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Horsepen Run  
**Site Analysis Report**

Prepared for:  
The CountrySide Proprietary  
*Sterling, Virginia*

Prepared by:  
Greenways Incorporated  
*Cary, North Carolina*  
In Association with  
Glattig Jackson Kercher Anglin Lopez Reinhart Inc.  
*Orlando, Florida*

**August 12, 1994**

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## Horsepen Run Site Analysis Report

August 12, 1994

Mr. Robert Fares, President  
Board of Directors  
Countryside Proprietary  
The Weston Building  
10 Pidgeon Hill Drive, Suite 180  
Sterling, Virginia 20165

Dear Mr. Fares,

I am pleased to submit this final Site Analysis Report of Horsepen Run to the Countryside Proprietary for consideration, review and approval. We have carefully evaluated existing landscape features and environmental conditions of the site, determined applicable local, state and federal regulations that serve to permit or restrict certain types of land use development activities, researched the current operating status of public and private park and recreation facilities that are in close proximity to Countryside, and defined other information that we feel is important to the future development of Horsepen Run.

I am looking forward to presenting this information to the residents of Countryside on August 29, 1994. After this meeting and presentation has been completed, we will use the feedback from community residents, the Board and the Ad Hoc Committee to prepare Design Development Alternatives for Horsepen Run.

Should you have any questions regarding this report, please feel free to contact me at your earliest convenience.

Sincerely,

Charles A. Flink, ASLA  
President  
Greenways Incorporated

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*Horsepen Run*  
*Sterling, Virginia*



*Executive Summary*

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# Horsepen Run Site Analysis Report

## *Executive Summary*

### **Introduction**

In May 1994, the CountrySide Proprietary authorized Greenways Incorporated to develop a Master Plan for the improvement/development of 370 acres of commonly-owned land known as "Horsepen Run." The site lies between the Potomac River and the 2437-home community of CountrySide in Sterling, Virginia.

This Site Analysis Report documents information gathered during a visit to the Horsepen Run site and to local government agencies in early June, as well as subsequent research completed after that visit.

### **Existing Site Conditions**

Greenways Incorporated researched the site extensively in order to identify opportunities and constraints for future development.

#### **Opportunities due to site conditions include:**

- A 370-acre tract of land containing some of the last remaining vestiges of wilderness in eastern Loudoun County.
- Rural scenery and varied plant and animal communities within a short walking/biking distance for most CountrySide residents.
- Nearby schools provide excellent opportunities for environmental education studies.
- If properly managed, Horsepen Run could offer premier bird watching opportunities by facilitating habitat expansion

to the significant variety of migratory waterfowl, large raptors, and over 250 songbirds which currently occupy the Mckee Beshers Wildlife Management Area. (see list of birds in Existing Site Conditions, page 19 of this report)

- The proximity of Algonkian Regional Park offers a convenient, off-road bicycle and pedestrian connection to the residents of CountrySide. In addition, the Park's 800 acres represents an aggregate gain of 1.25 square miles of contiguous, primarily wooded open space to Horsepen Run. Its shared border with Horsepen Run represents a significant conservation buffer preventing the possibility of future urban development from occurring along Horsepen Run's entire eastern border.
- An existing roadbed onsite offers one opportunity for access without requiring extensive roadway grading.

#### **Constraints due to site conditions include:**

- A majority of the site would be classified by federal authorities as jurisdictional wetlands. This will require that *all* development scenarios be approved by many different public agencies including, the U.S. Army Corps of Engineers, the Virginia Marine Resources Commission, the Virginia Department of Environmental Quality, and Loudoun County. (see pages 8-9 of this report)

# Horsepen Run Site Analysis Report

## Executive Summary

- There are few contiguous upland areas available for site development. Several upland areas are surrounded on all sides by wetlands, or are situated so that they will be difficult to access.
- There are limited opportunities for access to much of the site. Access will most likely have to occur from the south edge of the property. Large portions of the southern border, however, are residential properties.
- The existing soil types affect the type of development. Most of the soil types on site have a high shrink/swell potential, making it more difficult to build structures.

### Regulatory Issues

The development of Horsepen Run must be consistent with the land use policies and regulations of Loudoun County, the State of Virginia, and the U.S. Army Corps of Engineers.

### Findings:

- A wide range of active and passive recreation facilities are considered permitted uses within Horsepen Run, including parks, playgrounds, community centers, and noncommercial recreational facilities. Every *permitted use* is not guaranteed to pass all the *permitting requirements* of the three agencies listed above (see pages 22-24 of this report).
- The proposed alignment for Trail passes through the site nity to connect with this regi
- Commercial recreation facilities such as golf courses, riding stables, marinas and the like, are not permitted uses under the 1972 Zoning Ordinance. If these uses remain desirable, it will be necessary for the Proprietary to petition them through the County Attorney, Board of Supervisors and Zoning Administrator. (see pages 21-24 and 33-34 of this report)
- The approval process for site development will require an extensive amount of time due to the multiple agencies reviewing applications.
- Buffers will be required between the park and adjacent residential areas, and along the Potomac River (see page 29 of this report).
- The Site Plan submittal requires detailed engineering plans, including hydrologic and hydraulic floodplain studies. These will be of particular significance if substantial alterations are proposed within the floodplain area.
- The County will not permit development within the floodplain (89% of Horsepen Run) that results in any off-site increase in the surface water elevation of the base flood, or alters the carrying capacity of the flood plain. This requirement is particularly significant for development alternatives that require substantial paving or fill within the floodplain (see pages 9, 26-28 of this report).



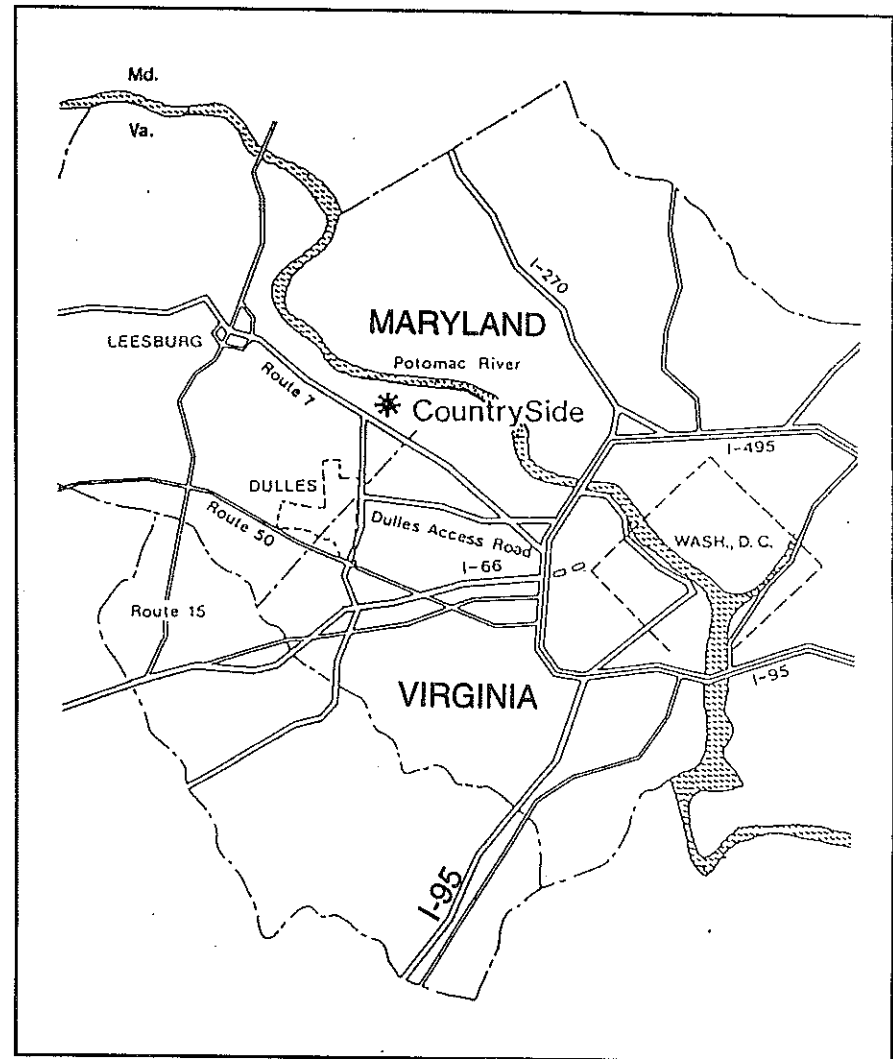
# Horsepen Run Site Analysis Report

## Executive Summary

### General Conclusions and Recommendations

Based upon our review of the existing site conditions at Horsepen Run, available recreational facilities, and local, state and federal regulatory statutes, the Design Team has made the following conclusions:

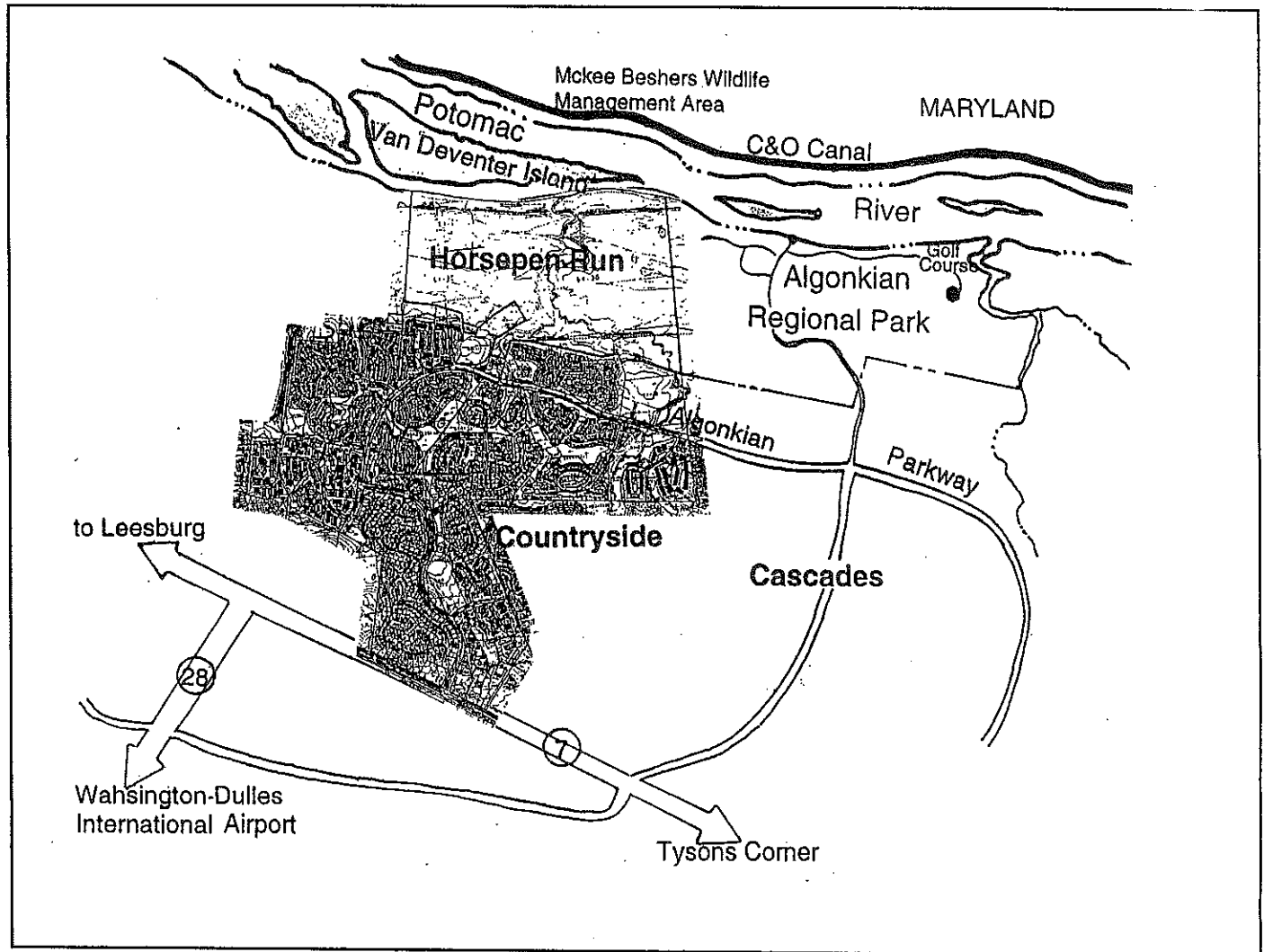
- The site should be developed in close consultation with Loudoun County, the state of Virginia, and the U.S. Army Corps of Engineers to resolve any conflicts as early as possible.
- Efforts should be made to avoid or minimize impacts to existing wetlands on-site, both because of their environmental qualities and because a development that significantly alters on-site wetlands must undergo a difficult permitting process, which may result in a site plan disapproval.
- Based on national standards, as well as existing recreation facilities, the CountrySide Community is lacking in the following recreation facilities: badminton/volleyball courts, baseball fields, multi-use courts, trails and picnic areas.
- Regardless of the type of development chosen, clean-up of litter will be needed throughout the site and particularly along the shoreline of the Potomac. A "Friends of Horsepen Run" group could be established to keep the site free from debris and litter.



Regional Map

# Horsepen Run Site Analysis Report

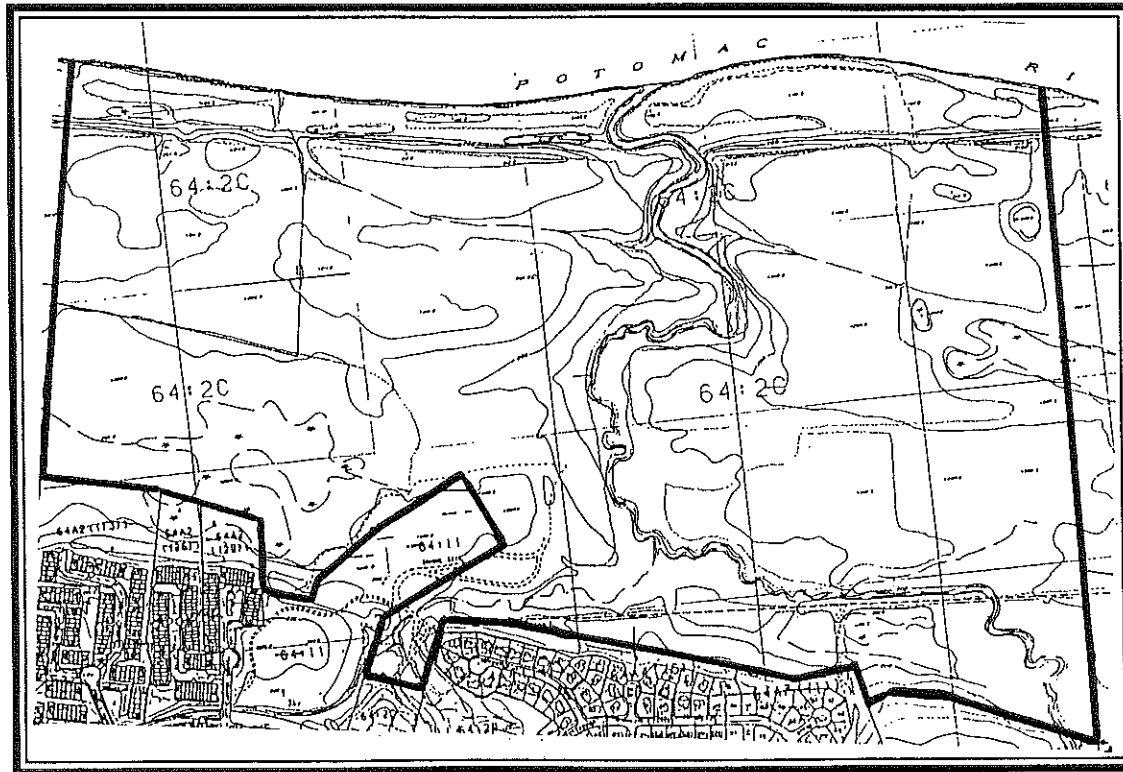
## Executive Summary



Vicinity Map

# Horsepen Run

*Sterling, Virginia*



*Observations of Project Site*

### Location

Horsepen Run is a 370-acre tract of undeveloped land located in the northern Virginia town of Sterling, approximately 8 miles north of Washington-Dulles International Airport. The site lies between the Potomac River, to the north, the Algonkian Regional Park to the east, and the CountrySide Community, which forms its southern border. This area is classified as the Piedmont Lowland zone of the Piedmont Plateau physiographic province.

### History of Countryside Development

The CountrySide community dates to the mid 1970's when approximately 1,000 acres of land was subdivided as a Planned Unit Housing Development. Prior to this time, the area was primarily open farmland with scattered wooded areas, most notably along the creeks and other large drainage ways. Residential uses within the 2,437 unit community range from single family homes on 2/3 acre lots to town houses and apartments. At the southern end of the community, where CountrySide Boulevard intersect with Route 7, is a commercial area including drug stores, supermarket, fast food, the current CountrySide Proprietary management offices and other commercial/retail businesses. While the CountrySide management office keeps no exact record of the number of individuals residing within the community, the total population is estimated to be 10,000. A similar mixed-use Planned Unit Development, the Cascades, is nearing completion to the east of CountrySide.

### History of Horsepen Run

The history of the land area known as CountrySide, including Horsepen Run, is documented in three phases of Ar-

## *Observations of the Project Site*

chaeological Investigations, both historic and prehistoric, submitted by Coastal and Piedmont Studies Associates of Leesburg, Virginia.

Archival sources for prehistoric sites in and around the Horsepen Run area offer evidence of habitation dating at least from the Early Archaic (ca. 7000 B.C.) through European contact. The earliest records of European land ownership dates back to 1649, when a group of English aristocrats were granted proprietorship of the entire Northern Neck of Virginia, roughly one-quarter of the states land mass, by King Charles II. Actual settlement of the Horsepen Run area does not appear to have begun until the later half of the eighteenth century. The project area had a relatively high resource potential for early European settlers, notably the good agricultural bottomland along the Potomac River floodplain. However, by the end of the eighteenth century, the agricultural lands had been severely depleted, apparently exhausted by continuous tobacco cultivation.

During the Civil War, Loudoun County found itself at the mercy of both Union and Confederate troops who regularly occupied and reoccupied its countryside, stripping the local farmers of their horses, cattle, hogs, grain, and forage. The graves of several unknown Union soldiers are located in the Jenkins family cemetery; which is overgrown but still stand-

# Horsepen Run

## Site Analysis Report

### Observations of the Project Site

ing in the forest just east of the landfill near CountrySide.

The Horsepen Run site continued to be used for agricultural purposes until these practices were officially abandoned approximately ten years ago.

### Summary of Site Conditions Observed

Horsepen Run is currently an open parcel of land that is slowly reverting to a floodplain, forested condition. Given sufficient time and limited human uses, the entire 370 acres would eventually be covered by a variety of forest ecosystems.

Horsepen Run is currently used by CountrySide residents for bird and animal watching, picnicking, walking, and mountain bicycling. The very popular seasonal walks through the site and picnics along the banks of the Potomac River are led by residents who have extensive knowledge of the area's inhabitants and vegetation.

The existing public facilities within the site consist of a weathered and vandalized wooden sign and map of the property and trail system at the end of the parking lot off Algonkian Parkway; a poorly maintained, combined trail and roadway access system that extends down to Horsepen Run Creek and the Potomac River; and a picnic area that was built many years ago and is in a state of disrepair. Several

well worn fishing camp along the banks of the

These landscape features are illustrated on a map entitled "Site Analysis" found on the next page. A notable site condition:



property

te are illustrated on a map entitled "Site Analysis" found on the next page. A notable site condition:

- A prominent bluff extends east and west along the northern portion of the site, parallel to the Potomac River. This is a terrace that has been formed over thousands of years by seasonal flooding of the River. This bluff is bisected by Horsepen Run Creek as it flows into the River. At the confluence of the River and Creek, a deep, stratified layer of deposited silt and loam can be easily observed.
- The most notable views throughout the site are from the bluff along the River and Creek. Less prominent views occur throughout the site, mostly due to the open landscape currently in successional reforestation.
- Two ridge lines extend through the middle portion of the site, which are significant due to the fact that recent definition of the Potomac River floodplain places these ridges above the 100-year floodway.
- The Consultant also notes the presence of junk automobiles throughout the site.
- The two most prominent sources of noise impact emanate from the Algonkian Elementary School and the community swimming pool adjacent to the site.

*Horsepen Run*  
*Sterling, Virginia*



*Existing Site Conditions*

## Existing Conditions of the Site

### Topography

The area under study for Countryside Proprietary is known as Horsepen Run, and is 369.42 acres in size as determined by Loudoun County. The site is within the piedmont lowland zone of the piedmont plateau and is characterized by flat to gently rolling land with elevations between 190 and 211 feet above sea level. A small bluff stretches across the site from the eastern to the western end, running parallel to the Potomac River.

The site has a long history of human occupation, primarily for agriculture, hunting and limited settlement. Human alteration of the landscape and land form has been through agriculture, and has had a limited impact on the predominant land form of the site. Recent earth fill on property owned by the County School Board has served to alter local drainage patterns on the southern end of the site.

### Soil Types within Horsepen Run

Soils can have a profound effect on the type of land use development that might occur within Horsepen Run. Soils affect the growth rate of plants, the drainage of water, foundation design for buildings, and structural stability of other site features. The soil throughout Horsepen Run is typical of low lying flood plain areas adjacent to major rivers in North America. Soils have a high permeability and are often saturated by seasonal flooding of the adjacent river.

### Existing Site Conditions

Horsepen Run contains 140.14 acres of hydric soils (38%), which are one indicator of jurisdictional wetlands. The following list describes the soil types found within the site and rates the soils on the potential for development.

#### 5 A Rowland Silt Loam

29.23 acres

Deep moderately well to somewhat poorly drained reddish-brown and mottled reddish-brown and gray silty and clayey soils with seasonal water tables on level terrace positions in flood plains. 0-2% slope. Mapping unit potential IV F- very poor potential for general development; subject to flooding. Slow infiltration rate.

#### 6 A Bowmansville Silt Loam

17.8 acres

Listed as a hydric soil with Loudoun County.

Deep poorly drained dominantly gray silty and clayey soils with perched water tables on concave terrace positions in the flood plain. 0-2% slope. Mapping unit potential IV F- very poor potential for general development; subject to flooding. Slow infiltration rate.

#### 7 A Huntington Silt Loam

18.42 acres

Very deep and well-drained brown silty soils on convex terrace positions in floodplains. 0-2% slope. Mapping unit

# Horsepen Run

## Site Analysis Report

### Existing Site Conditions

potential IV F- very poor potential for general development; subject to flooding. Moderate infiltration rate.

#### 8 A Linside Silt

16.54 acres

Very deep moderately well to somewhat poorly drained brown and mottled brown and gray silty and clayey soils with seasonal water tables on level terrace positions in floodplains. 0-2% slope. Mapping unit potential IV F- very poor potential for general development; subject to flooding. Slow infiltration rate.

#### 93 B Delanco Silt Loam

14.33 acres

Very deep moderately well to somewhat poorly drained yellowish-red loamy and silty soils with gray in the lower part and seasonal highwater tables on convex river terrace positions. 2-7% slope. Mapping unit potential II W- fair potential for general development; high seasonal water tables. Moderate infiltration rate.

#### 94 B Elsinboro Loam Triassic Siltstone Substratum

102.48 acres

Very deep to moderately well drained brown to yellowish-red loamy and silty soils with short duration perched water tables on convex river terrace positions. 2-7% slope. Mapping unit potential II WP- fair potential for general develop-

ment; wetness and high shrink-swell clays. Moderate infiltration rate.

#### 98 B Captina Silt Loam Triassic Siltstone Substratum 48.28 acres

Very deep moderately well to somewhat poorly drained yellowish-brown or mottled brown/gray and red clayey soils with seasonal high water tables on nearly level river terraces. 1-7% slope. Mapping unit potential IV W- very poor potential; perched water tables. Slow infiltration rate.

#### 99 A Purdy Silt Loam Triassic

122.34 acres

Listed as a hydric soil with Loudoun County.

Very deep poorly drained mottled gray and yellowish-brown clayey soils with a seasonal water table on concave to level terrace positions over silt stone. 0-4% slope. Mapping unit potential IV W- very poor potential; prolonged water table and high shrink-swell clays. High run-off potential.

Of the soil types listed by the Loudoun County Soils Service, 140.14 acres (38%) are classified as hydric soils. This indicates that these areas will most likely be classified as jurisdictional wetlands, and therefore will be regulated by federal and state laws.

Of the soils not classified as hydric, 130.27 acres (35%) are considered to have very poor potential for general development. The definition of this soil type, from the Loudoun County Interpretive Guide to the Use of Soils Maps, is soils in which development will result in "severe problems, some not correctable, and others requiring extensive and costly engi-

***Existing Site Conditions***

neering solutions which may be unsatisfactory." This classification is based on a combination of factors such as shrink-swell potential, bearing capacity, presence of seasonal high water table, and soil stability. Loudoun County rates the soils in one of the following categories: good potential, fair potential, poor potential, and very poor potential.

The remaining 116.81 acres (32%) of land in Horsepen Run is classified as having fair potential for general development. This is defined as soils with "problems (which) can generally be corrected satisfactorily at low cost." The Loudoun County Interpretive Guide to the use of Soils Maps indicates that park development should be pursued only on lands that have soils with fair or better potential for development.

**National Wetlands Inventory**

The Consultant's identification of wetlands is based first on field investigations of the site, and subsequently on our review of several federal, state, and local wetland studies. We used National Wetlands Inventory maps as base line data for determining the types of wetlands present on the site. These maps also serve to reinforce our definition of wetlands. The National Wetlands Inventory does not represent a comprehensive listing of all wetlands in the area, because the delineation is done by aerial photography and may not be field tested.

Based on these maps, the following types of wetlands are known to exist within the Horsepen Run site (please refer to Hydrologic and Wetland Inventory Map in this report for location):

R5OWH: Riverine

37.5 acres

Includes all wetlands and deep water habitats contained within a channel, unknown perennial open water channels, and permanently flooded lands - where water covers the lands at all times. Vegetation is composed of obligate (facultative) wetland species.

PEM5C: Palustrine

13.4 acres

Includes all non-tidal wetlands dominated by trees, shrubs, persistent emergents, or emergent mosses or lichens. Emergent wetlands are characterized by erect, rooted, herbaceous hydrophytes, excluding mosses and lichens. Seasonally flooded wetlands are where surface water is present for extended periods of time, especially early in the growing season, but is absent by the end of the season in most years. When surface water is absent, the water table is often near the land surface.

PSS1C: Palustrine

16.2 acres

scrub-shrub - Includes areas dominated by woody vegetation less than six meters tall. Denoted by the presence of broad leaved deciduous trees, including red maple (*Acer rubrum*), American elm (*Ulmus americana*), ashes, black gum (*Nyssa sylvatica*), swamp white oak (*Quercus bicolor*), overcup oak

# Horsepen Run

## Site Analysis Report

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### *Existing Site Conditions*

(*Quercus lyrata*), and chestnut oak (*Quercus prinus*). Lands tend to be seasonally flooded.

#### PF01A: Palustrine forested

29.3 acres

Characterized by woody vegetation that is at least six meters tall. Broad leaved deciduous trees are dominant forest type. Land will be temporarily flooded with surface water for brief periods during the growing season, but the water table usually lies well below the soil surface for most of the season. Vegetation consists of species that grow in both wetlands and upland environments.

#### PF01E: Palustrine forested

76.5 acres

Characterized by woody vegetation that is at least six meters tall. Broad leaved deciduous trees are dominant forest type. Land will be permanently flooded with surface water during the growing season. Vegetation consists of species that grow in both wetlands and upland environments.

#### POWZH: Palustrine open water

3.3 acres

Lands are intermittently exposed to surface waters throughout the year except in times of extreme drought. These wetlands can also be created by dikes or impoundment's which purposefully or unintentionally obstructs the outflow of water.

Through our field investigations, we were able to confirm the locations of these jurisdictional wetlands and have labeled the location of these areas in conjunction with major ecosystems. In addition to areas defined by the National Wetlands Inventory maps, we located other areas that we believe would be classified as jurisdictional wetlands and have also noted these on our maps. Many wet meadows and small marshes were observed in the early successional fields and are too numerous and small to be listed on the National Wetlands Inventory. The beaver impounded area in the southeastern side of the site has been expanding in size to encompass a large amount of land. We feel that these areas, in addition to the ones listed by the National Wetlands Inventory, would be classified as jurisdictional wetlands.

In addition to indicating the wetland areas within the project site, the Hydrologic and Wetland inventory map also shows the area of land considered to be in the Potomac River floodway. 329 acres or 89% of the site is within the floodway.

## Major Ecosystems of Horsepen Run

Horsepen Run was carefully evaluated using soil maps, National Wetlands Inventory Maps, aerial photographs, and through on-site field investigations. During three days of site work from June 7-10, 1994 vegetation was collected and identified, soils were sampled and examined, and a visual inspection of wildlife and habitat occurred. The results of the site evaluation reveal the presence of seven (7) ecosystems within the site boundaries, which are comprised of wetland and upland communities. The consultant classifies these ecosystems as:

- 1) bottomland hardwood swamps
- 2) fresh water marshes
- 3) mid successional swamp
- 4) Potomac River terrace
- 5) riparian forests
- 6) early successional fields
- 7) mixed hardwood forests

Each ecosystem has a distinct physical make-up, and provides opportunities as well as constraints to certain types of land use development. The descriptions below provide an overview of each ecosystem and the characteristics shown on the Horsepen Run Tract. Invasive, non-natural species are indicated with an asterisk (\*). Please reference the Ecosystem Map within this report to determine the location of each ecosystem within Horsepen Run.

## Existing Site Conditions

### Wetland Communities

#### Bottomland Hardwood Swamp Forest Ecosystem

Swamps are characterized by hardwood trees and shrubs that are capable of living in low oxygen environments. The highly organic hydric soils commonly form a black colored surface layer on the soil, which we noticed in many areas of the site. The most noteworthy area of bottomland hardwood swamp on the project site is just north and west of the Algonkian Elementary School. This area of land is clearly jurisdictional wetland and would be subject to protection under federal, state and local laws. Plant species found in the bottomland hardwood swamp forests include:

#### Common Name

#### Latin Name

#### Trees

Water Oak	<i>Quercus nigra</i>
White Oak	<i>Quercus alba</i>
Red Maple	<i>Acer rubrum</i>
Black Willow	<i>Salix nigra</i>
Sycamore	<i>Platanus occidentalis</i>
Scarlet Hawthorn	<i>Crataegus coccinea</i>
Box Elder	<i>Acer negundo</i>
American Elm	<i>Ulmus americana</i>
American Hornbeam	<i>Carpinus caroliniana</i>
European Linden	<i>Tilia americana</i>
Bitternut Hickory	<i>Carya cordiformes</i>

# Horsepen Run

## Site Analysis Report

### Existing Site Conditions

#### Trees (continued)

Slippery Elm  
Black Tupelo

*Ulmus rubra*  
*Nyssa sylvatica*

#### Shrubs

Common Chokecherry  
Russian Olive

*Prunus virginiana*  
*Elaeagnus angustifolia*

#### Groundcovers

Marsh Fern

*Thelypteris palustris*

#### Fresh Water Marsh Ecosystem

Fresh water marshes are characterized by herbaceous, rather than hardwood plants, emerging from water habitat. Cattails and reeds are two commonly recognized herbaceous wetland species. Marshes are often located along streams or immediately adjacent to other permanent water bodies. Seasonal changes in water levels are common and complete drying of these marshes will occur during periods of drought.

Wet meadows are another type of marsh. Wet meadows are characterized by water loving grasses, like the marsh, but they do not have standing water as frequently as fresh water marshes.

Marshes and wet meadows are scattered throughout the site and range in size from a few square feet up to an acre in size. Several large marshes were found in the southwestern and

mid-eastern portions of the site. These areas of land will be considered to be jurisdictional wetlands and are subject to protection under federal, state and local laws. Some of the vegetation identified within these marshes includes:

#### Common Name

#### Latin Name

##### Plants

Soft Rush  
Woolgrass  
Common Cattail

*Juncus effusus*  
*Scirpus cyperinius*  
*Typha latifolia*

##### Trees

Black Tupelo  
Red Maple

*Nyssa sylvatica*  
*Acer rubrum*

#### Mid-successional swamp

Beavers can alter a local ecosystem within a relatively short period of time, as has occurred within one area of the site. Beavers build small dams in the middle of streams which results in local flooding of riparian lands. Over time these high water levels begin to suffocate those trees and shrubs which the beavers have not already removed. Water tolerant species thrive and replace less water tolerant species. Within a relatively short length of time a jurisdictional wetland can be created. We feel strongly that the land and water area impacted by the beavers along Horsepen Run Creek would be classified as a jurisdictional wetland by representatives of the US Army Corps of Engineers, and would be subject to protection under federal, state and local laws. This area which has been heavily impacted by beavers lies in the southeastern portion of the site on a tributary of Horsepen Run.

# Horsepen Run Site Analysis Report

## Existing Site Conditions

### Floodplain Forest

The Floodplain Forest Ecosystem is considered to be all the land running parallel to the Potomac River north of the prominent ridge line described earlier. This community is similar in species composition to the Riparian Community. This community is characterized by a dense canopy of hardwood trees as well as an understory of shrubs and smaller trees. Due to the wetland indicative vegetation inventoried, low lying portions of this area are believed to contain bottomland swamp communities, which would be classified as a jurisdictional wetland. Typical plant species found in the Floodplain Forest include:

<u>Common Name</u>	<u>Latin Name</u>
<u>Trees</u>	
Paw-Paw	<i>Asimina triloba</i>
Washington Hawthorn	<i>Crataegus phaenopyrum</i>
Red Maple	<i>Acer rubrum</i>
Honey Locust	<i>Gleditsia triacanthos</i>
American Elm	<i>Ulmus americana</i>
Box Elder	<i>Acer negundo</i>
Sycamore	<i>Platanus occidentalis</i>

### Riparian Forest Ecosystem

Horsepen Run Creek drains the majority of the project site before emptying into the Potomac River. The plant community that the stream and its tributaries support are classified as riparian forests. These forest species require moist soils to survive, but can also tolerate flooding. Riparian areas are classified as jurisdictional wetlands by the National Wetland Inventory.

Some of the species identified during our field analysis include:

#### Common Name

#### Latin Name

##### Trees

Paw-Paw	<i>Asimina triloba</i>
Silver Maple	<i>Acer saccharinum</i>
American Elm	<i>Ulmus americana</i>
Red Maple	<i>Acer rubrum</i>
Honey Locust	<i>Gleditsia triacanthos</i>
Riverbirch	<i>Betula nigra</i>
Shumard Oak	<i>Quercus shumardii</i>
Pin Oak	<i>Quercus palustris</i>
Sycamore	<i>Platanus occidentalis</i>
Box Elder	<i>Acer negundo</i>
Green Ash	<i>Fraxinus pennsylvanica</i>

##### Ground covers/vines

Stinging Nettle	<i>Urtica dioica</i>
Poison Ivy	<i>Rhus radicans</i>

## Upland Communities

### Early Successional Fields Ecosystem

The majority of the site is composed of abandoned farm fields in various stages of ecological succession. When these fields were originally abandoned, grasses and wildflowers first dominated. Then the area began to support small

# Horsepen Run

## Site Analysis Report

### Existing Site Conditions

shrubs, and eventually saplings. Each field on the site is characterized by subtle differences in plant composition depending on the soil type, the amount of water available, the dominant types of trees nearby, and the length of time the field has been abandoned. The dominant invasive tree species in these fields are generally red maple, sycamore, and a variety of oaks.

Within these fields are many small pockets of wet meadows and fresh water marshes that, in our judgment, are most likely jurisdictional wetlands. Prior to intensive farming of this site, the entire landscape most likely possessed factors which today define the presence of jurisdictional wetlands. As wetland vegetation becomes established in these areas, and spreads, the wetlands will grow in size.

Some of the plant species identified through field investigation include:

<u>Common Name</u>	<u>Latin Name</u>
<u>Trees</u>	
Scarlet Oak	<i>Quercus coccinea</i>
Pin Oak	<i>Quercus palustris</i>
Willow Oak	<i>Quercus phellos</i>
Red Maple	<i>Acer rubrum</i>
Sycamore	<i>Platanus occidentalis</i>
Box Elder	<i>Acer negundo</i>

#### Shrubs

Russian Olive	<i>Elaeagnus angustifolia</i>
---------------	-------------------------------

#### Ground Covers

Crown Vetch*	<i>Coronilla varia</i>
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\* invasive species

#### Mixed Hardwood Forest Ecosystem

Several small patches of upland areas on the site contain mature forest, with a variety of hardwood species. These areas are scattered in a few small patches on the site, and are characterized by the following species.

#### Common Name

#### Latin Name

#### Trees

White Oak	<i>Quercus alba</i>
Scarlet Oak	<i>Quercus coccinea</i>
Eastern Red Oak	<i>Quercus rubra</i>

These ecosystems serve to define the character of the landscape and predominant setting of the site. Even though the site has been significantly altered in prior years by intensive farming, the current rate of successional change is returning the site to its former landscape condition. Left unchecked succession would continue and the site would return to a forested condition.

Each of the ecosystems possesses opportunities and constraints to future land use development. Marshes, swamps, and riparian areas protect water quality, provide irreplaceable habitat, and prevent flooding. They are also protected by federal, state and local laws which preclude them from

*Existing Site Conditions*

significant alteration for the accommodation of many forms of development. These areas also serve to mitigate and absorb negative influences of adjacent land development.

**Horsepen Run Creek**

Horsepen Run Creek is located approximately in the center of the project site and flows from the south. The creek begins 2000 feet south of Route 7, near Potomac View Road, and extends a total distance of 4.5 miles to it's confluence with the Potomac River. Within Horsepen Run, the creek begins in the southeast corner of the site and extends 1.5 miles to the Potomac River. The creeks watershed is approximately 2,100 acres in total size, inclusive of the 370 acre project site.

Water quality testing and biological monitoring were not performed on the waters of the creek. To determine the overall water quality of the creek, in-depth monitoring would need to be performed by a qualified biologist or limnologist. Based on our field observations, some general conclusions can be made about the water quality of the creek:

- Due to the surrounding land uses, Horsepen Run Creek can be assumed to have excellent water quality.
- Storm water runoff from adjacent residential development is the greatest concern to the water quality of Horsepen Run Creek. In order to maintain the water quality of the creek, efforts should be made to detain stormwater where it originates, and minimize the amount of run-off that enters the creek.
- The numerous wetlands on the site help to cleanse surface water and recharge groundwater and should be preserved to ensure that future water quality of the creek remains excellent.

**Natural Heritage Inventory**

The consultant contacted the Virginia Department of Conservation and Recreation to determine the location and types of "rare, threatened, or endangered plant and animal species, unique or exemplary natural communities, and significant geologic communities". The Biological and Conservation Data system for Horsepen Run showed no unique or threatened natural heritage resources within the project area. With the exception of the Shumard Oak, our site visit confirmed did not find any of these rare species. This may mean that they are indeed not present on the site, as the Virginia Natural Heritage program has suggested, or it may be due to the need to hire a regional botanist who will be able to better identify these local species. This does not mean that no significant or threatened resources exist on the site, just that the department has not been able to document these areas within the project site.

The following is a list of natural heritage plants known to exist within Loudoun County, some of which may be present within the Horsepen Run Site:

Common Name

Latin Name

Trees

Hawthorn variety  
Kentucky Coffee-tree  
Sandbar Willow

*Crataegus pruinosa*  
*Gymnocladus dioicus*  
*Salix exigua*

# Horsepen Run Site Analysis Report

## Existing Site Conditions

### Trees (continued)

Canadian Plum	<i>Prunus nigra</i>
Dwarf Chinquapin Oak	<i>Quercus prinoides</i>
Shumard's Oak	<i>Quercus shumardii</i>

### Groundcovers

Short's Rockcress	<i>Arabis shortii</i>
Short's Aster	<i>Aster shortii</i>
Sweet-Scented Indian-Plantain	<i>Cacalia suaveolens</i>
Crested Sedge	<i>Carex cristatella</i>
Epiphytic Sedge	<i>Carex decomposita</i>
Wild Mock-cucumber	<i>Echinocystis lobata</i>
White Trout-lily	<i>Erithronium albidum</i>
Yellow Avens	<i>Geum aleppicum</i>
Stiff-hair Sunflower	<i>Helianthus hirsutus</i>
Blueflag	<i>Iris versicolor</i>
Winged Loosestrife	<i>Lythrum alatum</i> var <i>alatum</i>
Hairy Beardtongue	<i>Penstemon hirsutus</i>
Fowl Bluegrass	<i>Poa palustris</i>
Stalkless Yellowcress	<i>Rorippa sessiliflora</i>
Large-fruited Sanicle	<i>Sanicula trifoliata</i>
Stiff Goldenrod	<i>Solidago rigada</i>

## Existing Wildlife Species

The wildlife throughout Horsepen Run is diverse and abundant. The consultant surveyed the site and identified mammalian, bird, and reptile species present. We also observed

some of the nesting and migratory patterns of these animals. The site offers several features that are beneficial to wildlife:

- diverse types of ecosystems that offer a variety of habitats for wildlife
- large areas of interior forest habitat
- numerous corridors available along streams and fence lines for wildlife migration
- plentiful water
- diversity of vertical separation
- natural adjacent land uses, creating a greater range for wildlife

The following is a list of wildlife species that we observed on our site visit. A more thorough listing of species could be made available to the Proprietary by a qualified wildlife biologist.

### Common Name

### Latin Name

#### Reptiles

Eastern Box Turtle	<i>Terrapene carolinia</i>
Painted Turtle	<i>Chrysemys picta</i>
Snapping Turtle	<i>Chelydra serpentina</i>

#### Birds

Red-winged Blackbird	<i>Agelaius phoeniceus</i>
Brown Headed Cowbird	<i>Molothrus ater</i>
Common Crow	<i>Corvus brachyrhynchos</i>
Rufous-sided Towhee	<i>Pipilo erythrophthalmus</i>
Eastern Bluebird	<i>Sialia sialia</i>
Eastern Phoebe	<i>Sayornis phoebe</i>
American Robin	<i>Turdus migratorius</i>

# Horsepen Run Site Analysis Report

## Existing Site Conditions

### Birds(continued)

Carolina Wren	<i>Thryothorus ludovicianus</i>
Northern Cardinal	<i>Cardinalis cardinalis</i>
Red-breasted Nuthatch	<i>Sitta candensis</i>
Mourning Dove	<i>Zenaida macroura</i>
Black-capped Chickadee	<i>Parus atricapillus</i>
Northern Oriole	<i>Icterus galbula</i>

### Mammals

Raccoon	<i>Procyon lotor</i>
Beaver	<i>Castor canadensis</i>
Gray Squirrel	<i>Sciurus carolinensis</i>
White-tailed Deer	<i>Odocoileus virginianus</i>

In addition to the wildlife species that we observed during the site analysis, the following list of wildlife species was provided to us by The Countryside Proprietary.

### Bird Species Observed by Countryside Residents

Eastern Wood Pewee	<i>Contopus virens</i>
Grasshopper Sparrow	<i>Ammodramus savannarum</i>
American Goldfinch	<i>Carduelis tristis</i>
American Woodcock	<i>Philohela minor</i>
Starling*	<i>Sturnus vulgaris</i>
House Sparrow*	<i>Passer domesticus</i>
White-breasted Nuthatch	<i>Sitta carolinensis</i>
Canada Goose	<i>Branta canadensis</i>
Mallard Duck	<i>Anas platyrhynchos</i>
Yellowthroat Warbler	<i>Dendroica dominica</i>
American Edstart	genus unknown
White-eyed Vireo	<i>Vireo gris eus</i>
Downy Woodpecker	<i>Picoides pubescens</i>
Hairy Woodpecker	<i>Picoides villosus</i>

Common Flicker	<i>Colaptes auratus</i>
Pileated Woodpecker	<i>Dryocopus pileatus</i>
Arcadian Flycatcher	<i>Empidonax virescens</i>
Carolina Chickadee	<i>Parus carolinensis</i>
Tufted Titmouse	<i>Parus bicolor</i>
Turkey	<i>Meleagris gallopavo</i>
Fish Crow	<i>Corvus ossifragus</i>
Kildeer	<i>Charadrius vociferus</i>
Red-shouldered Hawk	<i>Buteo lineatus</i>
Short-eared Owl	<i>Asio flammeus</i>
Osprey	<i>Pandion haliaetus</i>
Turkey Vulture	<i>Cathartes aura</i>
American Kestrel	<i>Falco sparverius</i>
Yellow-Billed Cuckoo	<i>Coccyzus americanus</i>
Belted Kingfisher	<i>Megaceryle alcyon</i>
Ruby-throated Hummingbird	<i>Archilochus colubris</i>
Eastern Kingbird	<i>Tyrannus tyrannus</i>
Great Crested Flycatcher	<i>Myiarchus crinitus</i>
Swallow sp.	
Chimney Swift	<i>Chaetura pelagica</i>
Blue Jay	<i>Cyanocitta cristata</i>
House Wren	<i>Troglodytidae aedon</i>
Blue-gray Gnatcatcher	<i>Poliophtila caerulea</i>
Gray Catbird	<i>Dumetella carolinensis</i>
Mockingbird	<i>Mimus polyglottos</i>
Wood Thrush	<i>Hylocichla mustelina</i>
Red-eyed Vireo	<i>Vireoolivaceus</i>
Common Grackle	<i>Quiscalus quiscula</i>

# Horsepen Run

## Site Analysis Report

### Existing Site Conditions

#### Bird Species Observed by Countryside Residents

Scarlet Tanager	<i>Pirangaolivaacea</i>
House Finch*	<i>Carpodacus mexicanus</i>
White-throated Sparrow	<i>Zonotrichia albicollis</i>
Wood Duck	<i>Aix sponsa</i>

\* invasive species

#### Mammal Species Observed by Countryside Residents

Virginian Opossum	<i>Didelphis marsupialis</i>
Muskrat	<i>Ondatra zibethica</i>
Striped Skunk	<i>Mephitis mephitis</i>
Little Brown Bat	<i>Myotis lucifugus</i>
Red bat	<i>Lasiurus borealis</i>

#### The Impact of Deer Browse

Most of the forested areas and open meadows of the site showed an abundance of deer nesting and migration. During our site investigations, numerous deer were seen, as well as indications of deer: tracks, paths, and scat. It is our conclusion that Horsepen Run serves as vital habitat for deer, as well as providing habitat to all wildlife as a part of the greater Potomac River corridor.

We noticed that the understory layers of the some of the forested ecosystems have been stripped of their vegetation. This absence of vegetation can be linked to the high population of deer on within Horsepen Run. The stripping of vegetation from forest understories is classified by wildlife

biologists as "Deer Browse." When deer populations become greater than the land can support, the impact of deer browse can have a devastating effect on the long term health and biodiversity of local ecosystems. Plant species that deer are known to browse on include:

White Monks hood	<i>Aconitum reclinatum</i>
Jack-in-the-Pulpit	<i>Arisaema triphyllum</i>
Variable Sedge	<i>Carex polymorpha</i>
Leatherleaf	<i>Chamaedaphne calyculata</i>
Large Yellow Lady's Slipper	<i>Cypripedium calceolus</i> <i>v. pubescens</i>
Showy Lady's Slipper	<i>Cypripedium reginae</i>
Strawberry-bush	<i>Euonymus americana</i>
Water Lobelia	<i>Lobelia dortmanna</i>
Hairy honeysuckle	<i>Lonicera hirsuta</i>
Golden Club	<i>Orontium aquaticum</i>
Leafy White Orchid	<i>Platanthera dilalata</i>
Rosebay	<i>Rhododendrum maximum</i>
Pinxter-flower	<i>Rhododendron</i>
<i>periclymenoides</i>	
Large White Trillium	<i>Trillium grandiflorum</i>
Witch-hobble	<i>Viburnum lantanoides (v.</i> <i>alnifolium)</i>
Possum Haw Viburnum	<i>Viburnum nudum</i>

To keep deer at a healthy and self-sustaining population Countryside proprietary has several options:

1. Employ a wildlife biologist to study the deer population and determine the carrying capacity of Horsepen Run. The biologist should monitor the deer population yearly. If the

***Existing Site Conditions***

deer population raises to a number than is greater than the site can sustain, the biologist can trap or hunt a certain number of deer each year.

2. Countryside Proprietary can participate in a short hunting season for the entire Potomac River basin to help keep the population from getting too large. This would also require the services of a wildlife biologist to monitor the deer population and determine the length of the hunting season each year.

For deer management to be effective, these options would need to be implemented along the entire Potomac River corridor.

### **Beavers and Beaver Management**

An estimated eight beaver lodges have been located in the southeastern area of Horsepen Run. Countryside Proprietary and local residents have expressed concern over the flooding, standing water and health issues associated with a large beaver population.

Countryside is now interested in removing the Beaver dams from the Horsepen Run Creek channel, but is concerned with the impact that this will cause downstream. The consultant has determined that the impact of the beaver impoundments may now extend to a federal definition of jurisdictional wetlands. We suggest that Countryside contact a representative of the US Army Corps of Engineers to review the location of the dams and extent of jurisdictional wetlands prior to removing the dams. This will ensure that liability for the

extent of possible wetlands is properly assessed before action is taken to remove the dams.

### **Adjacent Land Uses**

The following land uses are found adjacent to Horsepen Run:

#### **Residential**

Residential homes ranging from single family homes on 2/3 acre lots to town houses and apartments border the southern side of Horsepen Run.

#### **Schools**

- The Algonkian Elementary School lies immediately adjacent to the main entrance into Horsepen Run, also on the southern property line. Development of soccer fields is currently underway on a small parcel of land that the School Board owns which juts into a portion of the project site.
- A Middle School is proposed for a parcel of land between Algonkian Parkway and the southeast border of Horsepen Run.
- Both schools could utilize Horsepen Run for environmental education activities associated with physical science classes.

# Horsepen Run

## Site Analysis Report

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### Existing Site Conditions

#### Airfield/private residence

An existing airfield and private residence borders the western edge of Horsepen Run. No information on this land use was available for this report.

#### Potomac River

Horsepen Run shares a one mile (5,300') northern border with the Potomac River. At this location, the river is approximately 1/3 of a mile wide, shallow, and slow moving. The river sports excellent smallmouth bass and catfish fishing as well as recreational boating.

#### Wildlife refuge (Maryland)

Maryland Dept. of Natural Resources  
Wildlife Division  
Gaithersburg Field Office (301)258-7308•

*Mckee Beshers Wildlife Management Area:* A 1,960 acre wooded area directly across Potomac river from Horsepen Run, which represents a significant migratory holdover for a wide variety of ducks and geese. In particular, the area sports a large variety of wood ducks. Over 250 species of songbirds have been identified, and it is known to have a significant population of hawks, herons, and other large raptors.

- *Izaak Walton League:* A large, multi-acre parcel of land just north of the Mckee Beshers WMA, noted for its significant population of songbirds.

### Infrastructure

The following infrastructure exists in the areas adjacent to Horsepen Run:

#### Access and Transportation

An existing gravel road serves as the main access into Horsepen Run. The access road begins at the rear of the parking lot used for the community swimming pool just east of the Algonkian Elementary School. Secondary entrances into the tract include: an asphalt maintenance path from the end of Byron Court and community open space at the end of Thales Way (both off of Whittingham Circle), and community open space at the end of Aldridge Court. Upon completion of the soccer fields, behind the elementary school, it will be necessary to either restrict or facilitate access into Horsepen Run as deemed appropriate by the proposed surrounding uses.

Local transportation to Horsepen Run is by way of Algonkian Parkway, which runs through the CountrySide community.

#### Local/regional sanitary sewer

A sanitary sewer collector line exists along the majority of the southern edge of the Horsepen Run tract. Associated with this sanitary sewer collector line, a community pump station

is located approximately 500 feet down the existing gravel road from its entrance at the rear of the parking lot.

The "Potomac Interceptor" is a regional sanitary sewer line which extends through much of the CountrySide community.

### Electricity and Water

Residential electric and water service exists along the majority of the southern edge. It will be necessary to consult with Loudoun County Sanitation Authority to determine compatible locations for access and development.

WOW  
↓

### Conclusions

Horsepen Run is an outstanding resource for the people of Loudoun County, as well as for Northeastern Virginia. The site serves many important uses including flood water retention, water quality enhancement, air pollution filtering, and wildlife habitat. Perhaps more importantly to the people who live in Countryside, it serves as one of the last large stretches of wild land.

Based on the site analysis phase of the project the following conclusions can be drawn:

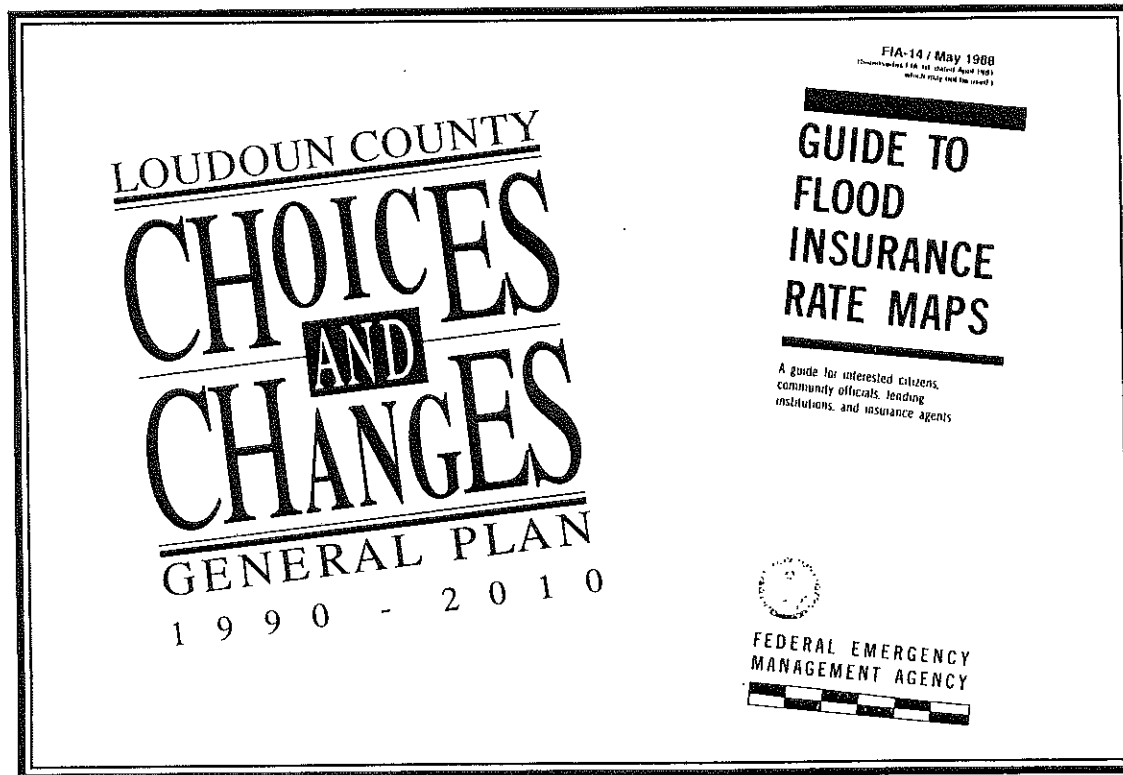
- 176 acres of the site (47%) would most likely be classified by federal authorities to be jurisdictional wetland. This will require some land use development scenarios be approved through a 404 Permit application process with State and Federal authorities.

### Existing Site Conditions

- The feasibility of many development scenarios could be limited not only by the amount of wetlands, but also by their location throughout the site.
- 270.41 acres or 68% of the site contains soils which may limit land development options.
- The site serves as an important habitat for wildlife.
- Low-impact development scenarios are the most feasible for Horsepen Run, and can be modified on site to either avoid or minimize the impacts on wetlands.
- The site is well served by transportation, water, sanitary sewer and electrical services.
- The southern boundary of the site is lined with private residential homes, and any future land development scenarios should respect the privacy of these homeowners.

The following maps summarize some of the site evaluation materials prepared by the Consultant.

*Horsepen Run*  
*Sterling, Virginia*



*Regulatory Issues*

## Land Use

### Introduction

The development of Horsepen Run (and the community of CountrySide) must be consistent with the land use policies and regulations of Loudoun County. Six planning documents outline the County's policies and regulations as they relate to land development in CountrySide; these include (in order of most site-specific to least site-specific):

1. **Memorandum of Understanding (MOU)**, dated June 7, 1978, between Lee Jackson Development Corporation (Four Thirty Seven Land Company, Inc.) and the Board of Supervisors of Loudoun County, Virginia. This is the document that approves and directs the development of CountrySide and sets forth the conditions ("covenants and promises") of approval.
2. **Loudoun County Zoning Ordinance**, adopted June 21, 1972. This is the zoning ordinance that was in effect when the MOU was approved and which governs all land uses originally granted under its provisions until June 2003 (when the 1993 Zoning Ordinance becomes effective). It defines permitted uses and restrictions of the approved zoning classification for CountrySide, PD-H: Planned Development - Housing Districts.
3. **Loudoun County Subdivision and Development Ordinance**, adopted November 1, 1984. This document outlines the procedures for subdivision and site plan submittals and approvals, as well as development standards for infrastructure improvements such as roads, drainage, utilities and tree protection.

### Regulatory Issues

4. **Loudoun County Zoning Ordinance**, adopted June 16, 1993. This is the current zoning ordinance. After ten (10) years (June 16, 2003) it will supersede the prior ordinance with regard to rezoning.
5. **Eastern Loudoun Area Management Plan**, adopted September 2, 1980 and last amended January 6, 1993. This is a component of the Loudoun County Comprehensive Plan which represents the options and proposals for future land development in eastern Loudoun County.
6. **Choices and Changes: Loudoun County General Plan 1990 - 2010**, adopted September 17, 1991. The General Plan is part of Loudoun County's Comprehensive Plan. It is a long-range guide for growth, land use and development decisions in the County. While the General Plan states *goals and policies* for land use decisions, it is not a development ordinance.

We reviewed each of these documents for their implications in the design and development of Horsepen Run. The following pages provide a summary of each:

# Horsepen Run Site Analysis Report

## Regulatory Issues

### 1. Memorandum of Understanding, 1978

The Memorandum of Understanding contains three conditions of approval that have implications for the development of CountrySide. The first condition states that the property shall *"be developed in accordance with the provisions of the PDH-12 zoning classifications"* (p.2, paragraph 2), which contains language regarding permitted recreational uses (see below).

The second applicable condition is a buffer requirement of *"a fifty (50) foot undisturbed area ... along those areas of the property boundary wherein development is occurring at densities greater than four (4) dwelling units per acre"* (p. 8, paragraph 11 b.).

The third condition, which applies specifically to development of the Horsepen Run tract of land, states that, *"The parties hereto agree that development of that portion of the property located within the one hundred (100) year Potomac River floodplain shall be further subject to the Deed of Easement attached ... as Exhibit I" ...*" (p.9, paragraph 15). The Deed of Easement (see Appendix A) permits the use of the floodplain lands for:

- a. *Recreational activities*
- b. *Farming and conservation activities*
- c. *Water conservation activities, underground utility easements, flood, storm drainage and siltation control and impoundment facilities and such other similar uses as may be necessary to satisfy governmental requirements"*

The easement also states that *"no uses shall be permitted within that portion of the Easement Property lying within five hundred (500) feet of the southern shoreline of the Potomac River affronting upon the Easement Property. Provided, however, that the County or its designee shall have the right and is hereby granted an easement for the purpose of constructing and maintaining within said area a public pedestrian, equestrian and/or bicycle trail (Potomac River Heritage Trail), together with public rights of ingress and egress. The trail easement created and granted pursuant to this paragraph shall be subject to final location by the County, it being understood that it is the intent of the parties hereto that this easement shall extend across the entire frontage of the easement Property along the Potomac River"* (Easement, p. 4, paragraph 5).

### 2. Loudoun County Zoning Ordinance, 1972

Article 7 of the 1972 Zoning Ordinance includes the PD-H: PLANNED DEVELOPMENT - HOUSING DISTRICT that defines the permitted uses within CountrySide.

**Section 701.5.1 Permitted principal uses and structures are as follows:** includes,

*"Parks, playgrounds, community centers and non-commercial recreational facilities such as golf courses, tennis courts, marinas, game rooms, libraries and the like"* ( p. 67, paragraph 701.5.1)

The Ordinance also states that the number of parking spaces required for parks, playgrounds, community centers and non-commercial recreational facilities shall be *"as determined by the Zoning Administrator in connection with the particular case"* (p. 71, paragraph 701.10)

*Regulatory Issues*

**3. Loudoun County Land Subdivision and Development Ordinance**

This document is divided into two primary (2) sections: Subdivision/Site Plan Procedures and Facility Standards.

**Subdivision/Site Plan Procedures** - Chapter 1244 of the Subdivision Ordinance states that *"any developer of any tract of land in the County shall submit a site plan for [ all uses in the Floodplain Overlay District ] as established by the Loudoun County Zoning Ordinance"* (p. 29, paragraph 1244.01). Paragraph 1244.02 defines the submittal requirements for a Preliminary Site Plan, while paragraph 1244.07 defines the requirements for a Final Site Plan. The site plan review and submittal process(es) are illustrated in the flow chart pages and tables on pages 37 through 43

**Facilities Standards** - This section establishes design standards for many facilities that may be developed at Horsepen Run. These include:

- Water Supply and Distribution System (rest rooms, drinking fountains)
- Waste Collection and Disposal System (rest rooms)
- Transportation (drives, roads, parking, sidewalks, trails)
- Drainage (stormwater swales, ponds and culverts/flood plain standards)

Additionally, this section includes standards for soil testing, lighting, tree preservation, landscape plans and administrative procedures. It is important to note that this section also

outlines detailed hydrologic and hydraulic floodplain studies that may be required for park development within the floodplain.

**4. Loudoun County Zoning Ordinance, 1993**

As mentioned in the Land Use introduction on page 17 of this report, as of June 2003, all land development projects originally approved under the 1972 Zoning Ordinance will be required to meet the standards of the 1993 Zoning Ordinance for rezoning and new construction. The 1993 Zoning Ordinance has two sections that are applicable to future land development at CountrySide: 1) a modified PD-H, PLANNED DEVELOPMENT- HOUSING District, and 2) a newly created FOD, FLOODPLAIN OVERLAY DISTRICT.

First, the 1993 PD-H PLANNED DEVELOPMENT-HOUSING, ARTICLE IV, Division A: states that all development, *"shall be developed according to the regulations of the Urban Residential Districts, in Article III of this Ordinance.* Under ARTICLE III, Section 3-703 Permitted Uses, item (D) states, *"Public or private playground or neighborhood park"*. Higher intensity land uses such as golf courses, community centers, libraries, marinas, etc., which were *permitted uses* in the 1972 Zoning Ordinance, are categorized as Special Exception Uses in Section 3-704 of the 1993 Zoning Ordinance.

# Horsepen Run

## Site Analysis Report

### Regulatory Issues

ARTICLE VI, Section 6-1301 explains the purpose of the special exception, " *The special exception procedure is designed to provide the Board of Supervisors with an opportunity for discretionary review of requests to establish or construct uses or structures which have the potential for a deleterious impact upon the health, safety, and welfare of the public; and, in the event such uses or structures are approved, the authority to impose conditions that are designed to avoid, minimize or mitigate potentially adverse effects upon the community or other properties in the vicinity of the proposed use or structure.*"

Furthermore, the stipulation "non-commercial" as it relates to recreational facilities in the 1972 Zoning Ordinance, does not appear in the 1993 Zoning Ordinance. However, this does not grant outright permission for the development of commercial recreational facilities because, any recreational use having the potential of operating as a commercial venture is classified under *special exception uses*. All special exception proposals must be interpreted by the Zoning Administrator and the Board of Supervisors who after review, will either approve (potentially with conditions) or deny the application.

Second, the FLOODPLAIN OVERLAY DISTRICT-FOD, ARTICLE IV, Division C, Section 4-1500, which encompasses the entire Horsepen Run site, permits a wide range of

public and private recreational uses within "the floodplain of streams draining greater than 640 acres" (p. 130, paragraph A3)

- *Agricultural uses such as general farming, pasture, grazing, outdoor plant nurseries, horticulture, wildcrop harvesting, vegetable (allotment) gardens. . .*
- *Public or private recreational uses such as golf courses and driving ranges, archery ranges, picnic grounds, wildlife and nature preserves, target ranges, trap and skeet ranges, hunting and fishing areas, swimming areas (except for swimming pools) hiking and horseback riding trails, play areas of a natural, permeable nature, including ball fields and polo fields, and other similar park and open space uses.*
- *Stormwater management improvements . . .*
- *Parking areas accessory to uses permitted by right or special exception.*
- *Incidental structures, > 840 square feet of floor area . . .*

However, alterations to the floodplain:

- *"shall result in no off-site increase in the water surface elevation of the base flood",*
- *"shall not create erosive water velocity on or off-site",*
- *"shall not relocate or alter the "natural stream channel " on streams that drain greater than 640 acres",*
- *shall "incorporate the use of natural materials (earth, stone, wood on cut and fill slopes and provide for tree protection",*
- *shall maintain "the flood carrying capacity within the altered floodplain" (p. 135, paragraph B).*

This Ordinance also requires the submittal of floodplain studies with any application for development.

## 5. Eastern Loudoun Area Management Plan

The Eastern Loudoun Area Management Plan does not contain regulations that will dictate the use or development of Horsepen Run, but provides a basis for making land use decisions in Eastern Loudoun County. It is reasonable to believe that the County staff will consider the concepts and ideas contained in the plan when reviewing the proposed site plan for Horsepen Run.

The key parts of the Plan that are directly related to future development of Horsepen Run are the "Environmental Plan" and the section on "Community Design". The following is a summary of each.

**Environmental Plan** - The Environmental Plan discusses objectives for drainage, floodplain usage, erosion, water quality and noise, among others. Recommendations applicable to the development of Horsepen Run include:

- "Maintenance of critical areas in an undeveloped state" (p.5, paragraph 2)
- "Prevention of erosion and sedimentation problems through [good] site design, as well as erosion control plans required under the Erosion Control Ordinance" (p.6, paragraph 2)
- "Protection of important vegetation, particularly along stream courses, steep slopes and other areas of high erosion potential" (p.6, paragraph 2)
- "Encouragement of development design based on preservation of natural drainage patterns" (p. 6, paragraph 2)

## Regulatory Issues

**Community Design** - The Community Design section discusses site design, architectural design, trails and open space, cluster techniques, energy efficiency and other design principles. Recommendations applicable to the development of Horsepen Run include:

- Design and construction of energy efficient buildings
- Development of a trail along the Potomac River (property is being assembled by the Northern Virginia Regional Park Authority) and connections to the regional W&OD Trail, Algonkian Regional Park and other significant trails and open space to create a comprehensive trail system.

## 6. Choices and Changes: Loudoun County General Plan 1990 - 2010

The General Plan, a long-range guide for Natural and Cultural Resources, Growth Management, and Community Design, is part of Loudoun County's Comprehensive Plan. Although the General Plan states *goals and policies* for land use decisions, it is *not* a development ordinance. Furthermore, any goal or policy that was adopted into the 1993 Zoning Ordinance *does not* apply to property such as Horsepen Run, which must conform with the 1972 Zoning Ordinance. In spite of this, the following issues will be relevant to future developments of Horsepen Run:

# Horsepen Run

## Site Analysis Report

### Regulatory Issues

#### Natural and Cultural Resources (p. 11)

- "Maintain the high quality of Loudoun County's environment as a unique local and regional resource."
- "Conserve the County's renewable and non-renewable resources to the greatest extent possible."
- "Coordinate human activities with the character and limitations of the natural environment so as to limit its disruption."
- "Preserve the County's cultural and scenic character by conservation of archaeological sites and historic structures and their settings."
- "Establish land uses compatible with historic, open space and scenic areas."

#### Growth Management (p. 12)

- "Conserve agricultural resources and avoid environmental pollution which would degrade the farmland, the natural environment and the surrounding communities."

Policies developed to achieve these goals include:

#### Surface Water Policies (p. 19)

- "Where development in urban communities is allowed near the shorelines of streams and reservoirs, great care must be taken in controlling stormwater flows."
- "The County encourages and supports community programs to keep shorelines and waterbodies free from debris and litter."
- "In suburban areas, water access should be provided for recreational uses. These areas will be designated in local area plans."

*Where paved surfaces are needed, they should be constructed of pervious paving materials when structurally feasible."*

#### Floodplain Policies (p. 23)

- "The County will continue to enforce, and refine when necessary, its current floodplain protection regulations."
- "The County seeks to minimize increased demand for flood storage by:
  - a. Encouraging the development of compact urban areas and permitting taller buildings to minimize impervious surfaces in accordance with other policies in this plan;
  - b. Seeking to design stormwater systems using overland flow wherever possible;
  - c. Seeking to increase detention and storage in stormwater systems where it will decrease peak flow;
  - d. Designating and locating new wetlands and wet meadows as parts of stormwater systems in areas adjacent to appropriate land uses to decrease stormwater run-off."
- "The County will recognize the interdependence of floodplains and preservation of open space, wetlands, wildlife habitat, and scenic vistas and corridors."

#### Wetland Policies (p. 25)

- "In accordance with Federal Policy and the Federal goal of no net loss of wetlands, the County will coordinate with Federal agencies to preserve existing wetlands when possible and to mitigate their destruction when necessary."

#### Scenic Rivers and Potomac River Policies (p. 27)

- "The County will establish a 300 foot (adopted as 250-foot in the June 16, 1993 Zoning Ordinance) buffer along Scenic

**Regulatory Issues**

*Rivers and the Potomac River measured from the river bank. The Zoning Ordinance will be amended to prohibit development in these buffers except for:*

- a. *Water dependent or passive recreational uses that do not involve land disturbing activities as defined in the Zoning Ordinance;*
  - b. *Improvements associated with historic, cultural, or archeological sites;*
  - c. *Sewer and water lines, which will be located to minimize negative water quality impacts according to standards to be agreed upon by the County and the LCSA.*
- *"Marinas, docks, and other shoreline development will be Special Exception uses, designed and built to maintain the existing natural and scenic character of the shoreline."*
  - *"The Zoning Ordinance will be amended to prohibit building or disturbance of land within a Scenic River buffer or within the Potomac Shoreline buffer unless this activity is necessary to alleviate an undue hardship that would otherwise be suffered by the property owner (i.e., a drainfield or road crossing necessary to ensure a property may develop to its potential under County policy). In the consideration and adoption of such zoning ordinance amendments, due regard shall be given to subdivisions which have been approved prior to the adoption of the General Plan."*
  - *The County will define and identify the viewsheds along these waterways and establish policies for development in these areas. Once these areas are identified, the County will encourage that development be substantially limited within them.*
  - *"The County will complete and execute a plan for acquiring and managing open space corridors along the county's officially designated Scenic Rivers. The County will coordinate this effort with the efforts of the Leesburg/Loudoun County Greenways Committee."*
  - *"The County will work with adjacent jurisdictions; local, state, and regional governments; advisory boards; and citizen's groups to develop a Potomac River Shoreline Management Plan (not in existence at this time and categorized as low priority by current Board of Supervisors). This Plan should include:
    - a. *The boundaries of the study area;*
    - b. *A comprehensive natural resources inventory;*
    - c. *Policy recommendations for river corridor management and protection; and*
    - d. *A process for integrating the participating groups."**
  - *"As part of the [proposed] Potomac Shoreline Management Plan, the County will complete and execute a plan for acquiring and managing open space corridors along the Potomac River. Preference will be given to mechanisms such as proffers, other donations and purchase in efforts to acquire land and/or easements."*
  - *"The County will establish a strategy to expand recreational use of Scenic Rivers and the Potomac by developing parks and providing public access sites."*
  - *"The County will seek proffers from developers for public access trails along the Potomac River and designated sections of Goose and Catoctin Creeks."*
  - *"The County will not permit diversion of Scenic Rivers under any circumstances."*

# Horsepen Run

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### Regulatory Issues

#### Stream Corridor Policies (p. 29)

- *"The County intends to establish an overlay zoning district based on the concept of a 150 foot minimum buffer from either shoreline of streams that drain 640 acres or more. When floodplains, wetlands, and steep slopes are present the buffer may be extended as far as 300 feet. Buffers along Bull Run will extend to 300 feet in all cases because of that waterway's connection to the Occoquan watershed, an important regional water source. Development potential may be transferred from this buffer area according to the density transfer guidelines on p. 195 in Chapter Eight of this plan. The Zoning Ordinance will be amended to prohibit development in these buffers except for:*
  - a. Water dependent or passive recreational uses that do not involve land disturbing activities as defined in the Zoning Ordinance; and*
  - b. Improvements associated with historic, cultural, or archeological sites.*
  - c. Sewer and water lines which will be located to minimize negative water quality impacts according to standards to be agreed upon by the County and the LCSA.*
  - d. The County will consider each residence existing at the time of the General Plan's adoption as a permissible use so long as such residence is not located within the floodplain, wetlands or upon steep slopes.*
  - e. Golf courses meeting standards to be set in the Zoning Ordinance." (Not addressed in the June 16, 1993 Zoning Ordinance).*

- *"The Zoning Ordinance will be amended to prohibit building or disturbance of land within a stream corridor unless this activity is necessary to alleviate an undue hardship that would otherwise be suffered by the property owner (i.e., a drainfield or road crossing necessary to ensure a property may develop to its potential under County policy). In the consideration and adoption of such Zoning Ordinance amendments, due regard shall be given to property which has been subdivided, rezoned or has had its status altered through approval of some other land development application prior to adoption of the General Plan."*
- *"The County encourages that land in stream corridors be placed under permanent open space easement using one or more of the following programs:*
  - a. Fee simple purchase;*
  - b. Donation of easements; or*
  - c. As the result of a New Rural Hamlet or New Rural Village development."*
- *The County recognizes the importance of stream corridors as water quality buffers, wildlife habitat, community edges, and locations for greenways and trails and encourages protection of these buffers from undue disturbance."*
- *"The County will initiate an "Adopt a Stream" program, similar to the Isaac Walton League's "Save Our Streams" program, which addresses issues such as litter control and water quality."*

#### Forest/Vegetation Policies (p. 40)

- *"Forest shall be defined as:*  
*A plant community predominantly consisting of trees and other woody vegetation of at least 20 acres in which 50% of the tree canopy coverage exceeds 25 feet in height. A forest is further*

## Regulatory Issues

*defined as forming an ecosystem that provides food, water, and shelter for use as a wildlife habitat."*

- *Forests and vegetation should be preserved on steep slopes (greater than 25%). On 15-25% slopes, clearing should be limited to only that necessary for essential road construction and utility installation."*
- *Forests and vegetation should be preserved in stream corridors, Scenic River corridors, and the Potomac River corridor because these corridors are intended to preserve the integrity of these waterways." (The MOU between the County and CountrySide stipulates; "no trees or shrubbery shall be cut down or removed. . . , no uses shall be permitted within that portion of the Easement Property lying within five hundred (500) feet of the [entire] southern shoreline of the Potomac River affronting upon [Horsepen Run]. This 500-foot Potomac River buffer encompasses 60.8 acres. The 150-foot Scenic Creek Valley Buffer, necessary along each side of Horsepen Run (Creek), encompasses 50.9 acres.)*
- *"The County will encourage property owners pursuing silviculture operations to develop Forest Management Plans using resources available through the Virginia Department of Forestry."*
- *"The County continues to encourage landowners to preserve forested areas, through use of Agricultural and Forestall Districts, easements, and other voluntary means, as a factor in determining environmental quality as well as value as an economic resource."*

### Wildlife Habitat Policies (p. 41)

- *"The County will seek to protect areas of natural diversity and rare, threatened or endangered species through stricter land use regulations."*

- *"The County will conserve and protect wildlife habitat through the preservation of a broad range of natural resources such as natural vegetation, forest cover, floodplains, streams and stream corridors, wetlands, and undeveloped areas associated with steep slopes."*
- *"The County will consider wildlife habitat as a factor in its efforts to protect a broad range of natural resources that cover large areas such as stream valley corridors and mountainsides."*
- *"The County will include wildlife habitat preservation objectives in efforts to establish the County's Greenways network and in other natural corridors."*
- *"The County encourages that buffers be placed around desirable wildlife habitats in the Urban Growth Areas."*

### Historic Resource Policies (p. 43)

- *"The County will require an archeological and historical resources inventory. This inventory must include a plan for preservation of these resources, as part of all development applications."*

The Potomac bottomland area of CountrySide [Horsepen Run], was surveyed in 1980 and 1981 (for the Four Thirty Seven Land Company, Inc.) revealing ten *prehistoric* sites reported at or near the confluence of Horsepen Run and the Potomac River (44Ld125-133, and 44Ld254). 1258 prehistoric

# Horsepen Run

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## Site Analysis Report

### Regulatory Issues

lithic (stone) artifacts, representing cultural phases from Early Archaic (ca. 7000 BC) to Late Woodland (ca. 1200 AD), were recovered including: projectile points, flakes, fire cracked rock, and tool making artifacts.

32 additional sites, dating from the late eighteenth century, were located outside of the Horsepen Run tract in CountrySide and outside the scope of work for this report. The graves of several unknown Union soldiers are located in the Jenkins family cemetery; which is overgrown [reportedly] still standing in the woods between CountrySide and the landfill to the east of CountrySide.

All archaeological information, both from Horsepen Run and CountrySide, is recorded in seven volumes that make up *Phases I - III Archaeological Investigations of the Country-Side Planned Community*. Additional archival information may be available from the Virginia Department of Historical Resources in Richmond.

#### Wetlands:

The United States Congress recognized that wetlands (also called swamps, bogs, marshes and quagmires), long thought of as economic wastelands, have important functions in preserving environmental quality. To address the problem of wetlands destruction, Congress authorized a permitting

process that restricts activities with the potential to do irreversible harm to wetlands. As a result, any proposed change in the use of land must consider whether that property includes regulated wetlands, either tidal or nontidal, and whether a permit is required *before* any changes are made.

Several maps were obtained that provide relevant information regarding on-site wetlands (refer to Site Analysis Map in this report). These maps included Loudoun County base maps, Soil Conservation Service (SCS) maps, United States Geological Survey (USGS) topographic maps, United States Fish and Wildlife Services National Wetland Inventory (NWI) maps. The Consultants surveyed Horsepen Run on foot, taking soil samples and identifying wetland vegetation. Hydric soils, one of the three wetland identifying characteristics, were found to exist on 140.14 acres (38%) of the site. Two specific soil types located in Horsepen Run are classified as hydric, *bowmansville silt loam* and *purdy silt loam triassic*. They occur in ten distinct parcels evenly distributed across the project site. Standing water and wetland specific vegetation, the remaining two identifying features, are also found over much of the site and comprise an additional 36 acres (10.2%) of the site. Occurrence of any two of the three identifying characteristics may define a landscape as jurisdictional wetlands, which would therefore be regulated by the US Army Corps of Engineers.

Because of the overwhelming landscape conditions of the site, indicating the existence of nontidal, freshwater wetlands, it will be necessary to engage the services of an environmental firm to survey the locations of all on-site wetlands if the constituents of CountrySide desire to develop in these areas. A detailed wetland delineation (mapping) is a require-

ment of the permitting process when developing jurisdictional wetlands.

US Army Corps of Engineers  
District 4/Dumfries Field Office  
Plaza South, Suit 102  
138 Graham Park Road  
Dumfries, VA 22408 (703)221-6967

## Regulatory Issues

### Regulation of Jurisdictional Wetlands:

**404/401 Permit Process:** In the State of Virginia, a streamlined process called the Joint Permit Application (JPA) exists whereby the Virginia Marine Resources Commission (VMRC) acts as the primary point of contact for all wetland permitting (see Flow Chart at the end of Regulatory Issues). The 404 portion of the permit is administered by the U.S. Army Corps of Engineers and regulates the clearing, grubbing, draining, filling, dredging, etc. of wetlands. The 401 portion of the permit (Virginia water protection permit) is administered by the Virginia Department of Environmental Quality and regulates the effects of construction and operations on water quality. Generally, the individual permit process involves (4) steps:

- **Step 1:** A permit application is sent to VMRC, where it is assigned an application number and routed to all reviewing agencies.
- **Step 2:** Within 15 days the applicant is notified if more information is necessary to evaluate the project. Once the

application is complete, VMRC and the Corps issue public notice of the proposed project and the public is invited to comment. Public comment periods last 15 to 30 days, but may be extended depending on the specific nature of the project. At the end of the public comment period, objections to the application are furnished to the applicant who may voluntarily attempt to resolve conflicts with objectors. Some objections such as those concerning the exact location of property lines, or existing legal restrictions on deeds will not cause the Corps to deny a permit, but local laws and regulations still may have to be satisfied.

- **Step 3:** The application is reviewed at joint meetings of state and federal review agencies, held monthly.
- **Step 4:** The application is either approved or disapproved. If the application is not approved, the Corps will inform the applicant of a preliminary recommendation of denial, and allow time for the application to be modified and resubmitted. If modifications are substantial, the application may need to go back through the public notice process; otherwise it is reviewed once again by the state and federal agencies, and the permit is either approved or denied.

To allow for unforeseen developments and/or a heavy volume of applications, the VMRC and Corps request submittal of a permit application no less than 180 days prior to the

# Horsepen Run

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## Site Analysis Report

### Regulatory Issues

anticipated date of project mobilization. A tiered permit application fee, depending upon the size and/or complexity of the project, ranges from \$300 to \$3,000.

#### State of Virginia:

**Virginia Marine Resources Commission (VMRC)**  
Environmental Affairs Division  
P.O. Box 756  
Newport News, VA 23607 (804)247-2200  
(Primary Contact)

**Virginia Water Control Board**  
Office of Water Resources Management  
Department of Environmental Quality (DEQ)  
P.O. Box 11143  
Richmond, VA 23230 (804)527-5000

#### Regulation of 100 Year Floodplains:

The Federal Emergency Management Agency (FEMA) is the federal agency charged with designating floodplains in an attempt to lessen the impact of significant storm events on the population. Flood Insurance Rate Maps (FIRM) document where these floodplains are and limit the development of most types of uses within them. The FIRM for the Horsepen Run area, Community-Panel Number 510090 0110 C -

Panel 110 of 255, indicates that 329 acres is designated within Zone A (area affected by a base 100 year flood). The southernmost boundary of the Horsepen Run parcel is also the boundary of Zone A, indicating that houses were built right up to the 100 year flood boundary (a common practice in residential development).

**Federal Emergency Management Agency**  
Region IV  
Gulf Oil Building  
1371 Peachtree Street, NE.  
Suite 736  
Atlanta, Georgia 30309 (404)853-4444

#### Stormwater:

In June of 1989, Potomac-Hudson Engineering (PHE) was retained by the CountrySide Proprietary to perform a drainage study of the community. The purpose of the study was to review drainage problems that had been occurring, evaluate the overall surface water flow patterns, and recommend actions for improving the drainage without adversely affecting other parts of the community. The results are included in a report titled, CountrySide Community Drainage Study, dated November 19, 1989.

There are (4) major drainage basins within the CountrySide Community which affect the Horsepen Run parcel. Recommendations to improve the surface flow of water in the CountrySide Community were prioritized into three levels:

*Regulatory Issues*

- 1) The first level of recommended action was the least expensive/invasive approach that could provide a noticeable improvement in the surface drainage. In general, first-level recommendations are maintenance activities, such as cleaning out clogged culverts, etc.
- 2) Second level recommendations are engineered structures that could be installed to further improve drainage beyond the effects of the first-level improvements. Second level recommendations generally involve installation of larger culverts and reconstruction of drainage courses.
- 3) Third-level recommendations are responses to items that are not significantly restricting drainage at the present time. However, these items will improve the aesthetics, long-term maintenance and other features of the existing drainage facilities.

The recommended actions and associated costs from this study are summarized in Table 1 through 3 of the Drainage Study. The CountrySide Proprietary reported that the first level of recommended action has been completed to date. It should be noted, however, that any improvements to the overall dispersal of surface stormwater from adjacent CountrySide, will increase the peak volume of stormwater passing through the Horsepen Run creek corridor.

## Conclusions

The Consultant has reached the following conclusions from our review of the planning and regulatory documents outlined above:

- A wide range of active and passive recreation facilities and activities are considered permitted uses within Horsepen Run.
- "Commercial" recreation uses such as public/private golf courses or riding stables are **not permitted uses** under the 1972 Zoning Ordinance. If these uses are desirable, the Proprietary must: *First*, petition the Loudoun County Board of Supervisors, potentially through the Circuit Court for the County of Loudoun, to amend the Memorandum of Understanding which states, " *the Four Thirty Seven Land Company, Inc.*, (CountrySide's developer) *its predecessors and successors in interest and agents are hereby permanently enjoined from putting said property to any use other than a use which is in accord with the said Memorandum of Understanding and with the Loudoun County Zoning Regulations for Zoning District Classification PDH-12 and the Subdivision Ordinance of Loudoun County*", and *Second*, once having had the MOU amended, submit to the Loudoun County Department of Building & Development a

# Horsepen Run

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## Site Analysis Report

### *Regulatory Issues*

Category-2 Special Exception and/or a Zoning Ordinance Modification and/or a Proffer Amendment. A required preliminary conference with the Zoning Administrator will determine the exact requirements.

- Landscape Buffers, in the form of forested land, will be required between the park and adjacent residential areas, and along the Potomac River.
- A public pedestrian, equestrian and/or bicycle trail, together with public rights of ingress and egress, should be considered. The CountrySide Proprietary should investigate sources of County, State, Federal, and private funding to build this trail along the designated 500-foot wide Potomac River Heritage Trail easement corridor within Horsepen Run. The exact alignment will be subject to final location by the County.
- The Site Plan approval process requires approximately 16-26 weeks, plus the time required for the preparation of design and construction documents (estimated at an additional 13-26 weeks).
- Once a preferred Site Plan has been developed for the<sup>s</sup> property, the Proprietary should request a pre-application meeting with the Building Department to review the proposed uses as well as the Site Plan approval process.
- The Site Plan submittal requires detailed engineering plans, including hydrologic and hydraulic floodplain studies. These will be of particular significance if substantial alterations are proposed within the floodplain area.
- The County will not permit development within the floodplain that results in any off-site increase in the surface water elevation of the base flood, or alters the carrying capacity of the flood plain. This requirement is particularly significant for development alternatives that require substantial paving or fill within the floodplain.
- Proposed improvements within Horsepen Run should be designed to minimize erosion and sedimentation, and to preserve as much existing vegetation as possible, particularly along streams and steep slopes.
- Buildings proposed for Horsepen Run should be designed to be as environmentally compatible and energy efficient as possible.
- Any significant archaeological or historical sites in Horsepen Run should be preserved and protected.
- The property should be developed in such a way that it preserves the cultural and scenic character of the area.
- A "Friends of Horsepen Run" group should be established to keep the site and the shoreline of the Potomac free from debris and litter.

## Regulatory Issues

- Some type of water access to the Potomac is possible and can be considered in the development plan alternatives.
- Wetlands on the site should be preserved to the greatest degree possible and mitigated when their destruction cannot be avoided.

### Development Permitting Procedures:

The following flow charts and tables, illustrate specific components of the process(es) required to comply with local, state and federal agencies for land use development changes to Horsepen Run. The Consultant has determined that the potential land use options, listed by the Proprietary in Phase I, item 5, of the Request For Proposal, can best be illustrated according to the intensity of the potential land use. Therefore, specific charts and tables have been produced that illustrate the process(es) required to seek approval of land use development for low impact, medium impact and high impact developments.

#### Low Impact Development (Picnic Tables and Trails)

These uses are not considered "permanent structures", therefore, there are no requirements for plan approval, zoning permits, or building permits. If there will be clearing, grading, or permanent asphalt trails associated with the picnic tables or trail layout, then a grading permit is required. This plan should show clearing limits, proposed grading, the location of the trails and a typical section of the proposed asphalt.

To obtain a grading permit, the following documents must be submitted and approved: (2) copies of an erosion and sediment control plan (designed in accordance with the Virginia Erosion and Sediment Control Manual), an erosion control bond estimate, and an erosion control bond in the form of cash or letter of credit. A grading permit review fee of \$314 + (\$50/disturbed acreage) is required at time of submittal. Review time for grading permits is approximately 4 weeks. If there are any permanent structures, such as hand railings, rest rooms, or gates, which are higher than 30 inches above the ground, then a zoning permit will be required. The review time is approximately one week and the cost is \$50.

#### Medium Impact Development (Ball Fields, Pavilions, etc.)

This option will require an approved preliminary and final site plan application, a floodplain alteration or waiver request, grading permit, zoning permit and building permit.

Each site plan application has a 8-13 week review time. If the grading and land disturbance is proposed in wetland areas (as is a significant portion of the land within Horsepen Run), then the County will require proof of compliance with Federal and State wetland permits. If the proposed ball fields will only involve minimal clearing and a backstop, then it may be possible to have the site plan requirements waived and only require a grading permit.

# Horsepen Run

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## Site Analysis Report

### *Regulatory Issues*

#### High Impact Development (Golf Course, Marinas, etc.)

There have been several golf course applications approved in Loudoun County for land entirely within floodplains. The requirements for this type of development are quite numerous and include: a preliminary and final site plan, a floodplain alteration study, a pesticide management and water quality plan, a wetlands study and proof of compliance with the Army Corps of Engineers and the Virginia State Department of Environmental Quality. In addition, a grading permit, zoning permit, and building permit will also be required.

#### No Development

A no development option is also a realistic option for the Proprietary, and would preclude the need to obtain any permits from Loudoun County, the State of Virginia and/or federal agencies. The no development option would satisfy all aspects of the MOU and would also serve stated county, state and federal goals for the Potomac River.

The following low, medium and high impact development tables, flow charts depicting the preliminary and final site plan process, 404/401 permitting process, and land development application fee schedule, illustrate the multiple layers of relevant land development information in a more user friendly, graphic format.

*Regulatory Issues*

**LOW IMPACT DEVELOPMENT (Picnic Tables and Trails)**

<u>Proposed Use</u>	<u>Loudoun County Plan/Permit Requirements</u>	<u>Review Time</u>	<u>Fee</u>
Gravel/Mulch Trails Picnic Tables Only No Clearing &/or Grading	No Requirements	N/A	N/A
Minor Clearing of Trees and Shrubs	No Requirements	N/A	N/A
Clearing and Grading for Table &/or Trail Placement	Grading Permit	4 weeks	\$314 + \$50/disturbed acre
Permanent Trails (Asphalt or Wooden)	Grading Permit (Need to show typical drawings)	4 weeks	\$314 + \$50/disturbed acre
Permanent Structures Higher than 30" above the ground	Grading Permit	4 weeks	\$314 + \$50/disturbed acre
	Zoning Permit	1 week	\$50

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***Regulatory Issues***

**MEDIUM IMPACT DEVELOPMENT (Ball Fields, Pavilions, Parking)**

<u>Proposed Use</u>	<u>Loudoun County Plan/Permit Requirements</u>	<u>Review Time</u>	<u>Fee</u>
<u>Pavilions</u> If Entire Site Area is Less than 5 Acres	Preliminary/Final Site Plan Grading Permit	8-13 weeks	See Fee Schedule (page 43)
		3-4 weeks	\$314 + \$50/disturbed acre
If Entire Area is Greater than 5 Acres	Preliminary Site Plan Final Site Plan Grading Permit	8-13 weeks	See Fee Schedule (page 43)
		8-13 weeks	See Fee Schedule (page 43)
		4 weeks	\$314 + \$50/disturbed acre
If Significant Grading Must Be Done	Floodplain Alteration Waiver or- Floodplain Alteration Plan  Proof of Compliance w/ Federal and State Wetland Permits (404/401 Permits)	2 weeks	No Fee
		4-6 weeks	See Fee Schedule (page 43)
		26 weeks +	\$300-\$3,000
Backstops/Bleachers	Possibly All of the Above + Grading Permit  Zoning Permit	4 weeks	\$314 + \$50/disturbed acre
		1 week	\$50
Locker Rooms, Snackbars, Pavilions, Parking, etc.	Possibly All of the Above + Grading Permit  Zoning Permit	Variable	Variable
		4 weeks	\$314 + \$50/disturbed acre
		Variable	\$50

**Horsepen Run**  
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**Regulatory Issues**

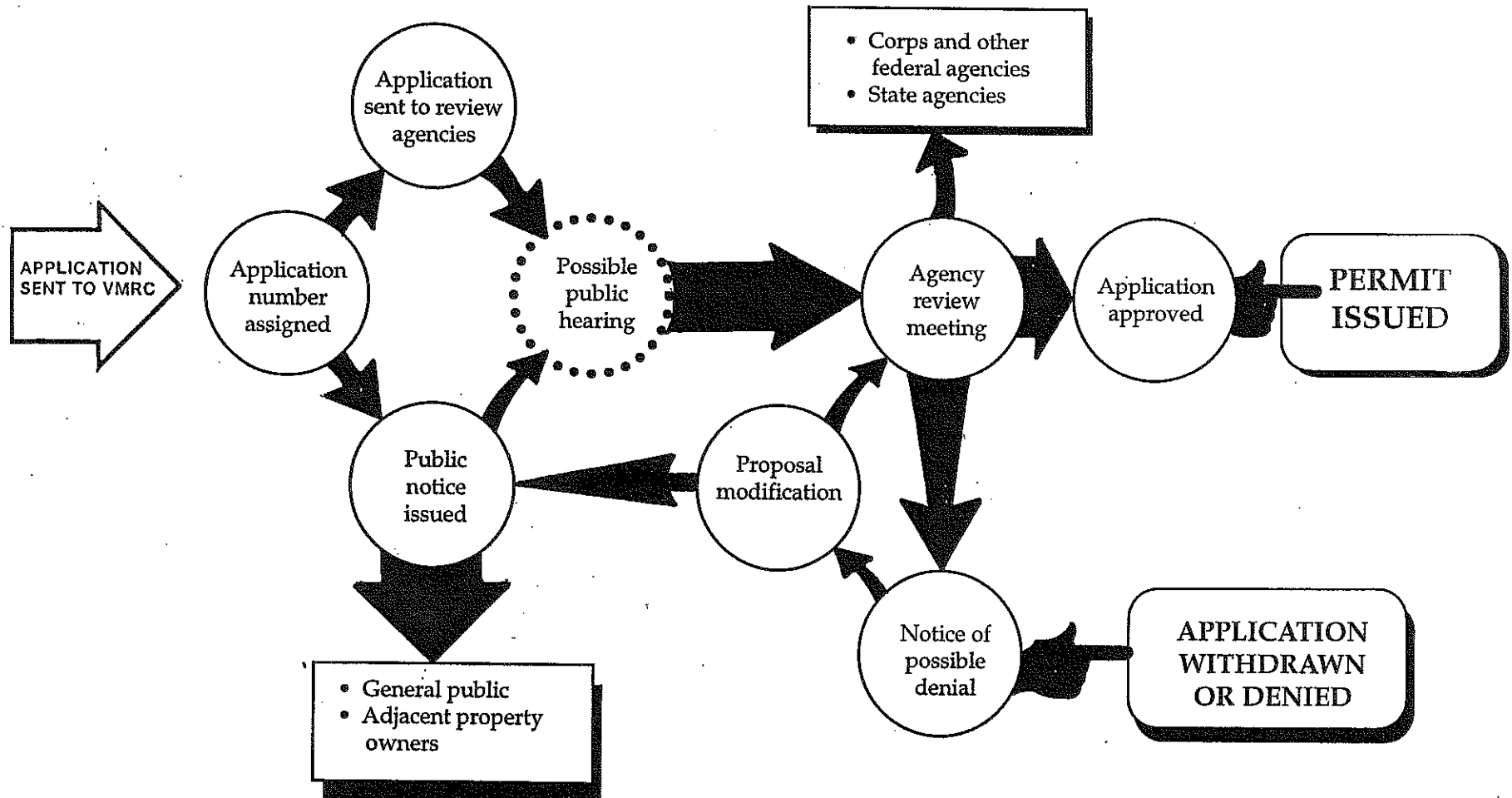
**HIGH IMPACT DEVELOPMENT (Golf Course, Community Center, Marina, etc.)**

<u>Requirements</u>	<u>Review Time</u>	<u>Fee</u>
Preliminary Site Plan	8-13 weeks	See Fee Schedule (page 43)
Final Site Plan	8-13 weeks	See Fee Schedule (page 43)
Floodplain Alteration	4-6 weeks	See Fee Schedule (page 43)
Wetland Analysis and Federal Permits	26 weeks +	\$300-\$3,000
Grading Plan with Pesticide Management and Water Quality Plan	4 weeks	\$314 + (\$50/disturbed acreage)
Zoning Permit	Variable	\$50
Building Permit	Variable	Depends On Size and Complexity of Structure(s)

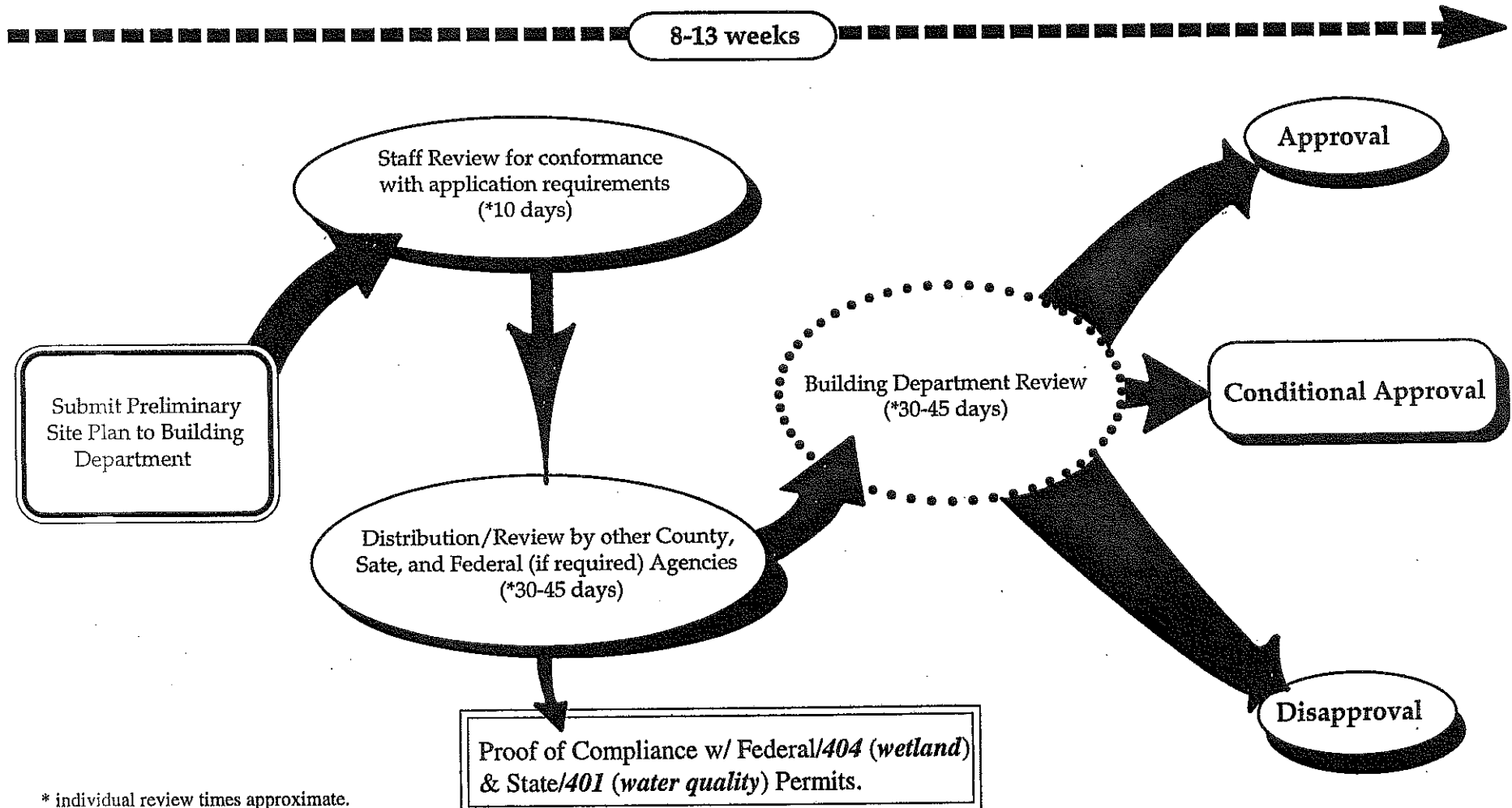
# Horsepen Run Site Analysis Report

## Regulatory Issues

### 404/401 Permitting Process



Preliminary Site Plan Approval Process

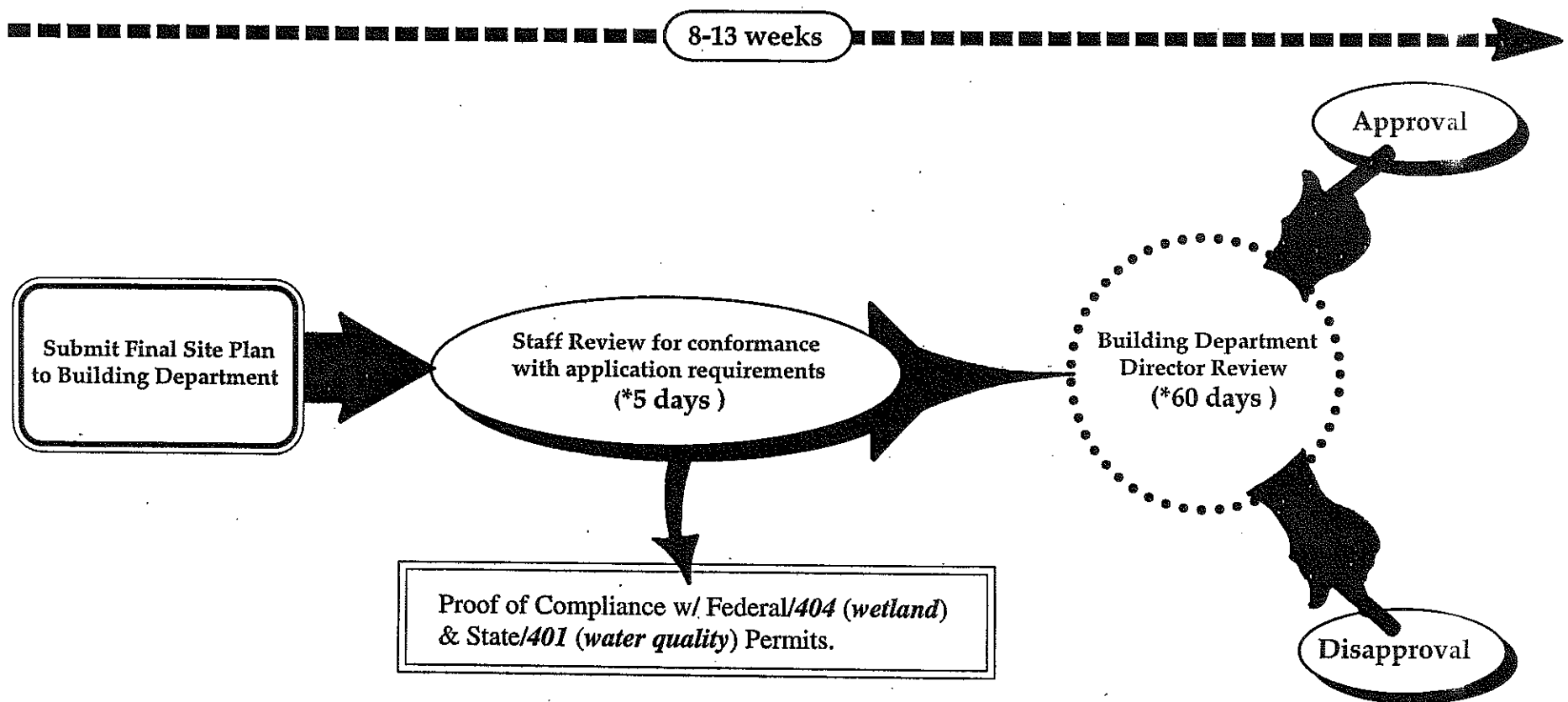


\* individual review times approximate.

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*Regulatory Issues*

Final Site Plan Approval Process

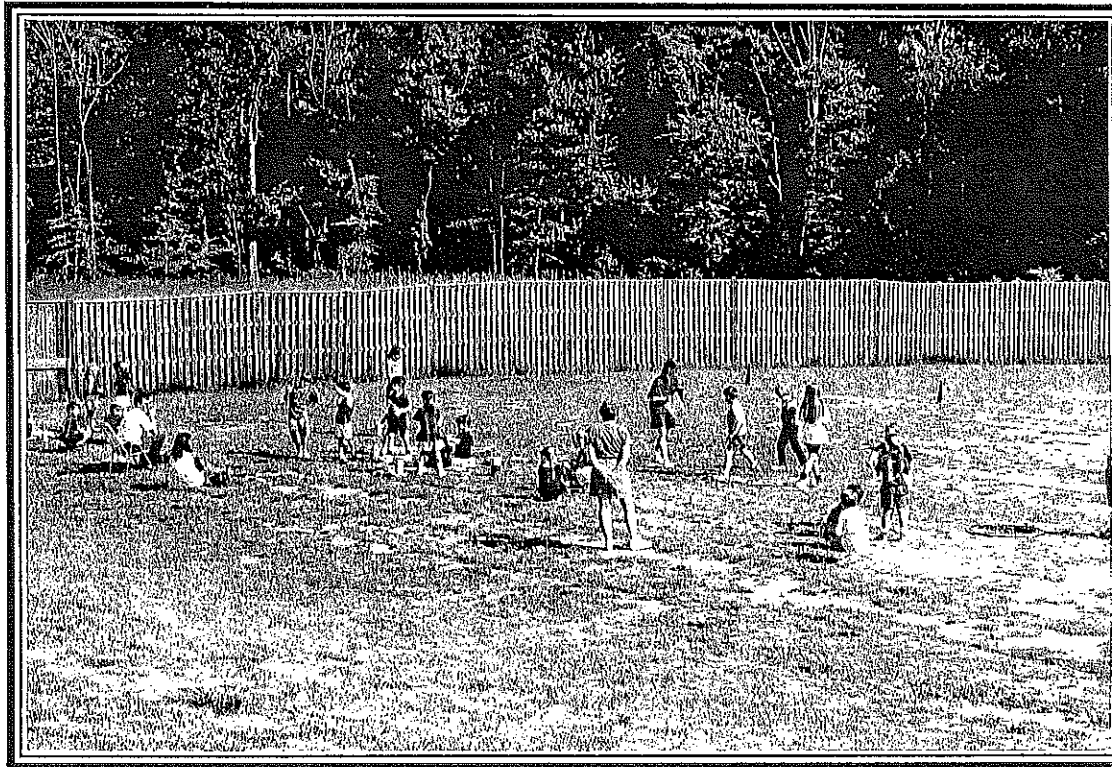


\* individual review times approximate.

**Land Development Application Fee Schedule**

Appeals	\$350/appeal
Floodplain Alteration	\$718 or \$73 + \$80/each (whichever is greater)
Floodplain Studies	0-8 Cross Sections: \$323 > 8 " " : \$323 + \$30/cross section
Plan Amendment	\$1,600 first 200 acres + \$7.50/acre thereafter
Proffer Amendment	\$7,865/application
Variance	\$350/application
Category 2 (Golf Course) Special Exception	\$2,530/application
<u>Site Plan:</u> Preliminary	\$2,673 + \$100/acre first 20 acres + \$20/acre thereafter.
Preliminary/Final	\$3,225 + \$220/acre
Final	\$3,538 + \$140/acre first 20 acres + \$40/acre thereafter
Zoning Permit	\$50/application
Zoning Ordinance Modification	\$7,865/application
Rezoning	\$15,730 first 200 acres + \$80/acre thereafter

*Horsepen Run*  
*Sterling, Virginia*



*Available Recreation Facilities/Programs*

## Available Recreation Facilities and Programs

### Available Recreation Facilities/Programs

#### Introduction

When considering various development scenarios for Horsepen Run, it is important to ask two critical questions:

1. What are the recreation needs and desires of the residents in the community?
2. Which of these needs and desires are already being satisfied through existing facilities either within or outside of the community?

To answer these questions, the Consultant met with representatives of the Proprietary's Homeowners Association, as well as the Loudoun County Parks and Recreation Department. We also visited several existing recreation facilities in the area, and reviewed the County's Parks and Recreation Service Plan.

Following is a summary of our findings.

#### 1. Recreation Needs and Desires

Determining the recreation needs of a community is highly subjective. Varying demographics, access to private recreation facilities, and regional preferences are just a few of the variables involved. Therefore, we generally utilize a variety of techniques to assess recreation needs, and look for consistent patterns from which to draw conclusions.

One "base line" technique to determine recreation needs is to compare the community's existing recreation facilities to known recreation standards. Below and on the following page is a chart that shows the existing facilities at Country-side, and compares them to the National Recreation and Park Association Standards based on population:

Type of Facility	Existing Facility	National Standard	Apparent Deficiency
Badminton	0	1 per 5000	-2
Basketball 1. Youth 2. High School 3. Collegiate	2	1 per 5000	0
Handball (3-4 wall)	0	1 per 20,000	-.5
Ice Hockey	0	Indoor-1 per 100,000 Outdoor-depends on climate	
Tennis	4	1 ct. per 2000	-1
Volleyball	0	1 ct. per 5000	-2
Baseball 1. Official 2. Little League	0	1 per 5000 Lighted - 1 per 30,000	-2
Field Hockey	0	1 per 20,000	-.5

# Horsepen Run

## Site Analysis Report

### Available Recreation Facilities/Programs

Type of Facility	Existing Facility	National Standard	Apparent Deficiency
Football	0	1 per 20,000	-.5
Soccer	0	1 per 10,000	-1
Golf-Driving Range	0	1 per 50,000	-.2
1/4 Mile Track	0	1 per 20,000	-.5
Softball	0	1 per 5000	-2
Multiple Recreation Court (basketball, volleyball, tennis)	0	1 per 10,000	-1
Trails	.5	1 system per region	-.5
Archery Range	0	1 per 50,000	-.2
Combination Skeet and Trap Field (8 station)	0	1 per 50,000	-.2
Golf	0		
1. Par 3 (18 hole)		--	
2. 9-hole standard		• 1/25,000	-.4
3. 18-hole standard		• 1/50,000	-.2
Swimming Pools (Pools should accommodate 3 to 5% of total population at a time)	3	1 per 20,000	+2.5
Beach Areas	0	N/A	N/A
Tot Lot	8	1 per 15,000	+7.3

Based on the NRPA standards, Countryside is deficient in the following primary recreation facilities:

- 2 badminton courts
- 1 tennis court
- 2 volleyball courts
- 2 baseball fields
- 1 soccer field
- 2 softball fields
- 1 multiple use court
- a well maintained and comprehensive trail system

Another technique to determine recreation needs is to talk with residents and County recreation staff regarding apparent deficiencies and trends in recreation in the area. From our conversation with the County we learned that:

- 1) There is an increasing demand for soccer fields. Additionally, the County may lose the use of the existing soccer fields at NOVA Community College
- 2) Kids from Countryside are involved in several active youth sports leagues in the area that compete for practice and competition fields. These include:
  - Sterling Youth Soccer
  - Loudoun Youth Soccer
  - Lower Loudoun Little League
  - Lower Loudoun Boys Football League
- 3) The biggest demand in the area is for youth football fields
- 4) It appears that the demand for adult softball facilities is being satisfied

### ***Available Recreation Facilities/Programs***

- 5) It appears that the demand for tennis facilities is being satisfied through the existing courts at Countryside
- 6) Sand volleyball is gaining in popularity and there is a need for additional facilities
- 7) There appears to be a need for a major community playground similar to the one at Briar Patch Park
- 8) There are several public and private golf courses easily accessible to Countryside residents that satisfy the demand for golf facilities
- 9) As the area becomes more urbanized there are few, if any, remaining commercial horseback riding stables available to area residents
- 10) Claude Moore Park currently meets the County's/School Board's needs for environmental education
- 11) There is a demand for more picnic areas and pavilions
- 12) The County's highest priority is to develop a Community Center on approximately 20 acres, including: a 40,000 sf recreation center, parking, an indoor pool, meeting/multi-purpose rooms, kitchen, racquetball courts, gymnasium, jazzercise room, weight room, etc.

From our conversations with Homeowner's representatives we learned that residents have mentioned the need or desire for the following facilities:

- trails and boardwalks
- picnic areas and pavilions
- outdoor concert stage
- garden plots
- golf course
- boat access to the Potomac River
- horse stables

A third, more accurate technique to determine resident's recreation needs and desires is to conduct a resident survey, either by mail or telephone. It is our understanding that the Proprietary is currently working with a Market Research company to develop such a survey.

### **2. Available Recreation Facilities**

The standards comparison chart (pages 44 & 45) lists the existing recreation facilities within Countryside. These are generally provided through small, neighborhood parks located within easy walking distance throughout the community. In addition to these parks, a wide variety of recreational facilities are available to Countryside residents within a short driving distance outside of the community. These include:

Algonkian Regional Park - Managed by the Northern Virginia Regional Park Authority, this 800 acre park on the Potomac River abuts Horse Pen Run and is only a 5 minute drive from Countryside. Facilities include:

- An 18 hole, par-72 golf course, driving range and pro shop
- An outdoor swimming pool open from Memorial Day to Labor Day
- An 18 hole miniature golf course
- Children's playground
- Vacation cottages
- Meeting center

# Horsepen Run

## Site Analysis Report

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### ***Available Recreation Facilities/Programs***

- Paved boat launch to the Potomac River
- Picnic tables, grills and group rental pavilions

Claude Moore Park - A 357-acre County Park on Route 637 (Potomac View Road) used primarily for environmental education and passive recreation. The County is currently constructing a five field Little League Complex at the park, as well as two football fields.

Potomac Lakes Sportsplex - A 47-acre sports complex located on cascades parkway adjacent to Algonkian Regional Park. Facilities include four lighted softball fields and six soccer fields.

Ashburn Farms Youth Sportsplex - A new sports complex being developed off of CR 641.

Sterling Annex Community Center - A 5-acre park and recreation center on West Church Road in Sterling. Facilities include a large multi-purpose room with a stage; six meeting/classrooms, a lighted softball field, lighted play equipment, picnic tables and an open play area.

Sterling Community Center - A community park in Sterling on Enterprise Street. Facilities include a full court gymnasium, game room, weight room, meeting rooms, playground, picnic areas and a pavilion.

Briar Patch Park - A 5-acre park on Sterling Boulevard in Sterling. Facilities include a large community playground, a picnic pavilion, a volleyball court, a basketball court and two tennis courts.

Cascades Park - A 47-acre park with four (4) lighted ballfields and six (6) soccer fields.

NOVA Community College - A local community college with eleven soccer fields available for league play.

Other Schools - Loudoun County encourages the joint development of parks and school sites. Several schools in Eastern Loudoun County have recreational facilities available to the public. These include:

- Algonkian Elementary School - Two (2) softball fields, two (2) soccer fields
- Guilford Elementary School - Two (2) little league fields
- Sterling Middle School - One (1) baseball field, two (2) soccer fields
- Sterling Elementary School - One (1) baseball field, two (2) basketball courts
- Meadowland Elementary School - Two (2) little league fields, one (1) soccer field
- Park View High School - One (1) lighted baseball field, one (1) softball field
- Rolling Ridge Elementary School - One (1) baseball field, three (3) soccer fields
- Seneca Ridge Middle School - One (1) lighted softball field, three (3) soccer fields

- Sugarland Run Elementary School - One (1) soccer field, one (1) basketball court

Washington & Old Dominion Trail - This is a regional 47-mile "rail-trail" greenway/linear park that provides an asphalt path for hikers, bikers and skaters. The trail is managed by the Northern Virginia Regional Park Authority.

Golf Courses - Several golf courses currently serve residents of the Countryside community. In addition to the course at Algonkian Regional Park, there is the Goose Creek Country Club, the Landowne Conference Resort, the River Bend Country Club and a Par 3 course in Sterling. None of these courses have achieved capacity play, as defined by National Golf Foundation statistics for suburban public and private golf course facilities.

## Conclusions

Based on our research, the Consultant has reached the following conclusions from the information outlined above:

- Based on national standards, as well as available existing recreation facilities, the Countryside community needs the following recreation facilities: badminton/volleyball courts, baseball fields, multi-use courts and fields, and a well maintained, comprehensive, multi-use trails system.
- The County's Parks and Recreation Department feels that the greatest recreation needs in Eastern Loudoun County are a Community Center and youth football fields.

## Available Recreation Facilities/Programs

- Horseback riding stables and trails would be consistent with the land use objectives of the MOU and in keeping with the Loudoun County recreation objectives.
- Access to the Potomac River, and lower stretches of Horsepen Run Creek, for small, non-motorized boats, is possible.
- Golf course development within Horsepen Run is possible if it serves residents of Countryside as a non-commercial enterprise. Furthermore, several championship calibre golf courses and public golf courses now lie within a 10 minute drive of Countryside. None of these courses are financially successful as of this date.

The chart on the following page offers a view of **possible** park and recreation land use development options for Horsepen Run and defines these activities based on their compatibility with the major ecosystem types that are defined on pages 10 through 13 of this report. This chart can be used to quickly ascertain the development **capacity** of the site when measured by environmental suitability.

Recreation Options for Horsepen Run

	MARSH	MIXED FOREST	BOTTOMLAND	RIPARIAN	OLD FIELD	POTOMAC	BEAVER PONDS
<b>WATER BASED RECREATION</b>							
fishing	●	○	○	○	○	○	○
canoe launch	●	○	○	○	○	○	○
marina	○	○	○	○	○	○	○
<b>CAMPING</b>							
primitive	○	●	○	○	○	○	○
low impact group camping	○	●	○	○	○	○	○
family camping with platforms	○	○	○	○	○	○	○
<b>TRAILS</b>							
equestrian	○	●	○	○	○	○	○
hiking	○	○	○	○	○	○	○
exercise	○	○	○	○	○	○	○
bicycling	○	○	○	○	○	○	○
developed greenway trail	○	○	○	○	○	○	○
boardwalks through wetland areas	○	○	○	○	○	○	○
wilderness trails	○	○	○	○	○	○	○
mountain bike course	○	○	○	○	○	○	○
educational trails	○	○	○	○	○	○	○
recycled materials trails	○	○	○	○	○	○	○
<b>PICNIC AREAS</b>							
pavilions	○	○	○	○	○	○	○
picnic tables	○	○	○	○	○	○	○
outhouses	○	○	○	○	○	○	○
port-a-johns	○	○	○	○	○	○	○
parking-paved	○	○	○	○	○	○	○
parking-unpaved	○	○	○	○	○	○	○
<b>SPORTS FIELDS</b>							
Ballfield complex	○	○	○	○	○	○	○
Multi-purpose open fields	○	○	○	○	○	○	○
Volleyball sand pit	○	○	○	○	○	○	○
golf course	○	○	○	○	○	○	○
fitness course	○	○	○	○	○	○	○
<b>OTHER</b>							
Playground	○	○	○	○	○	○	○
Recreation Buildings	○	○	○	○	○	○	○
arboretum	○	○	○	○	○	○	○
Amphitheater	○	○	○	○	○	○	○
Day camp facilities	○	○	○	○	○	○	○

● Full Compatibility

● Low-medium Compatibility

○ Not Compatible

Horsepen Run  
Sterling, Virginia

Appendix A

## Deed of Easement

(for Horsepen Run)

### Appendix A

*This Deed of Easement was copied from the original Exhibit I of the Memorandum of Understanding between Loudoun County and the Four Thirty Seven Land Company, Inc. This Deed is an important document and serves as the principal guideline for future development of Horsepen Run.*

THIS DEED OF EASEMENT made this \_\_\_\_ day of June 1978, by and between FOUR THIRTY SEVEN LAND COMPANY, INC., a Delaware corporation, party of the first part, (hereinafter referred to as the Grantor) and the BOARD OF SUPERVISORS OF LOUDOUN COUNTY, VIRGINIA, a body corporate and a body politic, parties of the second part (hereinafter referred to as the County).

\*\*\*\* W I T N E S S E T H \*\*\*\*

WHEREAS, it is the desire of the County to shape the character of development and to provide for the preservation of "open space" land for such purpose and to preserve such land for recreation, scenic and conservation purposes; and

WHEREAS, the County has determined that the acceptance of certain interest in land less than the fee will assist in the accomplishment of such purposes; and

WHEREAS, the Grantor is the owner in fee simple of certain real estate located in the County of Loudoun, Virginia, and being more particularly described as that portion of the property designated as the "One Hundred Year Potomac River Floodplain" on the plat attached hereto as Exhibit "A" and made a part hereof by reference (hereinafter referred to as the "Easement Property"); and

WHEREAS, the Grantor desires to join in and participate in the maintenance of the character of the land described herein as open space land with scenic, recreation and conservation value.

NOW THEREFORE, for and in consideration of the foregoing premises and the mutual covenants and promises hereinafter set forth the sufficiency of which consideration is hereby acknowl-

edged, the Grantor does hereby grant and convey unto the County, in perpetuity, subject to the conditions hereinafter set forth, an easement in gross over and applicable to the said Easement Property. This easement is specifically subject to the following terms and conditions:

1. This easement is expressly covenanted by the Grantor to run with the land and is not personal to the Grantor, and shall be binding upon any and all successors in interest to all or any part of the interests in the land herein described which may be now held or hereafter acquired by the Grantor.
2. There shall be no use of the Easement Property save and except in accord with this section, and no structure shall be erected thereon or vegetation destroyed or altered, except in accord with this section, provided, however, that this section may be amended at any time by an instrument signed by the Grantor or its successor in interest and by the County and recorded among the land record of the County of Loudoun, Virginia; and further provided, that notwithstanding this easement, the Easement Property remains available for yield, coverage, open space and similar requirements imposed by the zoning ordinance of the County of Loudoun, Virginia.
3. Uses permitted under this easement on the Easement Property shall be:
  - a. Recreational activities
  - b. Farming and conservation activities
  - c. Water conservation activities, underground utility easement, flood, storm drainage and siltation control and impoundment facilities and such other similar uses as may be necessary to satisfy governmental requirements.

# Horsepen Run

## Site Analysis Report

### Appendix A

4. Uses, structures and acts expressly prohibited on the Easement Property shall be as follows:

a. No buildings shall hereinafter be erected or be allowed to remain upon the Easement Property, except such buildings which may be incidental to the uses permitted in Paragraph 3 above, subject to approval of such buildings by the County.

b. No residential, non-recreational or non-farming commercial or industrial use of the Easement Property shall be commenced or permitted to continue.

c. No sign, billboard or other display shall be erected or allowed to remain on the Easement Property except such signs as may be necessary to carry out the provisions of Paragraph 3 above.

d. No major grading or topographic change, except consistent with the uses set forth in Paragraph 3 herein, shall be accomplished except by express permission, in writing, from the Zoning Administrator of Loudoun County, Virginia, or the successor to his duties. Such permission shall only be granted by reference to a grading plan prepared by or at the discretion of the Grantor or its successors in interest. Major grading shall be deemed to include any grading performed by machine, other than hand operated machines.

e. No trees or shrubbery shall be cut down or removed, except consistent with the uses set forth in Paragraph 3 herein, except by express permission, in writing, from the Zoning Administrator of Loudoun County, Virginia, or the successor to his duties, provided, however, that normal management of existing trees, shrubs or other vegetation, including trimming and pruning, may be accomplished in accord with accepted professional practice at the time such work is performed.

5. Notwithstanding the provisions of Paragraphs 3 and 4 hereof, no uses shall be permitted within that portion of the Easement Property lying within five hundred (500) feet of the southern shoreline of the Potomac River fronting upon the Easement Property. Provided, however, that the County or its designee shall have the right and is hereby granted an easement for the purpose of constructing and maintaining within said area a public pedestrian, equestrian and/or bicycle trail, together with public rights of ingress and egress. The trail easement created and granted pursuant to this paragraph shall be subject to final location by the County, it being understood that it is the intent of the parties hereto that this easement shall extend across the entire frontage of the Easement Property along the Potomac River.

6. The parties hereto understand and agree that this Deed of Easement is created and granted in accordance with the provisions of the Open Space Land Act, as set forth in Chapter 13, Title 10, Code of Virginia, 1950, as amended, and to that end the parties hereto consent to the construction of terms not otherwise defined herein as will accomplish the purposes of that Act.

7. The Grantor hereby covenants that it will abide by the terms and conditions hereof and will execute such other and further reasonable assurance and/or to such other things as may be reasonably be necessary to insure that any successor in interest to the Easement Property will also abide by the terms and conditions of this Deed of Easement.

WITNESS the following signatures and seals:

FOUR THIRTY SEVEN LAND  
COMPANY INC.

(on file in County Courthouse)

THE BOARD OF SUPERVISORS OF  
LOUDOUN COUNTY, VIRGINIA

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# Horsepen Run

## Site Analysis Report

### Appendix A

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