

**FOREST MANAGEMENT PLAN
&
COVER TYPE MAP**

For

**Prairie
Dulles District
Loudoun County, Virginia**

September 14, 2004

Prepared for:

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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, 85 acre site is located in Loudoun County and lies just south of John Mosby Highway (Rt. 50). This site is bordered to the north and west by Goshen Road.

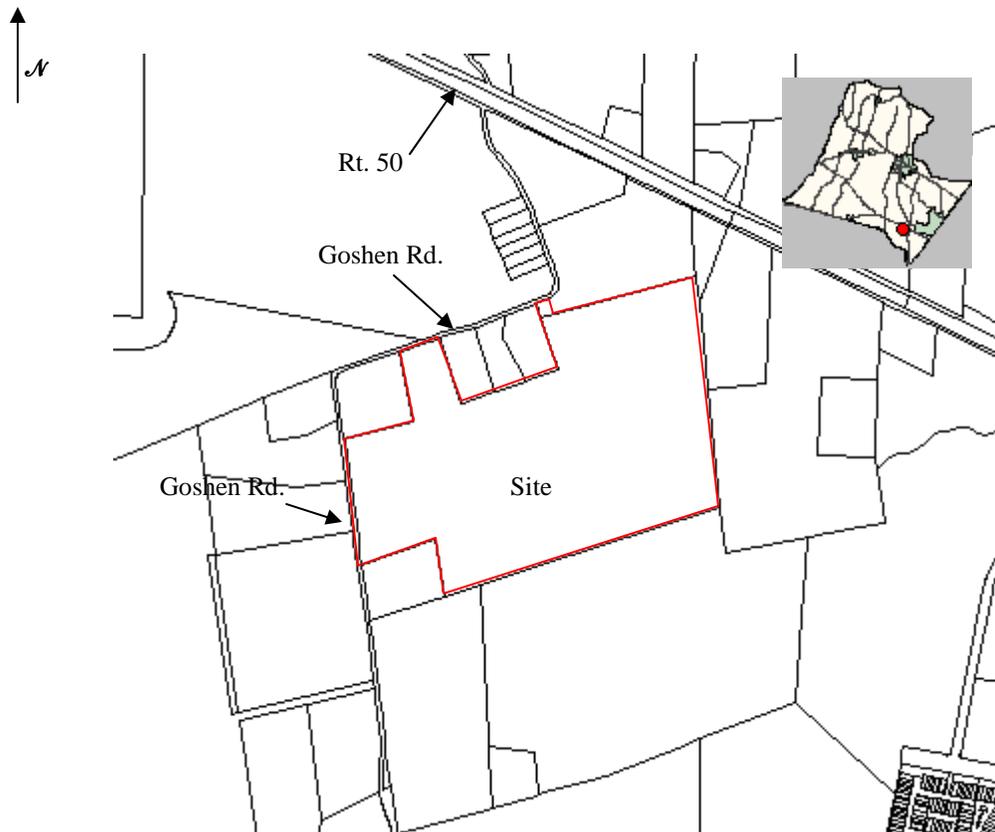


Figure 1: Vicinity Map

Loudoun County Office of Mapping and Geographic Information – September 2004

Procedures

Z&A prepared an Existing Vegetation Map (EVM) for the identified property in September of 2004. 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 Stone Ridge Community Development.
- 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 majority of this site consists of early successional forest containing pioneer species such as eastern red cedar, Virginia pine, and red maple. Bottomland and mixed hardwoods can be found along drainages. There is also a small portion of the site consisting of abandoned field containing a few scattered early successional pioneer species. Overall, there are no truly exceptional forested stands on this site. The best stands consist of young mature to mature bottomland hardwoods and are located within Cover Type 1.

Cover Type # 1

<u>GENERAL DESCRIPTION:</u>	Bottomland and mixed hardwoods.
<u>SPECIES COMPOSITION:</u>	Overstory contains yellow poplar (<i>Liriodendron tulipifera</i>), green ash (<i>Fraxinus pennsylvanica</i>), red maple (<i>Acer rubrum</i>), swamp white oak (<i>Quercus bicolor</i>), white oak (<i>Quercus alba</i>), hickory (<i>Carya sp.</i>), and southern red oak (<i>Quercus falcata</i>). The understory contains slippery elm (<i>Ulmus rubra</i>), spicebush (<i>Lindera benzoin</i>), black cherry (<i>Prunus serotina</i>), and red maple. There is also significant herbaceous ground cover throughout portions of the understory as well as patches of greenbrier (<i>Smilax rotundifolia</i>) and honeysuckle (<i>Lonicera japonica</i>).
<u>ACREAGE:</u>	19.6 acres.
<u>AGE/SIZE CLASS:</u>	Uneven-aged, young mature-mature (12"-24" DBH).
<u>AGE:</u>	50-70 years.
<u>DENSITY:</u>	Moderately stocked (60 sq. ft. BA per acre).
<u>GROWTH RATE:</u>	Slow-moderate.
<u>QUALITY:</u>	Fair-good.
<u>REGENERATION:</u>	Desirable hardwood overstory species regeneration is sparse (150 stems per acre) due to heavy deer browse and competition from less desirable vegetation.
<u>INSECTS / DISEASE:</u>	None.
<u># TREES 6" – 13" / ACRE:</u>	70.
<u># TREES > 14" / ACRE:</u>	70.
<u>SOILS:</u>	Bomansville silt loam, Dulles silt loam, Albano silt loam, Nestoria gravelly silt loam, Leedsville cobbly silt loam, Manassas silt loam.
<u>TOPOGRAPHY:</u>	Level.

ASPECT: Aspect varies across this Cover Type.

STAND HISTORY: Previously used for agriculture.

Cover Type # 2

GENERAL DESCRIPTION: Early successional forest containing primarily eastern red cedar.

SPECIES COMPOSITION: Overstory contains eastern red cedar (*Juniperus virginiana*), and scattered red maple, Virginia pine (*Pinus virginiana*), and black cherry. Red maple, eastern red cedar, and black cherry can also be found in the understory. There is a significant amount of herbaceous ground cover throughout this Cover Type, especially in lower areas closer to drainages. Patches of honeysuckle, greenbrier, and blackberry (*Rubus allegheniensis*) can also be found throughout the understory.

ACREAGE: 37.5 acres.

AGE/SIZE CLASS: Uneven-aged, immature-young mature (4"-10" DBH).

AGE: 15-35 years.

DENSITY: Moderately stocked (80 sq. ft. BA per acre).

GROWTH RATE: Slow-moderate.

QUALITY: Poor

REGENERATION: Desirable hardwood overstory species regeneration is sparse due to heavy deer browse and canopy closure.

INSECTS / DISEASE: None.

TREES 6" – 13" / ACRE: 100.

TREES > 14" / ACRE: <10.

<u>SOILS:</u>	Sudley-Oatlands complex, Nestoria gravelly silt loam, Dulles silt loam, Penn silt loam.
<u>TOPOGRAPHY:</u>	Level to gently rolling.
<u>ASPECT:</u>	Aspect varies across this Cover Type.
<u>STAND HISTORY:</u>	Previously used for agriculture and grazing.

Cover Type # 3

<u>GENERAL DESCRIPTION:</u>	Primarily Virginia Pine with some interspersed mixed hardwoods.
<u>SPECIES COMPOSITION:</u>	Overstory contains Virginia pine, hickory, and southern red oak. The understory contains hickory, southern red oak, red maple, eastern red cedar, and flowering dogwood (<i>Cornus florida</i>).
<u>ACREAGE:</u>	5.6 acres.
<u>AGE/SIZE CLASS:</u>	Uneven-aged, young mature-mature (10"-16" DBH).
<u>AGE:</u>	35-50 years.
<u>DENSITY:</u>	Moderately stocked (70 sq. ft. BA per acre).
<u>GROWTH RATE:</u>	Slow-moderate.
<u>QUALITY:</u>	Poor.
<u>REGENERATION:</u>	There is a significant amount of desirable hardwood species regeneration, primarily oak and hickory, present throughout this Cover Type (270 stems per acre).
<u>INSECTS / DISEASE:</u>	None.
<u># TREES 6" – 13" / ACRE:</u>	75.
<u># TREES > 14" / ACRE:</u>	50.

<u>SOILS:</u>	Sudley-Oatlands complex, Leedsville cobbly silt loam.
<u>TOPOGRAPHY:</u>	Level to gently rolling.
<u>ASPECT:</u>	Primarily northeast.
<u>STAND HISTORY:</u>	Previously used for agriculture and grazing.

Cover Type # 4

<u>GENERAL DESCRIPTION:</u>	Transitional forest containing primarily early successional pioneer tree species, existing primarily as disturbed edge.
<u>SPECIES COMPOSITION:</u>	Overstory contains red maple, eastern red cedar, Virginia pine, southern red oak, white ash (<i>Fraxinus Americana</i>), and black cherry. The understory contains eastern red cedar, black cherry, ash, and red maple as well as thick patches of blackberry and honeysuckle.
<u>ACREAGE:</u>	15.6 acres.
<u>AGE/SIZE CLASS:</u>	Uneven-aged, immature-young mature (6"-14" DBH).
<u>AGE:</u>	15-45 years.
<u>DENSITY:</u>	Poorly stocked (50 sq. ft. BA per acre).
<u>GROWTH RATE:</u>	Slow-moderate.
<u>QUALITY:</u>	Poor
<u>REGENERATION:</u>	Desirable hardwood overstory species regeneration is sparse due to heavy deer browse, and competition from less desirable vegetation.
<u>INSECTS / DISEASE:</u>	None.
<u># TREES 6" – 13" / ACRE:</u>	75
<u># TREES > 14" / ACRE:</u>	25

SOILS: Sudley-Oatlands complex, Albano silt loam, Penn silt loam, Ashburn silt loam, Manassas silt loam.

TOPOGRAPHY: Level.

ASPECT: Aspect varies across this Cover Type.

STAND HISTORY: Previously used for agriculture and grazing.

Cover Type # 5

GENERAL DESCRIPTION: Open area consisting of abandoned field. There are a few scattered early successional pioneer tree species scattered throughout this Cover Type.

SPECIES COMPOSITION: Eastern red cedar, pin oak, black cherry, autumn olive.

ACREAGE: 5.1 acres.

QUALITY: Trees present are of poor to fair quality.

SOILS: Penn silt loam, Dulles silt loam, Albano silt loam, Leedsville cobbly silt loam.

TOPOGRAPHY: Level.

ASPECT: Primarily east.

STAND HISTORY: Previously used for agriculture and grazing.

Forest Management Recommendations

Cover Type 1: These stands should be left to mature and inspected periodically to monitor growth rate and overall stand health. This Cover Type is of a higher priority for preservation relative to others due to the quality and size class of the trees it contains. Forest management considerations are limited within this Cover Type due to the wet soil conditions present. 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: This Cover Type is of low priority for preservation and forest management considerations due to the small size and quality of the trees it contains. There are, however, many smaller cedar trees within this Cover Type that may be considered for transplanting for use as visual buffers or in landscaped settings.

Cover Type 3: Virginia pine is not a desirable timber species and lacks structural integrity, thus it is prone to wind throw during windy and icy conditions and can pose a hazard. Currently, this stand is of a lower priority for preservation.

As the preservation of the Virginia pine in the overstory is not a priority, many of these trees may be removed. This will allow for the release of more desirable hardwoods such as oak and hickory which are present in the understory. The removal of overstory Virginia pine will also improve safety.

Cover Type 4: This Cover Type is also of a lower priority for forest management and preservation due to the poorer quality and size of the trees it contains. As in Cover Type 2, there are many smaller trees present within this Cover Type may be considered for transplanting for use in landscaped settings.

Cover Type 5: 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	BH/MH	yellow poplar, green ash, red maple, swamp white oak, white oak, hickory, southern red oak	F-G	MS	YM-M	6A, 78A, 79A, 77C3, 70C, 14B	19.6
2	C	eastern red cedar, red maple, Virginia pine	P	MS	IM-YM	76B, 77C3, 78A, 73B	37.5
3	VP	Virginia pine, hickory, southern red oak	P	MS	YM-M	76B, 70C	5.6
4	P	red maple, eastern red cedar, Virginia pine, southern red oak, white ash, black cherry	P	MS	IM-YM	76B, 79A, 73B, 74B, 14B	15.6
5	OP	Eastern red cedar, pin oak, black cherry	N/A	N/A	N/A	73B, 78A, 79A, 70C	5.1
<i>Total acreage</i>							84.8

APPENDIX B—CODE DESCRIPTIONS

SPECIES COMPOSITION:

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:

6A—BOMANSVILLE SILT LOAM (0-3%) OCCASIONAL FLOODING
14B—MANASSAS SILT LOAM (1-8%)
70C—LEEDSVILLE COBBLY SILT LOAM (8-15%)
73B—PENN SILT LOAM (3-8%)
74B—ASHBURN SILT LOAM (1-8%)
76B—SUDLEY-OATLANDS COMPLEX (3-8%)
77C3—NESTORIA GRAVELLY SILT LOAM, SEVERELY ERODED (8-15%)
78A—DULLES SILT LOAM (0-3%)
79A—ALBANO SILT LOAM (0-3%) BRIEF PONDING

* BA = SQUARE FEET OF BASAL AREA PER ACRE

** DBH = DIAMETER MEASURED 4.5 FEET ABOVE GROUND

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