1979). A hydric A soil is a soil that are hydric throughout most of the series, and hydric B soils are non-hydric soils that contain inclusions of hydric soils. Wehadkee silt loam and Wehadkee and Bibb soils are listed as hydric A soils; Chewacla and Mantachie soils are listed as hydric B soils (Gregory 2001). The remaining seven soils mapped within the project study area are not classified as hydric (Gregory 2001). Additional information regarding the soils mapped within the project study area is provided below and shown in Figure 3 (Cawthorn 1970).

 Appling sandy loam, 2-6% slopes (ApB) is mapped on broad, smooth interstream divides in the uplands. This gently sloping, well drained soil has moderate permeability and medium surface runoff. The seasonal high water table is greater than 10 feet below the soil surface. Appling sandy loam is a non-hydric soil.

- Appling sandy loam, 6-10% slopes, eroded (ApC2) is mapped on narrow side slopes in the uplands. This moderately sloping, well drained soil has moderate permeability and rapid surface runoff. The seasonal high water table is greater than 10 feet below the soil surface. Appling sandy loam is a non-hydric soil.
- Appling sandy loam, 10-15% slopes (ApD) is mapped on narrow side slopes bordering drainageways in the uplands. This strongly sloping, well drained soil has moderate permeability and very rapid surface runoff. The seasonal high water table is greater than 10 feet below the soil surface. Appling sandy loam is a non-hydric soil.
- Chewacla soils (Cm) are mapped on the floodplains of stream. This nearly level, somewhat poorly drained soil has moderate to moderately rapid permeability and slow surface runoff. The seasonal high water table is within 1.5 feet of the soil surface. Chewacla soils are listed as hydric B soils.
- Louisburg loamy sand, 2-6% slopes (LoB) is mapped on small ridges in the uplands. This gently sloping, somewhat excessively drained soil has moderately rapid permeability and medium surface runoff. The seasonal high water table is greater than 10 feet below the soil surface. Louisburg loamy sand is a non-hydric soil.
- Louisburg loamy sand, 6-10% slopes (LoC) is mapped on side slopes in the uplands. This moderately sloping, somewhat excessively drained soil has moderately rapid permeability and rapid surface runoff. The seasonal high water table is greater than 10 feet below the soil surface. Louisburg loamy sand is a non-hydric soil.
- Louisburg loamy sand, 10-15% slopes (LoD) is mapped on side slopes bordering drainageways in the uplands. This strongly sloping, somewhat excessively drained soil has moderately rapid permeability and medium surface runoff. The seasonal high water table is greater than 10 feet below the soil surface. Louisburg loamy sand is a non-hydric soil.
- Mantachie soils (Me) are mapped in depressions and draws in the uplands. These nearly level to gently sloping, somewhat poorly drained soils have moderate to moderately rapid permeability and slow to medium surface runoff. The seasonal high water table is approximately 2 feet below the soil surface. Mantachie soils are hydric B soils.

- Wake soils, 10-25% slopes, (WkE) are mapped on side slopes bordering drainageways in the uplands. The moderately steep, somewhat excessively drained soils have moderately rapid permeability and very rapid surface runoff. The seasonal high water table is greater than 10 feet below the soil surface. Wake soils are non-hydric soils.
- Wehadkee silt loam (Wn) is mapped along floodplains of streams. This nearly level, poorly drained soil has moderate to moderately rapid permeability and slow to ponded surface runoff. The seasonal high water table is approximately at the soil surface. Wehadkee silt loam is a hydric A soil.
- Wehadkee and Bibb soils (Wo) are mapped along floodplains of streams. These nearly level, poorly drained soils have moderate to moderately rapid permeability and slow to ponded surface runoff. The seasonal high water table is approximately at the soil surface. Wehadkee and Bibb soils are listed as a hydric A soil mapping unit.

2.1.2 Water Resources

The project region is in the Neuse River Basin, a drainage basin covering approximately 6,235 square miles within North Carolina. The basin originates in Person and Orange Counties, flows southeasterly to New Bern, and empties into the Pamlico Sound.

The project study area is located in NCDWQ Subbasin 03-04-02 and USGS Hydrologic Unit 03020201 (NCDWQ 2002). Surface waters in the project study area include Bridges Lake (semi permanent impoundment) and one unnamed tributary (UT) to Neuse River.

The NCDWQ classifies surface waters of the state based on their intended best uses. Unnamed tributaries receive the same best usage classification as the named streams into which they flow. All waters in the Neuse River basin have been classified as Nutrient Sensitive Waters (NSW). NSW designates waters that have water quality problems associated with excessive plant growth resulting from nutrient enrichment. Neuse River [NCDWQ Index # 27-(22.5)] has been classified as C, NSW. Class C waters are those waters designated for aquatic life propagation/protection and for secondary recreation.

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High-Quality Waters (HQW) are waters that are designated as native and special trout waters, primary nursery areas, critical habitat areas, water supply watersheds classified as WS-I or WS-II, or Class SA waters; or are rated as excellent based on biological and physical/chemical characteristics through monitoring or special studies. There are no HQW, Outstanding Resource Waters, or WS-I or WS-II designated waters within the project vicinity.

The Ambient Monitoring System (AMS) is a network of stream, lake, and estuarine water-guality monitoring stations strategically located for the collection of physical and chemical water-quality data. The type of water-quality data collected is determined by the waterbody's classification and corresponding water-guality standards. Data from the AMS determines the "use support" status of waterbodies, meaning how well a waterbody supports its designated uses. Surface waters (streams, lakes, or estuaries) are rated as supporting their designated uses or impaired. These terms refer to whether the classified uses of the water (such as water supply, aquatic life protection, and swimming) are supported or not supported due to impairment of the water. Neuse River has an Ambient Monitoring Station at Milburnie Dam, which is near the northwestern property corner of the parcel located on the eastern side of the Neuse River. The Ambient Monitoring Station data identified no sampled parameters that returned readings of interest (NCDWQ 2002). Additionally, a benthic macroinvertebrate sampling site is located at the US 64 bridge over the Neuse River, which has returned results of Good-Fair in both 1995 and 2000 (NCDWQ 2002). The data collected from these sites indicates that this reach of the Neuse River is supporting its designated uses (NCDWQ 2002).

Section 303(d) of the Clean Water Act (CWA) requires states to develop a comprehensive public accounting of all impaired waters. The list includes waters impaired by contaminants (e.g., nitrogen, phosphorus, and fecal coliform bacteria). Potential sources of impairment include point sources, nonpoint sources, and atmospheric deposition. There are no waters within the project study area on the Section 303(d) list of impaired waters (NCDWQ 2002).

2.2 Biotic Resources

The project study area is composed of different terrestrial communities determined by topography, soils, hydrology, disturbance, and past and present land uses. These systems are interrelated and, in many aspects, interdependent. Scientific nomenclature and a common name (when applicable) are provided for each plant and

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animal species listed. Subsequent references to the same organism include only the common name.

2.2.1 Terrestrial Communities

Six terrestrial communities were identified within the project study area: Dry Oak-Hickory Forest, Mesic Mixed Hardwood Forest (Piedmont subtype), Piedmont/Mountain Bottomland Forest, Piedmont/Mountain Levee Forest, Coastal Plain Semipermanent Impoundment, and Maintained/Disturbed Lands. Descriptions of the communities are in the following sections. An inventory of flora and fauna observed within the project study area was created during site investigations (Appendix A).

2.2.1.1 Dry Oak-Hickory Forest

Dry Oak-Hickory Forest communities occur on ridgetops, upper slopes, steep southfacing slopes, and other relatively dry upland areas on acidic soils. These communities are located in dry areas in the landscape and therefore avoid receiving floodwaters. Typically, the canopy of this community is dominated by white oak (Quercus alba), southern red oak (Q. falcata), and post oak (Q. stellata), while additional canopy species may include scarlet oak (Q. coccinea), black oak (Q. velutina) shagbark hickory (Carya ovata), red hickory (C. ovalis), and pignut hickory (C. glabra), The understory species characteristic of Dry Oak-Hickory Forests include sourwood (Oxydendrum arboreum), red maple (Acer rubrum), black gum (Nyssa sylvatica), flowering dogwood (Cornus florida), and farkleberry (Vaccinium arboreum). The shrub layer may be dense or sparse in these communities and generally consist of a variety of ericaceous shrubs. Poison ivy (Toxicodendron radicans) and muscadine grape (Vitis rotundifolia) are commonly found in this community. Herbaceous cover is typically provided by spotted wintergreen (Chimaphila maculata), little brown jug (Hexastylis arifolia), blackseed needlegrass (Piptochaetium avenaceum), poverty oatgrass (Danthonia spicata), goat's-rue (Tephrosia virginiana), wood tickseed (Coreopsis major), and rattlesnake hawkweed (Hieracium venosum). Disturbed areas within this community may have a greater prevalence of weedy tree species such as red maple, loblolly pine (Pinus taeda), tulip poplar (Liriodendron tulipifera), and sweetgum (Liquidambar styraciflua).

Within the project study area, the Dry Oak-Hickory Forest canopy is dominated by white oak, post oak, and southern red oak. The understory and shrub layers consist of shortleaf pine (*P. echinata*), American holly (*llex opaca*), sweetgum, red maple, black

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oak, American beech (*Fagus grandifolia*), farkleberry, eastern redcedar (*Juniperus virginiana*), southern red oak, loblolly pine, and parsley-leaved hawthorn (*Crataegus marshallii*). Muscadine grape and yellow jessamine (*Gelsemium sempervirens*) comprise the vines found within the community within the project study area. Groundcover is provided by spotted wintergreen, running cedar (*Lycopodium sp.*), Christmas fern (*Polystichum acrostichoides*), and a variety of unidentified mushrooms. The Dry Oak-Hickory Forest is located in portions of the southeastern and northwestern corners of the project study area adjacent to the Mesic Mixed Hardwood Forest (Piedmont subtype) and the Maintained/Disturbed areas and covers approximately 7.20 acres (Figure 4).

2.2.1.2 Mesic Mixed Hardwood Forest (Piedmont subtype)

The Mesic Mixed Hardwood Forest (Piedmont subtype) community is found throughout the southeastern United States. These communities are located on deep, well-drained soils transitioning uphill from poorly drained soils and tend to occur on slopes and in ravines. Due to their occurrence on steep sites, these areas have historically been disturbed less than surrounding areas. Therefore, this forested community commonly appears as a thin, sloping buffer between the wetter floodplains and land used for agriculture or other development. The community is characterized by a variety of hardwood species, including tulip poplar, American beech, red maple, sugar maple (*A. saccharum*), and northern red oak (*Q. rubra*). The subcanopy and herbaceous strata are typically thick in a young community and open in an older, mature community. Pines and early successional hardwoods, such as sweetgum and tulip poplar, occur in greater numbers in areas of disturbance.

The dominant canopy trees in the community within the project study area include white oak, tulip poplar, sweetgum, red maple, and northern red oak. The understory and shrub strata are composed of ironwood (*Carpinus caroliniana*), black gum (*Nyssa sylvatica*), flowering dogwood, red maple, black cherry (*Prunus serotina*), winged elm (*Ulmus alata*), hop-hornbeam (*Ostrya virginiana*), American holly, silver maple (*A. saccharinum*), autumn-olive (*Elaeagnus umbellata*), pignut hickory, American beech, and hearts-a-bustin' (*Euonymus americanus*). The vine layer is represented by muscadine grape, Japanese honeysuckle (*Lonicera japonica*), and yellow jessamine. Herbaceous species present in the community include rattlesnake fern (*Botrychium virginianum*), hog-peanut (*Amphicarpa bracteata*), ebony spleenwort (*Asplenium platyneuron*), and spotted wintergreen. Additionally, several small granitic rock outcrops were observed within this community within the project study area during site investigations. This community occurs on the slopes adjacent to the Dry-Mesic Oak-

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Hickory Forest, the Piedmont/Mountain Levee Forest, and the Coastal Plain Semipermanent Impoundment communities and covers approximately 69.81 acres (Figure 4).

There is an additional area included in the Mesic Mixed Hardwood Forest (Piedmont subtype) that is not covered by the preceding description. This additional area is an early successional area dominated by young (ten- to fifteen-year-old) loblolly pine, sweetgum, Chinese privet (*Ligustrum sinense*), tree-of-heaven (*Ailanthus altissima*), red maple, black cherry, eastern redcedar, ironwood, and winged sumac (*Rhus copallina*). The groundcover species present in this area include muscadine grape, Japanese stiltgrass (*Microstegium vimineum*), ebony spleenwort, and partridgeberry (*Mitchella repens*). This early successional portion of the Mesic Mixed Hardwood Forest (Piedmont subtype) occurs along the north side of the greenway trail and east of the existing private residences (Figure 4). This area is anticipated to develop into a mature Mesic Mixed Hardwood Forest (Piedmont subtype) of prest (Piedmont subtype) if allowed to develop with no further human influences. The area covers a total of 2.45 acres within the project study area, which increases this community's area of cover to 72.26 acres.

2.2.1.3 Piedmont/Mountain Bottomland Forest

Piedmont/Mountain Bottomland Forests are found on floodplain ridges and terraces other than active levees adjacent to a river channel. Alluvial soils underlie these areas, which are flooded intermittently. Typically, the canopy of this community is dominated by tulip poplar, sweetgum, cherrybark oak (*Q. pagoda*), swamp chestnut oak (*Q. michauxii*), American elm (*Ulmus americana*), hackberry (*Celtis laevigata*), green ash (*Fraxinus pennsylvanica*), loblolly pine, shagbark hickory, and bitternut hickory (*Carya cordiformis*). The understory commonly includes ironwood, red maple, flowering dogwood, American holly, and pawpaw (*Asimina triloba*). Shrubs common to this community include hearts-a-bustin' and buckeye (*Aesculus sylvatica*). Vines of this community are typically poison ivy, Virginia creeper (*Parthenocissus quinquefolia*), greenbriers (*Smilax spp.*), crossvine (*Bignonia capreolata*), and muscadine grape. Herbaceous cover is provided by giant cane (*Arundinaria gigantea*), small-spike false nettle (*Boehmeria cylindrica*), Christmas fern, a variety of sedges (*Carex spp.*), tearthumb (*Polygonum virginianum*), swamp jack-in-the-pulpit (*Arisaema triphyllum*), and violets (*Viola spp.*).

Within the project study area, the canopy of the Piedmont/Mountain Bottomland Forest is comprised of tulip poplar and red maple. The subcanopy and shrub strata are composed of sweetbay magnolia (*Magnolia virginiana*) and tag alder (*Alnus serrulata*).

Greenbrier is the dominant vine species observed. The groundcover in this community is provided by touch-me-not's (*Impatiens capensis*), lizard's tail (*Saururus cernuus*), and Japanese stiltgrass. The community is located within the floodplain of a small stream and exhibits evidence of receiving overbank flooding from the stream that flows through the community (Figure 4). The community covers approximately 0.53 acre within the project study area.

2.2.1.4 Piedmont/Mountain Levee Forest

Piedmont/Mountain Forests occur on natural levee and point bar deposits on large floodplains. These communities occur on a variety of medium and coarse-textured alluvial soils and experience intermittent to seasonal flooding. Typically, the canopy of this community is dominated by sycamore (*Platanus occidentalis*), river birch (*Betula nigra*), box elder (*Acer negundo*), sweetgum, tulip poplar, American elm, hackberry, black walnut (*Juglans nigra*), cherrybark oak, swamp chestnut oak, bitternut hickory, pignut hickory, and green ash. Understory species generally include box elder, pawpaw, ironwood, and American holly. Woody vines such as poison ivy, Virginia creeper, crossvine, greenbriers, muscadine grape, and trumpet creeper (*Campsis radicans*) are often prominent in this community. A lush, diverse herbaceous layer provides groundcover in this community.

Within the project study area, the dominant canopy trees in the Piedmont/Mountain Levee Forest community include willow oak (*Q. phellos*), sycamore, hackberry, and black walnut. Understory and shrub species include box elder, red elm, red maple, sweetgum, and Chinese privet. Vines present within the community include muscadine grape, crossvine, Japanese honeysuckle, and poison ivy. Herbaceous species include Japanese stiltgrass and wingstem (*Verbesina alternifolia*). Within the project study area, this community is located along the natural levee of the Neuse River and covers approximately 4.58 acres (Figure 4).

2.2.1.5 Coastal Plain Semipermanent Impoundment

The Coastal Plain Semipermanent Impoundment community occurs as beaver ponds, blocked embayments, and similar small, old, manmade impoundments. These communities contain soils that are modified by flooding and are gradually covered with clayey or mucky sediments. The community is characterized by a variety of floating or submergent aquatic vegetation in the interior and may have zoned emergent vegetation at margins and an open or closed canopy of bald cypress (*Taxodium distichum*) and swamp tupelo (*Nyssa spp.*). Herbaceous species present may include

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green arrow-arum (*Peltandra virginica*), American water-lily (*Nymphaea odorata*), yellow pond-lily (*Nuphar lutea*), arrowheads (*Sagittaria spp.*), and bladderworts (*Utricularia spp.*).

Within the project study area, the Coastal Plain Semipermanent Impoundment is dominated by wild rice (*Zizania aquatica*), smartweed (*Polygonum hydropiper*), pickerelweed (*Pontederia cordata*), arrow-arum (*Peltandra sagittifolia*), arrowhead (*Sagittaria lancifolia*), cattail (*Typha latifolia*), and bur-reed (*Sparganium americanum*). There are several trees along the margin; the species present along the margin include red maple and bald cypress (Figure 5). As the project study area is located near the Fall Line and the vegetation observed more closely matches the typical community composition for the Coastal Plain Semipermanent Impoundment than the Piedmont Semipermanent Impoundment, the community was classified as a Coastal Plain community rather than a Piedmont community. This community is present within the project study area along the western bank of the Neuse River and covers approximately 4.32 acres (Figure 4).

2.2.1.6 Maintained/Disturbed Lands

Maintained/disturbed lands include areas that are mowed regularly, including residential lawns, roadside rights-of-way, and utility easements, and paved areas. Within the project study area, maintained/disturbed areas include a greenway trail, driveways, a private residence, a dirt parking lot, and a wastewater package treatment facility (Figure 4). The maintained/disturbed areas cover a total of 3.92 acres within the project study area.

2.2.2 Aquatic Communities

There are two aquatic communities located within the project study area: Bridges Lake (semipermanent impoundment) and UT to Neuse River (Figure 6).

2.2.2.1 Semipermanent Impoundment

One semipermanent impoundment exists within the project study area. The impoundment developed naturally as a result of the Milburnie Dam on Neuse River (Figure 7). The construction of the dam resulted in higher water level in Neuse River upstream of the dam, which resulted in Bridges Creek flooding its banks and forming Bridges Lake. The floodplain of Bridges Creek at and immediately upstream of its confluence with Neuse River has developed into a freshwater marsh-type community.

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Bridges Creek is not located within the project study area, but approximately 4.32 acres of the southern portion of the marsh-type community in its floodplain is within the project study area (Figure 6). The area within the project study area has pockets of standing water and provides habitat for a variety of amphibians. This area is mapped as wetland WA and terrestrial community Coastal Plain Semipermanent Impoundment.

2.2.2.2 UT to Neuse River

The UT to Neuse River that is present within the project study area flows in a generally southeasterly direction within the project study area. Approximately 322 feet of the UT to Neuse River are located within the project study area (Figure 6). The banks along the stream appear stable as they are protected by adjacent wetlands along much of its length within the project study area. Silt and clay dominate the bed material within the stream. Fish and amphibians were observed inhabiting the stream within the project study area. Additionally, tracks of terrestrial mammals were observed within and adjacent to the stream channel.

2.3 Jurisdictional Topics

Section 404 of the CWA requires regulation of discharges into Waters of the United States. The United States Environmental Protection Agency (USEPA) is the principal administrative agency of the CWA; however, the United States Army Corps of Engineers (USACE) has the responsibility for implementation, permitting, and enforcement of the provisions of the CWA covering discharges of fill materials. The USACE regulatory program is defined in 33 CFR 320-330.

NCDWQ has the responsibility of administering Section 401 General Water Quality Certifications. Any action that may result in a discharge into Waters of the United States within the state of North Carolina requires a water quality certification from the NCDWQ.

Water bodies, including lakes, rivers, and streams, are subject to jurisdictional consideration under the Section 404/401 program. Wetlands are also identified as Waters of the United States. Wetlands are defined in 33 CFR 328.3 as those areas that are inundated or saturated by surface water or groundwater at a frequency and duration sufficient to support, and under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Any action that proposes to place fill into these areas falls under the jurisdiction of the USACE under Section 404 of the CWA (33 USC 1344).

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2.3.1 Surface Waters

The NCDWQ defines a perennial stream as a clearly defined channel that contains water for the majority of the year. These channels usually have some or all of the following characteristics: distinctive streambed and bank, aquatic life, and groundwater flow or discharge.

One semipermanent impoundment (Bridges Lake) and one perennial stream (Stream SA) were observed within the project study area (Figure 6). The semipermanent impoundment is located in the floodplain of Bridges Creek, which is a tributary to the Neuse River and is located north of the project study area. The perennial stream (Stream SA) is a UT to Neuse River. The NCDWQ Stream Classification Form and the USACE Stream Quality Assessment Worksheet were completed for the stream (Appendix B).

At the time of the site visit, UT to Neuse River was approximately four feet wide with 18- to 24-inch high banks. The stream exhibits frequent meander and regular use of its floodplain. The stream flows through a wetland area (Wetland WB), which functions as the stream's floodplain within the project study area. For additional descriptions of the surface waters onsite, see Section 3.2.

2.3.2 Jurisdictional Wetlands

Three wetland areas were observed and delineated within the project study area during site investigations conducted in September and October 2006 (Figure 6). One of these wetland areas is shown on the USFWS NWI mapping for the project vicinity and is classified as two wetland types: palustrine, forested, broad-leaved deciduous, seasonally flooded, diked/impounded for the upstream portion and palustrine, unconsolidated bottom, permanently flooded, diked/impounded for the downstream portion. The other two wetland areas delineated within the project study area are not depicted on the USFWS NWI mapping. Based on observations during site investigations, the two unmapped wetland areas match the classification of palustrine, forested, broad-leaved deciduous (PFO1). USACE Routine Wetland Determination Forms and NCDWQ Wetland Rating Worksheets were completed for each wetland area delineated within the project study area (Appendix C).

Wetland WA is located in the northern portion of the project study area adjacent to Bridges Creek (not mapped) and Neuse River. This wetland comprises the Coastal

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Plain Semipermanent Impoundment community. Wetland WA covers approximately 4.32 acres and received an NCDWQ rating of 69.

Wetland WB is located in the southwestern corner of the project study area adjacent to Stream SA, UT to Neuse River. The wetland encompasses the Piedmont/Mountain Bottomland Forest community within the project study area. Wetland WB covers approximately 0.53 acre and received an NCDWQ rating of 64.

Wetland WC is located in the north-central portion of the parcel located on the east side of Neuse River within the project study area. The wetland is located within the Piedmont/Mountain Levee Forest community. Wetland WC includes approximately 0.62 acre and received an NCDWQ rating of 22.

2.3.3 Neuse River Riparian Buffer Rules

The Neuse River riparian buffer rules, effective in August 2000, support the implementation of the Neuse River NSW Management Strategy by protecting, maintaining, and mitigating riparian areas. These buffer rules set restrictions on activities that may occur within the protected riparian areas immediately adjacent to perennial and intermittent streams within the Neuse River Basin. The riparian buffers remove nitrogen, phosphorus, and other pollutants from rainwater that flows into the basins' streams, protecting the waters from surrounding land uses. The City has buffer rules in place to meet the requirements of the Neuse River riparian buffer rules.

2.3.3.1 Neuse River Basin

The Neuse River NSW Management Strategy requires that existing riparian buffer areas be protected and maintained on both sides of surface waters, including both intermittent and perennial streams (15A NCAC 2B.0233). The following represent a few of the Neuse buffer rule requirements:

- A 50-foot buffer must be maintained on each side of surface waters.
- All flow entering the buffer must be diffuse flow.

• Non-electric utility crossings in the buffer must be perpendicular to stream flow (unless it is shown "no practical alternative" is available and an appropriate mitigation strategy is provided).

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• Underground electric utility crossings may be other than perpendicular only if specified Best Management Practices (BMPs) are used, including all woody vegetation is removed by hand, diffuse flow is maintained at all times, and vegetation removal is minimized (root systems must be left intact).

• Harvesting of dead or infected trees or application of pesticides necessary to prevent or control extensive tree pest and disease infestation is allowed. The Division of Forest Resources must approve the practice for a specific site.

The buffer rules do not require restoration of buffers that do not currently have forest vegetation. Perennial and intermittent stream determinations are to be based on soil survey maps prepared by the U.S. Natural Resources Conservation Service (NRCS) or the most recent version of USGS 7.5-minute topographic quadrangle maps. The buffer rules also include requirements to protect buffers as part of a municipal separate storm sewer system (MS4) or other local stormwater programs by requiring buffers to be "recorded on plats as easements."

The UT of Neuse River has approximately 0.76 acre of riparian buffer that is likely to be protected by the Neuse River Basin Buffer rules. Additionally, the Neuse River buffer that is located within the project study area covers approximately 1.52 acres.

2.3.3.2 City of Raleigh

The City has fully complied with the 50-foot buffers as required by the Neuse River riparian buffer rules. However, Section 10-9040 of the Raleigh City Code pertains to more specific buffer rules in Raleigh's jurisdiction. These buffer rules apply to all perennial streams and all streams draining 5 or more acres. A 100-foot buffer is required for any property in the secondary watershed protection area of the Reservoir Watershed Protection Area Overlay District and in the Conservation Management District where impervious surfaces exceed 24 percent. A 60-foot buffer is required for watercourses draining 25 or more acres and development is low density. A 35-foot buffer is required for watercourses draining between 2 and 25 acres, and development is low density. Finally, a 35-foot buffer is required for any perennial stream that drains less than 5 acres. The City allows some minimal use within a buffer. However, no land-disturbing activity is allowed within 80 feet of the water edge if the slope averages between 15 and 20 percent, and 95 feet of the water edge if the average slope exceeds 20 percent (Section 10-9041, Raleigh City Code). In addition to the area of riparian buffer protected by NCDWQ under the Neuse River riparian buffer rules,

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Raleigh City Code provides protection to an additional 0.42 acre of buffer along the Neuse River within the project study area.

The City has developed the "Raleigh Stormwater Management Design Manual" (Raleigh 2002) and Section 10-9004 of the Raleigh City Code requires the standards and requirements set forth in the manual to be applied in the same manner as City Land Use Ordinances.

2.3.4 Permit Considerations

2.3.4.1 Section 404 of the Clean Water Act

Impacts are defined as any discharge of a material into Waters of the US, which includes streams, impoundments, and wetlands. Impacts to greater than 0.10 acre of jurisdictional wetlands will require a permit from the USACE, pursuant to Section 404 of the CWA. Impacts to less than 0.5 acre of jurisdictional wetlands and 300 feet of stream channel may be permittable under a Nationwide Permit through the USACE. A final permitting strategy can be developed once a site plan has been designed and proposed impacts, if any, have been determined.

2.3.4.2 Section 401 of the Clean Water Act

A Section 401 General Water Quality Certification is also required for any activity that may result in a discharge into Waters of the US. Section 401 Certifications are administered through the NCDWQ. Once a design has been selected, the City should coordinate with the NCDWQ to obtain the Section 401 General Water Quality Certification, if required.

2.3.4.3 Mitigation Requirements

The USACE has adopted, through the Council on Environmental Quality (CEQ), a mitigation policy that embraces the concepts of "no net loss of wetlands" and sequencing. The purpose of the policy is to restore and maintain the chemical, biological, and physical integrity of Waters of the United States, specifically wetlands. Mitigation of wetland impacts has been defined by the CEQ to include: avoiding impacts (to wetlands), minimizing impacts, rectifying impacts, reducing impacts over time, and compensating for impacts (40 CFR 1508.20). Avoidance, minimization, and compensatory mitigation must be considered in sequential order.

Avoidance examines all appropriate and practicable possibilities of averting impacts to Waters of the United States. According to a 1990 Memorandum of Agreement (MOA) between the USEPA and the USACE, "appropriate and practicable" measures to offset unavoidable impacts should be appropriate to the scope and degree of those impacts and practicable in terms of cost, existing technology, and logistics in light of overall project purposes.

Minimization includes the examination of appropriate and practicable steps to reduce the adverse impacts to Waters of the United States. Implementation of these steps will be required through project modifications and permit conditions. Minimization typically focuses on decreasing the footprint of the proposed project through the reduction of sidewalk widths and/or fill slopes.

Compensatory mitigation is not normally considered until anticipated impacts to Waters of the United States have been avoided or minimized to the maximum extent possible. It is recognized that "no net loss of wetlands" functions and values may not be achieved in each and every permit action. Appropriate and practicable compensatory mitigation is required for unavoidable adverse impacts that remain after all appropriate and practicable minimization has been completed. Compensatory actions often include restoration, creation, and enhancement of Waters of the United States, specifically wetlands.

2.4 Rare and Protected Species

2.4.1 Federally Protected Species

Some populations of fauna and flora have declined, or are in the process of declining due to either natural forces or their inability to coexist with humans. Federal law [under the provisions of Section 7 of the Endangered Species Act of 1973, as amended (ESA)] requires that any action likely to adversely affect a species classified as federally protected is subject to review by the USFWS. Other species may receive additional protection under state laws. As of April 27, 2006, the USFWS had identified one threatened and three endangered species as potentially occurring in Wake County (Table 1). The NCNHP database of rare species and unique habitats (August 2006) was reviewed to determine the state status of the federally protected species. The following table lists the federally protected species and their status. Discussion of the species and their respective habitats follows.

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Table 1. Federally Protected Species Known from Wake County, North Carolina

Scientific Name	Common Name	Federal Status	State Status
Vertebrates			
Haliaeetus leucocephalus	Bald eagle	Τ*	т
Picoides borealis	Red-cockaded woodpecker	E	Е
Invertebrates			
Alasmidonta heterodon	Dwarf wedgemussel	E	Е
Vascular Plants			
Rhus michauxii	Michaux's sumac	Е	E-SC

Notes: * - Proposed for de-listing

T – Threatened: A taxon likely to become endangered within the foreseeable future throughout all of a significant portion of its range.

E – Endangered: A taxon in danger of extinction throughout all or a significant portion of its range.

E-SC – Endangered – Special Concern: A taxon in danger of extinction throughout all or a significant portion of its range that may be collected, transported, and sold with a permit.

2.4.1.1 Vertebrates

Bald eagle (Haliaeetus leucocephalus)

Federal Status: THREATENED (Proposed for De-listing) State Status: THREATENED

The bald eagle is a very large bird of prey that is from 32 to 43 inches tall and has a wingspan of more than 6 feet. Adult body plumage is dark brown to chocolate-brown with a white head and tail, while immature birds are brown and irregularly marked with white until their fourth year. They are primarily associated with large bodies of water where food is plentiful. Eagle nests are found in proximity to water (usually within 0.5 mile with a clear flight path to the water), in the largest living tree in an area, with an open view of the surrounding land. Human disturbance can cause nest abandonment. Nests as large as 6 feet across are made of sticks and vegetation in the tops of tall trees; these platform nests may be used for many years. Breeding begins in December or January, and the young remain in the nest for at least 10 weeks after hatching. Bald eagles eat mostly fish robbed from ospreys or picked up dead on the shore. They may also capture small mammals such as rabbits, some birds, wounded ducks, and carrion.

Biological Conclusion: No Effect

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As of July 6, 1999, this species is under consideration by the USFWS for a proposed de-listing of their threatened status. However, this raptor will still be protected under the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act, and under provisions of the ESA, populations will continue to be monitored for at least five years after de-listing. No eagles or eagle nests were observed during the field surveys of the project study area. The NCNHP has no records of any known populations of this species within a 1-mile radius of the project study area. No impacts to this species from project development are anticipated.

Red-cockaded woodpecker (Picoides borealis)

Federal Status: ENDANGERED State Status: ENDANGERED

The red-cockaded woodpecker (RCW) is a small woodpecker with a black- and whitebarred back and conspicuous large white cheek surrounded by a black cap, nape, and throat, standing 7 to 8 inches. Males have a very small, red mark at the upper edge of the white cheek and just behind the eye. The RCW is found in open pine forests in the southeastern United States. The RCW uses open, old-growth stands of southern pines, particularly longleaf pine (*Pinus palustris*), for foraging and nesting habitat. A forested stand optimally should contain at least 50 percent pine and lack a thick understory. The RCW is unique among woodpeckers because it nests exclusively in living pine trees. These birds excavate nests in pines greater than 60 years old and contiguous with open, pine-dominated, foraging habitat. The foraging range of the RCW may extend 500 acres and must be contiguous with suitable nesting sites.

Living pines infected with red-heart disease (*Fomes pini*) are often selected for cavity excavation because the inner heartwood is usually weakened. Cavities are located from 12 to 100 feet above ground and below live branches. These trees can be identified by "candles," large encrustations of running sap that surround the tree. Colonies consist of one to many of these candle trees. The RCW lays its eggs in April, May, and June; the eggs hatch approximately 38 days later.

Biological Conclusion: No Effect

Habitat for RCW does not exist within the project study area. There are no stands of pine within the project study area that are of sufficient age, density, and connectivity to adjacent pine/pine-dominated stands to support an RCW population, nor is there appropriate foraging habitat available within the project study area. Additionally, the NCNHP has no records of any known populations of this species within a 1-mile radius

of the project study area. No impacts to this species from project development are anticipated.

2.4.1.2 Invertebrates

Dwarf wedgemussel (*Alasmidonta heterodon***)** Federal Status: ENDANGERED State Status: ENDANGERED

The dwarf wedgemussel is a relatively small (from 0.9 to 1.8 inches in length) mussel with a subrhomboidal to subtrapezoidal shell. The exterior shell color is greenishbrown with green rays. The interior nacre is bluish to silvery white. This species is unique in the reversed arrangement of its lateral teeth; there are two teeth on the right valve and one on the left. The dwarf wedgemussel had a historic range from New Brunswick, Canada south to the Neuse River in North Carolina. Currently, the range is greatly reduced in the northern portion of the range and fragmented throughout the southern portion. Populations are known from the Tar and Neuse River basins in North Carolina. This mussel inhabits large rivers to small streams within its range. The preferred substrate is clay banks stabilized with the root systems of trees. Other bed substrates include coarse sands, mixed sand, gravel and cobble, and very soft silts. The most important feature of their preferred habitat appears to be excellent to good water quality.

Biological Conclusion: No Effect

Habitat for the dwarf wedgemussel does not occur within the project study area. Stream SA is not of sufficient size or flow to support mussel fauna. Additionally, the NCNHP has no records of any known populations of this species within a 1-mile radius of the project study area. No impacts to this species from project development are anticipated.

2.4.1.3 Vascular Plants

Michaux's sumac (*Rhus michauxii***)** Federal Status: ENDANGERED State Status: ENDANGERED

Michaux's sumac is a densely pubescent, dioecious, rhizomatous shrub. It has a low stature growing to usually less than two feet high. The leaves are compound with seven to thirteen, serrately edged, hairy leaflets on a hairy rachis. Male or female flowers are

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found in dense terminal panicles typical of the genus. Flowers bloom in June and seed heads are visible from August to September. Due to habitat fragmentation, colonies of this dioecious plant, when they occur, often are only one large clone representing a single sex. Unfortunately, this quality is a serious limitation to the reproduction and repopulation of this species. Michaux's sumac grows in dry, open woodlands and forest edges in scattered locations from Virginia to Georgia. In the Piedmont region, it is usually associated with clayey soils derived from mafic rock such as Carolina slates or gabbro.

Biological Conclusion: May Affect: Not Likely to Adversely Affect

Habitat for Michaux's sumac is present within the project study area within the Mesic Mixed Hardwood Forest (Piedmont subtype) and the Dry Oak-Hickory Forest along the edge of woods along the driveways and roads within the project study area. In September and October of 2006, pedestrian surveys were conducted within areas of potential habitat for the species, and no populations were observed within the project study area. Additionally, the NCNHP has no records of any known populations of this species within a 1-mile radius of the project study area. Impacts to this species from project development are possible due to the presence of habitat. However, impacts to the species are not likely to occur as a result of the proposed project.

2.4.2 Federal Species of Concern

The USFWS lists sixteen federal species of concern (FSC) for Wake County. These species are not protected under the provisions of the ESA. FSC species are defined as species that are under consideration for listing, but for which there is insufficient information to support listing as threatened or endangered (formerly C2 candidate species). The status of these species may be upgraded at any time, thus they are included here for consideration. The NCNHP lists twelve of these sixteen species and identifies an additional seventeen species receiving protection under state laws (15A NCAC 10I.0101 through 10I.0105) (August 2006). Table 2 lists the FSC species, their state status, and the habitat requirements and availability within the project study area. A review of NCNHP maps found a known population of Carolina madtom (*Noturus furiosus*) within Neuse River near the southern end of the project study area. No other known populations of FSC species have been documented by NCNHP within the project region. Although specific surveys for FSC species were not conducted, no individuals of any FSC species listed in Wake County, NC were observed during site investigations.

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Common Name	Scientific Name	Federal Status	State Status	Habitat Requirements	Habitat Available
Vertebrates					
American eel	Anguilla rostrata	FSC	-	Sounds, rivers, and small streams with burrows, tubes, snags, plant masses, or other types of shelter on the bottom	No
Bachman's sparrow	Aimophila aestivalis	FSC	SC	Open, grassy pine or oak woods	No
Carolina darter	Etheostoma collis lepidinion	FSC	-	Sand, mud, or rubble substrate under silt or detritus in small upland creeks and rivulets	No
Carolina madtom	Noturus furiosus	FSC	SC (PT)	Very shallow water with little to no current over fine to coarse sand bottom	No
Pinewoods shiner	Lythrurus matutinus	FSC	-	Rocky pools and runs of small creeks and rivers with moderate flow, gravel bottoms, and clear water with little to no silt deposition	No
Roanoke bass	Ambloplites cavifrons	FSC	SR	Creeks to medium rivers with rock, gravel, sand, and silt substrates	No
Southeastern myotis	Myotis austroparius	FSC	SC	Roost in caves or abandoned buildings with standing water, and forage over open water	No
Southern hognose snake	Heterodon simus	FSC	SC	Open, xeric areas with well- drained sandy soils, and field and river floodplains	Yes
Invertebrates					
Atlantic pigtoe	Fusconaia masoni	FSC	E	Medium-sized rivers with moderate gradients, fast water, and sand or gravel bed under riffles	No
Diana fritillary	Speyeria diana	FSC	-	Breeding in deciduous or mixed woods; feeding in	Yes

Table 2. Federal Species of Concern Known from Wake County

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Common Name	Scientific Name	Federal Status	State Status	Habitat Requirements	Habitat Available	
				grasslands and shrublands		
Green floater	Lasmigona subviridis	FSC	E	Small freshwater streams with slow current and gravelly and sandy bottoms	No	
Yellow lance	Elliptio lanceolata	FSC	E	Freshwater streams and rivers with sandy substrates, rocks, and in mud in slack water areas	No	
Vascular Plants						
Bog spicebush	Lindera subcoriacea	FSC	Т	Permanently moist to wet, shrub-dominated seepage wetlands	Yes	
Grassleaf arrowhead	Sagittaria weatherbiana	FSC	SR-T	Fresh to slightly brackish marshes, streams, swamps, and pond margins	Yes	
Sweet pinesap	Monotropsis odorata	FSC	SR-T	Dry forests and bluffs	Yes	
Virginia least trillium	Trillium pusillum var. virginianum	FSC	E	Mesic to swampy hardwood forests	Yes	

Notes:

- T Threatened: A taxon likely to become endangered within the foreseeable future throughout all or a significant portion of its range.
- E Endangered: A taxon likely to become extinct throughout all or a significant portion of its range.
- FSC Federal Species of Concern: A species under consideration for listing for which there is insufficient information to support listing at this time. These species may or may not be listed in the future.
- SC Special Concern: Any species of wild animal native or once-native which requires monitoring but may be taken under regulations adopted under provisions within the NC General Statutes.
- PT Proposed Threatened: A species proposed to be listed as Threatened.
- SR Significantly Rare: A species which exists in the state in small numbers and has been determined by NCNHP to require monitoring. The species may exist in greater numbers elsewhere within its range.
- -T Throughout: These species are rare throughout their ranges.

2.5 Cultural Resources

TRC Garrow Associates, Inc. (TRC) and Circa, Inc., completed a cultural resources and archaeological background study of the Milburnie park site. This study was conducted to produce information on the known and potential presence of significant cultural resources on the site so that the information can be used for planning purposes and to guide any future studies. While this study will not satisfy survey and evaluation requirements that may eventually be needed for regulatory compliance under the National Historic Preservation Act, it will be useful in planning such work should it be necessary.

2.5.1 Methods

The project included background research, field visits, and analysis and reporting. The background research included review of the available archaeological and historical literature concerning each tract, and was intended to provide information on previously identified and potential resources in each project area. The following data sources were examined:

- National Register and Historic Structures files at the North Carolina State Historic Preservation Office (SHPO) in Raleigh;
- Archaeological site and report files at the Office of State Archaeology (OSA) in Raleigh;
- Historic cemetery records available on-line and at the North Carolina Department of Archives and History;
- Deed records available on-line;
- Historic maps and other materials on file at the North Carolina Collection at the University of North Carolina at Chapel Hill, the North Carolina Department of Archives and History, and other locations.

Following the background research, TRC and Circa staff members visited the site to examine current conditions, inspect standing structures and architectural remains, and evaluate the potential for significant resources. Ellen Turco of Circa and Heather Olson and Paul Webb of TRC visited the Milburnie site on October 3, 2006. Olson also conducted a follow-up visit to the Milburnie site on October 11, 2006. The fieldwork included an examination of standing structures, as well as a field reconnaissance of known or suspected archaeological site and cemetery locations. Although no systematic archaeological survey was conducted, two shovel tests were excavated on site 31WA27 within the Milburnie West site tract, and a small number of artifacts were

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collected from these and elsewhere on the Milburnie East site. Standing structures, structural remains, and general landscape features were documented through sketch maps, photographs, and field notes. Previously recorded resources are shown on Figure 8.

2.5.2 History

The Milburnie site is situated in St. Matthews Township, along the 19th to early 20th century route from Raleigh to Tarboro and points east. The area is within land first owned by Colonel John Hinton, who acquired land along the Neuse "beginning some distance above Milburnie and extending far into Johnston County" (Hinton 1915). Hinton erected two successive houses on his property, a small log house and a frame building featuring chimneys and piers of square bricks, which was later known as the "Square Brick House" (Hinton 1915). The locations of these homes could not be established during the current research, but it is possible that they were located on or in the vicinity of the park sites.

Ownership of much of the Hinton land passed to Hinton's children, including "Major John" Hinton, who built a home east of the river a short distance south of the Milburnie area. That home and its setting were described by his descendant Mary Hilliard Hinton in 1903:

As one journeys east from the capital of North Carolina over the Tarborough road, he sees on the right, after crossing the Neuse River, a quaint colonial house standing high on a hill clearly outlined against the southern sky . . . This is "Clay Hill," the home of Major John Hinton of the Revolution... What a contrast to the valley below, where progress and invention have left their stamp! There a modern iron bridge spans the Neuse, and the quiet is broken by the mighty rush of water over the dam, the buzz, ever constant, of an up-to-date electric plant, the puffing of a gasoline launch, and the occasional passing of an automobile [Hinton 1903].

The shoals at Milburnie apparently attracted development shortly after the area was settled. The 1808 Price-Strother map (Figure 9) shows a bridge crossing at this location (next to the legend "Hinton"), and the subsequent McRae-Brazier map (1833; Figure 10) depicts the road and "Hinton's B. [Bridge]" The Hintons may have operated a mill at the site as early as 1813 (Elizabeth Reid Murray Collection, People, Box 322), although no details concerning its location or operation are known.

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The first well-documented mill at Milburnie was a paper mill known as Milburnie Mills or Neuse Mills, which began operation at the site in 1855. The mill was later purchased by the Neuse Manufacturing Company, and in 1860 had 19 male and 12 female employees and an annual output of 520,000 pounds of paper. The mill reportedly supplied many North Carolina newspapers with paper, and had a standing order for all the newsprint it could make for the New York Times (Murray 1983:282). Newspaper advertisements in the Semi-Weekly Raleigh Register from 1861 confirm that the mill was buying rags and producing paper during that period (http://www.uttyler.edu/vbetts/raleigh%201861.htm), and the mill presumably continued in operation throughout the Civil War. The mill was reportedly burned by Union troops when they moved west through the area in April of 1865 (Murray 1983:514), although no detailed account of its destruction is known. Several surviving accounts by Union soldiers do mention crossing the river at the site, however, and it is possible that more detailed information is available in other sources:

On the 13th, starting at 5:15 o'clock a.m., the regiment marched sixteen miles, and went into camp, at 3:30 o'clock p.m., near Hilton's Bridge, or Neuse Mills. The day was fine, and the roads were good. The country was undulating and as fine as any we had seen in the South [Dunbar n.d.; www.illinoiscivilwar.ord/cw-hist-ch11.htm].

The 15th Corps, on April 13th, moved to and across the Neuse River at Hinton's Bridge and encamped ten miles east of Raleigh. The bridge was saved from destruction by the enemy's [Confederate] cavalry by a charge of the 29th Mounted Missouri while the enemy was attempting to destroy it http://freepages.genealogy.rootsweb.com/~keller/ovi80/work/80thch4.html.

A Union Army map compiled to accompany the Official Records of the War of the Rebellion (Davis et al. 1891–1895; Plate 138; Figure 11) shows Hinton's Bridge at the site, along with a structure labeled "Neuse Mills" situated south of the road on the west side of the river.

The paper mill was never rebuilt, but a grist mill and a saw mill were apparently constructed at the site sometime after the Civil War. Those buildings apparently operated until about the 1880; writing in 1885, George F. Swain (1885) reportedly stated:

The paper mill, long since burned, had stood on the west bank, and the grist and sawmill building, unused for about five years, still stood on the east bank, but

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that the dam had been washed away (Swain 1885:53, cited in Hargrove 1986:30).

Swain also stated that mill's dam:

was said to have caused much trouble by overflow, and so much sickness in the vicinity, that the property was purchased by the neighbors and the mill torn down (Swain 1885:52, cited in Hargrove 1986:21).

Swain gave a fuller, but somewhat different account, in 1899:

The next site, and the first one of importance, is at Milburny or Neuse mills, about 25 miles above Smithfield and 6 or 7 miles from Raleigh, formerly improved, but at present idle. There is an open frame dam across the river, 8 feet high and 250 feet long, built on the site of the old dam which was constructed years ago in connection with the old paper-mill. The fall is 11 1/2 feet at the site of the old mill, developing about 300 horsepower at mean low water. At the present time this power is not utilized except for running a dilapidated grist-mill which requires about 15 horsepower. It is evident that the natural fall here is not very pronounced, and it seems strange that there is no large fall on the river below this point. It is probable, moreover, that power might be got below by damming, but it is said that there are no favorable places where a dam could be built without trouble by overflowing land above. At Milburny the bed is solid rock, very favorable for a dam, and the race had to be blasted out. The banks are abrupt on the right, but not so much so on the left, and the location is said to be a safe one. The power was formerly used by a paper-mill on the left bank [east] and a grist- and saw-mill on the other [west], the fall utilized being 12 1/2 feet; but the paper-mill was burnt. It is expected, however, that the power will be again utilized in a short time [Swain et al. 1899:121-122].

Although the earlier primary source (Swain 1885) has not been examined for this study, the two accounts appear to give conflicting locations for the mills. The 1885 account indicates that the paper mill was on the west bank, which matches the map depiction, while the 1899 account states that it was on the left (or east) bank, which is in fact the more gradual bank. Based on an examination of the site and the evidence from the 1865 map, it is considered most likely that the paper mill was in fact situated

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on the west bank, with the 1860s–1870s grist and saw mills on the east bank. The 1871 Bevers map (see Figure 12) shows a dam and mill pond on the Neuse at Milburnie, but suggests that they were situated some distance north of the road; a possible structure is shown on the west bank of the river south of the dam.

The next development of the site occurred around 1899, when E.C. Hillyer of the Raleigh Ice and Electric Company began construction of a hydroelectric plant and a new stone dam across the river. The plant was completed in 1903 and was intended to produce 100 to 150 horsepower, which would be supplemented when necessary by the company's steam plant in Raleigh. The Raleigh Ice and Electric Company leased the plant to the Raleigh Electric Company later in 1903, which operated it until it was shut down in July 1913. The plant was bought by Carolina Power & Light (CP&L) in 1916 as part of their consolidation of the state's hydroelectric facilities, and dismantled in 1918 (Lally 1994:276; Riley 1958:32–33, 87). According to a 1981 letter by Howard Twiggs, who was planning to redevelop the site as a hydroelectric facility:

By 1929, all equipment had been removed from the site and sold as scrap. In 1934, the site was sold to my father, who operated a grist mill there from 1934 until the early 1940s, at which time the mill was shut down. The mill building, which was the old power house, has burned and the only thing remaining is mill stones, mill pulleys, and the brick walls.

A Certificate of Public Convenience and Necessity for operation of a hydroelectric generating facility at the site was issued by the Site of North Carolina Utilities Commission in 1984, but the plant is no longer in operation.

Apart from the data on the various mills and dams present at the site, relatively little information is available on the Milburnie community. A post office was present at "Milbernie" as early as 1858, and operated intermittently under that name and that of "Milburnie" until 1892, when the post office name was changed to "Pett." The Pett post office operated until 1902, when it was closed (Stroupe 1996). Milburnie is known to have been a popular picnic spot as early as the 1860s (Murray 1983:580), however, and one such event was a German Peace Jubilee held there by German-speaking local residents in 1871 (Murray 1983:662).

No detailed maps of the Milburnie community in the early 1900s have been located. The 1914 soils map (see Figure 13) is difficult to read, but shows the road crossing the river at the site and one or more apparent mill ponds on a drainage to the east (which

apparently corresponds to the existing Milburnie Lake). The Tarborough Road through Milburnie probably continued to be the main route out of Raleigh to the east until the 1920s or 1930s, when it was replaced by a new road along the present route of US 64, as shown on a 1944 Wake County map (Figure 14). The present spur of the old road leading into the area is known as Raleigh Beach Road, reflecting the former and current use of the area for swimming and fishing.

Subsequent development in the area included construction of a trailer park on the uplands of the Milburnie West site, which was removed sometime in the 1980s or 1990s. More recently, considerable housing has been constructed near the Milburnie East site, and across Bridgers Lake to the north of the Milburnie West site.

2.5.3 Structures

The Milburnie area is dominated by a massive stone dam across the river, which was reportedly built around 1900 in conjunction with construction of the Raleigh Ice and Electric Company generating facility (Figures 15–19). The dam spans the river and extends for hundreds of feet on to the river's east bank; a modern hydroelectric facility (which occupies the former powerhouse and gristmill site) sits at the dam's terminus on the east bank. The dam appears to be in excellent condition and features include foundation buttresses, right angle turns, and a drainage system. The dam has been previously reported as WA 1677 (Lally 1994:276).

The Milburnie Hydroelectric facility was evaluated by the North Carolina State Historic Preservation Office in 1981, and determined not eligible for the National Register of Historic Places (John Little, letter to Howard Twiggs, May 21, 1981). Since that time, the former plant foundations have been removed, and a more modern facility built (Figures 20–21). It is possible that the stone dam itself might be considered NRHP-eligible if reevaluated, however, especially if considered in association with any archaeological remains of earlier mill facilities should those be identified.

On the west bank of the river north of the dam is a pair of stone bridge piers (Figure 22). These piers appear to date from around the 1920s and would have supported the original alignment of the main east/west road from Raleigh, now US 64. Approximately ten feet in height and three feet across, the piers are constructed of uncut stone and concrete mortar. The piers appear to align with an earthen embankment on the east side of the river (Figure 23), which appears to represent the former road bed. The Neuse River Bridge Supports were surveyed and recorded on SHPO site form WA 4330.
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2.5.4 Archaeological Resources

The only recorded systematic archaeological survey on or adjacent to the Milburnie sites was Hargrove's (1986) sewer line survey, which examined the corridor along the west side of the river adjacent to the dam site. Hargrove considered the dam and mill sites to be avoided by the sewer line, and did not record them as an archaeological site. He found no sites during survey north of the dam, where the line crosses the park property. The NCDOT Northern Wake Expressway (I-540) survey also examined a corridor east of the property, but all recorded sites are at least one mile from the Milburnie tracts (NCDOT 1990). Although additional sewer line construction has occurred near the Milburnie East site since that date, there are no indications that an archaeological survey was conducted.

Two sites (31WA27 and 31WA86) were recorded on the Milburnie West tract prior to Hargrove's (1986) survey. 31WA27 was apparently recorded by Ralph Bunn in or prior to 1969, and consists of a multicomponent Archaic and Woodland period site on the upland ridge west of the dam, in the vicinity of the former trailer park on either side of Allen Road. No detailed records are available on Bunn's investigations, but the Research Laboratories of Archaeology curates a small artifact collection from the site (RLA Accession Numbers 2274a71–p74). Those artifacts include Early Archaic (ca. 8000 B.C.), Middle Archaic (ca. 6000-4000 B.C), and Late Archaic to Early Woodland period (ca. 4000 B.C. to A.D. 0) projectile points, as well as a few undescribed Woodland period sherds (Davis and Daniel 1990:A-134). Subsequent to Bunn's investigations, NeSmith and Watson recorded a second site a short distance to the northwest during a visit in 1974. That site, 31WA86, produced only two "slate chips," and the reason for the site's recordation is unclear.

There are no indications of previous archaeological survey or reconnaissance of the Milburnie East tract, although a cemetery was recorded on the tract during an Environmental Assessment conducted in 1990 (Law Engineering 1990). The cemetery does not appear to be referenced in existing Wake County cemetery databases, however.

Archaeological field reconnaissance of the Milburnie West tract began with an inspection of the dam and powerhouse area, and was followed by examination of the uplands and limited subsurface investigations at the location of 31WA27. Reconnaissance of the dam and powerhouse area (which are outside the park boundaries) was limited, but identified a large depression on the terrace south west of the powerhouse, which could represent a former structure location. South of that area

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the terrace (east of the sewer line) appears relatively undisturbed, although this was not confirmed through subsurface investigations.

To the north of the dam and powerhouse, two mortared stone pillars stand a short distance back from the river bank (see above). These pillars appear to be aligned with an embankment visible across the river, and likely represent the former route of the Tarborough Road (the predecessor to US 64). A short section of a similar embankment is visible to the west of the piers. The piers presumably represent bridge abutments, and were presumably associated with the iron bridge described by Hinton (1903) or its successor.

Examination of the wooded fringe west of the sewer line in this area identified a group of mortared piers and an associated brick chimney base, which appear to represent a former dwelling site (Figure 24). The bricks appear modern, and this site almost certainly dates to the mid-20th century. It was not formally recorded or delineated, but is unlikely to be eligible for the NRHP.

Site 31WA27 was relocated based on its mapped location in reference to Allen Road and the former trailer park location. Although there is evidence of some disturbances related to the former road construction (Figure 25), the trailer park, and more recent modifications (such as construction of a small racetrack, apparently for radio-controlled cars), most of the area appears relatively undisturbed. There was little visibility, but surface reconnaissance failed to identify any artifacts or other indications of an archaeological site. Although no systematic survey was conducted, two shovel tests were excavated to examine the stratigraphy and search for artifacts. STP 1 was placed near the center of the mapped site, in a wooded area approximately 20 m northwest of Allen Street (Figure 26). The test encountered a ca. 20-cm thick A horizon (former plowzone), which overlay the B horizon. A single prehistoric artifact was recovered, consisting of the distal (tip) portion of a rhyolite projectile point or bifacial tool (see Figure 32a). A second test excavated approximately 30 m to the southwest encountered similar soils, but failed to yield any non-modern artifacts.

No attempt was made to determine the precise location of 31WA86, due to the lack of information available from the original sketch map. Field reconnaissance of the general area revealed numerous piles of recent debris, but no evidence of large-scale disturbances. After examining that area, the surveyors traversed the north-central and northeastern parts of the project area, following an overgrown woods road and searching for a structure that is indicated on the current USGS topographic map. No evidence of the structure was located, and it is apparent that it is no longer standing.

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The Milburnie Park master plan (http://www.treklite.com/neuse/p6milbur.htm) references an "old quarry" on the Milburnie West site, but this was not confirmed during the field reconnaissance.

Field reconnaissance of the Milburnie East site began with examination of the dam area and adjacent area. As discussed above, the dam extends a considerable distance east of the river in this area, and exhibits a right-angle turn as well as at least one drainage feature. The dam has impounded a large wetland and marsh on the east side of the river, which is bisected by an east-west oriented dirt embankment; the embankment lines up with the piers across the river, and is almost certainly the former road tract. A cut-out area is visible in the hillslope southeast of the embankment, and could represent a former structure location.

The cemetery reported during the previous Environmental Site Assessment (Law Engineering 1990; Figure 27) was visited by TRC staff and its location was confirmed. The cemetery lies on a small bench at the southeastern edge of the Milburnie East tract, a short distance west of Milburnie Road and north of the entrance to the adjacent subdivision (Figures 28-30). It appears to measure at least 35 by 30 feet in size, and is situated within an existing powerline corridor at the location of CP&L power pole No. HL72. At least 22 depressions were observed, representing at least 12 definite and ten possible grave sites (some of the depressions may be tree falls or other disturbances). Nine of the depressions lie within the cleared powerline corridor. A maintenance road runs on the northern side of the cleared area, and appears to run over the top of at least two depressions. Four stone markers were found; three are small and rectangular-shaped and lie within the cleared area, on the southern side of the power pole. These appear to be in situ and mark either the head or foot of three different graves. The fourth stone was found leaning against a tree in front of a large, oblong depression. The shape and size of the stone identify it as a potential grave marker. Three possible graves lie on the northern side of the site within the wooded area lining the powerline corridor. An old road trace runs alongside those graves, leading to the north and east toward Old Milburnie Road.

A prehistoric and historic archaeological site also was identified during reconnaissance of the Milburnie East tract. The site lies at the junction of the powerline corridor and the sewer line right-of-way, near the northwest edge of the tract (Figure 31). This area showed moderate erosion related to vehicle traffic and earthmoving/clearing in the corridor areas, and artifacts were found scattered on the ground within a 100 ft radius of CP&L power pole HL74. Prehistoric artifacts recovered included an unidentified decorated (possibly fabric-impressed) prehistoric ceramic sherd (Figure 32b), nine

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rhyolite flakes (e.g., Figure 32c and 32d) and one quartz flake. Historic artifacts are four undecorated whiteware sherds (e.g., Figure 32g), one blue transfer printed whiteware sherd (Figure 32f), one blue shell edge whiteware plate rim (Figure 32e), a possible luster-decorated glass vessel fragment, and a stoneware vessel base (Figure 32h). The prehistoric materials appear to represent a Woodland period occupation (and possibly other components), while the historic period materials represent a mid- to late-19th century occupation. In addition, a scatter of 20th-century ceramic and glass artifacts and a pile of deteriorating roofing shingles were observed on the eastern side of the site, approximately 40 ft east of the power pole heading up the powerline corridor.

2.5.5 Cultural Resources Summary

The Milburnie site is rich in known and potential cultural resources, many of which are amenable to public interpretation. The falls and shoals at Milburnie have attracted historical development for at least two centuries, and probably attracted American Indian visitors for thousands of years before that. The extant resources present on the tract and nearby include known and potential archaeological sites, the existing dam and hydroelectric facility, a cemetery, and a former and current recreation area.

Additional cultural research investigations for the Milburnie tracts should begin with background research to further explore the early history of the tract, including its relation to the Hinton family as well as the history of the community of Milburnie and the past development of hydropower at the site. This work should include deed research, examination of industrial schedules and other census records, and oral history research; it should also include additional examination of previous research, such as Elizabeth Reid Murray's interview with Fad Montague, one of the workers involved in rebuilding the Milburnie dam about 1900 (Murray 1983:662). Additional areas of interest include the history of the cemetery on the Milburnie East tract, as well as that of Raleigh Beach, the informal recreation area below the dam.

Additional archaeological survey should be conducted to identify, delineate, and evaluate prehistoric sites 31WA27 and 31WA86, the newly discovered site at the Milburnie East tract, and any other prehistoric or historic period sites that might be present on the terraces and adjacent uplands. Due to the density of known resources, as well as the site's proximity to the shoals, systematic surface survey is recommended for the entire tract, with the exception of areas of greater than 15 percent slope and those exhibiting a high degree of disturbance, such as the parking area at Milburnie East. Special attention should be paid to potential resources associated with the

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industrial development at the site, including the gristmills, saw mill, paper mill, and other facilities present at the site.

Like other cemeteries, the cemetery on the Milburnie East tract is protected by a variety of state statutes (see Appendix 2). It is recommended that the cemetery location be cleared of underbrush, the number, location, and orientations of the interments established through probing, and its boundaries marked to prevent future disturbance. As part of this work, consideration should be given to rerouting the CP&L access road through the area.

Additional documentation should also be completed for the structural remains present at the site, including the dam and mill seat (WA 1677; Lally 1994:276). A SHPO survey site file (WA 4330) has been completed for the bridge piers. No additional documentation is recommended for the piers at this time, although additional effort should be expended to delineate and document the associated road trace and any other piers that may be present.

2.6 Summary of Existing Conditions: Opportunities and Constraints

Topography: The Milburnie West site consists primarily of upland ridges and slopes, but includes a narrow segment of floodplain along the Neuse. Site elevations range from approximately 250 feet above mean sea level (msl) to 160 feet msl along the Neuse River. A power line traverses the site from the northeast to the southwest. A sewer easement roughly parallels the Neuse River.

The Milburnie East site slopes towards the Neuse River, with elevations ranging from 238 feet msl at the corner of Old Milburnie Road and Loch Raven Parkway to approximately 160 feet msl along the river. In addition, a power line easement crosses the site, and a sewer easement roughly parallels the Neuse River. A wastewater package treatment plant is located along the drive on the southern portion of the site.

Soils: The project study area is underlain by one soil association: Appling-Louisburg-Wedowee association. Eleven soil mapping units are mapped within the project study area. Four of the eleven soils onsite are listed as a hydric soil, Chewacla soils, Mantachie soils, Wehadkee silt loam, and Wehadkee and Bibb soils.

Water Resources: Surface waters in the project study area include Bridges Lake (semi permanent impoundment) and one UT to Neuse River.

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Terrestrial Communities: The project study area includes terrestrial communities of Dry Oak-Hickory Forest, Mesic Mixed Hardwood Forest (Piedmont subtype), Piedmont/Mountain Bottomland Forest, Piedmont/Mountain Levee Forest, Coastal Plain Semipermanent Impoundment, and Maintained/Disturbed Lands, which provide habitat for a wide variety of mammals, birds, amphibians, invertebrates, and plants.

The Coastal Plain Semipermanent Impoundment community represents a unique terrestrial community and habitat. The community is strongly dominated by wild rice and smartweed and provides habitat for wading birds, such as great blue heron (*Ardea herodias*). This area provides the visitor a unique and interesting visual experience.

Invasive exotic plants often out-compete native vegetation, resulting in a change in vegetative cover. The vegetation change affects the faunal populations within an area by changing the food and cover sources available to the individuals within the population. Within the project study area, invasive exotic species of plants and animals were observed, including Japanese stiltgrass, Asiatic dayflower (Commelina communis), marsh dewflower (Murdannia keisak), Chinese privet, mimosa (Albizia julibrissin), Japanese honeysuckle, tree-of-heaven, Chinese wisteria (Wisteria sinense), Chinese bushclover (Lespedeza cuneata), slender St. John's-wort (Hypericum mutilum), and red imported fire ants (Solenopsis invicta). Japanese stiltgrass, Chinese privet, Japanese honeysuckle, and tree-of-heaven were observed within the Piedmont/Mountain Levee Forest, the pine-dominated portion of the Mesic Mixed Hardwood Forest (Piedmont subtype), and in the southwestern portion of the project study area. Asiatic dayflower was observed on the east-facing slopes on the west bank of Neuse River. Marsh dewflower and mimosa were observed primarily in association with the transition zone between Wetland WA and the upland area south of this wetland community. Chinese bushclover was observed along the edge of woods upslope from the bank of the Neuse River and adjacent to the existing greenway trail. Fire ant mounds and Chinese wisteria were observed primarily along the wooded edges adjacent to the greenway trail on the west bank of Neuse River and along the edge of woods along Raleigh Beach Road.

Aquatic Communities: There are two aquatic communities, Bridges Lake (semi permanent impoundment) and UT to Neuse River, located within the project study area. An alteration of the Milburnie Dam could substantially change the backwater areas, including Bridges Lake.

Three wetlands were delineated within the project study area; two wetland areas and a portion of the third are palustrine, forested systems located in the floodplain of a stream

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or adjacent to the levee of Neuse River. The remaining wetland area delineated within the project study area is classified as a palustrine, unconsolidated bottom system and is located in the inundated floodplain of a stream immediately upstream of its confluence with Neuse River.

Regulations and Permit Considerations: Sections 404 and 401 of the CWA apply to the surface waters and wetlands that occur within the project study area. The site plan may require permitting of impacts to Waters of the US through USACE and NCDWQ in order to comply with Sections 404 and 401 of the CWA.

The project study area is located within the Neuse River basin; therefore, Neuse River riparian buffer rules are applicable.

Rare and Protected Species: USFWS lists four species as federally protected and occurring in Wake County. Of the four species, habitat for Michaux's sumac is present within the project study area. Adverse impacts to the species are not likely to occur as a result of park development.

Cultural Resources: The Milburnie site is rich in known and potential cultural resources, many of which are amenable to public interpretation. The falls and shoals at Milburnie have attracted historical development for at least two centuries, and probably attracted American Indian visitors for thousands of years before that. The extant resources present on the tract and nearby include known and potential archaeological sites, the existing dam and hydroelectric facility, a cemetery, and a former and current recreation area.

Additional cultural research investigations, archaeological survey, and documentation of structural remains is recommended. An archaeological survey should identify, delineate, and evaluate prehistoric sites 31WA27 and 31WA86, the newly discovered site at the Milburnie East tract, and any other prehistoric or historic period sites that might be present on the terraces and adjacent uplands.

3. Interim Management Guidelines

Interim management guidelines for the Milburnie site are proposed to guide management of the site prior to the initiation of a Master Plan. The guidelines incorporate current management practices and are based on existing site conditions and constraints.

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The Raleigh City Council endorsed the following interim management guidelines for the Milburnie future park site.

Current Management

- The canoe / boat launch at Milburnie East is inspected weekly.
- Trash and debris are removed from the parking lot and launch weekly.
- The gravel access roads are graded three (3) times per year.
- The greenway access at Milburnie West is inspected twice a week.
- Invasive / exotic species (kudzu) near the greenway parking area are controlled on an as-needed basis.

Interim Management Guidelines

- Continue weekly check and maintenance of boat launch at Milburnie East.
- Continue twice a week check of greenway access and as needed control of kudzu near the greenway parking at Milburnie West.
- Further management will be necessary for the cemetery. This site will be included with the other City of Raleigh Cemetery locations under management and monitoring.
- Remove debris / trash from illegal dumping on Milburnie West in area that parallels the greenway, area near power line, and other areas deemed necessary for debris / trash removal.
- Park staff will evaluate the condition of the greenway access road for potential future improvements.
- An intra-departmental staff review team will visit the site annually to provide a comprehensive inspection until the site is Master Planned. This review will consist of a representative from each division of the Parks and Recreation Department.

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- The property's boundaries should be marked with carsonite posts.
- Review the lease agreements for the property (if any exist) and review the level of care for the property. The review should consider items including but not limited to the upkeep of the grounds, landscaping, utility systems, cleanliness of building interiors, periodic monitoring, lease fees, etc.
- Continue efforts to acquire properties to connect the non-contiguous portions of the Milburnie West site and to acquire the three properties surrounded by the Milburnie West site (in-holding).
- Remove the abandoned mobile home and debris from the Milburnie West site.
- Evaluate the affects that removing the Milburnie dam would have on the park site/resources. A contingency plan to address the potential affects should be developed.

4. Comprehensive Plan Classification

The Comprehensive Plan is the City's official policy statement to guide growth and redevelopment, including the City's park system. The Park, Recreation and Open Space Element of the Comprehensive Plan established a park classification system to address the following goal: Provide a Diverse, Well-Balanced, Well-Maintained Range of Recreational Opportunities.

The five park classifications are: Natural Areas, including Conservation Areas and Greenway Corridors sub-classifications; Neighborhood Parks; Community Parks; Metro Parks; and Special Parks. Each classification includes guidelines for park size, location and facilities.

The Comprehensive Plan designates the Milburnie site as a Community Park. According to the Comprehensive Plan, Community Parks typically range in size from 30 to 75 acres and serve residents within a two-mile radius. These park sites should be located along major transportation routes where possible. Community Parks also serve as Neighborhood Parks for nearby residential areas where safe access can be provided. The Comprehensive Plan also recommends that Community Parks include a base set of facilities similar to Neighborhood Parks with additional facilities differing from other nearby Community Parks.

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The Community Park classification was found to be appropriate for the Milburnie site. Decisions regarding specific park facilities will be made during the Master Planning process.

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Figures











Figure 5. Coastal Plain Semipermanent Impoundment.





Figure 7. Milburnie Dam - responsible for the high water level within the Coastal Plain Semipermanent Impoundment.



Figure 8. Proposed locations of Alvis Farm and Milburnie Parks showing previously recorded resources.



Figure 9. Portion of Price and Strother's 1808 Map of North Carolina showing Tarborough Road and the "Hinton" property location.



Figure 10. Portion of Mac Rae's 1833 map of North Carolina showing "Hinton's B."



Figure 11. Portion of Plate 138 "Virginia, North Carolina, and South Carolina" of the Atlas to Accompany the Official Records of the Union and Confederate Armies showing "Hinton's Br."



Figure 12. Portion of Bevers' 1871 Wake County Map showing location of proposed Alvis Farm and Milburnie parks.



Figure 13. Portion of 1914 Wake County Soils Map showing approximate locations of proposed Alvis Farm and Milburnie parks.



Figure 14. Portion of 1944 Wake County Map showing old and new roads near Milburnie.



Figure 15. Milburnie area showing resources and features mentioned in text.



Figure 16. View of Milburnie dam and hydroelectric power plant, facing northwest.



Figure 17. View of Milburnie dam from upstream, facing southeast.



Figure 18. Close-up view of Milburnie dam corner, facing north.



Figure 19. Close-up view of Milburnie dam, facing northeast.



Figure 20. View of Milburnie hydroelectric power plant and dam, facing northwest.



Figure 21. Close-up view of base of Milburnie hydroelectric power plant and dam, facing northeast.



Figure 22. View of bridge piers at Milburnie West site, facing southwest.



Figure 23. View of road embankment at Milburnie East site, facing east.



Figure 24. View of house foundation at Milburnie West site, facing west.



Figure 25. View of road and trailer park area at Milburnie West site, facing southwest.



Figure 26. View of location of STP 1 at 31WA27 at Milburnie West site, facing northwest.




Figure 28. View of cemetery at Milburnie East site, facing southeast.



Figure 29. Close-up view of stone grave marker at cemetery at Milburnie East site, facing west.



Figure 30. View of displaced stone grave marker at cemetery at Milburnie East site, facing south.



Figure 31. View of archaeological site at Milburnie East site, facing northwest.



Figure 32. Selected artifacts from 31WA27 and Milburnie East archaeological site 1. a) rhyolite projectile point/bifacial tool tip; b) decorated prehistoric ceramic sherd; c-d) rhyolite lithic flakes; e) blue shell edge whiteware plate rim; f) blue transfer printed whiteware plate fragment; g) undecorated whiteware sherd; h) gray salt-glazed stoneware vessel base.

Appendix A

Inventory of Observed Flora and Fauna Species

Scientific Name	Common Name
Vertebrates - Reptiles and Amphibians	
Acris crepitans	Northern cricket frog
Agkistrodon contortrix	Copperhead
Hyla cinerea	Green treefrog
Terrapene carolina	Eastern box turtle
Vertebrates - Birds	
Ardea herodas	Great blue heron
Branta canadensis	Canada goose
Buteo lineatus	Red-shouldered hawk
Cardinalis cardinalis	Northern cardinal
Colaptes auratus	Northern flicker
Corvus brachyrhynchos	American crow
Cyanocitta cristata	Blue jay
Dryocopus pileatus	Pileated woodpecker
Melanerpes carolinus	Red-bellied woodpecker
Parus bicolor	Tufted titmouse
Picoides pubescens	Downy woodpecker
Piranga rubra	Summer tanager
Poecile carolinensis	Carolina chickadee
Setophaga ruticilla	American redstart
Sialia sialis	Eastern bluebird
Sitta carolinensis	White-breasted nuthatch
Sphyrapicus varius	Yellow-bellied sapsucker
Thryothorus ludovicianus	Carolina wren
Turdus migratorius	American robin
Wilsonia citrina	Hooded warbler
Zenaida macroura	Mourning dove
Vertebrates - Mammals	
Castor canadensis	Beaver
Marmota monax	Woodchuck
Sciurus carolinensis	Gray squirrel
Sylvilagus floridanus	Eastern cottontail
Procyon lotor	Raccoon
Odocoileus virginianus	White-tailed deer
Didelphis virginiana	Virginia opossum

Inventory of Fauna Observed within the Project Study Area

Scientific Name	Common Name
Vascular Plants	
Acer rubrum	Red maple
Acer negundo	Box elder
Acer saccharum	Sugar maple
Ailanthus altissima	Tree-of-heaven
Alnus serrulata	Tag alder
Amphicarpa bracteata	Hog-peanut
Arundinaria gigantea	Giant cane
Asplenium platyneuron	Ebony spleenwort
Betula nigra	River birch
Bignonia capreolata	Crossvine
Boehmeria cylindrica	Small-spike false nettle
Botrychium virginianum	Rattlesnake fern
Carex spp.	Sedges
Carpinus caroliniana	Ironwood
Carya alba	Mockernut hickory
Carya glabra	Pignut hickory
Celtis laevigata	Hackberry
Cercis canadensis	Redbud
Chasmanthium laxum	Slender spikegrass
Chasmanthium latifolium	Indian sea-oats
Chimaphila maculata	Spotted wintergreen
Commelina communis	Asiatic dayflower
Cornus florida	Flowering dogwood
Crataegus marshallii	Parsley-leaved hawthorn
Dulichium arundinaceum	Threeway sedge
Elaeagnus umbellata	Autumn-olive
Euonymus americana	Hearts-a-bustin'
Fagus grandifolia	American beech
Fraxinus pennsylvanica	Green ash
Gelsemium sempervirens	Yellow jessamine
Hexastylis arifolia	Little brown jug
Hypericum mutilum	Slender St. John's-wort
Ilex verticillata	Black holly
Ilex opaca	American holly
Impatiens capensis	Touch-me-nots
Juglans nigra	Black walnut
Juniperus virginiana	Eastern redcedar
Lespedeza cuneata	Chinese bushclover
Ligustrum sínense	Chinese privet
Lindera benzoin	Spicebush
Liquidambar styraciflua	Sweetgum
Liriodendron tulipifera	Tulip poplar
Lonicera japonica	Japanese honeysuckle
Lycopodium sp.	Running-cedar
Magnolia virginiana	Sweetbay magnolia

Inventory of Flora Observed within the Project Study Area

Inventory of Flora Observed within the Project Study Area

Scientific Name	Common Name
Vascular Plants	
Microsteaium vimineum	Japanese stiltgrass
Mikania scandens	Hempvine
Mitchella repens	Partridgeberry
Morus rubra	Red mulberry
Nyssa sylvatica	Black gum
Osmunda regalis	Royal fern
Ostrya virginiana	Hop-hornbeam
Oxydendrum arboreum	Sourwood
Peltandra sagittifolia	Arrow-arum
Pinus echinata	Shortleaf pine
Pinus taeda	Loblolly pine
Platanus occidentalis	Sycamore
Polygonum hydropiper	Smartweed
Polygonum pensylvanicum	Pennsylvania smartweed
Polygonum sagittatum	Arrowleaf tearthumb
Polygonum virginianum	Virginia knotweed
Polystichum acrostichoides	Christmas fern
Pontederia cordata	Pickerelweed
Prunus serotina	Black cherry
Quercus alba	White oak
Quercus falcata	Southern red oak
Quercus nigra	Water oak
Quercus phellos	Willow oak
Quercus rubra	Northern red oak
Quercus stellata	Post oak
Quercus velutina	Black oak
Rhus copallina	Winged sumac
Rubus argutus	Blackberry
Sagittaria lancifolia	Arrowhead
Saururus cernuus	Lizard's tail
Smilax rotundifolia	Greenbrier
Sparganium americanum	Bur-reed
Taxodium distichum	Bald cypress
Tipularia discolor	Cranetly orchid
Toxicodendron radicans	Poison ivy
Typha latifolia	Broadlear Cattall
Ulmus alata	
Ulmus americana	
Ulmus rubra	Silppery enn Farkloborny
Vaccinium arboreum	Ningstem
Verbesina alternitolia	Wingstein Muscadine grane
VILIS FOLUNUNUNU Mistoria sinansis	Chinese wisteria
Wisteria sinensis	Netted-chain fern
WOOUWAFUIA AFEUIALA	Giant cut-grass
∠izaniopsis miliacea	Giant Cut-grass

Appendix B

Stream Data Forms

STREAM QUALITY AS	SSESSMENT WORKSHEET
Provide the following information for the stream reach und	er assessment:
1. Applicant's name: City of Raiocaly	2. Evaluator's name: Lin Ney Produk/ Keven Dies-
3. Date of evaluation: $\frac{9}{12}$	4. Time of evaluation: 3:00 pm
5. Name of stream: UT to Neuse River	6. River basin: Neuse
7. Approximate drainage area: 53 acres	8. Stream order: 15t
9. Length of reach evaluated: <u>320 Ft</u>	10. County:Wafe
11. Site coordinates (if known): prefer in decimal degrees.	12. Subdivision name (if any): None
Latitude (ex. 34.872312): 35.792367°	_ Longitude (ex77.556611); 78, 5404538
Method location determined (circle): (GPS) Topo Sheet Ortho (13. Location of reach under evaluation (note nearby roads and North of Raleigh Beach Roce 14. Proposed channel work (if any): <u>Nore</u>	Aerial) Photo/GIS Other GIS Other landmarks and attach map identifying stream(s) location): Id to culvert under Ralligh Beach Rd
15. Recent weather conditions: <u>948 NOURS</u> affect	rain event; to's now ous
16. Site conditions at time of visit:	
17. Identify any special waterway classifications known:	Section 10Tidal WatersEssential Fisheries Habitat
Trout WatersOutstanding Resource WatersX	Nutrient Sensitive WatersWater Supply Watershed(I-1V)
18. Is there a pond or lake located upstream of the evaluation p	oint? YES (NO) If yes, estimate the water surface area:
19. Does channel appear on USGS quad map? YES NO	20. Does channel appear on USDA Soil Survey? (YES) NO
21. Estimated watershed land use: $\underline{00}$ % Residential	<u>%</u> Commercial <u>%</u> Industrial <u>%</u> Agricultural
<u>4D</u> % Forested	% Cleared / Logged% Other ()
22. Bankfull width: <u> </u>	23. Bank height (from bed to top of bank): 18 - 2.4
24. Channel slope down center of stream:Flat (0 to 2%)	Gentle (2 to 4%)Moderate (4 to 10%)Steep (>10%)
25. Channel sinuosity:StraightOccasional bends	Frequent meanderVery sinuousBraided channel
Instructions for completion of worksheet (located on pag location, terrain, vegetation, stream classification, etc. Every to each characteristic within the range shown for the eco characteristics identified in the worksheet. Scores should re characteristic cannot be evaluated due to site or weather con comment section. Where there are obvious changes in the ch into a forest), the stream may be divided into smaller reaches reach. The total score assigned to a stream reach must range highest quality.	e 2): Begin by determining the most appropriate ecoregion based on characteristic must be scored using the same ecoregion. Assign points region. Page 3 provides a brief description of how to review the flect an overall assessment of the stream reach under evaluation. If a nditions, enter 0 in the scoring box and provide an explanation in the maracter of a stream under review (e.g., the stream flows from a pasture that display more continuity, and a separate form used to evaluate each e between 0 and 100, with a score of 100 representing a stream of the
Total Score (from reverse): 107 Comme of visit, stream enters site throug petore crossing moder Pakigh Beach Rd. pearched 200 201 above existing streamber	nts: Channel had string flort at time hadjacent neighborhood and Flows through site wither at pipe under Ralengen Brach RA 13 l
Evaluator's Signature Line Public	Date 9/21/06

Evaluator's Signature <u>Date</u> <u>1727</u> by This channel evaluation form is intended to be used only as a guide to assist landowners and environmental professionals in gathering the data required by the United States Army Corps of Engineers to make a preliminary assessment of stream quality. The total score resulting from the completion of this form is subject to USACE approval and does not imply a particular mitigation ratio or requirement. Form subject to change – version 06/03. To Comment, please call 919-876-8441 x 26.

STREAM	QUALITY	ASSESSMENT	WORKSHEET
--------	---------	------------	-----------

	45	CHARACTERISPICS	ECOREG	ION POINT	RANGE	SCORE
	1-11-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1		Coastal	Predmont	yrountain	
		Presence of flow / persistent pools in stream (no flow or saturation = 0; strong flow = max points)	0 - 5	0-4	0-5	4
の時代	2	Evidence of past human alteration	0-6	0 - 5	0-5	4
	3	Riparian zone	0-6	0-4	0-5	2
	4	Evidence of nutrient or chemical discharges	0-5	0-4	0 - 4	4
ALC: N	5	Groundwater discharge	0-3	0-4	0-4	4
SIC	6	Presence of adjacent floodplain (no floodplain = 0, extensive floodplain = max points)	0-4	0-4	0-2	4
Vela	7	Entrenchment / floodplain access (deeply entrenched = 0; frequent flooding = max points)	0-5	0-4	0-2	3
	8	Presence of adjacent wetlands (no wetlands = 0, large adjacent wetlands = max points)	0-6	0-4	0-2	2
	9.,	Channel sinuosity (extensive channelization = 0, natural meander = max points)	0-5	0-4	0-3	3
	10	Sediment input (extensive deposition= 0, little or no sediment = max points)	0-5	0 - 4	0-4	1
	11	Size & diversity of channel bed substrate (fine, homogenous = 0; large, diverse sizes = max points)	INA*	0 - 4	0-5	2
Y	12	Evidence of channel incision or widening (deeply incised = 0; stable bed & banks = max points)	0-5	0-4	0-5	4
EII	13	Presence of major bank failures (severe erosion = 0; no erosion, stable banks = max points)	0 - 5	0 - 5	0 - 5	4
ABI	14	Root depth and density on banks (no visible roots = 0; dense roots throughout = max points)	0-3	0 - 4	0-5	3
S	15	Impact by agriculture, livestock, or timber production (substantial impact =0; no evidence = max points)	0-5	0-4	0 – 5	i4
	16	Presence of riffle-pool/ripple-pool complexes (no riffles/ripples or pools = 0; well-developed = max points)	0-3	0-5	0-6	3
ITAO	17	Habitat complexity (little or no habitat = 0; frequent, varied habitats = max points)	0-6	0 - 6	0-6	4
IAB	18	Canopy coverage over streambed (no shading vegetation = 0; continuous canopy = max points)	0-5	0 - 5	0 - 5	\$5
	19	Substrate embeddedness (deeply embedded = 0; loose structure = max)	NA*	0-4	0-4	2
A States	20	Presence of stream invertebrates (see page 4) (no evidence = 0; common, numerous types = max points)	0-4	0-5	0-5	0
00	21	Presence of amphibians (no evidence = 0; common, numerous types = max points)	0-4	0 - 4	0-4	1
IOI	22	Presence of fish (no evidence = 0; common, numerous types = max points)	0 - 4	0 - 4	0-4	1
The second se	23	Evidence of wildlife use (no evidence = 0; abundant evidence = max points)	0-6	0-5	0-5	3
		Total Points Possible	100.	100	100	
		TOTAL SCORE (also enter on f	irst page)		(). And the	61

* These characteristics are not assessed in coastal streams.

North Carolina Division of Water Quality – Stream Identification Form; Version 3.1

Date: 9/21/09 Project: -0	d Milburn	e Latitu	de:	
Evaluator: 1. P. dal (V M. er Site:	0-01	Longi	tude:	
Total Points:Stream is at least intermittentif \geq 19 or perennial if \geq 30	Wake	Other e.g. Qu	Ralei uad Name:	igh East, NC
A Commerphology (Subsect = 732)	Absent	Weak	Moderate	Strong
A. Geoffiology (Subtolal	Absente O	1	2	3
2 Sinusity	0	1	$\overline{(2)}$	3
2. In channel structure: riffle neel servence	0	1	Ø	3
A. Seil texture as stream substrate parting	0	1	<u>a</u>	3
4. Soli lexture or stream substrate solling	0	1	(27)	3
6. Denesitienel here en henehee	0	1	a	3
6. Depositional bars of benches	(1)	1	2	3
7. Braided channel	0	1	2	(3)
8. Recent alluvial deposits	0	1	(75	3
9 Natural levees	0	(1)	2	3
		0.5	- A	1.5
11. Grade controls	0	0.5	(1) (1)	1.5
12. Natural valley of drainageway		0.0		
USGS or NRCS map or other documented	No	o €0)	Yes	= 3
^a Man-made ditches are not rated; see discussions in manual				
B. Hydrology (Subtotal = 7, 5)				2
14. Groundwater flow/discharge	0	1	(2)	3
15. Water in channel and > 48 hrs since rain, <u>or</u> Water in channel – dry or growing season	0	1	Ì	3
16. Leaflitter	1.5	(1)	0.5	0
17. Sediment on plants or debris	0	0.57	1	1.5
18. Organic debris lines or piles (Wrack lines)	0	0.5	1	1.5
19. Hydric soils (redoximorphic features) present?	No	o = 0	Yes 7	1.5
C. Biology (Subtotal = 758)6,5				
20 ^b , Fibrous roots in channel	(B)	\bigcirc	1	0
21 ^b . Rooted plants in channel	(3)	2	1	0
22. Cravfish	(0)	0.5	1	1.5
23. Bivalves	(07	1	2	3
24. Fish	0	0.5	1	1.5
25. Amphibians	0	0.5	1	1.5
26. Macrobenthos (note diversity and abundance)	0	0.5	1	1.5
27. Filamentous algae: periphyton	(0)	1	2	3
28. Iron oxidizing bacteria/fungus	(0)	0.5	1	1.5
29 ^b . Wetland plants in streambed	FAC = 0.5; F	ACW = 0.75; OBI	= 1.5 SAV = 2.	0; Other $\neq 01$

^b Items 20 and 21 focus on the presence of upland plants, Item 29 focuses on the presence of aquatic or wetland plants.

Notes: (use back side of this form for additional notes.)

Sketch:

A

Appendix C

Wetland Data Forms

	DATA FORM - ROUTINE WET	TLAND DETERMINATION
ſ	Project/Site: Milburnie Park Site	Date: September 21, 2006
- 1	Applicant/Owner: City of Raleigh	State' N(
- 1	Investigator(s). L'Attack, & Duerr	No Community ID: WA
- 1	Is the site significantly disturbed (Atypical Situation)? Yes	Transect ID: WA-09
_	Is this area a potential Problem Area? Yes	No Plot ID: wetland
	Dominant Plant Species Stratum Indicator	Dominant Plant Species Stratum Indicator
	1. Polygonum hydropiper Herb OBL	9. Zizaniopsis miliacea Herb OBL
	2 Carex spp. Herb	10. Quercus nigra <u>Canopy</u> FAC
	3. <u>Polygonum virginianum</u> <u>Herb</u> <u>PAC</u>	12
Z	4. Sagittaria iancijolia <u>Herb</u> <u>ODL</u>	13
E	6 Boehmeria cvlindrica Herb FACW+	14
F	7 Acer rubrum Canopy FAC	15,
E	8. Betula nigra Canopy FACW	16,
G	D (CD : t Survive that are ODI EAOW of EAO (mychyd	ling EAC) $100%$
F	Percent of Dominant Species that are OBL, FACW, of FAC (exclude Domostics: conony species are present along margin of freshwat	ter marsh
	Zizaniopsis and Polygonum are strongly dominant in	central portions of marsh
		-
		The I address
	Recorded Data (Describe in Remarks)	Primary Indicators:
	Stream, Lake, or tide Gauge	X Saturated in Upper 12 Inches
	Achai Photographs	Water Marks
	X No Recorded Data Available	Drift Lines
		Sediment Deposits
G	Field Observations:	Drainage Patterns in Wetlands
Q	ア 2/1~1日/1	Secondary Indicators (2 or more required):
6	Depth of Surface Water: $0 \rightarrow 8$ (in.)	X Uxidized Root Channels in Opper 12 inches
1 H	Doubt to Error Water in Dit. (in)	L ocal Soil Survey Data
I S I		X FAC-Neutral Test
8	Depth to Saturated Soil: 0 (in.)	Other (Explain in Remarks)
	Remarks:	
	ORC's evident near edge of wetland	
	Man Unit Name (Series & Phase Louisburg loamy sand, 6-10% slop	pes Drainage Class: Somewhat Excessively Drained
	Taxonomy (Subgroup) Ruptic-Ultic Dystrochrepts	Confirm Mapped Type? Yes No
	Depth Matrix Color Mottle Colors	s Mottle Texture, Concretions,
	(inches) Horizon (Munsell Moist) (Munsell Mois	st) <u>Abundance/Contrast</u> <u>Structure, etc.</u>
2	$\frac{0.5}{5.12}$ $\frac{A}{R}$ $\frac{10YR 3/2}{10YP 4/1}$ -	- sanay clay toam
15	J-1 2 D 101 (4/1 -	sandy loam
1.1		- sandy loam
	Histosol	- sandy loam
RS S	Histosol Histic Epipedon	
TORS	Histosol Histic Epipedon Sulfidic Odor	Concretions High Organic Content in Surface Layer in Sandy Soils Organic Streaking in Sandy Soils Uticades Level Undrie Scile List
CATORS S	Histosol Histic Epipedon Sulfidic Odor Aquic Moisture Regime De decing Conditions	
DICATORS	Histosol Histic Epipedon Sulfidic Odor Aquic Moisture Regime Reducing Conditions Cleved or Low-Chroma Colors	 <i>sandy loam</i> <i>sand</i>
INDICATORS S	Histosol Histic Epipedon Sulfidic Odor Aquic Moisture Regime Reducing Conditions X Gleyed or Low-Chroma Colors Remarks:	- sandy loam
RIC INDICATORS	Histosol Histic Epipedon Sulfidic Odor Aquic Moisture Regime Reducing Conditions X Gleyed or Low-Chroma Colors Remarks: saturated soil with ponded water in pockets	Concretions High Organic Content in Surface Layer in Sandy Soils Organic Streaking in Sandy Soils Listed on Local Hydric Soils List Listed on National Hydric Soils List Other (Explain in Remarks)
(DRIC INDICATORS 8	Histosol Histic Epipedon Sulfidic Odor Aquic Moisture Regime Reducing Conditions X Gleyed or Low-Chroma Colors Remarks: saturated soil with ponded water in pockets	Concretions Concretions High Organic Content in Surface Layer in Sandy Soils Organic Streaking in Sandy Soils Listed on Local Hydric Soils List Listed on National Hydric Soils List Other (Explain in Remarks)
HYDRIC INDICATORS 5	Histosol Histic Epipedon Sulfidic Odor Aquic Moisture Regime Reducing Conditions X Gleyed or Low-Chroma Colors Remarks: saturated soil with ponded water in pockets	
HYDRIC INDICATORS 5	Histosol Histic Epipedon Sulfidic Odor Aquic Moisture Regime Reducing Conditions X Gleyed or Low-Chroma Colors Remarks: saturated soil with ponded water in pockets Hydrophytic Vegetation Present? Yes No	- sandy loam
HYDRIC INDICATORS S	Histosol Histic Epipedon Sulfidic Odor Aquic Moisture Regime Reducing Conditions X Gleyed or Low-Chroma Colors Remarks: saturated soil with ponded water in pockets Hydrophytic Vegetation Present? Wetland Hydrology Present? Yes No No	- sandy loam
HYDRIC INDICATORS S	Histosol Histic Epipedon Sulfidic Odor Aquic Moisture Regime Reducing Conditions X Gleyed or Low-Chroma Colors Remarks: saturated soil with ponded water in pockets Hydrophytic Vegetation Present? Wetland Hydrology Present? Hydric Soils Present? Yes No Yes No	- sandy loam
HYDRIC INDICATORS S	Histosol Histic Epipedon Sulfidic Odor Aquic Moisture Regime Reducing Conditions X Gleyed or Low-Chroma Colors Remarks: saturated soil with ponded water in pockets Hydrophytic Vegetation Present? Wetland Hydrology Present? Hydric Soils Present? Remarks:	
HYDRIC INDICATORS S	Histosol Histic Epipedon Sulfidic Odor Aquic Moisture Regime Reducing Conditions X Gleyed or Low-Chroma Colors Remarks: saturated soil with ponded water in pockets Hydrophytic Vegetation Present? Yes No Hydric Soils Present? Yes Hydric Soils Present? Yes Remarks: large freshwater marsh system along UT to Neuse F	- sandy loam Concretions - High Organic Content in Surface Layer in Sandy Soils Organic Streaking in Sandy Soils Listed on Local Hydric Soils List Listed on National Hydric Soils List Other (Explain in Remarks) Is this Sampling Point Within a Wetland? Yes No River above dam on the river north of US 64
HYDRIC INDICATORS S	Histosol Histic Epipedon Sulfidic Odor Aquic Moisture Regime Reducing Conditions X Gleyed or Low-Chroma Colors Remarks: saturated soil with ponded water in pockets Hydrophytic Vegetation Present? Yes No Wetland Hydrology Present? Yes Hydric Soils Present? Yes Remarks: Iarge freshwater marsh system along UT to Neuse Formation	

1	DATA FORM - ROUTINE WETLAN	D DETERMINATION
- [Project/Site: Milburnie Park Site	- Date: <u>September 21, 2006</u> County <u>Wake</u>
	Applicant/Owner: City of Kaleign	- State: NC
	Do Normal Circumstances exist on the site? Yes No	Community ID: WA
	Is the site significantly disturbed (Atvpical Situation)? Yes No	Transect ID: WA-09
	Is this area a potential Problem Area? Yes No	Plot ID: upland
VEGETATION	Is this area a potential Problem Area? Yes No Dominant Plant Species Stratum Indicator I 1. Arundinaria gigantea Herb FACW 9. 2. Quercus phellos Canopy FACW- 10. 3. Liquidabar styraciflua Subcanopy FAC+ 11. 4. Quercus nigra Canopy FAC 12. 5. Smilax spp. Vine - 13. 6. Vitis rotundifolia Vine FAC 14. 7. Lonicera japonica Vine FAC- 15. 8.	Plot ID: upland Dominant Plant Species Stratum Indicator
HYDROLOGY	Stream, Lake, or tide Gauge Aerial Photographs Other X_No Recorded Data Available Field Observations: Depth of Surface Water: (in.) Depth to Free Water in Pit: >12 (in.) Depth to Saturated Soil: >12 soil crumbles with no evidence of water observed within up,	Inundated Saturated in Upper 12 Inches Water Marks Drift Lines Sediment Deposits Drainage Patterns in Wetlands Secondary Indicators (2 or more required): Oxidized Root Channels in Upper 12 Inches Water-Stained Leaves Local Soil Survey Data FAC-Neutral Test Other (Explain in Remarks) per 12" of soil profile
SOILS	Map Unit Name (Series & Phase Louisburg loamy sand, 6-10% slopes Taxonomy (Subgroup) Ruptic-Ultic Dystrochrepts Depth Matrix Color Mottle Colors (inches) Horizon (Munsell Moist) (Munsell Moist) 0-5 A 10YR 5/3 - 5-12 B 2.5Y 4/3 -	Drainage Class: Somewhat Excessively Drained Confirm Mapped Type? Yes No Mottle Texture, Concretions, <u>Abundance/Contrast</u> - - - - - - - - - - - - -
HYDRIC INDICATORS	Histosol Histic Epipedon Sulfidic Odor Aquic Moisture Regime Reducing Conditions Gleyed or Low-Chroma Colors no evidence of hydric soils observed	Concretions High Organic Content in Surface Layer in Sandy Soils Organic Streaking in Sandy Soils Listed on Local Hydric Soils List Listed on National Hydric Soils List Other (Explain in Remarks)
	Hydrophytic Vegetation Present? Wetland Hydrology Present? Hydric Soils Present? Remarks: sampling point is approximately 15 feet upslope from flag	s Sampling Point Within a Wetland? Yes No

WETLAND RATING WORKSHEET (4th VERSION)

Project Name: <u>Milburnie Park Site</u> Nearest Road: <u>Raleigh Beach Road</u> Wetland Area (ac): Name of Evaluator(s): <u>L Riddick, K</u>	Duerr	County. Date: Wetland Width (ft): Wetland ID:	Wake 9/21/2006 >100 feet WA	
WETLAND LOCATION: on sound or estuary, pond or lake on perennial stream on intermittent stream within interstream divide other		ADJACENT LAND USE (within 1/2 mile upstream, X forested/natural veg X agricultural/ urbaniz impervious surface Adjacent Special Natural A	: upslope or radius) etation zed Areas 60 % % % %	
SOILS: Soil Series: Louisburg loamy sampredominantly organic (humus, model) X predominantly mineral (non-sand) predominantly sandy predominantly sandy	I Zizania aquatica 2 Polygomum hydropi 3	TION: per		
X freshwater X semipermanently to permenently flooded or inundated image: brackish steep topography intermittently flooded or temporary surface water image: ditched or channelized intermittently flooded or temporary surface water image: ditched or channelized intermittently flooded or surface water image: ditched or channelized intermittently flooded or surface water				
Bottomland Hardwood Forest Bog/Fen Swamp Forest Headwater Forest Carolina Bay Bog Forest Pocosin Ephemeral Wetland Pine Savannah Other: X Freshwater Marsh * The rating system cannot be applied to salt and brackish marshes or stream channels.				
DEM RATING			72	
WATER STORAGE		X 4.00 =	12	
BANK, SHORELINE STABILIZATION		X 4.00 =	16	
POLLUTANT REMOVAL	4 *	X 5.00 =	20	
WILDLIFE HABITAT	4	X 2.00 =	8	
AQUATIC LIFE	2	X 4.00 =	8	
RECREATION/EDUCATION	5	X 1.00 =	5	
	TOT	AL WETLAND SCORE =	69	

* Add one point if in sensitive watershed and >10% nonpoint disturbance within 1/2 mile upstream, upslope, or radius.

	DATA FORM - ROUTINE WETLAN	D DETERMINATION
	Project/Site: Milburnie Park Site Applicant/Owner: City of Raleigh Investigator(s): L Riddick, K Duerr Do Normal Circumstances exist on the site? Yes Is the site significantly disturbed (Atypical Situation)? Yes Is this area a potential Problem Area? Yes	Date:September 21, 2006County:WakeState:NCCommunity ID:WBTransect ID:WB-02Plot ID:wetland
VEGETATION	Dominant Plant SpeciesStratumIndicatorI1.Impatiens capensisHerbFACW9.2.Smilax rotundifoliaVineFAC10.3.Acer rubrumCanopyFAC11.4.Saururus cernuusHerbOBL12.5.Microstegium vimineumHerbFAC+13.6.Alnus serrulataShrubFACW+14.7.Liriodendron tulipiferaCanopyFAC15.8.Magnolia virginianaShrubFACW+16.Percent of Dominant Species that are OBL, FACW, or FAC (excluding FA Remarks:vines nearly absenthydrophytic vegetation dominates	Dominant Plant Species Stratum Indicator
HYDROLOGY	Recorded Data (Describe in Remarks) H Stream, Lake, or tide Gauge Aerial Photographs Other Other X_No Recorded Data Available Stream, Lake, or tide Gauge Field Observations: O-3(in.) Depth of Surface Water: 0-3(in.) Depth to Free Water in Pit: 8(in.) Depth to Saturated Soil:	Primary Indicators: X Inundated X Saturated in Upper 12 Inches Water Marks Drift Lines Sediment Deposits Drainage Patterns in Wetlands Secondary Indicators (2 or more required): Oxidized Root Channels in Upper 12 Inches Water-Stained Leaves Local Soil Survey Data FAC-Neutral Test Other (Explain in Remarks)
SOILS	Map Unit Name (Series & Phase Appling sandy loam, 6-10% slopes, erode Taxonomy (Subgroup) Taxonomy (Subgroup) Typic Hapludults Depth Matrix Color (inches) Horizon 0-4 A 10YR 2/2 - 4-12 B 10YR 4/1 - -	ed Drainage Class: Well Drained Confirm Mapped Type? Yes No Mottle Texture, Concretions, <u>Abundance/Contrast</u> <u>Structure, etc.</u> - sandy loam - loamy sand
HYDRIC INDICATORS	Histosol Histic Epipedon X Sulfidic Odor Aquic Moisture Regime Reducing Conditions X Gleyed or Low-Chroma Colors Remarks: sandy, low-chroma soils with sulfidic odor	Concretions High Organic Content in Surface Layer in Sandy Soils Organic Streaking in Sandy Soils Listed on Local Hydric Soils List Listed on National Hydric Soils List Other (Explain in Remarks)
	Hydrophytic Vegetation Present? Wetland Hydrology Present? Hydric Soils Present? Remarks: sampling point is located approximately 10 feet downslope	s Sampling Point Within a Wetland? Yes No

	DATA FORM - ROUTINE WI	ETLAN	D DETERMINATION			
Г	Project/Site: Milburnie Park Site		Date:	September 21, 2006		
- 1	Applicant/Owner: City of Raleigh		- County -	NC		
	Do Normal Circumstances exist on the site? Ves	No	- Community ID:	WB		
- 1	Is the site significantly disturbed (Atypical Situation)? Yes	No	Transect ID:	WB-02		
- 1	Is the site significantly distanced (http://www.site.site.site.site.site.site.site.site	No	Plot ID:	upland		
	Dominant Plant Species Stratum Indicator	9	Dominant Plant Species Strat	um Indicator		
- 1	2 Ligustrum sinense Shrub FAC	10				
	3. Liriodendron tulipifera Canopy FAC	11				
	4. Vitis rotundifolia Vine FAC	12				
ΞI	5. <u>Rubus argutus</u> <u>Herb</u> <u>FACU+</u>	13				
E	6. Liquidabar styraciflua Shrub PAC+	14 -				
T	8 <u>Elquidabar siyracıjuda</u> <u>Cunopy</u> <u>1410</u>	16				
8	· · · · · · · · · · · · · · · · · · ·					
E.	Percent of Dominant Species that are OBL, FACW, or FAC (exch	uding FA	AC-).	71%		
	Remarks: dry slope grading towards wetland					
	P 1 P ((D) it is Demedia)		Primary Indicators			
	Stream Lake or tide Gauge]	Inundated			
	Aerial Photographs		Saturated in Upper 12	Inches		
	Other		Water Marks			
	X No Recorded Data Available		Drift Lines			
			Sediment Deposits	T (1 1		
5	Field Observations:		Drainage Patterns in W	(etiands		
121			Ovidized Poot Channel	ls in Upper 12 Inches		
Ξ	Depth of Surface Water: (III.)		Water-Stained Leaves	Is in oppor 12 monos		
l ä l	Death to Free Water in Pit: >12 (in)					
End Depth to Face watch in FAC Depth to Saturated Soil: >12 (in.) FAC-Neutral Test Other (Explain in Remarks)						
	no hydrologic indicators observed					
	Map Unit Name (Series & Phase Appling sandy loam, 6-10% slop	pes, erod	led Drainage Class: Well Dr	vained		
	Taxonomy (Subgroup) Typic Hapludults		Confirm Mapped Type?	Texture Concretions		
	Depth Matrix Color Mottle Colo (inches) Horizon (Munsell Moist) (Munsell Mo	oist)	Abundance/Contrast	Structure, etc.		
	$\frac{(\text{inches})}{0-3}$ $\frac{(\text{inches})}{A}$ $\frac{(\text{inches})}{10YR} \frac{(\text{inches})}{4/5}$ -	0131)	-	loam		
E	<u>3-12</u> <u>B</u> 10YR 5/4 -			loam		
l õ						
3	Histosol		Concretions	ce Lover in Sandy Soils		
1 g	Histic Epipedon		High Organic Content in Surla	vils		
E	Aquic Moisture Regime		Listed on Local Hydric Soils L	ist		
[C]	Reducing Conditions		Listed on National Hydric Soil	ls List		
B	Gleyed or Low-Chroma Colors		Other (Explain in Remarks)			
	Remarks:					
ĬŽ	soil is very dry and crumbles out of the auger bit					
E						
	Hydrophytic Vegetation Present? Yes No					
	Wetland Hydrology Present? Yes No	To the	is Sampling Point Within a We	tland? Yes No		
	Pemarks:	15 11	is bamping i one whill a we			
	sampling point is located approximately 10 feet u	ipslope fi	rom flag			
			. –			

WETLAND RATING WORKSHEET (4th VERSION)

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Project Name: <u>Milburnie Park Site</u> Nearest Road: <u>Raleigh Beach Road</u> Wetland Area (ac): <u>~1 acre</u> Name of Evaluator(s): <u>L Riddick, K Duerr</u>	County:WakeDate: $9/21/2006$ Wetland Width (ft): $\sim 100 \text{ feet}$ Wetland ID: WB
wetland Location: on sound or estuary, pond or lake x on perennial stream on intermittent stream within interstream divide other	ADJACENT LAND USE: (within 1/2 mile upstream, upslope or radius) X forested/natural vegetation agricultural/ urbanized 90 impervious surface % Adjacent Special Natural Areas
SOILS: Soil Series: Appling sandy loam predominantly organic (humus, muck or per predominantly mineral (non-sandy) predominantly sandy	DOMINANT VEGETATION: 1 Impatiens capensis 2 Acer rubrum 3 Saururus cernuus 4 Microstegium vimineum
X freshwater brackish steep topography ditched or channelized total wetland width >= 100 feet WETLAND TYPE: (select one)*	FLOODING AND WETNESS: semipermanently to permenently flooded or inundated seasonally flooded or inundated intermittently flooded or temporary surface water no evidence of flooding or surface water
X Bottomland Hardwood Forest Swamp Forest	Bog/Fen Headwater Forest Bog Forest Ephemeral Wetland Other: rackish marshes or stream channels.
DEM RATING	X = 12
BANK SHOREI INE STARII IZATION	X 4.00 = 12
POLLUTANT REMOVAL 5	* X 5.00 = 25
WILDLIFE HABITAT 3	X 2.00 = 6
AQUATIC LIFE 2	X 4.00 = <u>8</u>
RECREATION/EDUCATION 1	X 1.00 = <u>1</u>
	TOTAL WETLAND SCORE = 64

* Add one point if in sensitive watershed and >10% nonpoint disturbance within 1/2 mile upstream, upslope, or radius,

	DATA FORM - ROUTINE WET	LAND DETERMINATION
Г	Project/Site: Milburnie Park Site	Date: September 22, 2006
	Applicant/Owner: City of Raleigh	County: Wake
- 1	Investigator(s): L Riddick, H Bain	State: NC
- 1	Do Normal Circumstances exist on the site? Yes	Transact ID: WC
	Is the site significantly disturbed (Atypical Situation)? Yes	De Diet ID: watland
	Is this area a potential Problem Area? Yes	Deminent Plant Species Stratum Indicator
	Dominant Plant Species Stratum Indicator	Dominant Plant Species Stratum indicator
	1. Saururus cernuus <u>Herb</u> <u>OBL</u>	0
	3 Polygonum pensylvanicum Herb FACW	1.
_	4 Ligustrum sinense Shrub FAC	2.
8	5. Microstegium vimineum Herb FAC+ 1	3.
ΞI	6. Acer rubrum Canopy FAC 1	4
X	7. Fraxinus pennsylvanicum Canopy FACW	5
A	8	0
	Percent of Dominant Species that are OBL FACW or FAC (evoludi	ng FAC-) 100%
5	Remarks: depression located between Neuse River levee and sew	er line
	with stormwater channels draining into the wet	land
	Recorded Data (Describe in Remarks)	Primary Indicators:
	Stream, Lake, or tide Gauge	Inundated
	Aerial Photographs	X Saturated in Opper 12 Inches
	Other	Water Marks
	X No Recorded Data Available	Drift Lines
		V Drainage Patterns in Wetlands
0	Field Observations:	Secondary Indicators (2 or more required)
131	Donth of Surface Water: (in)	X Oxidized Root Channels in Upper 12 Inches
9		X Water-Stained Leaves
1 ä l	Depth to Free Water in Pit >12 (in.)	Local Soil Survey Data
		X FAC-Neutral Test
	Depth to Saturated Soil: 1 (in)	Other (Explain in Remarks)
	Remarks	
	ORC's at 7-12" below soil surface	
		Drainaga Class: Poorty Drainad
	Map Unit Name (Series & Phase Wendakee and Bibb soils	Confirm Manned Type? Ves No
	Taxonomy (Subgroup "see Remarks section below	Mottle Texture Concretions
	(incher) Horizon (Munsell Moist) (Munsell Moist	Abundance/Contrast Structure, etc.
	$\frac{1101201}{0-2}$ A $10YR 3/2$ -	- clay loam
E E	<u></u>	- clay loam
0	7-12 B2 10YR 4/1 -	clay loam
1		
-	Histosol	Concretions
RS	Histic Epipedon	High Organic Content in Surface Layer in Sandy Soils
12	Sulfidic Odor	Organic Streaking in Sandy Soils
N.	Aquic Moisture Regime	Listed on Local Hydric Soils List
Ĭ	Reducing Conditions	Listed on National Hydric Soils List
I Z	\mathbf{X} Gleyed or Low-Chroma Colors	Other (Explain in Remarks)
0	Remarks.	rizon
1 Z	Taxonomy: Wehadkee - Fluventic Haplacuents: Bibl	- Typic Haplaquents
E	· · · · · · · · · · · · · · · · · · ·	
L #		
i	Hydrophytic Vegetation Present? Yes No	
	Wetland Hydrology Present? Yes No	
	Hydric Soils Present? Yes No	Is this Sampling Point Within a Wetland? Yes No
	Remarks:	
	levee forest along Neuse River	
	levee forest along Neuse River	
	levee forest along Neuse River	

	Project/Site: Milburnie Park Site Date: September 22, 2006 Applicant/Owner: City of Raleigh County: Wake Investigator(s): L Riddick, H Bain State: NC Do Normal Circumstances exist on the site? Yes No Community ID: WC Is the site significantly disturbed (Atypical Situation)? Yes No Transect ID: WC-01 Is this area a potential Problem Area? Yes No Plot ID: upland
GETATION	Dominant Plant SpeciesStratumIndicatorDominant Plant SpeciesStratumIndicator1.Ligustrum sinenseShrubFAC9.9.2.Carpinus carolinianaCanopyFAC10
VE	Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-). <u>00%</u> Remarks: located upslope of wetland depression
HYDROLOGY	Recorded Data (Describe in Remarks) Primary Indicators: Stream, Lake, or tide Gauge Inundated Aerial Photographs Saturated in Upper 12 Inches Other Water Marks Diff Lines Sediment Deposits Depth of Surface Water: - Depth to Free Water in Pit: >12 Depth to Saturated Soil: >12 No revidence of hydrology observed Other
SOILS	Map Unit Name (Series & Phase Wehadkee and Bibb soils Drainage Class: Poorly Drained Taxonomy (Subgroup *see remarks section below Confirm Mapped Type? Yes No Depth Matrix Color Mottle Colors Mottle Texture, Concretions, <u>(inches)</u> Horizon (Munsell Moist) (Munsell Moist) Abundance/Contrast Structure, etc. <u>0-4</u> A 10YR 4/3 - - Ioam <u>4-12</u> B 10YR 4/4 - - Ioam
HYDRIC INDICATORS	Histosol Concretions Histic Epipedon High Organic Content in Surface Layer in Sandy Soils Sulfidic Odor Organic Streaking in Sandy Soils Aquic Moisture Regime Listed on Local Hydric Soils List Reducing Conditions Listed on National Hydric Soils List Gleyed or Low-Chroma Colors Other (Explain in Remarks) soil is very dry and lacks low-chroma colors Other (Explain in Remarks) raxonomy: Wehadkee - Fluventic Haplaquepts; Bibb - Typic Haplaquents
	Hydrophytic Vegetation Present? Yes No Wetland Hydrology Present? Yes No Hydric Soils Present? Yes No Remarks: data point located upslope from wetland flag

DATA FORM - ROUTINE WETLAND DETERMINATION

WETLAND RATING WORKSHEET (4th VERSION)

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Project Name: Milburnie Park Site Nearest Road: Old Milburnie Road Wetland Area (ac): >I acre Name of Evaluator(s): L Riddick, H Bain		County: Date: Wetland Width (ft) Wetland ID:	Wake 9/22/2006 30-40 feet WC
wettland Location: on sound or estuary, pond or lake on perennial stream on intermittent stream within interstream divide other floodplain of Neuse River		ADJACENT LAND USE: (within 1/2 mile upstream, X forested/natural vege X agricultural/ urbaniz X impervious surface Adjacent Special Natural A	upslope or radius) etation ed <u>20</u> % <u>10</u> % Areas <i>Neuse River</i>
Soil Series: Wehadkee and Bibb soils predominantly organic (humus, muck of predominantly mineral (non-sandy) predominantly sandy HYDRAULIC FACTORS:	r peat)	DOMINANT VEGETAT 1 Saururus cernuus 2 Polygonum pensylva 3 Microstegium vimin 4 Acer rubrum FLOODING AND WETH	ION: inicum eum NESS:
X freshwater brackish steep topography ditched or channelized total wetland width >= 100 feet WETLAND TYPE: (select one)*		semipermanently to seasonally flooded o X intermittently floode no evidence of flood	permenently flooded or inundated r inundated ed or temporary surface water ling or surface water
X Bottomland Hardwood Forest Swamp Forest	Bog/I Head Bog I Ephe Other	Fen water Forest Forest meral Wetland :: marshes or stream channels.	
DEM RATING	,	X 4 00 =	4
BANK SHORELINE STABILIZATION 1		X 4.00 =	4
POLLUTANT REMOVAL 2	*	X 5.00 =	10
WILDLIFE HABITAT		X 2.00 =	4
AQUATIC LIFE 0		X 4.00 =	0
RECREATION/EDUCATION	TOT	X 1.00 = AL WETLAND SCORE =	0 22

* Add one point if in sensitive watershed and >10% nonpoint disturbance within 1/2 mile upstream, upslope, or radius.

Appendix D

Architectural Survey Forms

North Carolina Historic Structure Survey Form

(Write in blanks or circle options; number codes are for data entry only)

Survey Site No	1A 4330			(ike	
63. Potential Study Comment:	List: Individual	I	n a District	-	Quad Map <u>R</u> Q	leigh we	18
 Site name Location/Addres 	Id Rale ss East Di dam	igh-To ank of	Neuse	rd Dni Rever,	dae pie nouin a	of Mulbi	mie
4. Town/City/vicini	ty <u>Ralei</u>	gh	co lu	Dr. INE	USD TR, (Janow	<u> </u>
7. Field Recorder(s	5) <u>F. TUKO</u>	D-ar	ca inc	E Paul C	b. Date recorded	<u>10 10</u>	06
Synopsis of sign <u>AUGNM</u>	ificance: <u>Dr</u> ent	nage «	supports	THOMA	VELUMS	Ka.	
10. Owner name & A	Address					2	
13. Original use:	ndustrial		Other:				
Resid/non-Farm 0102	Resid/farm 0101	Farm Bldg. 0201	Church 1001	School 0301	Courthouse 0901	Post Office 0902	
Gen. Retail Store 501	Industrial 0681-0614	Textile 0607	Tobacco 0606	Transportation: 0801-0831	-		
14. Condition:	Excellent 01	Good 02	Fair 03	Deteriorated 04.	Altered 05	Comment	
HISTORICAL DATA	10	-					
52. Date of constru	uction:	actual; o	r	estimated: circle	below		
pre-1780 01	1781-1800 02	1801-25 03	1826-65 04	1866-85 05	1886-1915 06	1916-30 07	
1931-45 08	1946-70 09	1970-99 10	2000+ 11				
15. Cultural/Ethnic	a ssociations: African 07	English 01	German 05	Scots 02	Scots-Irish 04	Spanish 08	Other
16. Religious asso	ciation:	AME 13	AME Zion 12	Baptist 10	Primitive Bap. 18	Catholic 01	Episcopal 04
		Jewish 03	Lutheran 08	Moravian 07	Methodist 11	Presbyterian 05	Quaker 06
54. Significant per	sons associated	with property	/, last name first				
Туре	Name:	1. The second		Туре	Name:		
Туре	Name:			Туре	Name:		
Builder 01 Revised 2001	Architect 02	Contractor 03	Landscape des. 04	Orig. owner 05	Sig. later owner 06	Other imp perso 07	חס

ARCHITECTURAL DATA

24. Height in stories: _____

28. Basic construction materials:

Frame 12	Log 01	Brick 06	Stone 04	Steel 08	Piank 02	Concrete 11	Other:
21. General style(s):	(Other styles: see manual:)					
Georgian 1	Geo/Fed 2	Federal 3	Fed/Gk Rev 4	Gk Rev 5	Italianate 6	Goth Rev 7	
19-20th trad/vern 9	Queen Anne 11	Neocl Rev 12	Col Rev 13	Misc Vic 15	Std Comm/Ind 16	Beaux Arts 21	Tudor Rev 22
Span/Mission - 24/23	Bungalow 25	Craftsman 41	Shotgun 49	Foursquare 44	Rustic Rev 45	Art Deco 26	
Moderne 42	International 27	Ranch 35	Cape Cod 38	Prd Cottage 39	MinTradl 40	Split Level 43	
17. Notable archi	tectural features to	code:			Other:		
Flem bond walls 30:7	Flem bond chim 44:1	Dec	orickwork 31:1	Stone cut	Stone: field 30:35		
Orig shopfront 31:2	Metal storefront 31:3	Origina	al Signage 31:4	Glass/Metal 31:7	Terra Cotta 31:8		
Notable inter 50	rior woodwork):12	Decora 50	tive painting ::01-03	Engaged/ 3	inset porch 5:1	Notable porch 34:1	
22. Plan type:							
Houses:	1-room 22:1	Hall-parlor 22:2	3-room 22:4	Side-hall 22:6	Center-hall 22:7	Saddlebag 22:11	
	Dogtrot 22:10	Irregular 22:14	Square 22:17	Shotgun 22:18	Other 22:99		
Churches:	1-room 23:1	Mee	tinghouse 23:2	Aisled Nave 23:3	Cruciform 23:4	Auditorium 23:5	Akron 23:6
Barns and outbu	ildings:	1-crib 23:8	2-crib 23:9	4-crib 23:10	Transverse 23:11	Bank 23:12	Gambrel 23:13
51. Significant o	utbuildings and la	ndscape featu	ires				
Туре:	; material	; dat	e	Туре:	; material		date
Туре:	; material	; dat	e	Туре:	; material		date
Kitchen 1	Slavehouse 2	Garage 5	Tobacco barn 7	Barn 8	Smokehouse 10	Dairy 11	Crib 12
Landscap	pe/plantings 38	Well 24	Fence 27	Wall 28	Cemetery 33	Shed 20	
Pri∨y 23	Tenant House 53						

276 8

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Old Raleigh-Tarboro Road Bridge Piers/WA 4330 East bank of Neuse River, north of Milburnie Dam

On the west bank of the river north of the Milburnie dam are a pair of stone **bridge piers**. These piers appear to date from around the 1920s and would have supported the original alignment of main east/west road from Raleigh, now U.S. 64. Approximately ten feet in height and three feet across, the round piers are constructed of uncut stone and concrete mortar. The piers appear to align with an earthen embankment on the east side of the river, which appears to represent the former road bed.



Appendix E

Summary of North Carolina Cemetery Statutes

G.S. 65-74 and G.S. 65-75 discuss who may enter private property in order to investigate, visit, or maintain a private grave or an abandoned public cemetery: A descendant of the interred or any other person with a special interest in the site may do so. He or she must notify the landowner in writing of his or her intent and then may visit periodically dur- ing daylight hours only, with the landowner's ap- proval. If such approval cannot be obtained, the descendant may petition the clerk of superior court for an order allowing him or her access. After a special proceeding providing for notice and a hear- ing, the clerk may issue such an order, if deemed appropriate.	G.S. 70-29 through G.S. 70-33 give the procedure for notifying the proper authorities upon the discovery of unmarked remains : Anyone who discovers unmarked burials, or suspects that they are being disturbed, must notify the county medical examiner or the state archaeologist immediately. There is then a period of forty-eight hours to make arrangements for the protection or removal of the graves. The North Carolina Department of Cultural Resources may obtain administrative inspection warrants for the purpose of gathering additional in- formation as necessary.	 WHAT AGENCY ADMINISTERS THE NORTH CAROLINA CEMETERY SURVEY? The Division of Archives and History within the North Carolina Department of Cultural Resources is responsible for coordinating this program. It was begun in a few selected counties and has now expanded to include nearly all 100 of them. Each county sets up its own committee with a coordinator, and work is accomplished on a grassroots, voluntary basis, because state funds are presently unavailable. A state coordinator is employed by the Archives and Records Section to serve as a liaison between the State Archives and the county committees. The duties of the coordinator are: 1. Soliciting participation in the survey (by members of historical and genealogical societies, in particular) through speaking engagements, press releases, and corresting engagements.
 WHAT STATUTES PROTECT CEMETERIES? G.S. 14-148 and G.S. 14-149 outline the penalties for defacing and desecrating gravesites and for plowing over or covering up graves: Violation is a misdemeanor and a Class I felony respectively. The fine is up to \$500, and imprisonment is between sixty days and a year. Both penalties may result. G.S. 65-1 through G.S. 65-3 outline the duties of the county commissioners: They are required to keep a list of all abandoned public cemeteries on file with the register of deeds. A copy is also to be sent to the secretary of state's office. The county of state's office. The county of the county of state's office. The county of the secretary of state's office. The county of the county of state's office. The county of the county of state's office. The county of the county of state's office. The county of the secretary of state's office. The county of state's office. The county of the count	 commissioners are approximated to tare compared to tare compared to tare propriate whatever sums are deemed necessary for their upkeep. G.S. 65-7 through G.S. 65-11 describe the legal means for setting up a trust fund for the upkeep of a cemetery: Money in amounts between \$100 and \$10,000 may be deposited with the clerk of superior court as a perpetual trust fund for the maintenance of cemeteries. Trustees may be appointed by the clerk. G.S. 65-13 details the proper procedure for the control of canceling the proper procedure for the clerk. 	 removel of graves, including with the party moving the grave(s) must give at least thirty days, written notice to the next of kin, if known. Notice must also be published at least once a week for four successive weeks in a newspaper published in the county in which the proposed removal is to take place. Removal expense is incurred by the mover, with some expense (not over \$200) to be incurred by the next of kin. The removal is performed by a funeral director under the supervision of the county commissioners and the local health director. A certificate is then filed by the mover with the register of deeds. G.S. 65-37 through G.S. 65-40 authorize municipalities to assume control of any abandoned cemeteries within their boundaries: A municipality may appropriate, take possession of, and continue the use of certain lands as cemeteries. It is also authorized to use funds for improvement and maintenance.
 WHAT IS THE NORTH CAROLINA CEMETERY SURVEY? The North Carolina Cemetery Survey is a program for recording vital statistics from the state's condinated through the State Archives at the state level. The program's objectives are: 1. Identifying, mapping, and describing existing cemeteries in North Carolina regardless of size, type, or physical characteristics. Since vital statistics were not kept officially until 1913, the emphasis of the survey is on those graveyards with burials before that date. 	 Permanently preserving historical, genealogical, sociological, demographic, and cultural data contained in abandoned or otherwise not-cared- for cemeteries, including epitaphs and photographs whenever possible. Providing more recent and comprehensive survey data than that available in earlier cemetery surveys, such as the one conducted by the Works Progress Administration (WPA) in the 1930s and 1940s. WHY IS THE SURVEY NECESSARY? 	plight of the forgotten cemeteries that dot North Carolina's landscape. This concern resulted in the formation in 1978 of a legislative study committee (the Abandoned Cemeteries Study Committee) to look into the conditions of abandoned graveyards and to offer recommendations for their protection and preservation. To assess these conditions, the North Carolina Department of Cultural Resources coordinated an effort using private individuals and organizations to locate and record cemetery data at the county level. The findings of that assessment were reported to the General Assembly in 1981. As a result, the information-gathering program has con- tinued as the North Carolina Cemetery Survey, and the state's criminal and civil statutes pertaining to burial sites have been strengthened. They protect abandoned public graveyards from the threats pos- ed by urban development, agricultural activity, lumbering operations, vandalism, and neglect.

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Appendix F

Additional Archaeological Assessment of Milburnie East

ADDITIONAL ARCHAEOLOGICAL ASSESSMENT OF MILBURNIE EAST PARK SITE

TRC completed additional background studies and a field assessment of the proposed Milburnie East Park site on behalf of ARCADIS and the City of Raleigh. This study was conducted to gather additional information on the Milburnie East Park Cemetery (31WA1626) and newly recorded archaeological site 31WA1625 on the Milburnie East property, including background research on the cemetery, delineation of the cemetery boundary, and limited shovel testing of the archaeological site. These studies as defined will not satisfy any archaeological survey or evaluation requirements that may eventually be needed for regulatory compliance under the National Historic Preservation Act, but will be useful in completing a more comprehensive assessment should it become necessary.

METHODS

This project included additional background research concerning the cemetery on the Milburnie East tract. The background research included review of the available archaeological and historical literature concerning the tract, and was intended to provide further information on the history of the cemetery and historical resources found in the project area. In addition, Mr. Charles Silver and Mr. Grady Poole, local residents familiar with Wake County cemeteries and/or local history, were consulted as part of this project. The following data sources were examined:

- Deed records available at the Wake County Register of Deeds office;
- Historical records and research reports relating to the Hinton family and the Milburnie community available at the North Carolina State Archives and the North Carolina State Library;
- Historic cemetery records available on-line and at the North Carolina Department of Archives and History

Following the background research, Heather Olson and Matthew Paré of TRC visited the Milburnie East site on January 25–26 to conduct the cemetery delineation and shovel testing of the archaeological site. The cemetery fieldwork involved the systematic probing of the perimeter of the cemetery at one- to two-foot intervals with a steel-tipped probe to determine the approximate extent of graves in the area, and included pinflagging the determined and potential burials and flagging the approximate boundary of the cemetery limits. In addition, 26 shovel tests were excavated at 10- and 20-meter intervals in the northwestern portion of the tract in order to determine the approximate boundary of site 31WA1625. Numerous prehistoric and historic artifacts were recovered from the shovel tests, and all artifacts were returned to the TRC archaeological laboratory for cleaning and analysis. Architectural remains and general landscape features were documented through sketch maps, photographs, and field notes. In addition, Mr. Charles Silver (a Hinton family descendant) and Mr. Grady Poole (a life-long resident of the area) visited the site to provide their knowledge of Hinton family resources and their recollections of the area during the 20th century.

MILBURNIE EAST SITE

Setting

The Milburnie East site is situated on the east side of the Neuse River at the former community of Milburnie, about one-half mile north of US 64 east of Raleigh (Figure 1). The site is a 24-acre wooded tract bordering the east side of the river, and is accessed from Old Milburnie Road, which runs along the east side of the

property. Most of the area consists of steeply wooded slopes and an adjacent floodplain along the Neuse; the tract also contains an access road, parking area, and package sewage treatment plant. In addition, an electrical power line corridor cuts through the northern portion of the tract, while a recently-constructed sewer line runs north close to the river.

The Milburnie location is noted for the presence of one of the principal sets of falls on the Neuse, and was historically considered the first hydropower site of importance as one ascended the Neuse (Swain et al. 1999:121). Some researchers have considered Milburnie a potential location for the falls at "Wee quo Whom," which were visited by John Lawson in 1701 (Hargrove 1986:15; Lawson 1967:64). Whether or not that was the case, it is clear that the falls at Milburnie have been the focus of considerable early 19th through 20th century activity, as discussed below. Spanning both sides of the river at the dam site is a separate 9.25 acre tract that is currently owned by the Twiggs family, and which includes the Milburnie dam and mill seat that most recently functioned as a hydroelectric plant.

History

The Milburnie site is situated in St. Matthews Township, along the 19th to early 20th century route from Raleigh to Tarboro and points east. The area is within land first owned by Colonel John Hinton, who acquired land along the Neuse "beginning some distance above Milburnie and extending far into Johnston County" (Hinton 1915). Hinton erected two successive houses on his property, a small log house and a frame building featuring chimneys and piers of square bricks, which was later known as the "Square Brick House" (Hinton 1915). Mr. Charles Silver, a Hinton descendant, recalls that the Square Brick House was believed to be on the east side of the river, south of the current project area close to the mouth of Mingus Creek (Hinton 2007:personal communication).

Major John Hinton, son of Colonel John Hinton, inherited a large portion of his father's land, including the project area. Colonel John Hinton's 1784 will gave his son John Hinton "all the lands lying above Farmers Creek," while his manor plantation (Square Brick House) went to his sons Kimbrough and David (Hinton 1784) (based on land descriptions, Farmer's Creek is in the general area; possibly below Peachtree Creek on the east side of the Neuse River). Major John Hinton built his home—Clay-Hill-on-the-Neuse—east of the river, a short distance south and east of Milburnie. The current project area would have been part of the Clay-Hill-on-the-Neuse plantation lands. That home and its setting were described by his descendant Mary Hilliard Hinton in 1903:

As one journeys east from the capital of North Carolina over the Tarborough road, he sees on the right, after crossing the Neuse River, a quaint colonial house standing high on a hill clearly outlined against the southern sky... This is "Clay Hill," the home of Major John Hinton of the Revolution... What a contrast to the valley below, where progress and invention have left their stamp! There a modern iron bridge spans the Neuse, and the quiet is broken by the mighty rush of water over the dam, the buzz, ever constant, of an up-to-date electric plant, the puffing of a gasoline launch, and the occasional passing of an automobile [Hinton 1903].

Baumbach (2000) reports that Clay-Hill-on-the-Neuse remained in the Hinton family, and was owned by "J. Mordecai" and members of the Mordecai family (Hinton descendants) in the late 19th century (the notation "J. Mordecai dec'd." is on both Bevers' 1871 map of Wake County and Shaffer's 1887 map of Wake County) (Figures 2 and 3). Mr. Charles Silver, Hinton descendant, reported that Clay-Hill-on-the-Neuse burned down

around 1922, and that the remains of the house were destroyed when US 64 was constructed (Mr. Grady Poole mentioned that the house stood "in the eastbound lane of Route 64" close to its intersection with Old Milburnie Road).

The shoals at Milburnie apparently attracted development shortly after the area was settled. The 1808 Price-Strother map (Figure 4) shows a bridge crossing at this location (next to the legend "Hinton"), and the subsequent McRae-Brazier map (1833; Figure 5) depicts the road and "Hinton's B. [Bridge]." The Hintons may have operated a mill at the site as early as 1813 (Elizabeth Reid Murray Collection, People, Box 322). Major John Hinton's 1818 Will refers to a mill dam, which he mentions "I am now erecting on said river at the Falls above the bridge" (Hinton 1818). The Falls referred to in his Will is most likely the one present at Milburnie, and not the falls at Falls of the Neuse located several miles farther up the river. This is further supported by Hinton's description of the surrounding land (that it lies south of Peachtree Branch, and that the property encompasses a portion of the Tarboro Road). Hinton apparently willed the Clay-Hill-on-the-Neuse plantation to his unmarried daughter Elizabeth (referred to in the family as "Aunt Betsey") and his son John Hinton Jr. (Hinton 1818), although Elizabeth apparently lived at the plantation along with a number of slaves (see below) and ran the plantation (Baumbach 2000). John Hinton Jr.'s 1843 will mentions that his sister Elizabeth was living on a tract of land belonging to him "on the east side of Neuse River" and that in the event of her death it was to be sold and the proceeds divided between all of his children (Hinton 1843).

At this time, not much is known about Elizabeth Hinton other than that she remained unmarried and ran the Clay-Hill-on-the-Neuse plantation. Elizabeth Hinton was born as early as 1769 (possibly later, based on census records) and died in 1865. U.S. Federal Census records show that at least two Elizabeth Hintons lived in the area during the 19th century, one born in the late 18th century (presumably the Clay-Hill Elizabeth), the other in the first decade of the 19th century (she appears to have been married to a Hinton). The older Elizabeth Hinton is listed as a slave owner in the 1830–1860 Federal Census records, having owned 22 slaves in 1830, 33 in 1840, 29 in 1850, and 34 in 1860 (USBC 1830, 1840, 1850, 1860). Her real estate in 1850 was valued at \$6,000 and at \$12,000 in 1860 (in addition, her personal estate was valued at \$25,000 in 1860).

The first well-documented mill at Milburnie was a paper mill known as Milburnie Mills or Neuse Mills, which began operation at the site in 1855. The mill was later purchased by the Neuse Manufacturing Company, and in 1860 had 19 male and 12 female employees and an annual output of 520,000 pounds of paper. The 1860 Federal Census lists at least 40 people living at or near the Milburnie Post Office, including a blacksmith, two engineers, three rag pickers, a paper maker, a paper finisher, a fireman, a merchant, a watchman, a laborer, and a farm laborer along with other family members (USBC 1860). Only two of the heads of household—B.R. Carpenter (fireman) and Jordan Williams (merchant)—are listed as owning real estate property. The remainder presumably rented houses or may have lived in company-provided living guarters. An unknown number of enslaved or free African Americans may have lived in the area as well. Cornelius Bryant Edwards—later owner of the large Raleigh printing company Edwards & Broughton began working in the Milburnie paper mill when he was a boy, and lived in the area in at least the late 1910s (Chamblee 2007; Edwards 1919). Murray (1983:282) mentions that a printing establishment was said to have existed at Milburnie as well, but at the time of her writing she could find only a single reference to the business (Powell 1968:323). Recently, however, other references have been found, and it appears that at least one of the early religious journals, The Primitive Baptist, was published at Milburnie in at least the late 1850s (ca. 1858–1859) with N.W. Poole listed as the publisher (North Carolina Historical Review 1924:253; North Carolina State Literary and Historical Association 1969:25). N.W. Poole is listed as a printer in the

1860 Federal Census in the Rolesville area of eastern Wake County, living in the household of James A. Temple, publisher (Temple's father, the Reverend Burwell Temple, was the editor of the Primitive Baptist journal) (USBC 1860; Murray 1983:331).

The mill reportedly supplied many North Carolina newspapers with paper, and had a standing order for all the newsprint it could make for the New York Times (Edwards 1919; Murray 1983:282). Newspaper advertisements in the *Semi-Weekly Raleigh Register* from 1861 confirm that the mill was buying rags and producing paper during that period (*Semi-Weekly Raleigh Register* 1861), and the mill continued in operation throughout the Civil War. According to an advertisement in the *North Carolina Standard* from 1862, the company was offering cash for rags and paper, and offering for sale "Cartridge Paper, Cotton Wrappers and Cotton Wrapping" (*North Carolina Standard* 9 July 1862). In 1863, then-owner of the mill, H. Hasted (also written as "Husted"), wrote a letter to the Confederate government questioning whether, contrary to general belief, he would get paid in a timely fashion if he undertook to supply them with paper, diplomatically mentioning the "circumlocutory operation of their accounts" (Morgan 2004).

According to Lieutenant C.B. Denson of North Carolina's Company A Second Engineer Troops, the bridge at Milburnie had been destroyed by flooding prior to Johnson's retreat (Clark 1901). In early April of 1865, Denson's troops were ordered to build a bridge at Milburnie in order to allow troops across:

Every bridge on the Neuse had been carried away by the repeated freshets. The company [Company A Second Engineer Troops] was ordered to Milburnie to build a substantial bridge upon cribs filled with stone for the passage of Johnston's artillery and trains. This work was pushed night and day, and when nearly finished was left with the command under temporary charge of Captain Sweetman, an artillery officer who had some experience in engineering.... But at this moment, the army was put in full retreat, the bridge being finished on Sunday, 9 April, when the head of the column was only seven miles distant [Clark 1901].

Sherman's troops caught up to the Confederates a few days later, and apparently prevented the bridge from being destroyed by the Confederate troops (see below). The mill was reportedly burned by the Union troops as they moved west through the area on their way to Raleigh (Murray 1983:514). Edwards (1919) reported that an officer of Sherman's army set fire to the mill and destroyed the buildings and machinery (he reported that the officer was later "punished by General Schofield" for the act). According to Edwards (1919), "the mill and machinery must have cost \$200,000 when built...the loss was total and was felt sorely by some who had invested largely in the enterprise." Several surviving accounts by Union soldiers who marched on Raleigh in April of 1865 mention the site:

On the 13th, starting at 5:15 o'clock a.m., the regiment marched sixteen miles, and went into camp, at 3:30 o'clock p.m., near Hilton's Bridge, or Neuse Mills. The day was fine, and the roads were good. The country was undulating and as fine as any we had seen in the South [Dunbar 1898]

The 15th Corps, on April 13th, moved to and across the Neuse River at Hinton's Bridge and encamped ten miles east of Raleigh. The bridge was saved from destruction by the enemy's [Confederate] cavalry by a charge of the 29th Mounted Missouri while the enemy was attempting to destroy it [Johnson 2004].

A Union Army map compiled to accompany the Official Records of the War of the Rebellion (Davis et al. 1891–1895; Plate 138; Figure 6) shows Hinton's Bridge at the site, along with a structure labeled "Neuse Mills" situated south of the road on the west side of the river.

The paper mill was never rebuilt, but a grist mill and a saw mill were apparently constructed at the site sometime after the Civil War. Those buildings apparently operated until about the 1880; writing in 1885, George F. Swain (1885) reportedly stated:

The paper mill, long since burned, had stood on the west bank, and the grist and sawmill building, unused for about five years, still stood on the east bank, but that the dam had been washed away (Swain 1885:53, cited in Hargrove 1986:30).

Swain also stated that mill's dam:

was said to have caused much trouble by overflow, and so much sickness in the vicinity, that the property was purchased by the neighbors and the mill torn down (Swain 1885:52, cited in Hargrove 1986:21).

Swain gave a fuller, but somewhat different account, in 1899:

The next site, and the first one of importance, is at Milburny or Neuse mills, about 25 miles above Smithfield and 6 or 7 miles from Raleigh, formerly improved, but at present idle. There is an open frame dam across the river, 8 feet high and 250 feet long, built on the site of the old dam which was constructed years ago in connection with the old paper-mill. The fall is 11 1/2 feet at the site of the old mill, developing about 300 horsepower at mean low water. At the present time this power is not utilized except for running a dilapidated grist-mill which requires about 15 horsepower. It is evident that the natural fall here is not very pronounced, and it seems strange that there is no large fall on the river below this point. It is probable, moreover, that power might be got below by damming, but it is said that there are no favorable places where a dam could be built without trouble by overflowing land above. At Milburny the bed is solid rock, very favorable for a dam, and the race had to be blasted out. The banks are abrupt on the right, but not so much so on the left, and the location is said to be a safe one. The power was formerly used by a paper-mill on the left bank [east] and a grist- and saw-mill on the other [west], the fall utilized being 12 1/2 feet; but the paper-mill was burnt. It is expected, however, that the power will be again utilized in a short time [Swain et al. 1899:121–122].

Although the earlier primary source (Swain 1885) has not been examined for this study, the two accounts appear to give conflicting locations for the mills. The 1885 account indicates that the paper mill was on the west bank, which matches the map depiction, while the 1899 account states that it was on the left (or east) bank, which is in fact the more gradual bank. Edwards (1919) also places the mill on the east bank, writing "this mill stood on the eastern bank of the river just below the end of the present bridge and dam." Unfortunately, none of the Civil War-era accounts specify on which side of the river the paper mill was located. The area on the east bank below the dam did reveal the presence of an elevated but flat, leveled surface with hand-made bricks eroding out of the southern side. It is possible that this may have been the site of the paper mill, with the 1860s–1870s grist and saw mills possibly on the west bank. The 1871 Bevers map (see Figure 2) shows a dam and mill pond on the Neuse at Milburnie, but suggests that they were situated some distance north of the road; a possible structure is shown on the west bank of the river south of the dam. The 1887 Shaffer map likewise shows a structure on the west bank of the river; however, it also shows a symbol for a "voting place" marked "Milburnie" on the east side (see Figure 3). The exactly layout of the Milburnie community (including such structures as the "voting place" and/or post office, among others) is unknown at this time. Further research and field investigation may shed light on these questions.

The next development of the site occurred around 1899, when E.C. Hillyer of the Raleigh Ice and Electric Company began construction of a hydroelectric plant and a new stone dam across the river. At the time, Swain et al. (1899:121–122) reported, there was an open frame dam across the river "8 feet high and 250 feet long, built on the site of the old dam which was constructed years ago in connection with the old paper-mill." Swain et al. (1899:122) continued by stating that "it is expected...that the power will be again utilized in a short time," indicating that plans for the hydroelectric plant were likely under way. The plant was completed in 1903 and was intended to produce 100 to 150 horsepower, which would be supplemented when necessary by the company's steam plant in Raleigh. By 1911, the Milburnie hydroelectric plant was listed as one of the two sources of electric power for the city of Raleigh (The Encyclopaedia Britannica Company 1911:871). The Raleigh Ice and Electric Company leased the plant to the Raleigh Electric Company later in 1903, which operated it until it was shut down in July 1913. The plant was bought by Carolina Power & Light (CP&L) in 1916 as part of their consolidation of the state's hydroelectric facilities, and dismantled in 1918 (Lally 1994:276; Riley 1958:32–33, 87). According to a 1981 letter by Howard Twiggs, who was planning to redevelop the site as a hydroelectric facility:

By 1929, all equipment had been removed from the site and sold as scrap. In 1934, the site was sold to my father, who operated a grist mill there from 1934 until the early 1940s, at which time the mill was shut down. The mill building, which was the old power house, has burned and the only thing remaining is mill stones, mill pulleys, and the brick walls.

A Certificate of Public Convenience and Necessity for operation of a hydroelectric generating facility at the site was issued by the Site of North Carolina Utilities Commission in 1984, but the plant is no longer in operation.

Apart from the data on the various mills and dams present at the site, relatively little information is available on the Milburnie community. A post office was present at "Milbernie" as early as 1858, and operated intermittently under that name and that of "Milburnie" until 1892, when the post office name was changed to "Pett." The Pett post office operated until 1902, when it was closed (Stroupe 1996). Milburnie is known to have been a popular picnic spot as early as the 1860s (Murray 1983:580), however, and one such event was a German Peace Jubilee held there by German-speaking local residents in 1871 (Murray 1983:662). In his article How Milburnie Came In One Vote of Being Capitol, C.B. Edwards (1919) noted that during the years that the paper mill ran, "there lived there quite a community of happy people." By the publication of his article, however, Edwards (1919) noted that of all the people who lived at Milburnie, only two were left himself, and the Scotsman Thomas Chalmers, the former paper finisher at the mill. Thomas Chambers born in Scotland ca. 1836—is listed in the 1860 Federal Census as the Paper Finisher at Milburnie (USBC 1860). He also appears as "Thomas Chalmers" in the 1910 Census records, listed as a "Cotton Picker" (USBC 1910). According to Edwards (1919), most of the Milburnie land at that time was owned by Dr. James R. Rogers, owner of the Hygeia Creamery and stock farm.

No detailed maps of the Milburnie community in the early 1900s have been located. The 1914 soils map (Figure 7) is difficult to read, but shows the road crossing the river at the site and one or more apparent mill ponds on a drainage to the east (which apparently corresponds to the existing Milburnie Lake). The Tarborough Road through Milburnie probably continued to be the main route out of Raleigh to the east until the 1920s or 1930s, when it was replaced by a new road along the present route of US 64, as shown on a 1944 Wake County map (Figure 18).

Deed Research

Research in the Registrar of Deeds office for Wake County found that the property has been owned by the City of Raleigh since 1990 (Wake County Deed Book 4798:450). The property was purchased from Eastman Development Company in 1990, who had bought this property in 1984 along with large tracts to the north (this land was later developed into the Beachwood subdivision) from Howard F. Twiggs and Carolyn T. Fox (probably Howard's sister) (Wake County Deed Book 3397:628). Today, Howard F. Twiggs and Carolyn T. Fox retain ownership of the dam along with one acre of attached land on the east side of the river, and 8.25 acres of attached land on the west side of the river, having sold the remainder to Eastman Development Company (Wake County Deed Book 1450:30). They acquired the entire property from Ruth F. Twiggs in 1961, who had purchased the property with her husband, S.W. Twiggs, from Carolina Power and Light Company [CP&L] in 1934 (Wake County Deed Books 1450:30, 678:339). S.W. and Ruth Twiggs acquired the dam and associated buildings from CP&L in this transaction, but with the stipulation that "neither the aforesaid lands or the water rights or water power thereon shall at any time be used in any manner for the purposes of generating electric power and energy for sale or distribution within the State of North Carolina, during the period of sixty (60) years next after the date of this deed" (Wake County Deed Book 678:339). The Twiggs' did use the old powerhouse as their gristmill from 1934 to the early 1940s (Twiggs 1981).

Currently, at least three easements exist on the property. CP&L purchased the electrical power line right-ofway from S.W. and Ruth F. Twiggs in 1948, with its presumed construction shortly after that date (Wake County Deed Book 956:150, see also 1986 correction of deed and sketch map of power line right-of-way in Wake County Deed Book 3346:238). No mention of a cemetery was made in either the 1948 or the 1986 deeds, or in any other deed examined for this project. The small, older sewer line which runs south through the archaeological site appears to have been built after 1984 when the Eastman Development Company began construction of its Beachwood subdivision. A deed dated 1986 conveyed the "entire sewer collection and treatment system" from the Eastman Development Company to CAC Utilities, Inc., thereby creating a sewer easement on the property (the 1990 deed to the City of Raleigh was subject to this deed of easement) (Wake County Deed Book 3899:138). The large-scale sewer line that runs close to the river was constructed within the last year or two.

CP&L purchased the hydroelectric plant and surrounding lands from the Raleigh Ice and Electric Company in 1916 (Wake County Deed Book 307:497). The land had been deeded to Raleigh Ice and Electric Company by T.L. Eberhardt in 1900 (Wake county Deed Book 158:398). T.L. Eberhardt had purchased the property in 1899 from W.M. Russ, Commissioner of the Wake County Court as part of the settlement of a lawsuit between the executor of Bennett Smeeds' estate and Joseph A. Haywood and others (Haywood was the president of the Neuse Manufacturing Company at that time). The 1899 deed identifies the property as "including the mill site, buildings, dam casements and other property hereon known as the property of the Neuse Manufacturing Company" (Wake County Deed Book 154:415). Eberhardt was in some way associated with the Raleigh Ice and Electric Company—the 1900 deed included a parcel of land in downtown Raleigh known as the "T.L. Eberhardt Ice Factory" (Wake County Deed Book 158:398). Although incorporation records for the Raleigh Ice and Electric Company could not be located during this research, it seems likely that Eberhardt either reorganized or sold off his own business, having sold the land to his new corporate identity.
The land transactions prior to 1900 have been difficult to follow. It appears that the Neuse Manufacturing Company owned most of the current project area during the company's existence, having bought parts of their land from a number of individuals, including at least two Hinton descendants. In 1854, Elizabeth Hinton sold five acres "beginning on the backwater ponds of Peach Tree branch" to the Neuse Manufacturing Company (unfortunately, the deed does not name the owner or representative for the Neuse Manufacturing Company) (Wake County Deed Book 33:379). In addition, in 1859 J.R. Hinton sold one acre of land to the company that extended from the mill north to Peachtree Branch (Wake County Deed Book 22:485). Another property transaction notes that the Neuse Manufacturing Company purchased at least some of the property from Sion Rogers in 1853 (Wake County Deed Book 19:556). An 1861 Semi-Weekly Raleigh Register newspaper advertisement lists Rogers as the president of the Neuse Manufacturing Company (Semi-Weekly Raleigh Register 7 May 1861:p3c7). From this point (backward or forward) the deed string is very convoluted, and involves many more property transactions between the company, Rogers, Hinton family members, and other local property owners (including lands owned by H. Powell, W.R. Poole, T.B. Bridgers, B.F. Moore, W. Miller, etc.). Time constraints and document availability restricted the full-scale untangling of these early property transactions at this point in time, and it was impossible to fully determine which deed referenced the current project area or the specific sites within the tract.

Components:	Middle Woodland prehistoric (A.D. 200–A.D. 800); early 19 th –mid-20 th century historic
USGS quadrangle:	Raleigh East, NC
UTMs (NAD 83):	Zone 17 E722532 N3964520
Max. site dimensions:	ca. 230 ft (70 m) north-south by 460 ft (140 m) east-west
Site area:	ca. 105,800 sq ft (9,829 sq m)
Landform(s):	Terrace
Elevation:	173 ft AMSL
Soil type(s):	Appling sandy loam, eroded (ApC2, ApD)
Recommendation:	possibly NRHP-ineligible; further work recommended

Milburnie East Park Site (31WA1625)

The Milburnie East Park site (31WA1625) is a multicomponent prehistoric and historic period site that was identified in the northwestern part of the Milburnie East tract during the initial field reconnaissance in 2006. The site lies at the junction of the power line corridor and the sewer line right-of-way, near the northwestern edge of the tract. This area showed moderate erosion related to vehicle traffic and earthmoving/clearing in the corridor areas, and artifacts were found scattered on the ground within a 100 ft radius of CP&L power pole HL74. During the current project, shovel test pits (STPs) were excavated on a 10- and 20-meter grid extending south and east from the junction of the power line and sewer line corridors (Figure 8). A total of 26 STPs was excavated, resulting in the collection of 403 prehistoric and historic artifacts. Based on this work, the site measures at least 230 × 460 ft (70 × 140 m). Ground disturbance and soil removal have disturbed

much of the northern area, so the original northern extent of the site could not be determined. The eastern extent of the shovel transects showed decreasing artifact densities, and transects were ended when the Milburnie East Park Cemetery (31WA1626) boundary was reached. Artifact densities dropped off on the southern extent of the site once a small, intermittent drainage and steeper slopes were reached.

Excavations showed that the entire area surrounding the junction of the two utility corridors has been completely disturbed (Figure 9). The soil has been churned up, with chunks of bedrock throughout and rock-filled push piles found on the edges of the disturbed area. Many of the shovel tests excavated in the corridor produced both prehistoric and historic artifacts, but all were recovered from disturbed soil. No intact soil stratigraphy was observed in these shovel tests, and most of the excavations ended before hitting intact stratigraphy because of the large bedrock fragments present in the shovel tests.

Once the shovel test transects reached the wooded areas away from the corridors, however, intact soil stratigraphy was encountered. Most of the excavated soils were an Appling sandy loam of varying slopes (ApC2 and ApD, respectively [Cawthorn 1970]). The Appling sandy loam is typically well drained, somewhat eroded, and is comprised of a light grayish brown to dark gray sandy loam overlying a yellowish-brown to yellowish-red clay loam (Cawthorn 1970:11). Prehistoric artifact recovery was densest in the northwestern part of the shovel tested area (outside of the disturbed portion), with fewer artifacts occurring on the southern and eastern side of the area when moving toward steeper slopes and a well-defined drainage (Figure 8).

In total, 279 prehistoric artifacts were recovered during shovel testing. The vast majority of the lithic artifacts (*n*=244) are of rhyolite, and include numerous debitage fragments (chipping waste resulting from tool manufacture), two utilized or retouched flakes, five bifacial tool fragments, and two triangular projectile point/knife bases (Figure 10). In addition, 28 ceramic sherds were recovered, and include Vincent series cord marked, fabric impressed, and cord wrapped decorations, as well as a number of unidentifiable decorated and undecorated sherds. The triangular projectile points and Vincent series ceramic sherds appear to represent a Middle Woodland period occupation, dating in the Piedmont region from A.D. 200–A.D. 800 (Ward and Davis 1999). Much of the prehistoric assemblage is not diagnostic, however, and it is possible that an earlier occupation may be represented as well.

During the investigation, staff identified a number of historic surface features associated with at least two or three buildings on the northern and western portion of the site. These features included two linear brick scatters composed of extruded machine-made bricks; a modern trash pile; two cut stone chimney bases with tumbled stones intermixed with hand-made bricks; a stone rubble pile; and a large, 5-m diameter circular feature with evidence of some sort of brick and/or stone lining and an artificial gully extending to the bottom of the slope. A variety of ornamental plants were observed in the area, including *Nandina domestica* (Heavenly Bamboo), *Mahonia bealei* (Leatherleaf Mahonia), *Callicarpa dichotoma* (Purple Beautyberry), and a mature *Maclura pomifera* (Osage Orange) tree. Daffodils (*Narcissus*) were found growing in clusters northeast of the surface features.

The observed surface features indicate that a number of activities have taken place at the site over the last 150 years or more. The earliest dateable features are the two cut stone chimney bases with scattered stones and hand-made bricks, most likely indicating a domestic site rather than one associated with the industrial activities at the dam. Hand-made bricks were typical in North Carolina until the advent of extrusion machines in the later 19th century. Although machine-made bricks have been produced by the extrusion

method since the 1860s (Gurke 1987:91, 108–111), machine-made bricks used in North Carolina probably date after that time since it would have taken some time for the new mass-production methods to replace the established brick-making traditions. Furr (1991) notes that one of the first North Carolina brick manufacturers to use the extrusion process—J.C. Steele—was mass-producing machine-made bricks by at least the early 1880s.

Mr. Charles Silver, Hinton descendant, noted during his visit to the site that a number of the cut stones from one of the chimney base piles looked much like stones from one of the chimneys at his Midway Plantation, a Hinton family home built in 1848 (Silver 2007:personal communication). The scattered stones included shaped fireplace side jambs, a large lintel stone, and other large hearth and foundation stones very similar in form to those found on one of the Midway Plantation chimneys (Silver 2007: personal communication) (Figures 11 and 12). Combined with the presence of hand-made bricks (which were also used in the construction of the Midway Plantation structures), it is possible that these features date to at least the mid-19th century. The nature of the large circular feature located to the southeast of the chimney bases is not known (Figure 13). This feature measures 16.4 ft (5 m) in diameter and about 7 ft (2 m) deep, has cut stones and a few bricks blocking the western, open side of the feature, and has a 10 ft (3 m) wide trench leading to the west, sloping toward a small pond near the parking lot (Figures 14 and 15). Mr. Grady Poole recalled that bricks once lined the interior of the feature.

Historic artifacts found in the area include undecorated whiteware and stoneware sherds, hand-made and machine-made brick fragments, mortar fragments, window glass, container glass, and machine cut and wire nails (*n*=124) (Figure 16). Many of the historic artifacts date from the late 19th and early 20th centuries (wire nails, solarized bottle glass, machine-made brick), but a few artifacts indicate an earlier 19th century presence. A lack of hand wrought nails (typically dating before the 1830s) and the presence of machine cut nails (dating from ca. 1805–1900) and hand-made bricks (pre-1880s) near the structural remains indicate that the earlier buildings probably dated to the second and/or third quarter of the 19th century, when the paper mill or later grist and saw mill were in operation. Based on the artifact types, it is unlikely that these structures were industrial in nature; the collection is more indicative of a domestic occupation. It is possible, however, that these structures (one or two) were associated with the mills, as they were on property owned by the Neuse Manufacturing Company, perhaps as management or worker housing, or maybe were leased to non-company tenants.

Later use of the site is indicated by the presence of modern or relatively modern trash and the two machinemade brick features. The trash pile contained the remains of a vehicle seat, iron food cans, glass bottles and other fragments, most likely dating to the last 20 or 30 years (the glass bottles showed forms common to glass containers of the 1960s, 1970s or 1980s) (Figure 17). Older artifacts were found on the ground surface throughout the site as well, including a late 19th- to early-20th century Columbia single shot break stock shotgun with a sawn and filed barrel. Mr. Grady Poole recalls going bottle collecting with his mother at the site when he was a boy; he said that there were piles of old bottles scattered throughout the area (he also mentioned that his father told him that this had been a camping spot during the Depression where men had lived for two or three years at a time). The machine-made bricks—showing characteristic extrusion machine cut marks—lay in two long, oval-shaped lines. No specific pattern for a building foundation or brick piers was seen; however, they most likely indicate that some sort of later-period (i.e. late 19th or 20th century) structure stood in the area. Whether this building was associated with the earlier-period structures or represented a later, unassociated structure is unknown at this time. In summary, the Milburnie East Park site (31WA1625) is a multicomponent prehistoric and historic site with at least two occupations – Middle Woodland and early-mid 19th to early 20th. The historic component not only includes a historic association with an antebellum Hinton plantation, but is also associated with the early community of Milburnie, the mid-19th century Neuse Manufacturing Company, and likely Civil Warrelated activities that took place in the area. While the majority of the historic occupation discovered at the site appears to lie on the City of Raleigh property, it appears that some of the historic resources identified during the field visit are on land owned by others (specifically, by Howard F. Twiggs and Carolyn T. Fox, owners of the dam and hydroelectric power plant property). The brick feature identified on the southeastern side of the dam is on Twiggs land, and therefore was not subjected to subsurface investigation. However, this is clearly part of the historic community of Milburnie, and should be considered a related resource when investigating Milburnie in the future.

Although somewhat disturbed on the northern boundary, site 31WA1625 contains intact soils with a moderate density of prehistoric materials, including lithic and ceramic artifacts. Given the density and variety of prehistoric component yielded a moderate density of historic artifacts as well, along with a number of above-ground cultural features such as the stone chimney foundations, brick piles, and other landscape elements. Given time constraints for this project, the site was not fully delineated, although the main concentration of cultural materials was identified. Although the present work cannot be considered definitive and does not satisfy cultural resource evaluation requirements, based on the site integrity and cultural history it would most likely be considered potentially eligible for the National Register of Historic Places. It is recommended that no ground-disturbing activities in this area take place prior to the resolution of Section 106 compliance issues. If required, however, a full-scale intensive archaeological testing program is recommended to determine the total site boundary, identify subsurface features, and investigate the nature and chronology of the historic features present.

Components:	Historic (18 th -19 th century)
USGS quadrangle:	Raleigh East, NC
UTMs (NAD 83):	Zone 17 E722627 N3964455
Max. site dimensions:	ca. 90 ft (27.4 m) east-west by 175 ft (53.4 m) north-south
Site area:	ca. 15,750 sq ft (1,463 sq m)
Landform(s):	Terrace
Elevation:	186 ft AMSL
Soil type(s):	Appling sandy loam, eroded (ApC2)
Recommendation:	likely NRHP-ineligible; avoidance

Milburnie East Park Cemetery (31WA1626)

The Milburnie East Park Cemetery (31WA1626) was first reported during a 1990 Environmental Site Assessment (Law Engineering 1990), and was subsequently revisited by TRC in 2006. The cemetery lies on a small bench at the southeastern edge of the Milburnie East tract, a short distance west of Milburnie Road and north of the entrance to the adjacent subdivision (see Figure 8). During the current investigation, the cemetery was probed using a steel-tipped iron probe at one- to two-foot intervals. The visible graves and soft areas were marked with pinflags at the head and foot areas (Figure 18). The area probed included the known (i.e. visible sunken graves) grave sites and radiated out and away from this area a minimum of 30 ft. (9.1 m) beyond the last determined grave site. If no visibly sunken spots or soft areas (when probed) were found within those 30 ft. (9.1 m), then the boundary edge was placed in that spot. The cemetery boundary was flagged, and the area mapped using a Trimble GPS. According to the current investigation, the maximum cemetery dimensions are approximately 175 ft north-south by 90 ft east-west (53.4 × 27.4 m) (see Figure 8).

Deed research in the Wake County Register of Deeds office did not find any mention of a cemetery on this property. Likewise, no other local history or Hinton family history data mentions this cemetery. Mr. Grady Poole originally reported the cemetery during the Environmental Site Assessment in 1990 (Law Engineering 1990). Mr. Poole visited the site on 26 January 2007, and walked over the cemetery with the author, along with his childhood friend, Mr. William Adams. Mr. Poole recalled that about 20 to 30 years ago he noticed City of Raleigh workers taking soil from a nearby borrow pit (located to the north of the cemetery), and told them that if they continued to take more soil from farther up the hill, they would run into the cemetery. He knew about this cemetery from the time he was a small boy and played in the area. He recalled hearing that it had been a Hinton slave graveyard, but couldn't remember exactly who had told him (he thought that his father probably had mentioned it). He also remembered there being at least one grave that had a marked headstone (he could not recall what was written on it), as well as the unmarked fieldstones that are visible at the site today. According to both Mr. Poole and Mr. Adams, this marked grave now lies in the powerline corridor access road, and up until a few years ago had a power pole through the center of it (both remarked that new poles had been put up since the last time they had been at the site). Unfortunately, no evidence for the marked headstone could be found.

During his visit to the site on 25 January 2007, Mr. Charles Silver remarked that while he did not know about this particular cemetery, it was remarkably similar in appearance to a known Hinton slave cemetery in Knightdale, located approximately 2 miles to the east of the project area in the Widewaters Village subdivision (it is enclosed in a fence and maintained by the Widewaters Homeowners Association [Knightdale Town Council 2002]). That graveyard was associated with Midway Plantation, which lies about 0.25 mi (0.4 km) to the north. Mr. Silver also noted that since the current project area—including the cemetery—would have been part of the Clay-Hill-on-the-Neuse plantation, the cemetery could represent the resting place for the numerous slaves who had worked on the plantation during Major John Hinton's tenure (late 18th century to ca. 1818) or Elizabeth Hinton's tenure (ca. 1818–1865). The original location of the Clay-Hill-on-the-Neuse plantation would be the most logical association for this cemetery. and it is believed that the Clay-Hill-on-the-Neuse plantation would be the most logical association for this cemetery.

The characteristics of this type of cemetery—built on high ground, located at a distance from the main plantation house, east/west Christian burial orientation, general lack of marked graves, presence of unmarked fieldstones indicating grave sites, etc.—are often considered indicative of a slave cemetery. If this cemetery was indeed associated with the antebellum Clay-Hill-On-The-Neuse plantation, then it could

possibly be the resting place of Hinton family slaves. Other "slave" cemeteries identified in Wake County including the Falls River community Cemetery in North Raleigh and the Midway Plantation slave cemetery in Knightdale—are similar in layout and style. However, the popular attribution of "slave cemetery" for any cemetery without marked graves is commonly encountered, and so it is also possible that this cemetery could be the resting place for non-wealthy inhabitants of either color who lived in the Milburnie community.

Based on current knowledge of the site, the Milburnie East Park Cemetery (31WA1626) is probably not eligible for inclusion in the National Register of Historic Places. The identities of the interred cannot be determined at this point in time, and therefore the determination of local, regional, or national importance for NRHP criteria eligibility cannot be made. However, this cemetery is protected by a variety of North Carolina State Statutes, including G.S. 14-148, 14-149, and 65-13 (for details, see http://www.cmstory. org/cemetery/nclaws.asp and http://www.ncleg.net/gascripts/Statutes/Statutes.asp). These statutes would not prevent the modification of land surrounding the cemetery, but would limit plans to move the cemetery or otherwise utilize the cemetery site. Care should be taken not to disturb the graves if any modification near the cemetery area takes place. Subsurface modification of any kind within the cemetery is not recommended since it is likely that undetected graves may exist and would be impacted by any type of disturbance. Typically, cemetery investigations involving probing are fairly accurate in identifying the boundary of a cemetery. However, it is also possible that some grave sites may have been undetected by the steel probe due to soil conditions (tree disturbance, soil overburden, etc.). The cemetery lies on the highest topographic aspect of the area, and it is possible that it could extend to the south a short distance (see Figure 8). The presence of undetected burials in this area should be taken into consideration should any ground disturbance be considered.

SUMMARY AND RECOMMENDATIONS

As previously reported, the Milburnie site is rich in known and potential cultural resources, many of which are amenable to public interpretation. The falls and shoals at Milburnie have attracted historical development for at least two centuries, and probably attracted American Indian visitors for thousands of years before that. The extant resources present on the tract and nearby include a large prehistoric and historic archaeological site (31WA1625), the existing dam and hydroelectric facility, a cemetery (31WA1626), and a former and current recreation area.

This cultural research investigation for the Milburnie East tract has demonstrated the presence of prehistoric use of the area, as well as the 19th and 20th century historic use of the tract. The shovel testing survey and a walkover survey of the upper, flat portion of the landform south of the cemetery shows the presence of intact soil stratigraphy and very little visible subsurface disturbance. This type of topography is considered high probability for prehistoric archaeological resources, particularly since it is very close to a major river. Also, the project area appears to have sat within the boundaries of Major John Hinton's 18th–19th century Clay-Hill-on-the-Neuse plantation. Based on current research, the Milburnie East Park Cemetery (31WA1626) may be associated with the Clay-Hill-on-the-Neuse plantation; evidence of other plantation activities may still exist in areas that could not be investigated under the current project parameters (e.g. slave quarters, barns, tenant houses, etc.).

In addition, definite evidence has been found of the historic community of Milburnie in the form of both structural and subsurface archaeological remains at site 31WA1625. While some above-ground evidence for 19th century structures has been found, other, more ephemeral evidence of the community most likely

exists. The importance of the paper mill and the surrounding area (particularly the Tarboro Road and the Neuse River bridge) during the Civil War could generate further information about the role of Milburnie and Wake County at that time. Both the initial and current investigations have shown human occupation of the area for up to 2,000 years—it is likely that other as-yet unidentified resources exist on the property. The current investigation cannot be considered exhaustive; the majority of this property should be considered high probability for archaeological resources, both prehistoric and historic, and a full-scale archaeological survey of the property is recommended prior to any ground disturbance.

The Milburnie East Park site (31WA1625) is a multi-component site consisting of at least a Middle Woodland prehistoric component (ca. A.D. 200–A.D. 800) and a 19th-early 20th century historic component with a number of above-ground cultural features. Although disturbed in the northern and western portions of the site by sewer and power line construction, most of 31WA1625 appears to have intact stratigraphy and relatively undisturbed surface features. Based on the current investigation, it is likely that this site would be potentially eligible for the National Register of Historic Places. It is recommended that no ground disturbing activities take place in this area and that the site be preserved for future study. If it becomes necessary to determine eligibility for Section 106 compliance, however, it is recommended that an intensive archaeological testing program be conducted.

The Milburnie East Park Cemetery (31WA1626) is probably not eligible for the National Register of Historic Places, but is protected by a variety of state statutes (see above). Care should be taken not to disturb the graves if any modification near the cemetery area takes place. The cemetery should be cleared of overgrown above-ground vegetation, as this would keep the marked graves visible and facilitate continued maintenance. No attempts to remove established vegetation below the surface should be made as this would cause more damage than is desired, but removal of secondary vegetation above the ground surface would be acceptable. Although no cemetery-related plantings—such as the periwinkle vine, cedar trees, oak trees or other ornamental plantings—were identified during this project, any discovered during the spring or summer months or after cleaning should not be disturbed. Also, the City should consider discussions with CP&L regarding the cemetery and the power line corridor that bisects it, particularly in reference to the access road that crosses over at least two graves, and consideration should be given to rerouting the access road through the area.

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FIGURES



Figure 1. Milburnie area showing location of 31WA1625 and 31WA1626.





Figure 2. Portion of Bevers' 1871 Wake County Map showing location of Milburnie East Park.





Figure 3. Portion of Schaffer's 1887 Map of Wake County showing location of Milburnie East Park.





Figure 4. Portion of Price and Strother's 1808 Map of North Carolina showing Tarborough Road and the "Hinton" property location.





Figure 5. Portion of Mac Rae's 1833 map of North Carolina showing "Hinton's B."





Figure 6. Portion of Plate 138 "Virginia, North Carolina, and South Carolina" of the Atlas to Accompany the Official Records of the Union and Confederate Armies showing "Hinton's Br."





Figure 7. Portion of 1914 Wake County Soils Map showing approximate location of Milburnie East Park.





Figure 8. Site map for 31WA1625 and 31WA1626 at Milburnie East Park.





Figure 9. Disturbed area at junction of two utility corridors at 31WA1625, view to west.



Figure 10. Selected prehistoric artifacts from 31WA1625. a) fabric impressed ceramic sherd; b) cord marked ceramic sherd; c) S-twist cord marked ceramic sherd; d) ceramic sherd with unidentified ceramic decoration; e) fabric impressed ceramic sherd; f) rhyolite biface fragment; g) rhyolite retouched/utilized flake; h-i) rhyolite Triangular projectile point/ knife bases.





Figure 11. Chimney base pile at 31WA1625 with cut stones and hand made bricks, view to south (note large lintel stone on left).



Figure 12. Cut and shaped fireplace jamb stones at 31WA1625 lying near chimney base pile, view to west.





Figure 13. Circular feature at 31WA1625, view to west.



Figure 14. Cut stones and brick blocking western side of circular feature, view to east.





Figure 15. Trench leading from circular feature, view to west.



Figure 16. Selected historic artifacts from 31WA1625. a) Late 19th/early 20th century embossed medicine bottle "Glover's Imperial Mange Remedy;" b) blue annular decorated whiteware vessel; c) Bristol-glazed stoneware vessel; d) whiteware plate rim; e) porcelain saucer base; f-g) machine cut nails.





Figure 17. Trash pile at 31WA1625, view to west (note vehicle seat in lower left of photo).



Figure 18. Pinflags at Milburnie East Park Cemetery (31WA1626), view to south.



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31WA1625	Milburnie East Site	3 11-6		0-33	101	rehistoria Lu	and out	phyne myolite	diventi	un grenyere want	
31WA1625	Milbumie East Site	3 71-6		0-33	4 4	rehistoric U	The P	priving myouse	11000	W ALTER	
31WA1625	Milburnie East Site	3/11-6		0-33	1	The historic L	ahic P	phyric rhyotra	1480	H Cray	
31WA1625	Milburnie East Site	3 71-6		0-33	4	hehistoria L	thic P	orphyntic rhydlae	fiake.	CK Gray	
31WA1625	Milburnio East Silo.	3 71-6		0-33	2 P	hahistoria L	thic A	letavolcanic?	fisks		at the set of the set
302540015	Milhumia Fact Site	3 71-6		0-33		Historic G	3855 12	355	tragment	light green	diamond pattern, metred
Sector Anna	Million East City	3 71.6		0-33	44	tistionio C	eramic (C	lay	brick		
DOLONY AND	Adducting East Con	3.71.6		0-33	24	Historic S	tone #	octar	fragment		
COUNTRY OF	A Diversion E and Chin	2 4 4 B		0.43	44	Historia M	Notal h	vo	nail		very corroded, unid,
CONVATOR N	Malbarnie East Site	4 + 4 F		0.00	a r	Prehistoric P	rehistorie P	otterv	sherd		indeterminate fabric roughaned
STWATORS	Milbumio East S/D	2 - 1 - 1 - 1		0.20		Prohistorio I	this of	Nartz	FCR		
31WA1625	Milburnie East Site	1114		0.00		Brahisteric 1	abin A	newsic rtwofite	biface frag	dk bm	
31WA1525	Milburnie East Site	4 11-11		0-00		Tubitotecia I		medication drugits	Rake	dkbm	
31WA1625	Mitturnie East Site	4 11-1		0-20	1	TOTAL STATES		when in the strength	Raba	the bulk	
31WA1625	Miburnio East Site	4 71-7		0-38		Innestoric L	000	perversion charges and	Rafes	de occulorente	
31WA1625	Milburnie East Site	4 71-7		0-38	N	Lenstond L	ANG ST	perverse reproduce	distro.	de prete	
31WA1625	Mitturnie East Site	4 T1-7		0-38	-	rehistoric L	CNC N	etavoicanic r	1 CONCEL	an Alox	soul market
31WA1625	Mitburnie East Site	5 72-4	-	0-25	-	Prehistoric P	rehistoric I	ottery	shord		contraction of the second seco
31WA1625	Milburnie East Site	5 72-4	-	0-25	-	Prehistoric P	rehistoric F	ottery	sherd		eroveu
31WA1625	Milburnie East Site	5 72-4	-	0-25	-	Prehistoric L	the	UBITZ	FCK		
31WA1625	Milbumie East Site	5 72-4	-	0-25	-	Prehistoric L	Thic N	fetawolcanic?	flate		
TWATER'S	Mithumbe Fault Site	5 72.4	-	0-25	-	Prehistoric L	Ithic P	Incidentific rhyolite	relouched/utilized flake	dk grayigreen	
ATWA-676	Milhuma Fast Site	572-4	_	0-25	1.17	Prehistoric L	Unic P	orphyritic rhyolite	Bake	dit brown	
31MA1825	Milhumle East Site	5 72-4	-	0-25	2	Prehistoric L	ithic A	phyric rhyolde	flake	It gray	
241MA+674	Address East Siles	5 72.4	_	0.25	2	Prehistoric L	ithic A	phyric rhyolite	flake	gray/green	CORTEX
SCOL VIALE	Atthuistic Fact Sta	6 T2.4	-	0.25	11	Prehistoric L	ithic 1	phyric rhyolite	fake	dk gray	
PHALE SCOT	Adhumik Fact Star	5 72.4		0-25	11 5	Prehistoria L	ithic //	phyric rhyolite	flake	dk grawigneen	
STUNATE25	Milly inter Fast Sta	5 724	-	0-25	71	Prehistoric L	ithic h	phyric rhyolite	flake	dk bm	
SCOPERATE C	Mills units Cast One	E T2.4		0.25	2	Prehistorio L	ithic 0	Suartz	flake		
CYDI WATE	Millioumic Cast Sto	5 T2.4		0.25	31	Historic 6	Xass 0	lass	window	light aqua	
CTRUMATE	MICOUNCE CASLORY	1111		0.96		Historic C	eramic	Whiteware	base		undeporated
CORLAWLE	MICUTINE Cast 200	2110		0.96	4	Historic R.	Aetal 1	ugu ugu	fragment		unid.
CZOLVMLE	MIDUINE Cast She	104.0		0.96		distance A	Aetal 1	uo.	Carl		unid
31WA1625	Miloumie East Stic	10110		A56		distante h	Actal 1	100	nai		cut
31WA1625	Milournie East SHe	0 104	-	26.66	6	Prahistoria	which is	chinic thuolite	flake	dk gravigreen	
31WA1625	MIDURINE ESSI SUD	1710		26.66	-	Dushistorie I	ahir .	columnia rhuolitte	fiske	dk grav	
31WA1625	Milburnio East Site	124		20-02		Deskistorie I	atrice in	in human mundle	fiske	ok bm	motted
31WA1625	Milburne East Sile	124		10.22		Minkerin A	Antal		hait		out
31WA1625	Milburrie East Site	4 04 5	-	60-00	-	Historia C	acamie 1	Vhitewoote	bowf	biue	namow blue band decoration
31WA1625	MIDUINE East 200	2.21	4	Auto Vieland	e	Deshistoric 1	Thic	Cohveic rhvolite	finke	dk gravigreen	
S1WA1043	Multipleting East 240	0 16.0	1	0.10	-	Prehistoric II	ithic 1	Lohwria rhyolite	fiake	dk gray	weathered
31WA1029	MIDUITIO E 051 OLD	2.67 8	1	0.10	+	Prehistoric IL	Ithic B	^b orphyritic rhyolite	fiake	dk brown	
2014/10/0	Although East one	8179.5	-	0-10	+	Prehistoric IL	Jthic B	Porphyribic rhyclite	flake	bm	
S-UNA 4575	Althounds Fact Site	8 72.5	4	0-10		Prohistoric L	ithio.	Poephynitic rhyolite	flake	motiled brn	
SCATAVATE	Milliournia Fast Site	8 T2-5	4	0-10		Prehistoric L	Jthic 1	Natt	Rake		
3400 400 S	Advention Fact Site	8 T2.5		0-10	*	Prehistoric IL	ithic .	Duartz	shatter		cortex present
STWATC25	Millioumine Fast Site	8 72-5	1	0-10	54	Prehistoric E	Jone I	one	fraigment		burned/calcined
31WA1625	Mitburnie East Site	8 72-5		0-10	1	Historia 1	Vetal	uo	fragment		161
81W/A1625	Milburnie East Site	8 72-5	3	0-10	1	Historic (Ceramic	Val	brick		
31WA1625	Mitturnie East Site	8 72-5	4	0-10	1	Historic K	3/958	1855	container	clear	
B1001625	Milburnie East Side	9 72-5	8	10-30	8	Prehistoric	.Ithic	Aphynic rhyolite	flake	dk greenigray	
31WA1625	Milburnie East Site	9 72-5	#	10-30	+	Prehistoric	this	Porphyritic rhyolite	fisiko	Diack	
B10041625	Milburnie East Site	9 12-6	2	10-30	-	Prehistoric 1	ithic	whyric rhydite	flake	dk brown	Harris Presidenti
B1WA1625	Milburnie East Site	9 12-5	2	10-30	-	Prohistorio 1	Ithic	Aphynia rhyolite	flake	R gray/brn	now barroed
B1WA1625	Milbumie East Site	9 72-5	4	10-30	-	Prehistorio I	CERC .	Aphynic rhyolite	fiske	Acid a	
B1WA1625	Milbumie East 546	9 12-5	2	10-30	-	Prehistoric	thic	Porphyritic rhyolite	flake	R gray	2
B1WA1625	Milburnie East Site	9 72-5	₽	10-30	-	Historic	Metal	non	Inagment	and the second se	101
TALL ADAR	Additional of South Class	3.07.04	=	190,66	1	Prehistorie	this 1	Aphwip rhyolde	flake	dk cray	

Artifact Catalog Milburnie East Park Site (31WA1625)

Page 1 of 4



	A CONTRACTOR						1		Partie -	Becchaften	100
VC Site #	Site	Bags Provenience	Strat	Depth (cm)	00.	Class	Material	Form	Const	continues and a second se	
11WA1625	Althumie East Site	11 72-8	6	25	1 Prehill	Ono Preniston	C Ponery	Sinero Balva	rik orav		A
1WA1625	Albumie East Site	11 12-6	0.0	8	International In	OPC LITHO	Demokuration shundite	fishes	lak gravitern		1000
1WA1625	Mitburnie East Site	11 12-6		9.2	+ Doublet	oria Little	Matauricarie?	fiate	h		and the second second
TWA1825	Milbumie East Site	11 12-6	-	9 8	internation of the second	Commo	Ministructures	holiowware		undecorated .	1000
1WA1625	Mithumie East See	11 12-8	2	9.2	1 Listan	Ciner.	class	bottle	arroer		-
TWA1625	Mitbumie trast 366	1112-0	-	28	1 Pretrist	oric Prehistor	c Pottery	sherd		cord marked, S-brist	-
CTOL VILLE	Milbume East one	12/12/7	0	2	1 Prehist	orio Prehistor	c Pottary	sherd		unid, Dec.	-
SCHLAWT	Milburnie East Site	12 12.7	0	26	2 Prehis	ioric Lithic	Aphyric rhyolde	flake	dk grav		-
1WA1625	Milburnie East Stie	12 12-7	9	25	1 Prehist	ioric Lithic	Porphyritic rhyolab	e flake	R Gray	and multiply	and the second se
1WA1625	Milburnie East Site	13 13-5	0	37	1 Prehist	ioria Prehistor	c Pottery	sherd		listerioseninata fabrio recontanad	1000
1WA1625	Milbuenie East Site	13 13-5	-	31	1 Prehis	one Prehistor	C Potery	Sherd		under Den	the second s
1WA1625	Milburnio East Silo	13 73-5	0	37	G Prehis	Ioric Prehistor	G Potery	Shore -	ofte mean	Trianeular base fracment	-
1WA1625	Milburrie East Site	13 13-5	-	10	I Prens	IONC LANC	A house should be	ALLA A	de neau		-
1WA1625	Milburnie East Site	13 73-5	-	191	SUBLA LL	CONS LATING	A human and a human	fishe	It craw		
11WA1625	Milburnie East Site	13 73-5	-	137	1 Prohis	ond Lithic	ADMING ITIYOHD	TIBKB	In Uray	andad	
11WA1625	Milburnie East Site	13 73-5	-	121	1 Prohis	IONIC LITTIC	ITTyoute?	TIRKS	dit same freezen	Anu handar	
1WA1625	Mitburnie East Site	13 73-5	-	-37	1 Prehis	toric Littic	Porphyntic myclib	a nake	OK GRAVITEON	Data in the second second	-
1WA1625	Milburnie East Site	13/13-5	-	137	1 Prehis	toric Lithic	Quartz	Take		bu renaultivationard	-
1WA1625	Mithumie East Site	13 73-5	-	-37	1 Prehis	toric Bone	DCDB.	fragment		control control of the control of th	-
1WA1625	Mitburnie East Site	13 73-5	-	137	2 Histor	C Motal	aron .	Inagment	die ment franken		-
1WA1625	Mitburnie East Site	14 73-5	-	-15	6 Prehis	toric Uthic	Aphyric rhyonte	1369	of gray week	uid a fharart	
1WA1625	Mitrumie East Site	14 73-6	-	-15	1 Prehis	toric Lithic	Aphyric rhyplete	10KB	UK BIOY	na manoaw	
1WA1626	Mitburnie East Site	14 73-6	-	-15	2 Prehis	toric Lithia	Aphyric rhyolite	lake	DM Frankra	Custor	
11WA1625	Milburnie East Site	14 73-6	-	-15	1 Prohis	toric Lithia	Aphyric chyolde	Lake	th Design Orth	Longer L	-
11WA1625	Milburnie East Site	14 T3-6	0	100	1 Prohis	toric Lithic	Aphyric rhydda	flake	It Dem		
1WA1625	Milburnie East Site	14 73-6	1	-15	1 Histor	d Glass	glass	bottle	IDUE DING	table Date	
1WA1625	Milburnie East Site	15 73-6	1	5-50	1 Prehis	toric Prehistor	ic Pottery	Sherd	A	VIIII CONTRACTOR	
1WA1625	Mitburnie East Site	15 73-6	-	6-50	3 Profits	toric Lithic	Aphynic myolee	TISKO	DK Brayineen		
1WA1625	Milburnie East Site	15 T3-6		5-50	3 Prohis	toric Lithia	Aphyric rhyolde	fight0	Didy/green		-
11WA1625	Milburnie East Site	15 13-6		5-50	a Prehis	bonc Lithic	Aphyric myolite	District of	Chi gray		
1WA1625	Milburnie East Site	15 73-6	1 1	5-50	4 Prohis	boric Lithic	Metavolcanic?	Biglos	Ask.		
17WA1625	Milburnie East Site	15 T3-6	-	5-50	2 Prehis	boric Lithic	Porphyritic rhyoli	0 fiabe	OK Gray		
1WA1625	Milburnie East Site	15 13-6	=	5-50	1 Prehis	toric Lithic	Porphytric rhybli	n Bake	gray the		
1WA1625	Milburnie East Site	15 13-6	-	5-50	1 Prehis	toric Lithic	Aphyric myolite	nake	100		
11WA1625	Milbumie East See	15 13-6	1	5-60	1 Prehis	torio Lithic	quartz	nake		Patrole immediated	
ITWA1625	Milbumie East Site	16 13-7	0	84	I Prehis	ACTIC Premissor	C Pottery	all of the second		cred marked	
ITWA1625	Milbumie East She	16 T3-7	0	62-0	1 Prents	HOULD FIGHTER	to Pottery	anore abund		indeterminate fabric roughened	
17WA1625	Milbumie East Site	16 13-7	0	100	1 Prents	ACCC Prenador	Points	distan.		contex flake	
11WA1625	Milbumie East Site	16 13-1		100	+ Develop	AUTO LINIO	Antwein ehundta	fiske	GURV		
11WA1625	Milburnie East Stie	16 13-7		000	1 Drahis	tota Lifeia	Achinic rhvolte	flake	orange/white/gray		-
11WA1625	Milbumie East 508	10 8.01		130	1 Prehis	toric Lithic		FCR?			_
11WA1625	Mulburnie East Sile	10 101		1.29	1 Prohis	toria Lithia	Metavolcanic?	fragment			-
CTONATORS	Milburn East Sta	17.4		132	1 Prehia	toric Lithic	Aphyric rhyolite	fiske	Q'BY	flow banded	
10/41625	Milburrie East Site	18 T3-9	-	0-20	1 Prehits	toric Lithic	Aphyria rhyolite	fake	dk gravioreen	and the second se	
S1WA1625	Milburnie East Site	19 T4-6	-	0-20	2 Prehis	Soric Prehistor	ric Pottery	sherd	alle lanes -	laone impressed	1.00
S1WA1625	Milbumie East Site	19 74-6	-	0-20	1 Prehis	toria Lithic	Aphyric rhyolite	19KB	OK BRAY	fabrie immessed	
S1WA1625	Milburnio East Site	20 74-7	-	0.29	1 Prehi	CONC PRENdito	ne Pottery	S/1850		eruded	
31WA1625	Milbumie East Site	241		R	internet +	tions Prenauto	Antwell rhughte	Mdd		Triancular, base tragment	
S1WA1625	Milburnie East Site	20 14-1		100	1 Drehi	their Libble	Aphyric rhvolite	Bake	gravioreen		
51WA1525	Milburnie East Offe	201 14-1	-	129	: Prehi	storic Lithic	Aphyric rhyolite	flakte	# gray/bm		
5701 WALLS	Millournie East Site	20 T4-7	-	0-29	5 Prehi	storic Lithic	Poephynöc shyoli	te flake	gray		
SCATAWING	Minumie East Site	21 Ta-7		29-47	1 Prehi	steric Lithic	Poephynäe rhyok	to flake	R gray		
11WA1625	Mitburnie East Site	22 74-8	1	2-0	1 Prehi	staric Lithic	Quartz	harmerstone?	All solutions and		
31WA1625	Mithumie East Site	22 T4-8	-	2-0	2 Prohi	staric Lithia	Aphyric /hyolde	Bake	dk grayigreen		
31WA1625	Mitburnie East Site	23 74-8		7-25	1 Prehi	staric Lithic	Aphyric (hyolde	Riable and a	the availation	Rew handed?	
31WA1625	Milburnie East Site	24 74-9	-	0-15	2 Prehe	Mone Links	Aphyno myone	finited for	dk oravitareen		
31WA1625	Milburnie East Site	24 14-9			1 Drehi	choric Lithic	Antwric thvolde	flake	lt bru		
01WA1625	Multiume tast olde	24 TA.D	-	0.48	1 Prehi	storic Lithic	Metavolcanic?	Bake	pu		
201111000	Mithumia East Sta	24 74-9		0-15	1 Histor	ic Ceramic	Clay	brick			
11WA1625	Milburnie East Site	25 74-9		15-29	1 Prehi	storic Lithic	Aphyric rhyolite	fiako	lt gray		
81WA1625	Milbumie East She	25 74-9	-	15-29	2 Prehi	storic Lithic	Aphynic rhyolde	fiako	gray at craw		
81WA1625	Milbumie East Site	25 T4-9	=	15-29	1 Preht	storic Lithic	Activity churches	fishe	dk orav	weathcred	
31WA1625	Milburnie East Site	25 74-9		15-23	Interest a	store Linking	Activity in position	fiska	dk orav		
11WA1625	Milburnie East Site	26 16-4	I I	0-12	I P. Dave	BOOK LINN	Interface and the local	THE PARTY OF THE P	Sand Street Stre		6

Artifact Catalog Milburnie East Park Site (31WA1625)



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Artifact Catalog	לקטודר דימאר ז מחש הזונה לי ז זיני כאווווווע
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Description		out		machine mede, extruder marks on end						contax screen weightened						Crit	undecorated	undecorated, very large footning, base fragment, basin?						out	machine made, extruder marks on end				cord-wrapped dowelistick, braken, 3 frags	1 weathered	weathered			und. Uec.	Durineg C						Bristel glazed int. & ext.	undecorated	undecorated	annot addusted barranted and	one burned	crown cap type	round head, carlage bolt	out	hand made				Bristol glazed ext., Albany sip int.	Undecorated fabric muchaned				dip molded
Calor	E La		arroor	entre 105			dk gray/green	gray	gray/green	dk grayigreen	dit bm	CHEV	m	dk gravigreen					dk.gray/green	dk. brown	dk brown	It Gray				aqua	light aqua	Clear	auto	Orav	dk brown	dit brown			dit grayitern	dk brown	h	R gray						iamethyst.	lioht agua					dk mown	dk arawlareen				monthed mouth herven	It bon		olive green
arm.	ike .	Dil I	ontainer	WOOM	100	acment	face frag	aka	ake	200	aton sites	ater	ake	ake	ake	al	hand Mand	olowware	ake	440	ake	ako	3KD	ail air	nck	ontainer	ontainer	ontainer	urved	ake	ake	lake	mck	herd	stace trag	ake a	ake	iake	ragment	dag	volowware	laucer	lanware	Soldie Soldie	container	oodie cap	oott	liai	orick	offace trag	take -	Take	srock	holiowwaro	Sherd Retail	over nove	FCR1	bottle
Material Fe	Aphyric rhyolde	Iron na	glass	ased ased	Clary	motar fr	Aphyric rhyolite bi	Aphyric rhyolde Ba	Aphyric rhyolde fla	Aphyric rhyolae Ra	Aphyric myolite In	Dominantic rhoolite	Porphyritic rhyolite	Porphyritic rhyolite fi	Quartz R.	Inon	CLay D	Whiteware h	Achyric rhyolte fi	Aphynic rhyolite fi	Porphyritic rhyolite fil	Aphyric rhyolite	Quartz 4	hon h	Clav	glass 0	glass c	glass	glass C	Archively Archivelate R	Aptivitic rhoolde 8	Aphyric rhyolde R	Clay	Pottery	Aphyric thyolite D	Aphyric rhyolde B	Aphynic rhyddie 8	Aphyria rhyolite 1	shell th	Cost	Stoneware h	Porcelain 8	Whiteware	glass 0	plans of sec	hon o	hon 5	fron n	Clay	Aphyric rhyolite	Aprilia Fundation	Ousitz	Stoneware c	Ironstone	Pollery	Aphyric mydige	ouartz Burner	glass
lans	STIC .	fetal	Slass	Hass	eramic	Contract of the second of the	thic	Chio Chi	thic	thic	The	(this	ithic .	Unic	Little	detail	Ceramic	Construct	Which	ahic	attic	Ithic	Uthic	Martad	Ceramic	Glass	Glass	Glass	Glass	white	Linhia -	Unic	Ceramic	Prohistoric	Lihio	Little	Lithic	Lithic	Organic	Organio	Ceramic	Ceramic	Ceramic	Glass	Gints Chance	Motal	Metal	Motal	Ceramic	UNC	Units	Lithic	Ceramic	Ceramic	Prehistorio	Little	Lithic	Glass
	rehistoric A	istoric A	lisheric (Istoria	leforic	tatorio S	rehistoric L	rehistoric (rehistoric L	rehistoric 1	rehistoric l	Trefitstonic I	rehistoric	rehistorio I	rehistoric 1	listoric 1	fistoric	fistoric f	Trehistoric	Prehistoric I	hehistoric l	Prohistoria 1	hehistoria	Tietorio	fishoric .	fistorio	Historic	Historia	Historia	Terrestone -	Travin toric	Prehistoric	fistoric	Prehistorio	Prehistoric	Prehistoric	Prehistoria	Prehistoric	Prehistoric	Historic	Historic	Historic	Historic	fistoric.	HISAONC		Historia	Historia	Historia	Prehistoric	Prehistoric	Prehistoric	Historic	Historia	Prehistorio	Prehistorio	Prohistorio	Historia
Otv.	2 P	H C	+	-	x	0	5 **	- B	4	4	5	10.		-	-	-	e.		36	1	26	2	-	-	-	1	1	4.	-		4 4	-	11	CV.	-	10	-	-	-	-		-	8	-	4 0	0.0	-	12		-	-	0.0	N	5	-	- •	-	-
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Appendix G

Parks Committee Review

Meeting Summary Notes

System Integration Plans Parks and Recreation Department Raleigh, NC

Subject: System Integration Plans

Summary by: Robin Pugh, AICP ARCADIS

Participants:

Parks Committee: Gregg Barley Tina Certo Jimmy Thiem Gail Till Place/Date of Meeting: Jaycee Park Community Center April 5, 2007 Summary Issue Date: April 20, 2007

Copies: Stephen Bentley Parks Committee

Raleigh Parks and Recreation Department: Dick Bailey Stephen Bentley Wayne Schindler

ARCADIS:

Robin Pugh Lindsey Riddick

The purpose of the meeting was to develop draft System Integration Plans for the Alvis Farm, Trott-Strickland, and Milburnie future park sites. The objectives of the System Integration Plan are to: (1) document existing site conditions and constraints, (2) develop a set of guidelines for the interim management of parkland prior to the initiation of a Master Plan, (3) establish the park's classification consistent with the Comprehensive Plan, and if applicable, (4) establish any special intent for the park.

Existing Site Conditions and Constraints

Robin Pugh and Lindsey Riddick, ARCADIS, presented an overview of the existing conditions data collected for each site, as documented in the Existing Conditions Reports. Issues discussed are highlighted below:

Alvis Farm

- Conservation Area The deed for the property (northern portion only) restricts the use of floodplain
 west of the western right-of-way of the sewer easement. The City agreed to designate this area as
 a "Conservation Area." Improvements or construction within this area are restricted. Vehicular and
 pedestrian access within this area shall also be restricted. The greenway or other trails would not
 be allowed in this Conservation Area, but would be allowed within the sewer easement and east of
 the sewer easement.
- Lease by J&H Stables It was noted that J&H Stables is leasing the northern tract. The City can terminate the lease with 30 days notice.
- Access The northern portion of the property is currently accessed from the adjacent parking lot of the Raleigh Christian Community Church. This portion of the park site has frontage on Tarheel Clubhouse Road (dogleg portion of the property) but an access drive has not been developed.

- Property configuration The City is trying to acquire the property that would connect the northern and southern portions of the park site. Another privately-owned parcel is bordered on three sides by the southern portion of the park site and on one side by the Neuse River.
- Topography The site is mostly gently rolling with steeper slopes towards the Neuse River.

Trott-Strickland

- Umbrella magnolias A stand of umbrella magnolias was noted as a special feature on the site. The magnolias are located on the northern portion of the site.
- Koi The largest pond contains some large and potentially valuable koi. These fish are not native and it is not known who put the fish in the pond.
- Threatened and endangered species Habitat for sumac is found on the site, but no species were found. It was noted that it is important to distinguish between habitat and the presence of species.

Milburnie

- Cemetery A cemetery is located on the eastern Milburnie tract. The archaeology sub-consultant (TRC) provided additional research on the cemetery (Appendix G) and flagged the cemetery's boundaries. The association of the cemetery could not be determined; however, the characteristics of this type of cemetery are often indicative of a slave cemetery. The cemetery is protected by state statutes. It was noted that several of the city's park properties include cemeteries.
- Milburnie dam The dam is not on the park property but is visible from the park property from both sides of the river. Removal of the dam would drain Bridgers Lake to the northwest.
- Rock outcrops Rock outcrops are found on the property.
- In-holding The City is trying to acquire the properties that are surrounded by the park property. These lots remain from the former mobile home park. The City also wants to purchase properties to connect the non-contiguous portion of the park site.
- Milburnie Master Plan A master plan for Milburnie was completed in the 1990s as a part of the Neuse River Corridor Master Plan. The adventure area shown on the eastern portion of the site is planned at Forest Ridge Park. The master plan for Milburnie may be revisited since there are very similar components (adventure recreation) to the recently adopted Forest Ridge Park Master Plan. The master plan is not fully funded.

Guidelines for the interim management of parkland

Stephen Bentley presented the current management practices and preliminary staff recommendations for each future park site. (See the Appendices of the Existing Conditions Reports.) Issues discussed are highlighted below:

- Property configuration The committee agreed that a goal for the Alvis and Milburnie sites should be to combine all non-contiguous portions of the park properties and to acquire properties surrounded by the park sites.
- Dam removal The current trend to remove dams as a method of river management was mentioned, as well as the possibility that the Milburnie dam could be removed. The City should consider the affects that removing the Milburnie dam would have on the park property/resources. A contingency plan to address the potential affects should be developed if the dam is removed.
- Abandoned structures There are abandoned structures, with associated liability, on the three park sites. Abandoned structures should be removed from park property. The trailers on the Milburnie

site should be removed and the site should be cleaned up. The tire pile on the Alvis property has already been removed.

 Other structures – Some existing structures on the properties may be useful for park purposes. It should be determined if structures on the sites are programmatically useful. Repair/renovation costs should be compared to the benefit of maintaining the structure(s).

Park Classification

The following classifications are proposed for each park:

Alvis Farm – Community Park Trott-Strickland – Neighborhood Park Milburnie – Community Park

The committee reviewed the Comprehensive Plan definitions of "Neighborhood Park" and "Community Park," as well as "Metro Park." These definitions provide guidance for park location, size, and development. The guidelines also suggest typical park facilities for each classification.

The 36-acre Trott-Strickland site is larger than the recommended size range for a neighborhood park (5 to 25 acres). The additional acreage provides the opportunity to preserve areas and add features that are not typically found in neighborhood parks. Water features, such as the ponds on the Trott-Strickland property, are not usually found in a neighborhood park.

After discussion, the committee endorsed the classifications for each park site as proposed. The committee emphasized that the Trott-Strickland site has the potential to include some features of other park classifications, due to the size of the site.

Special intent for the park (if applicable)

No special intent for any of the park sites was suggested.

COMMITTEE RECOMMENDATION

The committee voted unanimously to endorse staff comments (Current Management and Preliminary Draft Recommendations) for each park site with the additional committee comments noted above.

The draft System Integration Plans will be forwarded to the Parks Board for review at the May meeting. Stephen Bentley will initiate the public notification process.

Appendix H

Parks, Recreation and Greenway Advisory Board Review

DRAFT MINUTES

Parks, Recreation and Greenway Advisory Board

Anderson Point Park = 10 North Rogers Lane Thursday, May 17, 2007

<u>MEMBERS PRESENT</u>: Gail Till, Patrick Beggs, Greg Barley, Chris Smith, Jimmy Thiem, Elaine Perkinson, David Knight, Tina Certo, Shoshanna Serxner, Doris Burke, and Gerald Wright

MEMBERS ABSENT (EXCUSED): Tina Gordon, Pete Benda, Mary Alice Farrell, and Eugene Weeks

<u>STAFF PRESENT</u>: Jack Duncan, Stephen Bentley, David Shouse, Jennifer Alford, Ken Hisler, Scott Payne, Venessa Garza, Wayne Schindler, Terri Stroupe, and Dick Bailey

<u>**GUESTS PRESENT:</u>** Michael Saunders of 5411 Allen Drive; Teresa Ellerbe of Strickland Road; Hank & Debby Hagerman of 3125 Tarheel Clubhouse Road; June Guralnick; PRGAB Liaison – Councilor Jessie Taliaferro, Roger Lynn Spears of Szostak Design; Robin Pugh and Lindsey Riddick of Arcadis</u>

Excerpt Parks, Recreation and Greenway Advisory Board Minutes Pertaining to the SIP for Alvis Farm, Milburnie and Trott-Strickland Properties

Public Comment: Michael Saunders: I'm Michael Saunders, 5411 Allen Drive, I just relocated back here from Northern Virginia. My concern is about the Milburnie proposal - park. I spoke with Mr. Bentley today and my concern is that my family has been in that area before the Civil War. That's my maternal father's people, the Sewell's - they have been there every since the Civil War. And one of my concerns is what type of construction will be in that area that will probably damage wildlife and probably intrude on the privacy of the people who live in the area right now. Also that's a very historical area. I don't know how many of you are familiar with the road that called Raleigh Beach Road – that was the main road that connected Raleigh to down east, Tarboro. A very historical area – union soldiers went to that area during the Civil War. They burned the grits mill. The grits mill is an important area, people came to turn there food into meals. It is also the site of commerce and communication. People gathered there with friends to gather information and there were stores there. The union army came through there and burned the grits mill. Has anyone ever thought about suing the federal government because they burnt that area? -Because it wasn't military cartage. My concern is if they develop a park there, there is a lot of history there. There's American history, my history, our history. What I would like to see is some types of historical markers letting people know what took place in the area. My aunt, when she built her house years ago, she found some Native American artifacts, Indian heads. And I would like to see some type of historical markers designating what took place in that area.

Gail Till: Thank you sir for your comments. Right now we are talking about the management plan. This is the kind of conversation we will have when we initiate a master plan – and that is not currently planned. Right now we are learning a little bit about what is there historically.

Jack Duncan: There is an element of the Neuse River plan that was adopted in 1996 – I'm not sure if you're talking about Milburnie East or West

Saunders: West

Jack Duncan: Milburnie West was more recently used as a trailer park. So there may be things our consultants have found already that will contribute to support the position you have taken with the government. Historical interpretation is really what you are basically saying about the site. So those kinds of things are value added to the plans that we have in this area. But for the most part there is no funding to do anything at this site. So I don't think there is any immediate pressure on the property to reconfigure it or change it from what it is currently being used for.

Public Comment: Teresa Ellerbe: Hi I'm Teresa Ellerbe, and I live on Strickland Road. When you do begin your process where we can have public involvement, it would be nice if you would send out a newsletter or make your signs larger so we can see them without having to cross a busy highway.

Duncan: We have a pretty progressive notification process once we get to that level.

Stephen Bentley: The SIP is a part of the city's broad master planning policy. The intent is to document the character of the site that is cultural, historical and to also take a thorough look at the environmental resources on the site – an extensive inventory of everything existing on the site. Secondly, it takes a look at an interim management guide so the city can be better stewards of its resources. The SIP is not to plan any facility.

Stephen stated that the goal is for the board to review and approve the Parks Committee's comments on each draft plan and to forward to the City Council for their consideration. Arcadis Consultants, Robin Pugh and Lindsey Riddick reviewed each SIP site.

When discussing the Milburnie property Mr. Saunders indicated that the lake being referred to as Bridges Lakes used to be called Sewell Lake.

Public Comment: Debby Hagerman I would like to know if the city is currently actively seeking land at Alvis Farm. The property in the center is next door to my house and I am particularly interested.

Councilor Taliaferro explained that all real estate transactions go first through the City Council's the Budget, Economic and Development Committee in closed sessions held in confidentiality. Once council makes a decision on the real estate investment then it becomes public knowledge.

ACTION: Tina Certo made a motion to move forward with presenting the System Integration Plan information for Alvis Farm, Milburnie, and Trott-Strickland sites to City Council for consideration with the amended information provided by Michael Saunders for the Milburnie site to be included as a part of public comments. Her motion was seconded by Gail Till. The motion passed unanimously.

Appendix I

City Council Approval
COUNCIL MINUTES

The City Council of the City of Raleigh met in regular session on Tuesday, June 19, 2007, at 1:00 p.m. in the City Council Chamber, Raleigh Municipal Building, Avery C. Upchurch Government Complex, 222 W. Hargett Street, Raleigh, North Carolina, with the following present.

Mayor Charles C. Meeker Mayor Pro Tem James P. West Tommy Craven Thomas G. Crowder Philip R. Isley Joyce Kekas Russ Stephenson Jessie Taliaferro

They Mayor called the meeting to order and invocation was rendered by Pastors Joseph and Marlene Lewis, Awesome Word Ministries. The Pledge of Allegiance was led by Mayor Pro Tem James P. West. The following items were discussed with action taken as shown.

RECOGNITION OF SPECIAL AWARDS

PROCLAMATION – EUGENE WEEKS DAY – PROCLAIMED

Mayor Meeker read a proclamation proclaiming Tuesday, June 19 as Eugene Weeks Day in the City of Raleigh. He indicated Mr. Weeks will be honored at a reception at 301 Hillsborough Street later in the day. He talked about Mr. Weeks service to the City of Raleigh and work on the Human Relations Commission.

In accepting the proclamation, Mr. Weeks expressed appreciation to the Council for showing confidence in him. He pointed out we have accomplished a lot as it relates to human relations in the City of Raleigh but we have a long ways to go. He stated he is finishing up his term on the Human Relations Commission but will still be involved in human relations and promotion of harmony in the City of Raleigh.

SOLID WASTE EMPLOYEES – HONORED

City Manager Allen asked Solid Waste Director Fred Battle to help him recognize employees Adrian Grubb, Edward Wright and Bianca Bradford. City Manager Allen pointed out Adrian Grubb won the first place in the rear loader compactor competition in the recent Rodeo. Mr. Grubb will have a chance to move forward onto the national competition. Edward Wright received second place in the rubber tire loader and will also be competing in the National Rodeo. He expressed appreciation to Mr. Grubb, Mr. Wright and all solid waste employees for doing such a great job in a safe and successful manner. He stated it is very difficult to maneuver this large equipment in an urban environment. City Manager Allen recognized Bianca Bradford who inventory, an analysis of existing public and private pools; a market and demographic analysis; a needs assessment; analysis of spatial distribution of aquatic facilities, costs; and recommended implementation and prioritization of the results. He explained the City currently has six outdoor seasonal swimming facilities, one outdoor swimming facility that has an air structure over it in the winter months and one indoor facility. He went over the process that will be utilized including a review of the programs and facilities, research area demographics, access national aquatic trends, survey potential user groups, evaluate existing area providers, develop options for programming, develop project cost estimates, identify search areas, estimate revenue potential, estimate operating expenses, determine cash flow and an implementation strategy.

Mr. Hunsaker went over the types of aquatic programming including competitive, recreation instructioned, fitness and therapy, explaining how each is utilized, the benefits and types of opportunities in each category. He talked about developing a tool kit of options, the public process, stakeholders, user groups, etc.

Roger Spears talked about the needs and what other communities in Wake County are doing, talked about other providers, types of facilities, where we are in the study. He stated the study would not select sites but would develop criteria for site selection. They went over the study schedule, the various meetings, talked about the definition of success.

Mr. Crowder talked about getting information on how the City of Raleigh could partner with other folks and gave the example of Lake Johnson/Athens; talked about the different trends, growth, senior citizen population, the need to provide amenities in areas where they are not available, Mr. West talked about starter homes without amenities and whether the group is looking at that kind of factors as it relates to the needs. Life cycles of pools and how that figures into the equation was touched on. The assessments, cross section of responses, how surveys were conducted, how and where information on the meetings was distributed, private facilities and how they play into consideration was discussed. The report was received with no further action.

<u>REPORT AND RECOMMENDATION OF THE PARKS, RECREATION AND</u> <u>GREENWAY ADVISORY BOARD</u>

SYSTEM INTEGRATION PLANS FOR ALVIS FARM, TROTT-STRICKLAND, AND MILBURNIE PARKS – ADOPTED

Last July the City Council authorized staff to negotiate a contract with Arcadis G&M of North Carolina to facilitate System Integration Plans for Alvis Farm, Trott-Strickland and Milburnie Parks. Over the course of several months, Arcadis developed a series of draft Existing Condition Reports for each site. These reports were reviewed by Parks and Recreation staff and brought before the Parks, Recreation and Greenway Advisory Board (PRGAB) for its consideration. The PRGAB referred the review to its Parks subcommittee. In April, the Parks Committee reviewed all three reports and referred them back to the PRGAB. The draft SIPs were posted online for public comment. Signs and letters were sent to nearby property owners, etc. to collect public input. The PRGAB reviewed the draft SIPs at its regularly scheduled meeting on May 17, 2007.

Public comments and questions were addressed at that meeting. The PRGAB unanimously voted to send all three draft System Integration Plans to the City Council for consideration.

Recommendation: Adopt the draft System Integration Plans for Alvis Farm, Trott-Strickland and Milburnie Parks as forwarded by the Parks, Recreation and Greenway Advisory Board.

Parks Planner Stephen Bentley, of the Design Development Division of the City's Parks and Recreation Department, made a slide presentation to the City Council. He showed the location of the three sites and explained that the System Integration Plan (SIP) process is a sub-section of the overall City Park Master Planning Process described in City of Raleigh Resolution No. 2003-735. The objectives of the SIP are to develop a set of guidelines for the interim management of parkland prior to the initiation of a Master Plan, to document existing site conditions and constraints, to establish the park's classification consistent with the Comprehensive Plan, and if applicable, any proposed special intent for the park. The development process began with the consultant. Arcadis performed a thorough documentation of the sites to develop an existing conditions report for staff. Staff reviewed and commented on the report and prepared follow-up information if necessary, then sent the information to the PRGAB. The PRGAB commented on the report and sent it to the Parks Committee. After the Parks Committee review and comments, the report was returned to the PRGAB and is now being presented to the City Council.

Lindsey Riddick of Arcadis G&M also made a slide presentation to the Council showing views of the sites, including terrain and structures, and providing the information summarized below:

Alvis Farm (92.9 acres)

Natural Resources

- One man-made impoundment on-site
- Three wetland areas
- Gently rolling terrain with steeper slopes towards the Neuse River

Cultural Resources

- Structures are not eligible for listing in the National Register of Historic Places (NRHP)
- Moderate potential for intact archaeological sites along the levee ridge (northern part of tract)

Interim Management Recommendations

- Annual comprehensive inspection by a Parks and Recreation Department review team.
- Mark the property's boundaries with carsonite posts.
- Review any lease agreements for the property and review the level of care for the property.
- Determine if structures on the site (*i.e.*, barn, outbuildings, houses) would be useful for park purposes. Remove the abandoned house from the southern portion of the property if it is determined not to be cost effective to maintain it.

- Research the potential for partnering with (leasing to) a local landowner for growing some type of crop.
- Continue current management practices (mow fields, grade access road, remove trash, inspections).
- Continue efforts to acquire adjacent properties.

Mr. Riddick pointed out that the interim management recommendations for Alvis Farm apply to all three properties.

Trott-Strickland (37.53 acres)

Natural Resources

- Lower Barton Creek
- One unnamed tributary (UT) to Lower Barton Creek
- Two man-made ponds
- Two wetlands
- Unique features umbrella magnolias, koi
- Evidence of terrestrial mammals (white-tail deer and raccoon)
- Relatively flat topography, sloping toward Lower Barton Creek

Cultural Resources

- Structures are not likely to be NRHP-eligible
- Research suggests that the site was part of a mid-to-late 19th-century farm or plantation

Interim Management Recommendations

- Continue inspection of the dock at the pond three times a year for needed maintenance and repairs.
- Determine continued need for dock; repairs/replacement costs.
- Research the origin and create a plan for the koi fish in the pond.
- Determine if the outbuildings would be useful park purposes. Remove any abandoned structures that are not cost effective to maintain.

Milburnie (91.76 acres)

Natural Resources

- Bridges Lake (semi-permanent impoundment)
- One unnamed tributary (UT) to Neuse River
- Three wetland areas
- Upland ridges and slopes
- Archaeological sites (three)
- Cemetery
- Milburnie dam (off-site)

Interim Management Recommendations

- Continue current management practices (remove trash, grade access road, control invasive/exotic species, inspections).
- Include the cemetery site with other City of Raleigh cemetery locations for management and monitoring.
- Remove the abandoned mobile home and debris from the Milburnie West site.
- Evaluate the condition of the greenway access road for potential future improvements.
- Continue efforts to acquire properties (Milburnie West).
- Evaluate the effects that removing the Milburnie dam would have on the park site/resources. Develop a contingency plan to address the potential effects.

There was no discussion of this item. Ms. Taliaferro moved to adopt the System Integration Plans for Alvis Farm, Trott-Strickland and Milburnie Parks as forwarded by the Parks, Recreation and Greenway Advisory Board. Mr. Isley seconded the motion and approval was unanimous. The Mayor ruled the motion adopted on a vote of 8-0.

REPORT AND RECOMMENDATION OF THE PLANNING COMMISSION

PLANNING COMMISSION - ANNUAL REPORT AND WORK PLAN - RECEIVED

Per Council Resolution 2002-240 regarding the duties and responsibilities of City Council Boards and Commissions, the Planning Commission submitted its annual report for FY 2007-2008. As requested in the resolution, the Planning Commission's work items for the next fiscal year are described in the report. The two main items are the updated of the Comprehensive Plan and several text changes.

Recommendation: That the report be received.

The report was received without discussion.

REQUEST AND PETITIONS OF CITIZENS

SIDETRACK BREWPUB – VARIANCE FROM RIGHT-OF-WAY DEDICATION ON HARGETT STREET – APPROVED

Andrew Leager, Sidetrack Brewpub, requested a variance from right-of-way dedication on Hargett Street associated with Sidetrack Brewpub at the corner of Boylan Avenue and Hargett Street. This is associated with Building Permit Transaction #179593.

City Manager Allen explained this request with it being pointed out in background information that during the initial review of this project a need for a variance was identified with respect to right-of-way requirements along Hargett Street which is classified as a minor thoroughfare and requires the dedication of ½ of an 80 foot right-of-way. The existing building is located immediately adjacent to the back of the sidewalk which renders the dedication requirement impractical in this case since the building envelop is not being modified. Staff has no issue with