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Introduction

Zimar and Associates, Inc. (Z&A) was contracted to prepare this document in order to meet the requirements of The Loudoun County Facility Standards Manual Chapter 7.000 Environmental Design Standards Sub-Chapter 7.350 Forest Management Plan as required by the Loudoun County Zoning Ordinance. This section outlines the requirements for a Forest Management Plan (FMP) for sites going through the rezoning process.

Site Location

This, approximately, 0.6 acre site is located in Loudoun County south of John Mosby Highway, approximately 500 feet west of the intersection of Gum Springs Road and John Mosby Highway. The property borders John Mosby Highway on the north.

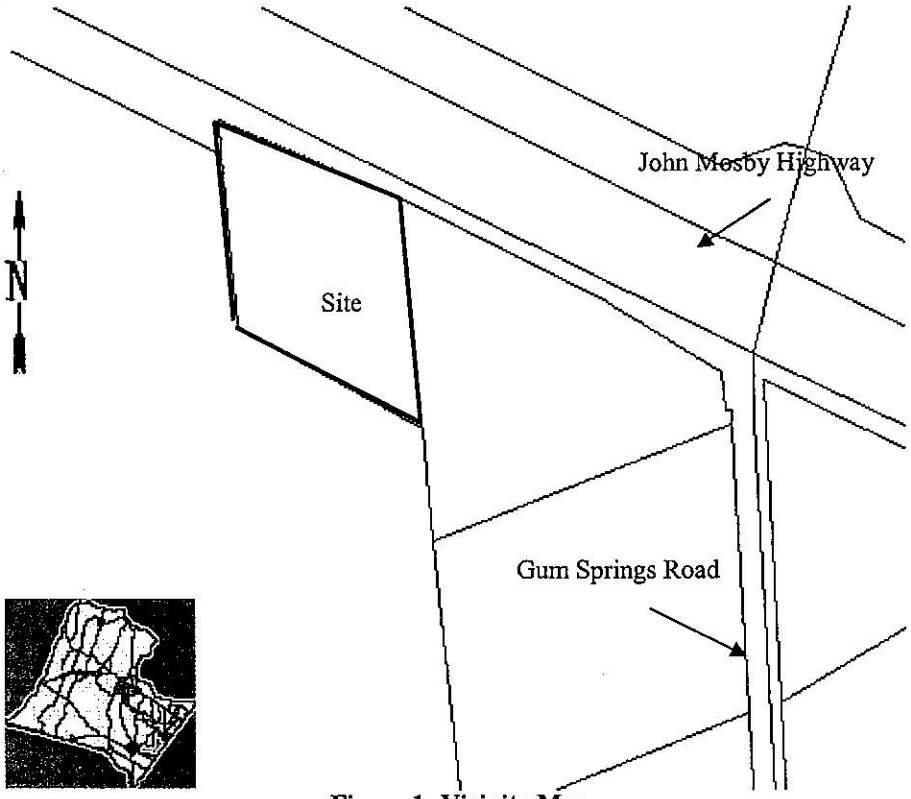

Figure 1: Vicinity Map

Loudoun County Office of Mapping and Geographic Information – January 2006

Procedures

Z&A prepared a forest cover type map and management plan for the identified property in January, 2006. The methods used to prepare this map are as follows:

- Cover Type lines were determined in the field using aerial photographs and traditional forestry methods for type mapping. Existing tree lines were determined using Loudoun County GIS maps, aerial photos, and existing condition maps that were provided. Existing features were field verified.
- Species composition was determined by identifying the predominant overstory species.
- Age classes were determined by estimating tree age from increment bore samples from a typical tree in a Cover Type and determining diameter ranges from tree measurement sample plots.
- Stand densities in young mature and mature forest stands were determined using randomly spaced basal area plots measured with a basal area factor (BAF) 10 prism. Trees tallied in basal area plots were a minimum of 6" DBH, alive and healthy. Densities of immature stands and understory regeneration were determined by counting the number of stems in randomly spaced 1/10th (37.2' radius) acre plots. These figures were used to determine per acre densities. Regeneration tallies are based on the number of stems of desirable hardwood overstory species.
- Topography was determined from Loudoun County Office of Mapping and Geographic Information maps as well as maps provided by Urban Engineering & Associates, Inc.
- Health, vigor, and quality were determined by growth rate, presence of diseases or insects, and tree form, size, and structure.

Observations

This section contains the descriptions of individual stands and contains recommendations specific to each stand. Please refer to the Cover Type Map included at the end of this report to identify location and extent of specific stands.

The site consists primarily of immature, early successional forest that contains two larger remnant trees. There is also a maintained, overhead utility right-of-way located on the eastern portion of the property.

Cover Type # 1

GENERAL DESCRIPTION:	Early successional, pioneer forest containing two large remnant trees.
SPECIES COMPOSITION:	The overstory contains primarily eastern redcedar *(Juniperus virginiana)* Virginia pine *(Pinus virginiana),* hickory *(Carya spp.),* white oak *(Quercus alba)*, pin oak *(Quercus palustris)* and southern red oak *(Quercus falcate)*. The understory contains eastern redcedar, viburnum *(viburnum spp.)* and white oak.
ACREAGE:	0.4 acres.
AGE/SIZE CLASS:	Even-aged, immature-young mature (4"-8"" DBH). Two larger trees present, a 34"DBH white oak and a 34" DBH hickory.
AGE:	10-20 years.
DENSITY:	Poorly stocked (30 sq. ft. BA per acre).
GROWTH RATE:	Fast.
QUALITY:	Good.
REGENERATION:	Desirable hardwood overstory species regeneration is non-existent.
INSECTS / DISEASE:	None.
# TREES 6" – 13" / ACRE:	90.
# TREES > 14" / ACRE:	10.
SOILS:	Kelly-Sycoline complex, Albano silt loam
TOPOGRAPHY:	Gently sloping.
ASPECT:	Aspect varies across this Cover Type.
STAND HISTORY:	Previously used for agriculture and/or grazing.

Cover Type # 2

GENERAL DESCRIPTION:	Open, maintain grassland, existing primarily as an overhead utility right-of-way.
ACREAGE:	0.2 acres.
SOILS:	Kelly-Sycoline complex, Albano silt loam
TOPOGRAPHY:	Gently sloping.
ASPECT:	Aspect varies across this Cover Type.
STAND HISTORY:	Previously used for agriculture and/or grazing.

Forest Management Recommendations

Cover Type 1: Forest management considerations are limited within this Cover Type due small size of these areas. If the opportunity exists, portions of this Cover Type may be considered for preservation as Tree Conservation Areas (TCAs) during the development planning process.

Cover Type 2: No forest management recommendations.

General Recommendations

GUIDELINES FOR TREE CONSERVATION AREAS (TCA'S)

The following general guidelines should be implemented for all Cover Types throughout the development process and as part of the future maintenance of the TCA. These guidelines provide for the maintenance and overall health and sustainability of the TCAs.

1. Develop and implement a Tree Conservation Plan (TCP) for all areas to be preserved during site development. The TCP should start with the establishment of limits of clearing and grading. It should identify the location of fencing, (welded wire or super silt fence) to be used to protect these areas from encroachment during development and specify when they are to be installed and removed. It should identify the trees adjacent to these limits that may be affected by the development activity as specified in Chapter 7 of the Facility Standards Manual (FSM) and prescribe activities aimed at mitigating those affects, such as root pruning, mulching, fertilizing, etc.

2. Trees along the proposed limits of disturbance or in other areas of the TCA that pose potential hazard should be identified and removed during the development process.

3. Invasive species should be identified and treated during the development process and as part of the long-term management program. Control techniques may include mechanical removal, herbicide, or cultural control methods based on the species, severity of invasion, and location relative to sensitive plants or areas.

4. The site should be monitored throughout development and as part of the long-term management for outbreaks of potentially serious insects an disease including gypsy moth, canker worm, wood boring insects, and other potentially devastating outbreaks. Frequent monitoring that identifies populations at low levels can prevent the need for large scale treatments.

5. Any hazardous trees should be treated to improve safety in high use areas. These include home sites, recreation facilities and trails, or other areas frequented by people. This may include the removal, pruning, or cabling of trees with a high potential for failure.

6. Disturbed edges should be mulched to reduce the potential for invasion by undesirable species.

7. Thinning and removal of poor quality trees may be necessary to improve the overall health. This item should be a part of the long-term management for any Cover Type.

8. Pest monitoring and control is important to prevent secondary and tertiary stress factors.

FORESTRY BEST MANAGEMENT PRACTICES

All forest management activities shall comply with Virginia Best Management Practices (BMP's). BMP's are methods, measures, or practices to meet non-point pollution control needs. These practices include stabilization of all exposed soil on skid trails, haul roads, and log decks, crossing streams using bridges or culverts, locating trails and roads on minimal grades, installation of water diversion structures, and leaving buffer strips along perennial streams. All BMP's shall be done in accordance with those outlined by the Virginia Department of Forestry.

In addition to the state BMPs, the following guidelines shall apply to all forestry operations according to Loudoun County requirements where timber harvesting is implemented.

1. The Loudoun County Urban Forester shall be notified at least 24 hours prior to commencement of any timber harvesting.

2. The Loudoun County Urban Forester shall be notified upon installation of all BMP's.

3. Forest management activities shall comply with the Virginia Debris in Stream Law.

4. The property shall be protected from wildfire. Any outdoor burning shall be done carefully and in compliance with all Virginia Forest Laws. The Loudoun County Sheriff's Office shall be notified immediately of any escaped fire.

5. Locations of log decks, skid trails, and haul roads shall be identified prior to any logging activity.

6. A grading permit will be required for road construction exceeding 10,000 square feet.

7. Any forest management activities shall be done in accordance with accepted silvicultural practices and methods.

APPENDIX A—FOREST COVER TYPE SUMMARY TABLE

FOREST COVER TYPE SUMMARY TABLE							
Cover Type	Composition	Primary Species	Quality	Density	Age Class	Soils	Acres
1	P	Eastern redcedar, Virginia pine, white oak, hickory, pin oak, southern red oak	G	PS	IM-YM	62B, 79A	0.4
2	O	N/A	N/A	N/A	N/A	62B, 79A	0.2
						Total acreage	0.6

APPENDIX B—CODE DESCRIPTIONS

SPECIES COMPOSITION:
UH—UPLAND HARDWOODS
BH—BOTTOMLAND HARDWOODS
MH—MIXED HARDWOODS
VP—VIRGINIA PINE
C—EASTERN RED CEDAR
P—EARLY SUCCESSIONAL PIONEER SPECIES
OP—OPEN (PASTURE, FIELD, LAWN AREA)

QUALITY:
P—POOR
F—FAIR
G—GOOD

DENSITY:
REPRODUCTION TO IMMATURE STANDS:
PS—POORLY STOCKED (< 200 STEMS PER ACRE)
MS—MEDIUM STOCKED (200 – 500 STEMS PER ACRE)
WS—WELL STOCKED (> 500 – 700 STEMS PER ACRE)

YOUNG MATURE TO OVERMATURE STANDS
PS—POORLY STOCKED (< 50 SQ. FT. BA*)
MS—MEDIUM STOCKED (50 TO 70 SQ. FT. BA)
WS—WELL STOCKED (70 TO 100 SQ. FT. BA)
OS—OVER STOCKED (> 110 SQ. FT. BA)

AGE CLASS:
RE—REPRODUCTION (SEEDLINGS AND SAPLINGS < 2" DBH**)
IM—IMMATURE (SAPLING AND POLE-SIZE < 6" DBH)
YM—YOUNG MATURE (6 TO 12" DBH)
M—MATURE (> 12" DBH)
OM—OVERMATURE (LARGE TREES DOMINATE WITH EVIDENCE OF DECAY AND DEATH)

SOILS:
62B—KELLY-SYCOLIN COMPLEX (3-8%)
79A—ALBANO SILT LOAM (0-3%), BRIEF PONDING

* BA = SQUARE FEET OF BASAL AREA PER ACRE
** DBH = DIAMETER MEASURED 4.5 FEET ABOVE GROUND

Appendix C—Bibliography

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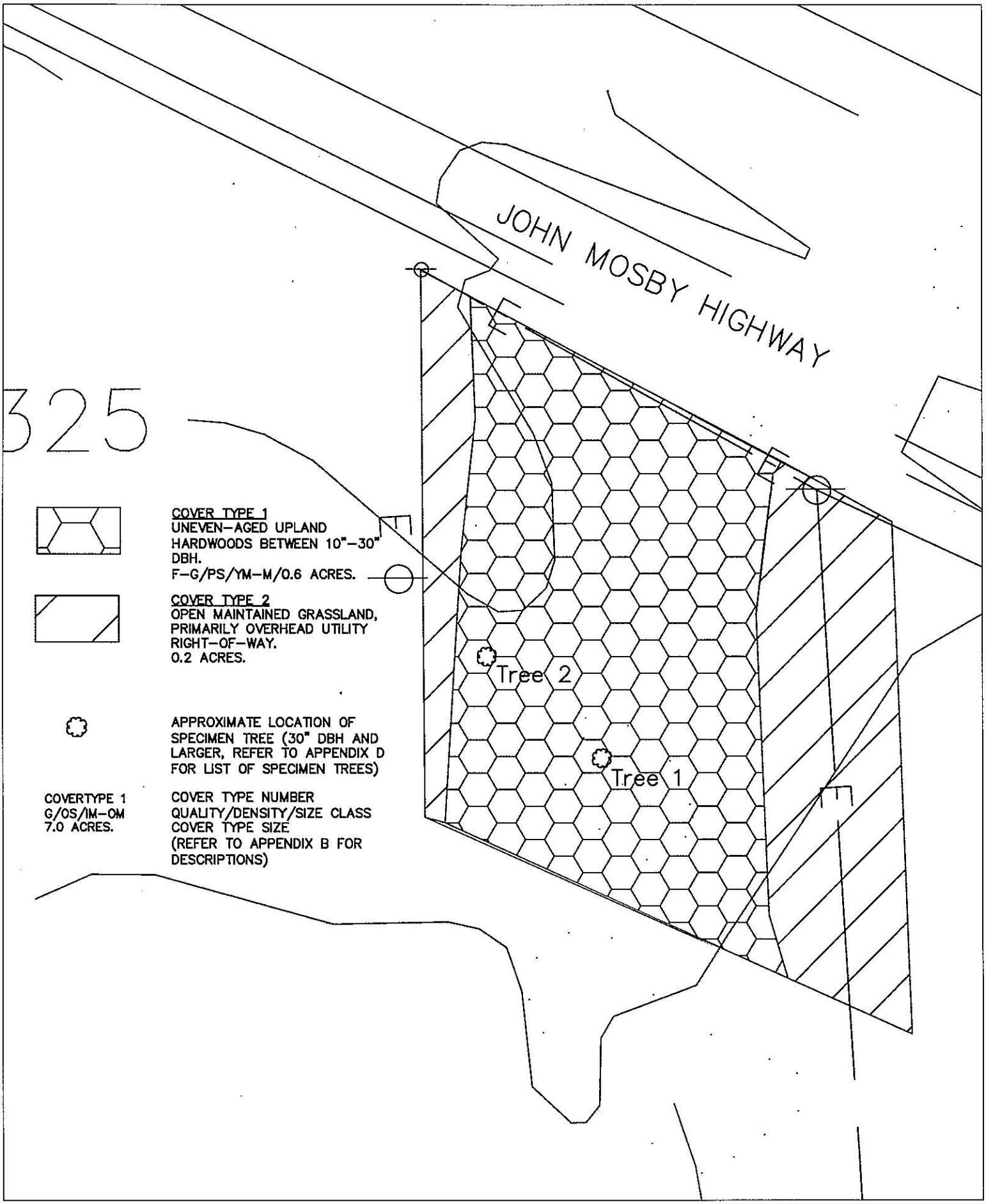
Appendix D—Specimen Trees

Tree #	Species	Size	Condition	Canopy Position	Crown Density	Average Crown Spread	Problems
		dbh (in.)	%		%	D (ft.)	
1	white oak	34	70	Dominant	70	65	large deadwood
2	hickory	34	60	Dominant	70	65	large deadwood, weak codominant union, tree house

*dbh= Diameter at Breast Height (measured 4.5 feet above ground)

***Condition ratings are provided as percentages based on methods outlined in the latest edition of the *Guide for Plant Appraisal* published by the International Society of Arboriculture.



SCALE: 1"=40'

DATE: 02-12-06

DRAWN BY:MSK

COVER TYPE MAP

CHOI PROPERTY

LOUDOUN COUNTY, VIRGINIA

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10105 Residency Road, Suite 207
Manassas, Virgina 20110
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Introduction

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Site Location

This, approximately, 2 acre site is located in Loudoun County at the southwest corner of the intersection of John Mosby Highway and Gum Springs Road. The property borders Gum Springs Road on the east.

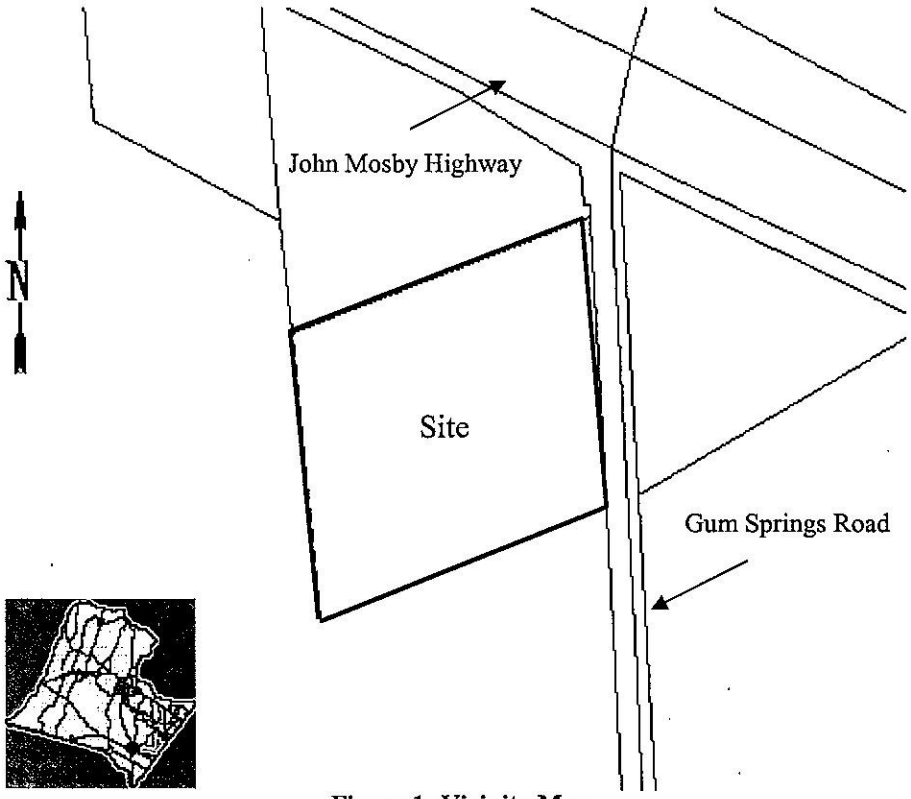

Figure 1: Vicinity Map

Loudoun County Office of Mapping and Geographic Information – January 2006

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- Topography was determined from Loudoun County Office of Mapping and Geographic Information maps as well as maps provided by Urban Engineering & Associates, Inc.
- Health, vigor, and quality were determined by growth rate, presence of diseases or insects, and tree form, size, and structure.

Observations

The site consists of upland hardwood forest. There is some Virginia pine located primarily in the eastern portion of this property.

GENERAL DESCRIPTION:	Upland Hardwoods.
SPECIES COMPOSITION:	Overstory contains primarily white oak *(Quercus alba)* southern red oak *(Quercus falcata)*, hickory *(Carya spp.)* and Virginia pine *(Pinus virginiana)* The understory contains sweet cherry *(Prunus avium),* flowering dogwood *(Cornus florida)*, and viburnum *(Viburnum spp.).*
ACREAGE:	2.0 acres.

AGE/SIZE CLASS:	Even-aged, young mature-mature (6"-14" DBH). There are a few larger trees, primarily southern red oak, up to 28" DBH.
AGE:	40-60 years.
DENSITY:	Well stocked (90 sq. ft. BA per acre)..
GROWTH RATE:	Fast.
QUALITY:	Good.
REGENERATION:	Desirable hardwood overstory species regeneration is present with about 200 stems per acre.
INSECTS / DISEASE:	None.
# TREES 6" – 13" / ACRE:	160.
# TREES > 14" / ACRE:	10.
SOILS:	Kelly-Sycoline complex, Waxpool silt loam
TOPOGRAPHY:	Gently sloping.
ASPECT:	North.
STAND HISTORY:	Previously used for agriculture and/or grazing.

Forest Management Recommendations

With the exception of a few larger remnant trees, trees in this stand are small for a merchantable harvest. This stand could be left to mature and monitored periodically for health. If the opportunity presents itself, portions of this Cover Type could be considered for Tree Conservation Areas (TCA). If any portion of this Cover Type is preserved, the Virginia pine should be removed as this species is prone to wind throw and could potentially be a hazard.

General Recommendations

GUIDELINES FOR TREE CONSERVATION AREAS (TCA'S)

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6. Disturbed edges should be mulched to reduce the potential for invasion by undesirable species.

7. Thinning and removal of poor quality trees may be necessary to improve the overall health. This item should be a part of the long-term management for any Cover Type.

8. Pest monitoring and control is important to prevent secondary and tertiary stress factors.

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6. A grading permit will be required for road construction exceeding 10,000 square feet.

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APPENDIX A—FOREST COVER TYPE SUMMARY TABLE

FOREST COVER TYPE SUMMARY TABLE							
Cover Type	Composition	Primary Species	Quality	Density	Age Class	Soils	Acres
1	UH	White oak, southern red oak, hickory, Virginia pine	G	F	YM-M	62B, 66A	2.0
						Total acreage	2.0

APPENDIX B—CODE DESCRIPTIONS

SPECIES COMPOSITION:
UH—UPLAND HARDWOODS
BH—BOTTOMLAND HARDWOODS
MH—MIXED HARDWOODS
VP—VIRGINIA PINE
C—EASTERN RED CEDAR
P—EARLY SUCCESSIONAL PIONEER SPECIES
OP—OPEN (PASTURE, FIELD, LAWN AREA)

QUALITY:
P—POOR
F—FAIR
G—GOOD

DENSITY:
REPRODUCTION TO IMMATURE STANDS:
PS—POORLY STOCKED (< 200 STEMS PER ACRE)
MS—MEDIUM STOCKED (200 – 500 STEMS PER ACRE)
WS—WELL STOCKED (> 500 – 700 STEMS PER ACRE)

YOUNG MATURE TO OVERMATURE STANDS
PS—POORLY STOCKED (< 50 SQ. FT. BA*)
MS—MEDIUM STOCKED (50 TO 70 SQ. FT. BA)
WS—WELL STOCKED (70 TO 100 SQ. FT. BA)
OS—OVER STOCKED (> 110 SQ. FT. BA)

AGE CLASS:
RE—REPRODUCTION (SEEDLINGS AND SAPLINGS < 2" DBH**)
IM—IMMATURE (SAPLING AND POLE-SIZE < 6" DBH)
YM—YOUNG MATURE (6 TO 12" DBH)
M—MATURE (> 12" DBH)
OM—OVERMATURE (LARGE TREES DOMINATE WITH EVIDENCE OF DECAY AND DEATH)

SOILS:
62B–KELLY-SYCOLINE COMPLEX (3-8%)
62B–KELLY-SYCOLINE COMPLEX (3-8%)

* BA = SQUARE FEET OF BASAL AREA PER ACRE
** DBH = DIAMETER MEASURED 4.5 FEET ABOVE GROUND

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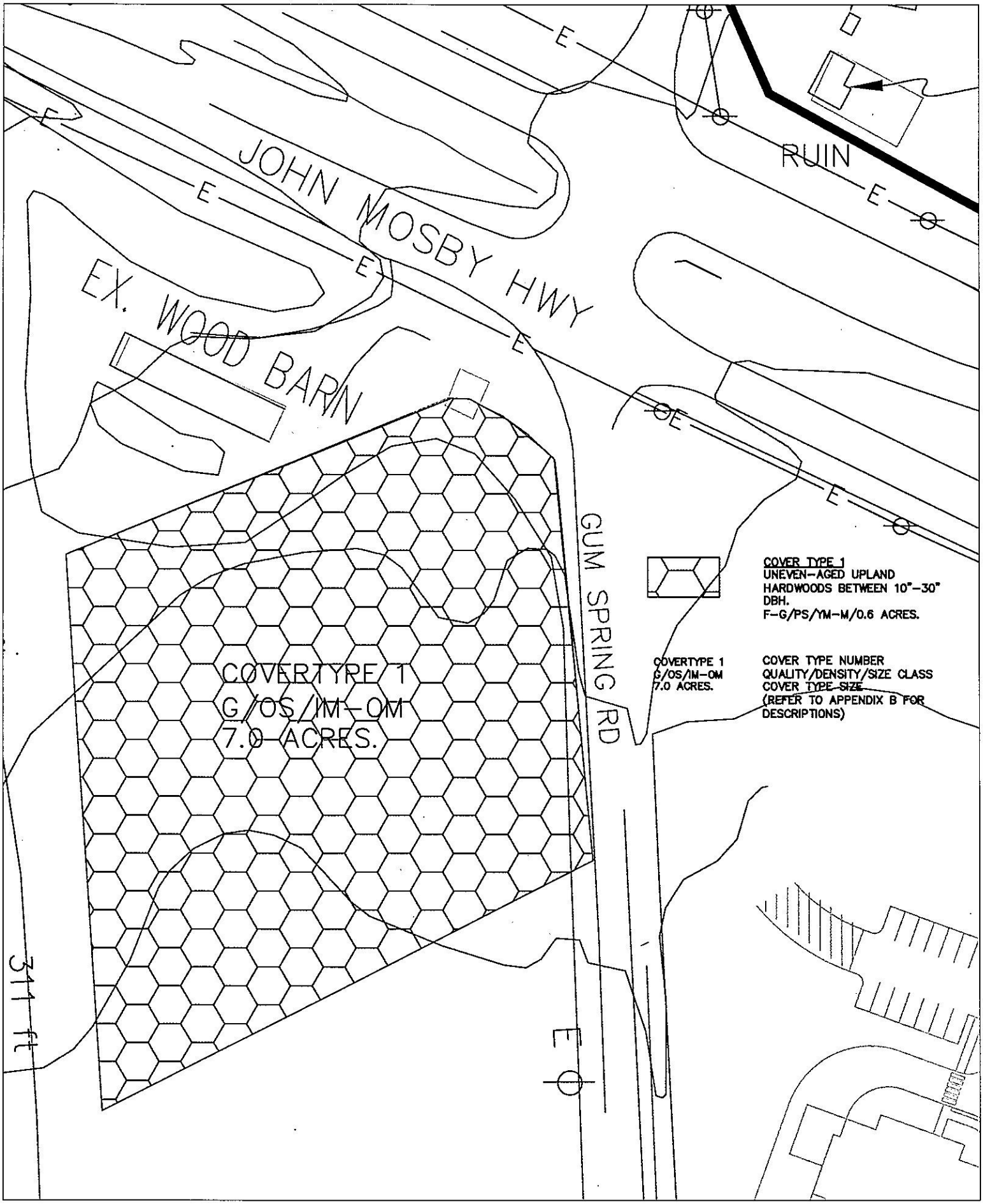

SCALE: 1"=70'

DATE: 02-12-06

DRAWN BY:MSK

COVER TYPE MAP

THOMPSON

LOUDOUN COUNTY, VIRGINIA

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