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Dump Road Groundwater Remediation Project – Critical Area Mitigation Plan Martin State Airport Middle River, Maryland

Prepared for:

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ACRONYMS

CAC	Critical Area Commission
DRA	Dump Road Area
ft ²	square feet
Lockheed Martin	Lockheed Martin Corporation
MRC	Middle River Complex
MSA	Martin State Airport

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Section 1

Introduction

On December 4, 2014, the Maryland Critical Area Commission (CAC) approved the Lockheed Martin Corporation (Lockheed Martin) groundwater remediation project at the Dump Road Area (DRA) within Martin State Airport (MSA) in Middle River, Maryland. As part of the CAC approval, Lockheed Martin is required to provide forest mitigation for impacts to 3.63 acres (158,524 square feet [ft²]) of forest within the critical area of the Dump Road project area. This includes mitigation for impacts to 0.87 acres (37,957 ft²) of forested area within the 100-foot tidal buffer at a 2:1 ratio, and 1:1 mitigation to 2.76 acres (120,567 ft²) of forest outside the buffer. Therefore, the total mitigation required associated with this project is 4.50 acres, or 196,481 ft².

On-site mitigation for impacts to existing forest at the DRA is not permitted by the Federal Aviation Administration (FAA) because of its potential for creating wildlife hazards for aviation. Therefore, off-site mitigation is proposed for two locations, including the Middle River Complex (MRC) and the Radebaugh Farm property locate

The adjacent mixed hardwood forest contains a mature canopy consisting primarily of white oak (*Quercus alba*) and hickory (*Carya cordiformis*, *C. glabra*), with some maple (*Acer sacharrum*, *A. rubrum*) and black cherry (*Prunus serotina*) trees. Understory trees consist of sassafras (*Sassafras albidum*) and occasional umbrella magnolia (*Magnolia tripetala*). The herbaceous layer appears to be relatively sparse, but contains scattered patches of Christmas fern (*Polystichum acrostichoides*) and several non-native herbs. Occasional dense stands of multiflora rose (*Rosa multiflora*), a non-native shrub, also occur.

Topography is relatively level on the hilltop, with a moderate to steep slope from north to south toward the tributary drainage with a grade of up to 25%. Elevations range approximately 720-760 feet above sea level. Soil at the site includes Glenelg loam (with 0-3% and 3-8% slopes) and Brinklow Channery loam (with 15-25% slopes). Both soil types occur on hilltops and sideslopes, and are considered to be relatively fertile, and are considered suitable for agricultural and silvicultural purposes.



Sample planting configurations for the MRC landscape stocking/flexible stocking and landscape

maximum allowable credit), over 4,400 ft² will be seeded with the native seed mix. We expect that

maximum allowable credit), over 4,400 ft² will be seeded with the native seed mix. We expect that the turf grass portions of the mitigation area will be shaded out over time, and that the forest/woodland plant species will colonize these areas. Total square footage of the resulting landscape stocking credit over the 1.70-acre area will be 37,128 ft², an area that exceeds the 37,039 ft² landscape stocking credit needed for this area.

**Table 2
Landscape Stocking Schedule – Middle River Complex**

Species	Common Name	Quantity				
Canopy trees—3/4-inch caliper					N/A	

Table 3
Landscape Understory Stocking Schedule – Middle River Complex

Species	Common Name	Quantity	Credit each (ft ²)	Credit total (ft ²)	Maximum % allowed	% Used
Canopy trees—¾-inch caliper					N/A	N/A

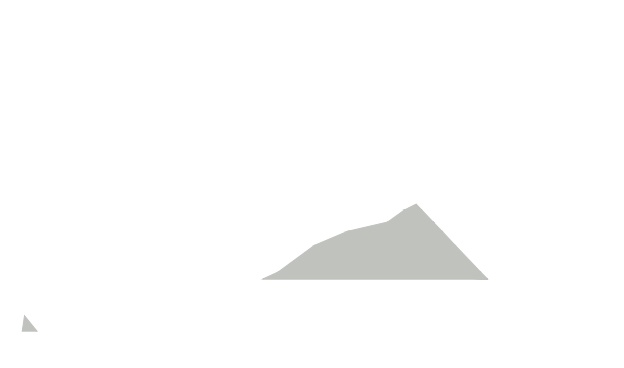




Sheet C-6 shows the maintenance and long term protection plans for the project, as well as standards for mitigation management and a description of signage to be used. In addition, Sheet C-6 provides the inspection agreement and signature for final plan approval of the project.

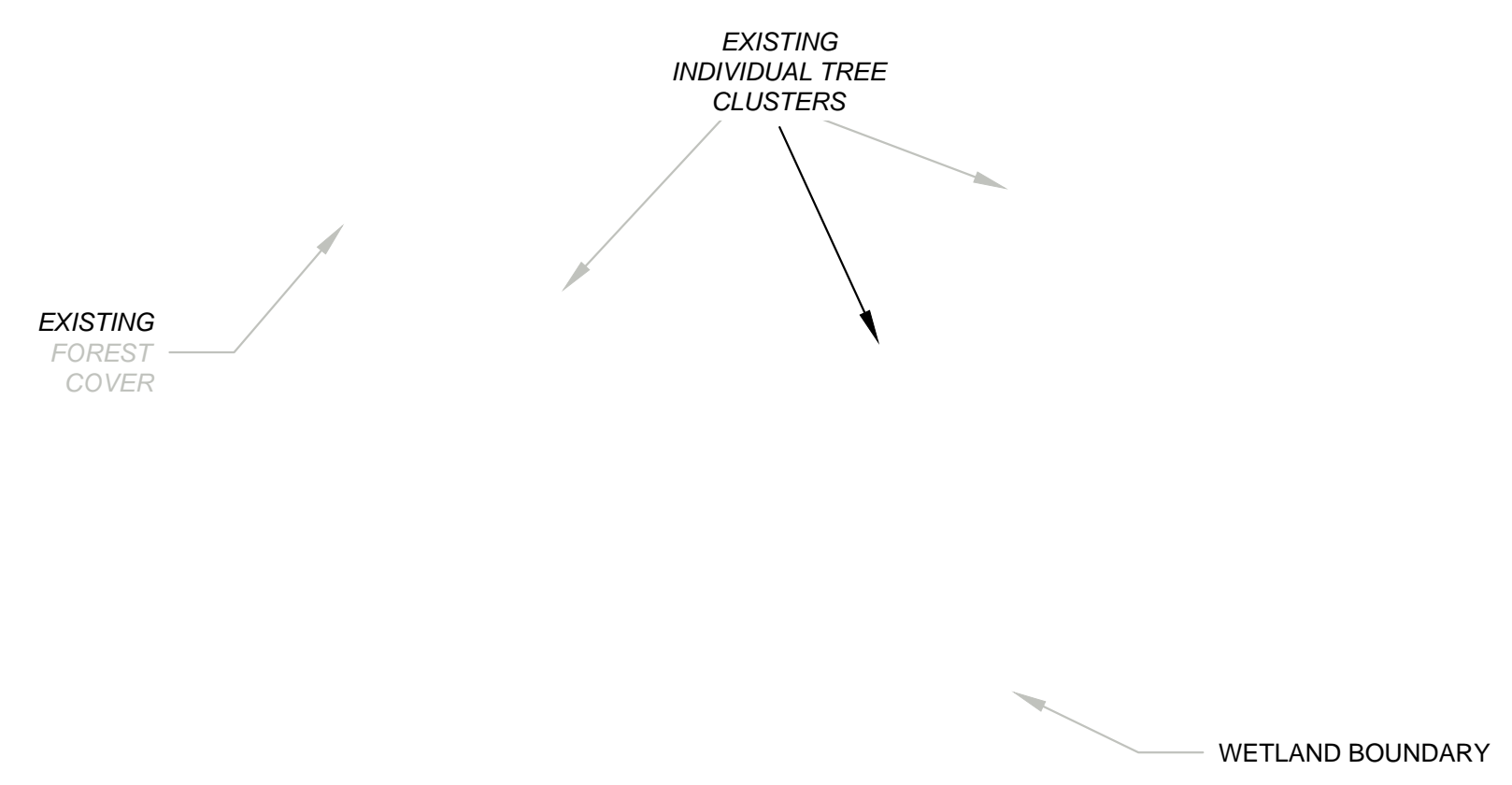
ATTACHMENT A—MITIGATION PLAN AREA DRAWINGS

- C-1 Project Vicinity, Site, and Existing Condition Maps, Middle River Complex
- C-2 Project Vicinity, Site, and Existing Condition Maps, Radebaugh Farm
- C-3 Planting Site Plan, Middle River Complex Blocks F and G
- C-4 Planting Site Plan, Radebaugh Farm
- C-5 Planting Configuration
- C-6 Planting Notes and Details & Planting Plan and Landscape Schedule

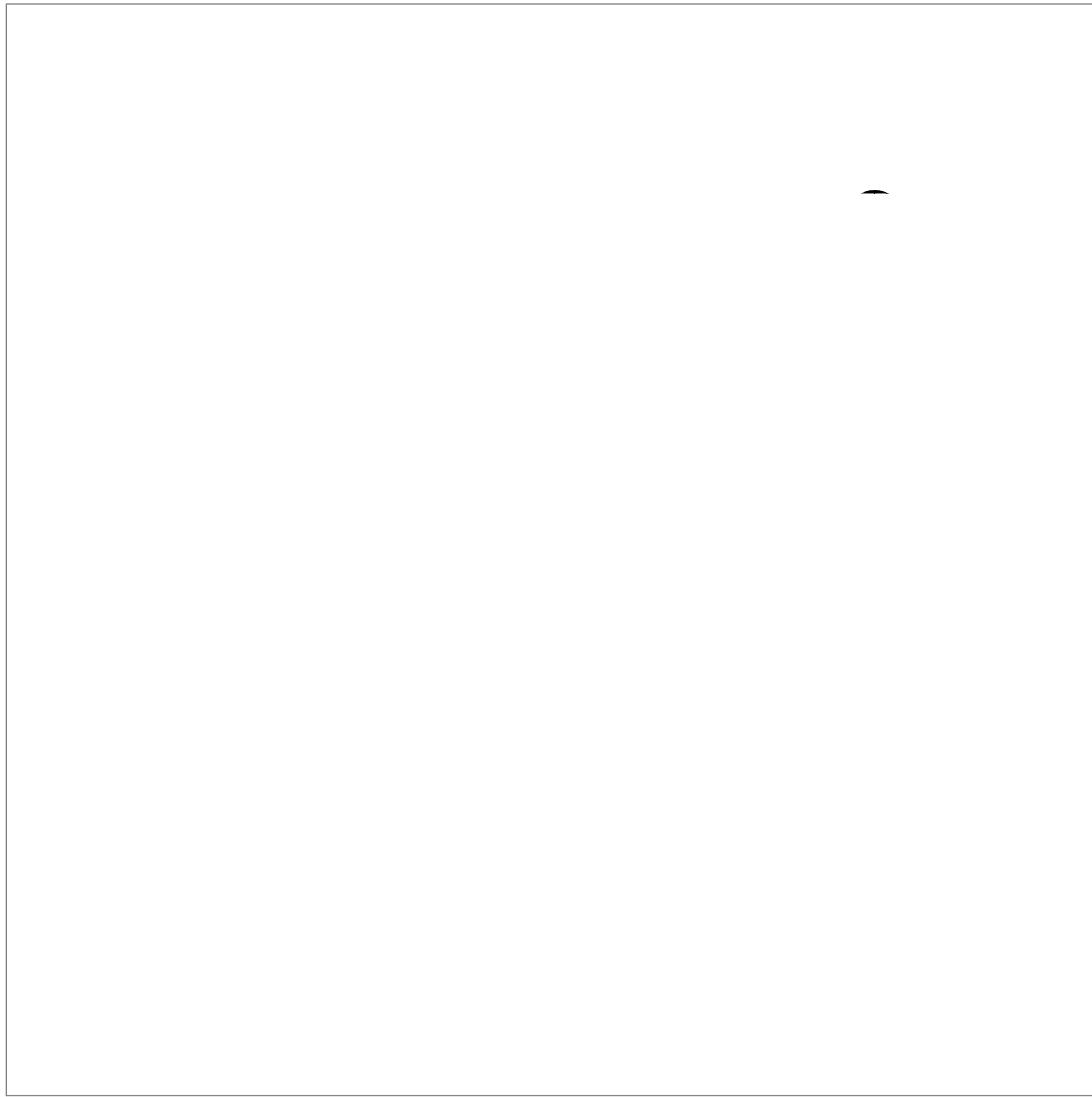


BLOCK G

BLOCK F







LANDSCAPE STOCKING

FLEXIBLE STOCKING

33 CANOPY TREES PER 10,000 SQUARE FEET

- MIDDLE RIVER COMPLEX

$\frac{1}{3}$ RED MAPLE

$\frac{1}{3}$ SWEET GUM

$\frac{1}{3}$ TULIP POPLAR

- RADEBAUGH FARM:

$\frac{1}{3}$ WHITE OAK

$\frac{1}{3}$ SUGAR MAPLE

$\frac{1}{3}$ MOCKERNUT HICKORY

18 UNDERSTORY TREES PER 10,000 SQUARE FEET

- MIDDLE RIVER COMPLEX

$\frac{1}{3}$ AMERICAN HOLLY

$\frac{1}{3}$ MUSCLE WOOD

$\frac{1}{3}$ MOUNTAIN LAUREL

- RADEBAUGH FARM:

$\frac{1}{2}$ SASSAFRAS

$\frac{1}{2}$ REDBUD

NOTE: 10,000 SQUARE FEET OF HERBACEOUS SEED WILL ALSO BE APPLIED TO THE AREAS WITHIN THE

ATTACHMENT B—LEGAL SURVEY DISCRIPTION

line
"Re Subdivision"
Book E.H.K. Jr. 51,

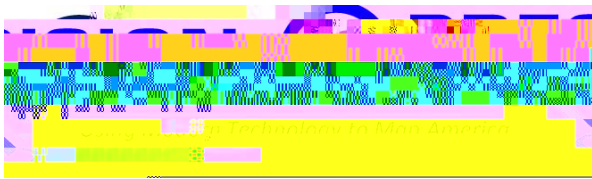
34 degrees 37 minutes 35 seconds West 301.83 feet from the intersection of the southwestern right of way line of Martin Boulevard, 70 feet wide and the northwest corner of Block 'F' as now surveyed by Precision Survey and Mapping LLC, thence running with said lot line, referring all courses and distances of this description to the Maryland Coordinate System (NAD83/NA2011 epoch 2010),

- 1) North 34 degrees 37 minutes 35 seconds East for a distance of 58.39 feet, thence leaving the aforementioned lot line of Block 'F' and running for a new line of easement through easement



24) thence with a





Legal Description

Forest Mitigation Area

A portion of Block 'G' Lot 1

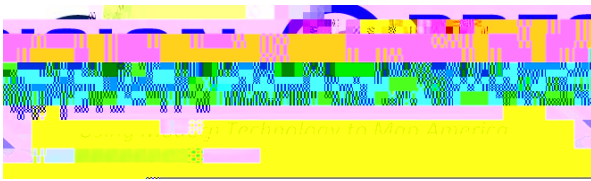
"1st Amended Chesapeake Park Re Subdivision"

Plat Book E.H.K. Jr. 51, Page 43

Baltimore County, Maryland

Beginning for the same on the North 41 degrees 22 minutes 30 seconds East 367.02 foot plat line or southeasterly line of Block 'G' Lot 1 as shown the plat entitled "1st Amended Chesapeake Park Re Subdivision" recorded among the Land Records of Baltimore County, Maryland in Plat Book E.H.K. Jr. 51, Page 43, distant South 41 degrees 21 minutes 27 seconds West 278.69 feet from intersection of Martin Boulevard, 70 feet wide and the southeast corner of the aforementioned Block 'G' Lot 1, thence running through Block 'G' Lot 1 for a new line of easement, as now surveyed by Precision Survey and Mapping LLC, referring all courses of this description to the Maryland Coordinate System NAD 83/2011 epoch 2010,

- 1) North 64 degrees 17 minutes 03 seconds West for a distance of 17.41 feet, thence
- 2) North 38 degrees 55 minutes 32 seconds West for a distance of 15.54 feet,
- 3) South 89 degrees 37 minutes 41 seconds West for a distance of 56.53 feet,
- 4) South 66 degrees 24 minutes 47 seconds West for a distance of 14.22 feet,
- 5) North 27 degrees 13 minutes 20 seconds West for a distance of 28.62 feet,
- 6) North 66 degrees 05 minutes 16 seconds West for a distance of 7.09 feet,
- 7) North 41 degrees 25 minutes 02 seconds West for a distance of 71.31 feet,
- 8) North 32 degrees 49 minutes 32 seconds West for a distance of 28.54 feet, thence
- 9) North 36 degrees 12 minutes 01 seconds East for a distance of 44.72 feet, thence
- 10) North 52 degrees 27 minutes 40 seconds West for a distance of 26.24 feet, thence
- 11) South 30 degrees 29 minutes 00 seconds West for a distance of 36.87 feet, thence
- 12) North 42 degrees 45 minutes 23 seconds West for a distance of 47.67 feet, thence
- 13) North 86 degrees 09 minutes 02 seconds West for a distance of 74.77 feet,
- 14) North 59 degrees 03 minutes 40 seconds West for a distance of 100.87 feet,
- 15) North 54 degrees 09 minutes 38 seconds West for a distance of 70.93 feet,
- 16) North 41 degrees 46 minutes 30 seconds East for a distance of 37.90 feet, thence
- 17) South 58 degrees 36 minutes 51 seconds East for a distance of 29.33 feet, thence
- 18) with a curve turning to the left with an arc length of 27.92 feet, having a radius of 20.00 feet, and a chord bearing of North 81 degrees 23 minutes 11 seconds East , with a chord length of 25.71 feet, thence
- 19) South 58 degrees 20 minutes 20 seconds East for a distance of 40.35 feet, thence
- 20) South 57 degrees 17 minutes 51 seconds East for a distance of 70.95 feet, thence
- 21) North 37 degrees 29 minutes 39 seconds East for a distance of 31.23 feet, thence
- 22) North 84 degrees 22 minutes 42 seconds East for a distance of 12.43 feet, thence
- 23) South 87 degrees 57 minutes 17 seconds East for a distance of 28.36 feet, thence



Legal Description

Forest Mitigation Area

(Amendment to the Radebaugh Land Preservation Trust Easement)

A portion of the land of

J. Douglas Radebaugh and Ellen M. Radebaugh Property

S.M. 22715 540

Baltimore County, Maryland

Beginning for the same distant South 59 degrees 27 minutes 52 seconds East 23.76 feet from a pipe found at the end of the 7th or North 36 degrees 28 minutes 10 seconds East 264.62 foot line of that tract or parcel of land which by deed dated September 30, 2005 and recorded among the land records of Baltimore County, Maryland in Liber S.M. 22715 folio 540, was conveyed by Ernest R. Price and Mary Jane Price to J. Douglas Radebaugh and Ellen M. Radebaugh, thence running through the land of the Grantor, as now surveyed by Precision Survey and Mapping LLC, referring all courses of this description referenced to the meridian established by the Maryland Coordinate system (NAD83/NA2011 epoch 2010), for the following courses:

- 1) North 17 degrees 27 minutes 09 seconds East for a distance of 108.46 feet, thence
- 2) North 83 degrees 57 minutes 28 seconds East for a distance of 87.66 feet,
- 3) South 81 degrees 17 minutes 50 seconds East for a distance of 219.22 feet,
- 4) South 81 degrees 23 minutes 35 seconds East for a distance of 261.42 feet,
- 5) South 16 degrees 14 minutes 20 seconds West for a distance of 146.13 feet,
- 6) South 79 degrees 10 minutes 35 seconds West for a distance of 326.85 feet,
- 7) North 57 degrees 05 minutes 00 seconds East for a distance of 40.42 feet,
- 8) North 68 degrees 07 minutes 10 seconds East for a distance of 22.72 feet,
- 9) feet,

st for a distance of 41.11 feet,

02 seconds West for a distance of 56.57 feet,

- 15) South 64 degrees 41 minutes 12 seconds West for a distance of 45.46 feet,
- 16) South 55 degrees 14 minutes 47 seconds West for a distance of 162.07 feet,
- 17) North 28 degrees 13 minutes 09 seconds West for a distance of 65.26 feet,
- 18) North 46 degrees 33 minutes 30 seconds East for a distance of 76.33 feet,
- 19) North 32 degrees 02 minutes 40 seconds East for a distance of 110.27 feet to the point of beginning.

Containing 119,174 square feet or 2.7359 acres of land, more or less.

Being a portion of the land which by deed dated September 30, 2005 and recorded among the land records of Baltimore County, Maryland in Liber S.M. 22715 folio 540, was conveyed by Ernest R. Price and Mary Jane Price to J. Douglas Radebaugh and Ellen M. Radebaugh.



Registered Maryland Professional Land Surveyor, No. 21169,
Expiration Date: 6/26/2019

