

Lockheed Martin Corporation
6801 Rockledge Drive MP: CCT-246
Bethesda, MD 20817
Telephone 240-460-7508



January 3, 2023

VIA EMAIL AND PRIVATE CARRIER

Regina Esslinger
Baltimore County Department of Environmental Protection and Sustainability
Environmental Impact Review
Jefferson Building
111 West Chesapeake Avenue, Room 319
Towson, MD 21204

Subject: Transmittal of the Block E Tree Mitigation Planting Report 2022
Lockheed Martin Corporation – Middle River Complex
2323 Eastern Boulevard, Middle River, Baltimore County, Maryland

Dear Ms. Esslinger,

For your information and records, please find enclosed two hard copies with a CD of the subject document. The enclosed *Block E Tree Mitigation Planting Report* covers the first year of activities following the Block E soil remediation project, pursuant to the *Block E Soil Remedial Action Plan* relating to the Lockheed Martin Middle River Environmental Remediation Project in Middle River, Maryland.

Please let me know if you have any questions. My office phone is 240-460-7508.

Sincerely,

A handwritten signature in black ink, appearing to read "Tom D. Blackman", with a long horizontal flourish extending to the right.

Thomas D. Blackman
Project Lead, Environmental Remediation

cc: (via email without enclosure)
Anuradha Mohanty, MDE
Mark Mank, MDE
Christine Kline, Lockheed Martin
Mary Morningstar, Lockheed Martin
James Damm, LMCPI
Michael Martin, Tetra Tech
Cannon Silver, CDM Smith

cc: (via Box)
Remediation Records, Lockheed Martin
Scott Heinlein, LMCPI
Christopher Keller, LMCPI
Rina Scales, LMCPI

**MIDDLE RIVER COMPLEX CRITICAL AREA 2022
BLOCK D ANNUAL MITIGATION PLANTING REPORT
2323 EASTERN BOULEVARD
LOCKHEED MARTIN MIDDLE RIVER COMPLEX
MIDDLE RIVER, MARYLAND**

Prepared for:
Lockheed Martin Corporation

Prepared by:
Tetra Tech, Inc.

January 2023

Revision: 0



Michael Martin, P.G.
Regional Manager



Jeff White
Principal Scientist

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ACRONYMS AND ABBREVIATIONS

ER&M	Ecological Restoration and Management
LMCPI	Lockheed Martin Properties, Inc.
Lockheed Martin	Lockheed Martin Corporation
MRC	Middle River Complex
Tetra Tech	Tetra Tech, Inc.

SECTION 1 INTRODUCTION

This document presents the *Block D Tree Mitigation Monitoring Report for Year 1, October 2022*, for the re-establishment of trees following the tree removal and site clearing necessary to complete the Block E soil remediation project, per the *Block E Soil Remedial Action Plan* (Tetra Tech, 2019) (Figure 1). The removal of 38,498 square feet (ft²) of forested area was required to accommodate the complete removal of the foundation of former Building D (a former manufacturing building in Block E) and to satisfy the objectives of the remedial action. The trees removed were within the Chesapeake Bay Critical Area but are not within the 100-foot critical area buffer zone; trees outside of the critical area buffer zone have a lower re-establishment ratio. Tree removal outside the 100-foot critical area buffer zone in Block E required re-establishment at a 1:1 ratio based on the area cleared of trees. Tree mitigation for the Block E remedial action is being completed primarily in Block D with a small portion in Block F.

SECTION 2

MITIGATION PLANTING IN BLOCK D AND F

2.1 PLANTING

The total project area covers 38,500 square feet, primarily in Block D, with a very small area in Block F. Within the project limits, 255 larger plants (landscape stock) and 310 bare root whips (flexible stock) were planted. With a total of 565 plants to install, the average overall spacing equated to 8.25 feet on center. Landscape stock included shrubs that were planted in groups of three. Larger landscape trees were planted then staked with two wooden stakes and secured with plastic guy wires for stabilization. PHC Plantsaver® was spread around landscape stock at the recommended rates on the label. To protect whip plantings for the first several years, tree tubes were installed around the whips and secured with zip ties to a single wooden stake. During planting, mulch was placed around the plantings with care taken not cover the trunk and allow the root flare to show. The work was performed by Ecological Restoration and Management (ER&M) under the oversight of Tetra Tech. Planting was completed in March 2022. A complete description of the planting plan can be found in the *Middle River Complex Critical Area Planting Block D Work Plan* (Tetra Tech, 2022a). A report on the planting that includes additional background information, mobilization, and the planting process can be found in the *.Block E Tree Mitigation Planting Report* (Tetra Tech, 2022b).

2.2 MAINTENANCE AND MONITORING

During the growing season (May-October), and following the initial planting, ER&M performed site visits to monitor site conditions and perform maintenance. Maintenance activities included the following on an as needed basis.

- Watering
- Weeding and invasive plant control (e.g., hand pulling of weeds and/or herbicide treatment)
- Repairing or straightening stakes and tree tubes

-
- Recording plant conditions and any concerns regarding survival and successful establishment.

Site inspection and maintenance activity reports from April to November are located in Appendix D.

SECTION 3

2022 ANNUAL SITE INSPECTION AND RECOMMENDATIONS

3.1 OCTOBER 2022 ANNUAL INSPECTION

On October 24 Maryland “Licensed Tree Expert #00239” Griff Evans (ER&M) and principal scientist Jeffrey White (Tetra Tech) performed a thorough “First Growing Season for 2022” inspection of the above referenced site and made the following observations.

The plant survival rate for the “landscape stock” was 96%. No species was less successful than the others. Plant species, sizes, and quantities of dead material are documented in Appendix A. The plants that did not survive, along with any additional trees or shrubs that fail to survive the second growing season, will be replaced in late fall 2023.

The plant survival rate for the “flexible stock” was 95%. Although very minor, most of the mortality occurred among the sweet gum (*Liquidambar styraciflua*). Approximately 20 additional bare root whips of each species were also installed at the time of planting (spring 2022). (Full bundles, with 25 plants per bundle, had to be procured, resulting in 20 extra plants of each species). These were not accounted for when calculating the survival rate above, but if they had, survival would be over 100%.

There is no need for replanting currently, as the survival rate for landscape stock is close to the 100% survival requirement (after two years) and the survival rate for flexible stock well exceeds the 50% survival requirement (after 5 years). Plant survival will be monitored during the 2023 growing season and any required planting to meet the survival requirements for either landscape or flexible stock will take place in late fall/early winter 2023, and each year thereafter (for flexible stock only) through fall 2027. There were no signs of insects or disease at the time of the inspection. Some of the tulip poplar (*Liriodendron tulipifera*) already had grown higher than the

tree tubes around their stems. The planting survival report provided by Griff Evans (ER&M) can be found in Appendix B and site photographs are included in Appendix C.

3.2 RECOMMENDED ACTIONS

Based on the annual site inspection, a small cluster of Canada thistle (*Cirsium arvense*) was identified at the edge of one mulch ring. Glyphosate was applied to this cluster prior to the first frost. The site was also mowed in November. Five tree tubes around flexible stock had been blown over, snapping the support stake at its base. These have been reinstalled and staked. There were no signs of mechanical damage to the plantings.

The site will continue to be monitored and maintained throughout the 5-year mitigation period and any changes or areas of concern will be documented and addressed. Landscape and flexible stock will be replaced in the late fall 2023 following the 2023 inspection and annually thereafter through 2027 for flexible stock.

SECTION 4 REFERENCES

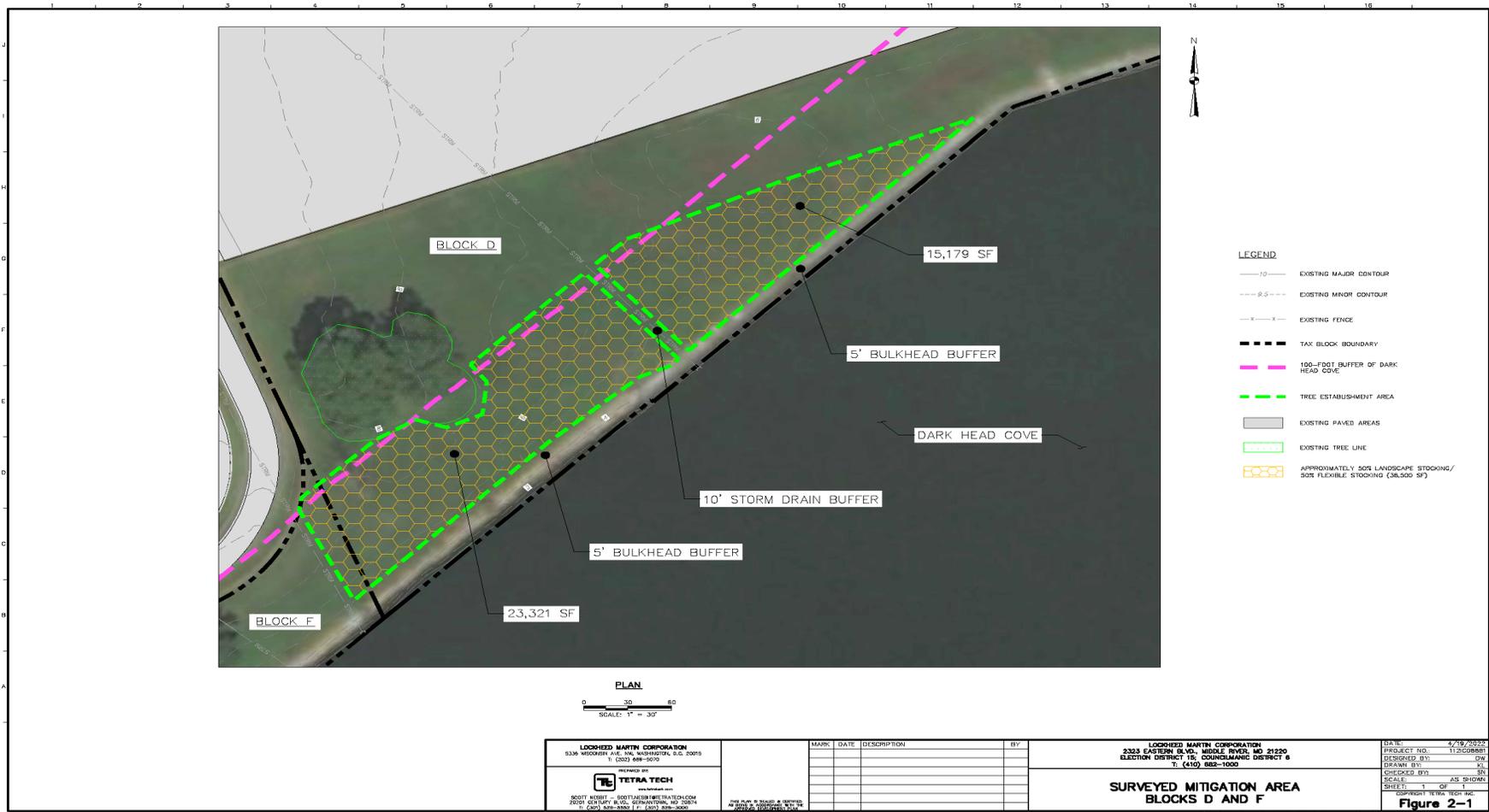
Tetra Tech, Inc. (Tetra Tech), 2019. *Block E Soil Remedial Action Plan. Lockheed Martin Middle River Complex, 2323 Eastern Boulevard, Middle River, Maryland.* Prepared by Tetra Tech, Inc., Germantown, Maryland for Lockheed Martin Corporation, Bethesda, Maryland. March.

Tetra Tech, Inc. (Tetra Tech), 2022a. *Middle River Complex Critical Area Mitigation Work Plan at Middle River Complex, Middle River, Maryland.* Prepared by Tetra Tech, Inc., Germantown, Maryland for Lockheed Martin Corporation, Bethesda, Maryland. February.

Tetra Tech, Inc. (Tetra Tech), 2022b. *Block E Tree Mitigation Planting Report at Middle River Complex, Middle River, Maryland.* Prepared by Tetra Tech, Inc., Germantown, Maryland for Lockheed Martin Corporation, Bethesda, Maryland. July.

FIGURES

FIGURE 1-1 SITE LOCATION MAP



APPENDICES

Appendix A—Plant Inspection Worksheet from ER&M
Appendix B—End of Year 1 Growing Season Report from ER&M
Appendix C—End of Year 1 Growing Season Photographs
Appendix D— Monitoring and Inspection Report

APPENDIX A—PLANT INSPECTION WORKSHEET FROM ER&M

MIDDLE RIVER CRITICAL AREA MANAGEMENT, BLOCK D MITIGATION PLANT INSPECTION FORM

YEARLY INSPECTION # AND DATE		Inspection #1 (end of first growing season) was performed on 10/24/22						NOTES
#	INSTALLED PLANTS	UNIT	SIZE	QNTY INSTALLED	SURVIVAL REQUIREMENTS	QNTY OBSERVED DEAD	QNTY TO REPLACE PRIOR TO THE END OF THE 2ND GROWING SEASON	
LANDSCAPE STOCK								
1	<i>Liquidambar styraciflua</i>	B&B/Cont.	2" CAL.	8	2 yr., 100% end of year 2	0	0	
2	<i>Pinus virginiana</i>	B&B/Cont.	2" CAL.	12	2 yr., 100% end of year 2	1	1	
3	<i>Liriodendron tulipifera</i>	B&B/Cont.	2" CAL.	12	2 yr., 100% end of year 2	1	1	
4	<i>Platanus occidentalis</i>	B&B/Cont.	2" CAL.	12	2 yr., 100% end of year 2	0	0	
5	<i>Tilia americana</i>	B&B/Cont.	2" CAL.	12	2 yr., 100% end of year 2	0	0	
6	<i>Carpinus caroliniana</i>	CONT.	1" Cal.	12	2 yr., 100% end of year 2	0	0	
7	<i>Cercis canadensis</i>	CONT.	1" Cal.	20	2 yr., 100% end of year 2	2	2	
8	<i>Magnolia virginiana</i>	CONT.	4'	25	2 yr., 100% end of year 2	2	2	
	<i>Spirea alba</i>	CONT.	4'	12	2 yr., 100% end of year 2	0	0	
9	<i>Ilex verticillata</i>	CONT.	4'	38	2 yr., 100% end of year 2	2	2	
10	<i>Clethra alnifolia</i>	1 gal.	18" - 24"	92	2 yr., 100% end of year 2	1	1	
FLEXIBLE STOCK								
11	<i>Liquidambar styraciflua</i>	bare root	18"	175	5 yr., 50% at end of 2024, 2025, 2026, 2027	13	0	
12	<i>Liriodendron tulipifera</i>	bare root	18"	175	5 yr., 50% at end of 2024, 2025, 2026, 2027	3	0	

OVERALL THE SITE LOOKED VERY GOOD WITH A VERY HIGH SURVIVAL RATE OF JUST UNDER 96%. THOSE TREES/SHRUBS DETERMINED TO BE DEAD WILL BE REPLACED, ALONG WITH ANY ADDITIONAL MATERIAL THAT FAILS TO SURVIVE THE SECOND GROWING SEASON, IN LATE FALL 2023. THE CALCULATED SURVIVAL RATE INCLUDES THE LOSS OF 2 ADDITIONAL SMALL TREES, OF UNDETERMINED SPECIES, THAT ARE MISSING (APPEAR TO HAVE BEEN UPROOTED BY GOPHERS DURING THE CONSTRUCTION OF THEIR DEN).

BASED ON THE EXTENT OF THE REGROWTH OF HERBACEOUS COVER THAT HAD PREVIOUSLY BEEN MOWED, AN ADDITIONAL MOWING WILL BE PERFORMED WITHIN THE NEXT SEVERAL WEEKS. UNLESS WE GET A "KILLING FROST" ANY NEW WEEDS, WITHIN THE MULCH RINGS, WILL BE TREATED WITH GLYPHOSATE.

* Those species in red represent approved substitute plants for those originally specified, but unavailable.

**APPENDIX B—END OF YEAR 1 GROWING SEASON REPORT
FROM ER&M**



October 24, 2022

Mr. Mike Martin

Tetra Tech

Environmental Services Division
20251 Century Blvd., Suite 200
Germantown, MD 20874-7114

**Project: Middle River Complex –
Critical Area Mitigation Planting, Block D**

Subject: End of Year 1 Growing Season Inspection Report

Dear Mike -

Earlier today, Maryland “Licensed Tree Expert #00239” Griff Evans (ER&M) and Mr. Jeffrey White (Tetra Tech) performed a thorough “First Growing Season/2022” inspection of the above referenced site and made the following observations:

- The plant survival rate for the “Landscape Stock” was 96%. No particular species was less successful than the others. Plant species, sizes, and quantities of dead material are documented on the attached spreadsheet. These plants will be replaced, along with any additional trees/shrubs that fail to survive the 2nd growing season, in late fall 2023.
- The plant survival rate for the “Flexible Stock” was 95%. Although very minor, most of the mortality was associated with the *Liquidambar styraciflua*. Approximately 20 additional bare root whips, of each species, were also installed last spring (full bundles, with 25 plants per bundle, had to be procure, resulting in 20 extras of each species). These were not accounted for when calculating the survival rate. Although minor, the majority of the dead whips were *Liquidambar styraciflua*. “Flexible Stock” species and quantities of dead material are documented on the attached spreadsheet. There is no need for replanting at this time as the survival rate well exceeds the 50% survival threshold. If survival falls below 50% at the end of the second growing season, any required replanting will take place in late fall/early winter 2023 and each year thereafter through fall 2027.
- No signs of disease were observed.
- No signs of insect damaged were observed
- Competing vegetation has been kept in check. A small cluster of thistle was identified at the edge of one of the mulch rings. Glyphosate will be applied to this cluster, prior to the first frost. In addition, the site will be mowed once more this fall.

- There were no signs of mechanical damage. A total of 5 tree tubes (placed around the “Flexible Stock” had been blown over, snapping the support stake at its base. These will be reinstalled and staked.
- The soils are holding plenty of moisture, with water ponding in small depressions throughout the site.

The site will continue to be monitored over the coming years and any changes or areas of concern will be documented and addressed.

Please let me know if you have any questions, comments, or need further clarification.

Sincerely,

Ecological Restoration and Management, Inc.



Griff Evans, VP/Principal

APPENDIX C—END OF YEAR 1 GROWING SEASON PHOTOGRAPHS

OCTOBER 24, 2022 ANNUAL SITE INSPECTION PHOTOS



Southern end of site. The two missing trees are associated with the mulch rings on left and right side of the foreground.



Gopher hole and missing tree



Site soils are more than sufficiently moist.



Winterberry

APPENDIX D—MONITORING AND INSPECTION REPORTS

Bi-Weekly Inspection Report

ER&M PROJECT #	Lockheed Martin - Middle River Complex Reforestation #22003.01
DATE OF INSPECTION:	4/28/2022
REPORTED BY:	Jared Reef
CLIENT REPS PRESENT:	n/a
WEATHER CONDITIONS:	45°, clear, 56 mph winds
PHOTOGRAPHS TAKEN:	<i>See attached</i>
ASSESSMENT OF OVERALL SURVIVAL AND VIGOR OF PLANT MATERIALS	Overall site looks great with 99% of all trees and shrubs leafing out.
ESTIMATED SURVIVAL RATE (%)	99%
LIST SPECIES SHOWING HIGHEST SURVIVAL RATES	
LIST SPECIES SHOWING HIGHEST MORTALITY RATES	Only dead <i>Pinus virginiana</i>

<p>OBSERVED AND SUSPECTED REASONS FOR ANY HIGH MORTALITY RATES (I.E. STANDING WATER, TOO DRY, ETC.)</p>	<p>Appears that due to several days of consistent high winds, following install, the tree was, rocked back and forth, with the roots breaking free from the rootball.</p>
<p>WEEDS IN PLANTING PITS? INVASIVE SPECIES?</p>	<p>Weeds appear to be established and far enough along to schedule first herbicide application.</p>
<p>ADDITIONAL AREAS OF CONCERN AND MEASURES TO BE TAKEN?</p>	<p>Place upright and stake small <i>Carpinus caroliniana</i> blown over.</p>
<p align="center">MAINTENANCE ACTIVITIES PERFORMED</p>	
<p>WATERING?</p>	<p>Watered all trees and shrubs per our work plan.</p>
<p>HERBICIDE APPLICATION/WEEDING PLANT PITS?</p>	
<p>TREE, TREE STAKE, TREE TUBE STRAIGHTENING?</p>	<p>Only a few were slightly out of plum. Will re-evaluate during next visit.</p>
<p>MISCELLANEOUS OBSERVATIONS?</p>	<p>Overall the site looks great. Time to schedule herbicide application to mulch rings.</p>
<p>PREPARER'S SIGNATURE</p>	<p align="center">Jared Reef</p>





Bi-Weekly Inspection Report

ER&M PROJECT #	Lockheed Martin - Middle River Complex Reforestation #22003.01
DATE OF INSPECTION:	5/13/2022
REPORTED BY:	Jon Simpson
CLIENT REPS PRESENT:	N/A
WEATHER CONDITIONS:	Overcast with periods of rain
PHOTOGRAPHS TAKEN:	<i>MUST PROVIDE PHOTOGRAPHS OF SITE AND ANY AREAS OF CONCERN.</i>
ASSESSMENT OF OVERALL SURVIVAL AND VIGOR OF PLANT MATERIALS	Plant material is leafing out and looks healthy.
ESTIMATED SURVIVAL RATE (%)	99% of all deciduous trees/shrubs and 75% of pines
LIST SPECIES SHOWING HIGHEST SURVIVAL RATES	All deciduous
LIST SPECIES SHOWING HIGHEST MORTALITY RATES	Pines

<p>OBSERVED AND SUSPECTED REASONS FOR ANY HIGH MORTALITY RATES (I.E. STANDING WATER, TOO DRY, ETC.)</p>	<p>No</p>
<p>WEEDS IN PLANTING PITS? INVASIVE SPECIES?</p>	<p>Weeds are starting to grow in pits. Time to apply herbicide to planting pits. Will need to schedule.</p> <p>Could not be performed during this inspection visit due to rain.</p>
<p>ADDITIONAL AREAS OF CONCERN AND MEASURES TO BE TAKEN?</p>	<p>Nothing at this time</p>
<p align="center">MAINTENANCE ACTIVITIES PERFORMED</p>	
<p>WATERING?</p>	<p>Not needed due to recent weather</p>
<p>HERBICIDE APPLICATION/WEEDING PLANT PITS?</p>	<p>N/A</p>
<p>TREE, TREE STAKE, TREE TUBE STRAIGHTENING?</p>	<p>Trees were straightened as needed</p>
<p>MISCELLANEOUS OBSERVATIONS?</p>	<p>Pines are having a difficult time. Several are yellowing and one is dead. Probable cause of mortality is due to their large surface area, heavy winds, and being separated from their rootball. Recommend replacing in the fall with smaller container-grown pines.</p>
<p>PREPARER'S SIGNATURE</p>	<p>Jon Simpson</p>

MAY 13, 2022





Bi-Weekly Inspection Report

ER&M PROJECT #	Lockheed Martin - Middle River Complex Reforestation #22003.01
DATE OF INSPECTION:	5/20/2022
REPORTED BY:	Jared Reef
CLIENT REPS PRESENT:	
WEATHER CONDITIONS:	Overcast
PHOTOGRAPHS TAKEN:	<i>MUST PROVIDE PHOTOGRAPHS OF SITE AND ANY AREAS OF CONCERN.</i>
ASSESSMENT OF OVERALL SURVIVAL AND VIGOR OF PLANT MATERIALS	Most all trees/shrubs are looking good and pushing new growth. Weeds now established in mulch around trees/shrubs.
ESTIMATED SURVIVAL RATE (%)	95%
LIST SPECIES SHOWING HIGHEST SURVIVAL RATES	Most all deciduous trees and shrubs.
LIST SPECIES SHOWING HIGHEST MORTALITY RATES	Pines

<p>OBSERVED AND SUSPECTED REASONS FOR ANY HIGH MORTALITY RATES (I.E. STANDING WATER, TOO DRY, ETC.)</p>	<p>As noted before mortality appears to be due to consistent strong winds rocking the pines back and forth and separating the roots from the rootball soil</p>
<p>WEEDS IN PLANTING PITS? INVASIVE SPECIES?</p>	<p>Weeds were sufficiently established in planting pits, to warrant an herbicide application. No invasive plant establishment of concern was noted.</p>
<p>ADDITIONAL AREAS OF CONCERN AND MEASURES TO BE TAKEN?</p>	<p>None at this time</p>
<p style="text-align: center;">MAINTENANCE ACTIVITIES PERFORMED</p>	
<p>WATERING?</p>	<p>Entire site was watered</p>
<p>HERBICIDE APPLICATION/WEEDING PLANT PITS?</p>	<p>All weeds were sprayed with a 2-3% solution glyphosate. A shield (plastic trash can with bottom cut out) was placed alongside each tree/shrub to protect same from damage due to any possible drift. This was unnecessary on larger trees</p>
<p>TREE, TREE STAKE, TREE TUBE STRAIGHTENING?</p>	<p>Yes. Any loosened guying wire/chainlock was tightened and any tree tubes/tree stakes knocked out of plum were re-set.</p>
<p>MISCELLANEOUS OBSERVATIONS?</p>	<p>In general the site looks very good.</p>
<p>PREPARER'S SIGNATURE</p>	<p>Jared Reef</p>

MAY 20, 2022 SITE INSPECTION PHOTOS



Gentle Watering/Soaking of Tree/Shrub Pits



Overview of Site



Typical Shrub Cluster Looking Good – Typical Weeds Established in Mulch



Selective Application of Glyphosate Herbicide of Glyphosate Herbicide to Mulch Beds
Illustrated Method of Protecting Small Trees and Shrubs from Herbicide Drift Damage

Bi-Weekly Inspection Report

ER&M PROJECT #	Lockheed Martin - Middle River Complex Reforestation #22003.01
DATE OF INSPECTION:	6/2/2022
REPORTED BY:	Charles Black
CLIENT REPS PRESENT:	N/A
WEATHER CONDITIONS:	Overcast.
PHOTOGRAPHS TAKEN:	<i>MUST PROVIDE PHOTOGRAPHS OF SITE AND ANY AREAS OF CONCERN.</i>
ASSESSMENT OF OVERALL SURVIVAL AND VIGOR OF PLANT MATERIALS	Plant material is growing as expected
ESTIMATED SURVIVAL RATE (%)	98%
LIST SPECIES SHOWING HIGHEST SURVIVAL RATES	All deciduos. No change.
LIST SPECIES SHOWING HIGHEST MORTALITY RATES	Pines. No change.

<p>OBSERVED AND SUSPECTED REASONS FOR ANY HIGH MORTALITY RATES (I.E. STANDING WATER, TOO DRY, ETC.)</p>	<p>Same as previously noted on pines.</p>
<p>WEEDS IN PLANTING PITS? INVASIVE SPECIES?</p>	<p>Some were missed or have since pushed through the mulch. A targeted spot spray application will be performed during the next site visit</p>
<p>ADDITIONAL AREAS OF CONCERN AND MEASURES TO BE TAKEN?</p>	<p>Nothing at this time</p>
<p>MAINTENANCE ACTIVITIES PERFORMED</p>	
<p>WATERING?</p>	<p>Yes</p>
<p>HERBICIDE APPLICATION/WEEDING PLANT PITS?</p>	<p>N/A</p>
<p>TREE, TREE STAKE, TREE TUBE STRAIGHTENING?</p>	<p>Trees and stakes were straightened as needed</p>
<p>MISCELLANEOUS OBSERVATIONS?</p>	<p>Nothing at this time</p>
<p>PREPARER'S SIGNATURE</p>	<p>Charles Black</p>

JUNE 2, 2022 SITE INSPECTION PHOTOS



Overall site looking very good.



General site overview.



Weeds sprayed in shrub cluster dying off.

Bi-Weekly Inspection Report

ER&M PROJECT #	Lockheed Martin - Middle River Complex Reforestation #22003.01
DATE OF INSPECTION:	6/30/2022
REPORTED BY:	Charles Black
CLIENT REPS PRESENT:	N/A
WEATHER CONDITIONS:	Sunny
PHOTOGRAPHS TAKEN:	<i>MUST PROVIDE PHOTOGRAPHS OF SITE AND ANY AREAS OF CONCERN.</i>
ASSESSMENT OF OVERALL SURVIVAL AND VIGOR OF PLANT MATERIALS	
	Plant material is growing as expected
ESTIMATED SURVIVAL RATE (%)	98%
LIST SPECIES SHOWING HIGHEST SURVIVAL RATES	All deciduos
LIST SPECIES SHOWING HIGHEST MORTALITY RATES	
	Evergreens

<p>OBSERVED AND SUSPECTED REASONS FOR ANY HIGH MORTALITY RATES (I.E. STANDING WATER, TOO DRY, ETC.)</p>	<p>No</p>
<p>WEEDS IN PLANTING PITS? INVASIVE SPECIES?</p>	<p>Weeds were treated in mulch beds</p>
<p>ADDITIONAL AREAS OF CONCERN AND MEASURES TO BE TAKEN?</p>	<p>Nothing at this time</p>
<p align="center">MAINTENANCE ACTIVITIES PERFORMED</p>	
<p>WATERING?</p>	<p>Yes</p>
<p>HERBICIDE APPLICATION/WEEDING PLANT PITS?</p>	<p>Yes</p>
<p>TREE, TREE STAKE, TREE TUBE STRAIGHTENING?</p>	<p>Trees and stakes were straightened as needed</p>
<p>MISCELLANEOUS OBSERVATIONS?</p>	<p>Nothing at this time</p>
<p>PREPARER'S SIGNATURE</p>	<p>Charles Black</p>

JUNE 30, 2022 SITE INSPECTION PHOTOS

Overall site looking very good.





Bi-Weekly Inspection Report

ER&M PROJECT #	Lockheed Martin - Middle River Complex Reforestation #22003.01
DATE OF INSPECTION:	8/4/2022
REPORTED BY:	Richard Dodd
CLIENT REPS PRESENT:	N/A
WEATHER CONDITIONS:	Sunny
PHOTOGRAPHS TAKEN:	<i>MUST PROVIDE PHOTOGRAPHS OF SITE AND ANY AREAS OF CONCERN.</i>
ASSESSMENT OF OVERALL SURVIVAL AND VIGOR OF PLANT MATERIALS	
	Plant Material is bouncing back from the extended hot/dry spells experienced mid-summer
ESTIMATED SURVIVAL RATE (%)	98%
LIST SPECIES SHOWING HIGHEST SURVIVAL RATES	All deciduos
LIST SPECIES SHOWING HIGHEST MORTALITY RATES	
	Evergreens

OBSERVED AND SUSPECTED REASONS FOR ANY HIGH MORTALITY RATES (I.E. STANDING WATER, TOO DRY, ETC.)	Site is looking good
WEEDS IN PLANTING PITS? INVASIVE SPECIES?	Some weeds were pulled out of the pits
ADDITIONAL AREAS OF CONCERN AND MEASURES TO BE TAKEN?	Nothing at this time
MAINTENANCE ACTIVITIES PERFORMED	
WATERING?	Yes
HERBICIDE APPLICATION/WEEDING PLANT PITS?	Nothing at this time
TREE, TREE STAKE, TREE TUBE STRAIGHTENING?	Trees and stakes were straightened as needed
MISCELLANEOUS OBSERVATIONS?	Chinese lespedeza is establishing throughout site. Previously kept in check with routine mowing. Recommend Mowing/Weed-Eating before flowering and going to seed.
PREPARER'S SIGNATURE	Richard Dodd

AUGUST 4, 2022 SITE INSPECTION PHOTOS

Overall plant material appears to be bouncing back from impact of extended period of heat and low precipitation. Chinese lespedeza is popping up throughout the site.





Bi-Weekly Inspection Report

ER&M PROJECT #	Lockheed Martin - Middle River Complex Reforestation #22003.01
DATE OF INSPECTION:	8/19/2022
REPORTED BY:	Jared Reef
CLIENT REPS PRESENT:	N/A
WEATHER CONDITIONS:	Sunny
PHOTOGRAPHS TAKEN:	<i>MUST PROVIDE PHOTOGRAPHS OF SITE AND ANY AREAS OF CONCERN.</i>
ASSESSMENT OF OVERALL SURVIVAL AND VIGOR OF PLANT MATERIALS	
	Plants are not showing signs of struggle anymore. The recent rainfall has helped out a lot
ESTIMATED SURVIVAL RATE (%)	98%
LIST SPECIES SHOWING HIGHEST SURVIVAL RATES	Nothing noticeable at this time
LIST SPECIES SHOWING HIGHEST MORTALITY RATES	
	Evergreens

<p>OBSERVED AND SUSPECTED REASONS FOR ANY HIGH MORTALITY RATES (I.E. STANDING WATER, TOO DRY, ETC.)</p>	<p>there doesn't seem to be any high mortality</p>
<p>WEEDS IN PLANTING PITS? INVASIVE SPECIES?</p>	<p>Weeds were sprayed in beds as they were being watered being sure not to spray the plants.</p>
<p>ADDITIONAL AREAS OF CONCERN AND MEASURES TO BE TAKEN?</p>	<p>Nothing at this time</p>
<p>MAINTENANCE ACTIVITIES PERFORMED</p>	
<p>WATERING?</p>	<p>Yes</p>
<p>HERBICIDE APPLICATION/WEEDING PLANT PITS?</p>	<p>Yes. 16 oz of Round Up Custom was applied to the mulch beds</p>
<p>TREE, TREE STAKE, TREE TUBE STRAIGHTENING?</p>	<p>Trees and stakes were straightened as needed</p>
<p>MISCELLANEOUS OBSERVATIONS?</p>	<p>the site is looking much better with the rainfall recently</p>
<p>PREPARER'S SIGNATURE</p>	<p>Jared Reef</p>

Bi-Weekly Inspection Report

ER&M PROJECT #	Lockheed Martin - Middle River Complex Reforestation #22003.01
DATE OF INSPECTION:	8/23/2022
REPORTED BY:	Jared Reef
CLIENT REPS PRESENT:	N/A
WEATHER CONDITIONS:	Sunny
PHOTOGRAPHS TAKEN:	<i>MUST PROVIDE PHOTOGRAPHS OF SITE AND ANY AREAS OF CONCERN.</i>
ASSESSMENT OF OVERALL SURVIVAL AND VIGOR OF PLANT MATERIALS	Tree and shrubs have rebounded nicely and are greening up. Chinese lespedeza is growing across most of the site, more heavily
	concentrated in some areas than others
ESTIMATED SURVIVAL RATE (%)	98%
LIST SPECIES SHOWING HIGHEST SURVIVAL RATES	Pretty consistent throughout.
LIST SPECIES SHOWING HIGHEST MORTALITY RATES	Evergreens

<p>OBSERVED AND SUSPECTED REASONS FOR ANY HIGH MORTALITY RATES (I.E. STANDING WATER, TOO DRY, ETC.)</p>	<p>there doesn't seem to be any high mortality</p>
<p>WEEDS IN PLANTING PITS? INVASIVE SPECIES?</p>	<p>Previoulsy sprayed mulch beds are mostlyh devoid of weeds. The site was mowed/weed-eated during this visit, "releasing" the installed plant material.</p>
<p>ADDITIONAL AREAS OF CONCERN AND MEASURES TO BE TAKEN?</p>	<p>Nothing at this time</p>
<p align="center">MAINTENANCE ACTIVITIES PERFORMED</p>	
<p>WATERING?</p>	<p align="center">Yes</p>
<p>HERBICIDE APPLICATION/WEEDING PLANT PITS?</p>	
<p>TREE, TREE STAKE, TREE TUBE STRAIGHTENBING?</p>	<p>Trees and stakes were straightened as needed</p>
<p>MISCELLANEOUS OBSERVATIONS?</p>	
<p>PREPARER'S SIGNATURE</p>	<p align="center">Jared Reef</p>

AUGUST 23, 2022 SITE INSPECTION PHOTOS

Installed trees and shrubs have rebounded well but regular watering remains necessary due to continuing stretch of dry weather. Chinese lespedeza was mowed, better exposing installed plant material.



Site prior to mowing



Site Post-Mowing and Before Watering

Bi-Weekly Inspection Report

ER&M PROJECT #	Lockheed Martin - Middle River Complex Reforestation #22003.01
DATE OF INSPECTION:	9/9/2022
REPORTED BY:	Charlie Black
CLIENT REPS PRESENT:	
WEATHER CONDITIONS:	Sunny
PHOTOGRAPHS TAKEN:	
ASSESSMENT OF OVERALL SURVIVAL AND VIGOR OF PLANT MATERIALS	Plant survival remains high.
ESTIMATED SURVIVAL RATE (%)	95-98%
LIST SPECIES SHOWING HIGHEST SURVIVAL RATES	Consistent throughout
LIST SPECIES SHOWING HIGHEST MORTALITY RATES	Nothing observed

<p>OBSERVED AND SUSPECTED REASONS FOR ANY HIGH MORTALITY RATES (I.E. STANDING WATER, TOO DRY, ETC.)</p>	<p>Nothing observed</p>
<p>WEEDS IN PLANTING PITS? INVASIVE SPECIES?</p>	<p>grass/weeds starting to grow back in since last mowing</p>
<p>ADDITIONAL AREAS OF CONCERN AND MEASURES TO BE TAKEN?</p>	<p>NO</p>
<p align="center">MAINTENANCE ACTIVITIES PERFORMED</p>	
<p>WATERING?</p>	<p>NO</p>
<p>HERBICIDE APPLICATION/WEEDING PLANT PITS?</p>	<p>No</p>
<p>TREE, TREE STAKE, TREE TUBE STRAIGHTENING?</p>	<p>No</p>
<p>MISCELLANEOUS OBSERVATIONS?</p>	
<p>PREPARER'S SIGNATURE</p>	<p>Charlie Black</p>

Bi-Weekly Inspection Report

ER&M PROJECT #	Lockheed Martin - Middle River Complex Reforestation #22003.01
DATE OF INSPECTION:	9/16/2022
REPORTED BY:	Charlie Black
CLIENT REPS PRESENT:	
WEATHER CONDITIONS:	Sunny
PHOTOGRAPHS TAKEN:	
ASSESSMENT OF OVERALL SURVIVAL AND VIGOR OF PLANT MATERIALS	Plant survival remains high. No change from recent visits
ESTIMATED SURVIVAL RATE (%)	95-98%
LIST SPECIES SHOWING HIGHEST SURVIVAL RATES	Consistent throughout
LIST SPECIES SHOWING HIGHEST MORTALITY RATES	Nothing observed

OBSERVED AND SUSPECTED REASONS FOR ANY HIGH MORTALITY RATES (I.E. STANDING WATER, TOO DRY, ETC.)	Nothing observed
WEEDS IN PLANTING PITS? INVASIVE SPECIES?	grass/weeds getting higher
ADDITIONAL AREAS OF CONCERN AND MEASURES TO BE TAKEN?	NO
MAINTENANCE ACTIVITIES PERFORMED	
WATERING?	NO
HERBICIDE APPLICATION/WEEDING PLANT PITS?	No
TREE, TREE STAKE, TREE TUBE STRAIGHTENING?	No
MISCELLANEOUS OBSERVATIONS?	Will need follow-up mowing within the next 4-5 weeks.
PREPARER'S SIGNATURE	Charlie Black

Bi-Weekly Inspection Report

ER&M PROJECT #	Lockheed Martin - Middle River Complex Reforestation #22003.01
DATE OF INSPECTION:	10/19/2022
REPORTED BY:	Charlie Black
CLIENT REPS PRESENT:	
WEATHER CONDITIONS:	Partly sunny
PHOTOGRAPHS TAKEN:	
ASSESSMENT OF OVERALL SURVIVAL AND VIGOR OF PLANT MATERIALS	Plant survival remains high.
ESTIMATED SURVIVAL RATE (%)	95-98%
LIST SPECIES SHOWING HIGHEST SURVIVAL RATES	Consistent throughout
LIST SPECIES SHOWING HIGHEST MORTALITY RATES	Nothing observed

<p>OBSERVED AND SUSPECTED REASONS FOR ANY HIGH MORTALITY RATES (I.E. STANDING WATER, TOO DRY, ETC.)</p>	<p>Nothing observed</p>
<p>WEEDS IN PLANTING PITS? INVASIVE SPECIES?</p>	<p>grass/weeds have re-grown since last mowing</p>
<p>ADDITIONAL AREAS OF CONCERN AND MEASURES TO BE TAKEN?</p>	<p>NO</p>
<p align="center">MAINTENANCE ACTIVITIES PERFORMED</p>	
<p>WATERING?</p>	<p>NO</p>
<p>HERBICIDE APPLICATION/WEEDING PLANT PITS?</p>	<p>No</p>
<p>TREE, TREE STAKE, TREE TUBE STRAIGHTENING?</p>	<p>Yes</p>
<p>MISCELLANEOUS OBSERVATIONS?</p>	<p>Suggest a second mowing of the site.</p>
<p>PREPARER'S SIGNATURE</p>	<p>Charlie Black</p>

Bi-Weekly Inspection Report

ER&M PROJECT #	Lockheed Martin - Middle River Complex Reforestation #22003.01
DATE OF INSPECTION:	10/24/2022
REPORTED BY:	Griff Evans
CLIENT REPS PRESENT:	Jeff White
WEATHER CONDITIONS:	Overcast and damp
PHOTOGRAPHS TAKEN:	Yes
ASSESSMENT OF OVERALL SURVIVAL AND VIGOR OF PLANT MATERIALS	Plant survival was very high.
ESTIMATED SURVIVAL RATE (%)	96% for landscape stock and 95% for flexible stock plantings.
LIST SPECIES SHOWING HIGHEST SURVIVAL RATES	Consistent throughout
LIST SPECIES SHOWING HIGHEST MORTALITY RATES	Sweetgum seedlings

OBSERVED AND SUSPECTED REASONS FOR ANY HIGH MORTALITY RATES (I.E. STANDING WATER, TOO DRY, ETC.)	<p style="text-align: center;">Nothing observed</p>
WEEDS IN PLANTING PITS? INVASIVE SPECIES?	<p style="text-align: center;">some new weeds and some that have rebounded from initial herbicide application</p> <p style="text-align: center;">very small patch of thistle</p>
ADDITIONAL AREAS OF CONCERN AND MEASURES TO BE TAKEN?	<p style="text-align: center;">NO</p>
MAINTENANCE ACTIVITIES PERFORMED	
WATERING?	<p style="text-align: center;">NO</p>
HERBICIDE APPLICATION/WEEDING PLANT PITS?	<p style="text-align: center;">Random grasses growing through tree tubes were pulled</p>
TREE, TREE STAKE, TREE TUBE STRAIGHTENING?	<p style="text-align: center;">Yes</p>
MISCELLANEOUS OBSERVATIONS?	<p style="text-align: center;">Need to replace support stakes and re-install 5 bark guards.</p>
PREPARER'S SIGNATURE	<p style="text-align: center;">Griff Evans</p>

Bi-Weekly Inspection Report

ER&M PROJECT #	Lockheed Martin - Middle River Complex Reforestation #22003.01
DATE OF INSPECTION:	11/9/2022
REPORTED BY:	Jared Reef
CLIENT REPS PRESENT:	N/A
WEATHER CONDITIONS:	Sunny and cooler
PHOTOGRAPHS TAKEN:	<i>MUST PROVIDE PHOTOGRAPHS OF SITE AND ANY AREAS OF CONCERN.</i>
ASSESSMENT OF OVERALL SURVIVAL AND VIGOR OF PLANT MATERIALS	
	Trees/shrubs have dropped most leaves and are going dormant. Site looks good.
ESTIMATED SURVIVAL RATE (%)	95%
LIST SPECIES SHOWING HIGHEST SURVIVAL RATES	Pretty consistent throughout.
LIST SPECIES SHOWING HIGHEST MORTALITY RATES	

OBSERVED AND SUSPECTED REASONS FOR ANY HIGH MORTALITY RATES (I.E. STANDING WATER, TOO DRY, ETC.)	N/A
WEEDS IN PLANTING PITS? INVASIVE SPECIES?	Small, isolated patch of thistle was observed.
ADDITIONAL AREAS OF CONCERN AND MEASURES TO BE TAKEN?	Nothing at this time
MAINTENANCE ACTIVITIES PERFORMED	
WATERING?	Not needed
HERBICIDE APPLICATION/WEEDING PLANT PITS?	New weeds in mulch beds were sprayed. Small, isolated patch of thistle was treated with herbicide.
TREE, TREE STAKE, TREE TUBE STRAIGHTENING?	Trees and stakes were straightened as needed. Approximately 5 tree tubes were re-staked and re-installed.
MISCELLANEOUS OBSERVATIONS?	
PREPARER'S SIGNATURE	Jared Reef

Bi-Weekly Inspection Report

ER&M PROJECT #	Lockheed Martin - Middle River Complex Reforestation #22003.01
DATE OF INSPECTION:	7/14/22 and 7/25/22
REPORTED BY:	Charles Black/Griff Evans
CLIENT REPS PRESENT:	N/A
WEATHER CONDITIONS:	Sunny, Hot, Dry
PHOTOGRAPHS TAKEN:	<i>MUST PROVIDE PHOTOGRAPHS OF SITE AND ANY AREAS OF CONCERN.</i>
ASSESSMENT OF OVERALL SURVIVAL AND VIGOR OF PLANT MATERIALS	Overall everything looks good. Some of the Magnolias have succumbed to this heat. A few seedlings have also succumbed
	to the heat and dry weather. Tree/shrubs leaves have begun to yellow, since 7/14/22 visit due to extended heat and dry weather.
	Most all of the seedlings are doing very well. Maybe 5% overall mortality, mostly limited to one general area.
ESTIMATED SURVIVAL RATE (%)	97%
LIST SPECIES SHOWING HIGHEST SURVIVAL RATES	All deciduos
LIST SPECIES SHOWING HIGHEST MORTALITY RATES	Pines (1) and Magnolia

<p>OBSERVED AND SUSPECTED REASONS FOR ANY HIGH MORTALITY RATES (I.E. STANDING WATER, TOO DRY, ETC.)</p>	<p>Extended period of high heat and little natural precipitation</p>
<p>WEEDS IN PLANTING PITS? INVASIVE SPECIES?</p>	<p>Weeds were treated in mulch beds</p> <p>Chinese lespedeza has popped up throughout. Imnossible to control. Mowing will help.</p>
<p>ADDITIONAL AREAS OF CONCERN AND MEASURES TO BE TAKEN?</p>	<p>Recommend mowing the lespedeza</p>
<p align="center">MAINTENANCE ACTIVITIES PERFORMED</p>	
<p>WATERING?</p>	<p>Yes</p>
<p>HERBICIDE APPLICATION/WEEDING PLANT PITS?</p>	<p>Yes</p>
<p>TREE, TREE STAKE, TREE TUBE STRAIGHTENBING?</p>	<p>Trees and stakes were straightened as needed</p>
<p>MISCELLANEOUS OBSERVATIONS?</p>	<p>Nothing at this time</p>
<p>PREPARER'S SIGNATURE</p>	<p>Charles Black</p>

JULY 25, 2022 SITE INSPECTION PHOTOS

Overall site looking very good. Heat stress to trees/shrubs.



Herbicide treatment around shrubs. Chinese lespedeza establishing.



Plants look good but show heat stress despite watering