Missile Defense Agency
Courtland Target Assembly Facility

Environmental Assessment

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Department of Defense
Missile Defense Agency
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Washington, DC 20301-7100

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EXECUTIVE SUMMARY

Introduction

The Missile Defense Agency (MDA) prepared this Environmental Assessment (EA) to evaluate the potential environmental consequences of constructing and operating additional buildings, roads, rail line, and utilities at the Lockheed Martin Space Systems Company (LMSSC) Courtland, Alabama Facility. The Courtland Facility was originally designed to assemble and test interceptor missiles for MDA's Ballistic Missile Defense System (BMDS). The proposed action would support the assembly of target missiles and payloads to meet the increasing rate of BMDS testing requirements.

Purpose and Need for Proposed Action

The purpose of the proposed action would be to construct additional facilities at the Courtland Facility in which target missiles could be assembled, integrated, checked out and ultimately shipped to a test site for use.

The need for the proposed action is to provide additional capabilities to meet the increased demand for reliable target missiles to test the MDA BMDS. Streamlining and consolidating target production is necessary to support the timely fielding of a viable missile defense capability to meet warfighter, national security, and homeland defense needs and will help MDA improve quality control and reduce costs.

Proposed Action

The proposed action consists of construction and operation of an expanded Courtland Facility. The Courtland Facility is located in northwest Alabama a few kilometers from the Courtland town center and 64 kilometers (40 miles) west of Huntsville. The Lockheed Martin-owned facility is located on approximately 268 hectares (663 acres) of the 909-hectare (2,245-acre) George C. Wallace Industrial Air Park.

Construction activities would include construction of six new buildings and access roads, a rail spur, and utilities extensions. No modifications are proposed to existing buildings/facilities, and all proposed construction would occur on land owned by or granted in easements to Lockheed Martin. The six proposed buildings and their dimensions are listed in Exhibit ES-1. All buildings would be sited using appropriate Explosive Safety Quantity Distances for the assembly of specific booster types identified by the MDA. Each of the building construction areas would undergo site preparation (clearing and grading), foundation excavation and backfill, utility connection, and building assembly activities. The areas would also be cleaned, seeded, and landscaped with native vegetation.

Exhibit ES-1. Description of Proposed Building Construction

Building	Area, square meters (square feet)	Height, meters (feet)
Missile Assembly Building 1 (MAB-1)	1,393 (15,000)	11 (35)
Missile Assembly Building 2 (MAB-2)	1,742 (18,750)	12 (40)
Inert Building 2 (IB-2) and Corridor connecting to existing IB-1	1,161(12,500) and 56 (600)	5 (20) and 15 (50)
Motor Transfer Facility (MTF)	348 (3,750)	6 (20)
Service Magazine 1 (SM-1)	358 (3,850)	9 (30)
Service Magazine 2 (SM-2)	358 (3,850)	9 (30)

The proposed rail spur would extend 1.9 kilometers (1.2 miles) from the main rail line in the Town of Courtland and terminate at the proposed MTF at the Courtland Facility. The rail spur would be constructed on top of an older, unused rail bed that runs approximately southeast towards the Lockheed Martin property. A 37-meter (120-foot) long trestle also would be constructed to allow the rail spur to cross over a 4-meter (12-foot) deep ditch.

Operational activities would include preparation, transport, assembly, integration, testing, and temporary storage of the target missiles. Preparation activities already occur at various facilities in the continental U.S. and were assumed to be routine in that they would not result in any significant environmental impact. Therefore, the potential environmental impacts of preparation activities were not analyzed in this EA.

Target components and boosters would be transported via truck and/or rail to the expanded Courtland Facility from locations that could include, but would not be limited to Alliant Techsystems (ATK) in Ogden Utah; Orbital Sciences Corporation, Chandler, Arizona; Stennis Space Center, Mississippi; Strategic Weapons Facility Pacific (SWFPAC), Bangor, Washington; Hill Air Force Base (AFB) Utah; Promontory Point, Utah; Camp Navajo, Arizona, and the Lockheed Martin Target Missile Systems (TMS), Huntsville, Alabama. A conservative analysis assumes a total of 80 roundtrip shipments per year by truck or railroad.

Final target assembly, integration, and testing activities would occur at the expanded Courtland Facility. These activities include attaching the target missile front section, interstages, and boosters; loading of simulants or explosives; spinning of the target front section to confirm proper weight distribution; and testing electronics and components. No ordnance testing, i.e., static firing or launching would occur under the proposed action. After final check out, the target would be either transported to temporary storage in one of the service magazines or transported by truck off site to a launch site.

Decommissioning the expanded Courtland Facility would address disposal of infrastructure, equipment, and any unused target boosters and components stored on-site. It could involve continued or adaptive use by the Department of Defense or other government agencies, sale back to LMSSC or removal and disposal. However, at this time MDA does not know how or when decommissioning would occur and this will be analyzed as appropriate when and if the decision is to be made to decommission the expanded facility.

Alternative 1

Alternative 1 would consist of the construction of six new buildings, access roads, and utilities expansion to facilitate target assembly, integration and testing. However, a rail spur would not be constructed to extend from the Norfolk Southern main rail line onto the Courtland Facility property. Rocket boosters and components and assembled targets would be transported to the Courtland Facility only by truck.

No Action Alternative

The no action alternative consists of not constructing the six new buildings, access roads, rail spur, and utilities. Under no action alternative, the MDA would continue to receive and assemble targets and payloads for test events at existing facilities as has been done in the past. Without a single target integration capability, the MDA would not have the benefits of streamlining production of targets needed for BMDS testing. It would lose the cost benefits associated with consolidating equipment and personnel at one facility and time could be lost with longer production processes.

Alternatives Considered But Not Carried Forward

Two alternatives were considered but not analyzed further in this EA. One alternative involved alternate locations for an integrated target assembly facility including Hill AFB, Utah; SWFPAC, Washington; Strategic Weapons Facility Atlantic, Georgia; Redstone Arsenal, Alabama; Yellow Creek, Mississippi; Yuma Proving Ground, Arizona; Eastern Range (Cape Canaveral), Florida; and Vandenberg AFB, California. However, these sites did not meet the criteria set by the MDA siting analysis for candidate locations. Specifically, these sites do not have sufficient acreage either to satisfy explosive safety quantity distances (ESQDs) required for simultaneous processing of Minuteman and C-4 booster-based target vehicles and/or to support two missile assembly buildings, two explosive storage bunkers, an inert processing facility, and up to 150 personnel. Such limitations would not meet the purpose of and need for the proposed action and would compromise MDA's ability to provide additional capabilities to meet the increased demand for reliable target missiles to test the MDA BMDS. Thus none of these alternate sites were considered further in this EA.

The other alternative involved an alternative configuration for the Courtland Target Integration Facilities that would have included the construction of six new buildings, access roads, rail spur, utilities, and an extension of the existing runway and associated takeoff facilities at the Lawrence County Airport. The runway extension would have allowed C-17 aircraft to takeoff and land at the airport. The runway extension portion of this alternative was not carried forward when the cost and construction schedule were found to be prohibitive.

Analysis Methodology

Twelve resource areas were considered to provide a context for understanding and assessing the potential environmental effects of the proposed action, with attention focused on key issues. The resource areas considered included air quality, biological resources, cultural resources, geology and soils, hazardous materials and hazardous waste, health and safety, land use, noise, socioeconomics and environmental justice, transportation, visual resources, and water resources.

For each resource area discussed in this EA, the Region of Influence (ROI) was determined. The ROI describes the environmental attributes located within a defined spatial region that could be affected by the proposed action or its alternatives. The environmental consequences associated with the proposed action, alternative 1, and the no action alternative, were analyzed for the appropriate ROI for each resource area.

Summary of Environmental Impacts

This section summarizes the conclusions of the analyses based on the application of the described methodology. A summary of potential environmental effects of the proposed action, alternative 1, and the no action alternative is included in Exhibit ES-2.

Exhibit ES-2. Summary of Environmental Impacts

Resource Area	Proposed Action	Alternative 1	No Action Alternative
Air Resources	The emissions of carbon monoxide, nitrogen oxides (NO_X), particulate matter, volatile organic compounds, and sulfur $oxide_s$ associated with the proposed action would not result in a significant impact on ambient air quality. The only emissions of concern would be NO_X emissions during construction activities; however, modeling of the maximum downwind annual average concentration does not indicate an adverse air quality impact near the site.	Because alternative 1 is a subset of the activities considered under the proposed action, the potential impacts to air quality would be reduced under alternative 1.	No construction or operations related to the proposed action would occur; thus, there would be no new impacts to air quality.
Biological Resources	There would be no significant impacts to biological resources from increased noise, air emissions, and traffic levels during construction and operation activities at the Courtland Facility. The 4.5 hectares (11 acres) of habitat that would be lost due to construction support a limited number of wildlife and plant species and would not be expected to support any threatened or endangered species. Therefore, significant impacts to wildlife, plants, and threatened or endangered species are not expected. The nearest highly productive, rare, or protected habitats/communities are 16 kilometers (10 miles) outside the region of influence, and so no impacts are expected to these areas from the proposed construction activities.	Impacts to biological resources would be slightly less than those from the proposed action because 2.9 fewer hectares (7.1 fewer acres) would be exposed to ground disturbing activities and less habitat would be lost under alternative 1.	No construction or operations related to the proposed action would occur; therefore, no new impacts to biological resources would occur.
Cultural Resources	No sites that are eligible for listing or are listed on the National Register of Historic Places would be adversely affected by the proposed action. A Phase I archaeological survey of he ROI did not identify any prehistoric archaeological resources. One potential historic home site was discovered about 30 meters (98 feet) from the proposed rail spur. This potential historic home site would be avoided during rail spur construction; however, if avoidance is not possible MDA would coordinate with the SHPO to determine appropriate testing or mitigation. If any cultural resources are encountered during construction, appropriate guidance would be followed and no significant impacts would be expected.	Potential impacts to buried, unknown cultural or historic resources would be reduced because 2.9 fewer hectares (7.1 fewer acres) would be exposed to ground disturbing activities under alternative 1.	No construction or operations related to the proposed action would occur; therefore, cultural resources would not be impacted.

Resource Area	Proposed Action	Alternative 1	No Action Alternative
Geology and Soils	Short-term soil impacts (i.e., increased erosion and siltation) and long-term soil impacts (compaction and mixing of soil horizons) associated with construction activities would not be significant. There are no geologic features present at the site that would be impacted by construction under the proposed action. Disturbed areas would be controlled to the extent practicable to minimize erosion and sediment runoff through the use of best management practices. Potential soil contamination from spills or leaks associated with construction or operation activities would be temporary, localized, and would be handled according to standard spill response protocol. Therefore, any impacts would be contained and would not be significant.	Impacts to geology and soils would be slightly less than those from the proposed action because 2.9 fewer hectares (7.1 fewer acres) would be exposed to ground disturbing activities that could result in erosion and siltation.	No construction or operations related to the proposed action would occur; therefore, geology and soils would not be impacted.
Hazardous Materials and Waste	The Courtland Facility has standard operating procedures in place to minimize the hazard associated with storing, handling, and transporting target missile components and other hazardous materials. Standard hazardous waste management procedures would serve to minimize on-site releases and ensure off-site treatment and disposal in accordance with Resource Conservation and Recovery Act regulations and other applicable regulations. The amount of hazardous waste generated during construction or operation activities would not exceed Lockheed Martin's allowable limits to maintain the designation of a small quantity generator. Therefore, impacts associated with hazardous materials and hazardous waste management would not be significant.	Fewer hazardous materials would be used and generated with the construction limited to buildings, roads and utilities extensions. However, the use and generation of hazardous materials and waste from operations would be the same as those described for the proposed action, with the same potential for impacts.	No construction or operations related to the proposed action would occur; therefore, no additional impacts associated with hazardous materials and waste would be expected.
Health and Safety	General safety procedures would be followed to protect construction workers, employees and the public during construction activities, and no significant impacts would be expected. The Courtland Facility implements specific handling requirements for operations involving propellants that would reduce the likelihood of any accidents resulting in the ignition of boosters at the Courtland Facility. In the unlikely event of an accident or explosion, workers or farmers in the area could potentially be killed or injured by blast debris. However, such a scenario is extremely unlikely. Health and safety impacts associated with operations at the Courtland Facility only include moving the booster for assembly and not handling the solid rocket propellant directly. No exposure impacts are expected during the proposed operations.	Potential impacts from construction-related accidents would be slightly less than those from the proposed action due to the reduction in the construction area and total timeframe for construction under alternative 1. Potential health and safety impacts from operational activities would be the same.	No construction or operations related to the proposed action would occur; therefore, no new health and safety impacts would occur.

Resource Area	Proposed Action	Alternative 1	No Action Alternative
Land Use	Construction activities would change the land use of approximately 58 hectares (143 acres) of the Courtland Facility from agriculture to use as the buffer zone to meet the ESQD requirements. No residential property would be affected; therefore, no significant land use impacts would be expected. The ESQD extension would also impact land use on approximately 12 hectares (30 acres) of the Lawrence County Airport property. However, no change in land use would occur in this area other than that it could not be leased for permanent activities such as construction of a building. Current leasing for agriculture uses would continue and no significant impacts would be expected.	Under alternative 1, the rail spur would not be constructed and Lawrence County would maintain responsibility for the property the rail spur would have occupied. Potential land use impacts from construction and operation activities would be limited to those on the Industrial Airpark as described for the proposed action.	No construction or operations related to the proposed action would occur; therefore, land use would not be impacted.
Noise	Construction activities would result in intermittent, short-term noise effects. Most residential homes are unlikely to be exposed to noise levels greater than 65 dBA from building or rail spur construction, which is within Department of Defense Noise–Land Use Compatibility Guidelines. No significant impacts from train noise would be expected from a moderate increase in the number of trains passing through the region as a result of the proposed action.	Under alternative 1, no rail spur would be constructed and train activity would not take place on the rail spur. Thus, noise impacts would be limited to those associated with construction and operations on the Courtland Facility property, resulting in fewer overall noise impacts.	No construction or operations related to the proposed action would occur; therefore, no new noise impacts would occur.
Socioeconomics and Environmental Justice	Additional construction staff (approximately 75 employees) and operation staff (approximately 50 employees) would not significantly impact socioeconomic conditions because of the availability of adequate sanitary waste disposal facilities, housing, and utilities capacity. The influx of new employees would likely have a positive impact on the local economy. Community services such as medical facilities and all utilities in the area have sufficient capacity to accommodate the proposed population increase. Construction activities would be limited to actions on the Courtland Facility or on U.S. government-owned property and would not impact these populations or areas that might contain proportionally more children, like schools. Therefore, no adverse or disproportionate impacts to the health and safety of children as compared to adults, or minority or low-income populations would be expected.	Under alternative 1, construction and operation activities would occur in the same location as described for the proposed action. Thus, the impacts to socioeconomics and environmental justice populations and children's health would be the same as those described for the proposed action.	No construction or operations related to the proposed action would occur; therefore, no new socioeconomic conditions and environmental justice concerns would be produced.

Resource Area	Proposed Action	Alternative 1	No Action Alternative
Transportation	The addition of 196 construction worker vehicle trips per day during the construction phase and 100 worker vehicle trips per day during the operations phase would not significantly impact traffic levels on highways 565 and 20. These extra vehicles are not expected to change the observed level of service designation of A on these roads. Construction of the rail spur would be coordinated with Norfolk Southern so as not to interfere with rail traffic and cause impacts to rail traffic. The addition of three rail cars to a maximum of six or seven trains per month during operations at the Courtland Facility would not significantly impact rail service on the Norfolk Southern main rail line. Over the course of a five-year period, transportation activities under the proposed action were projected to result in two additional accidents, which would not be considered to be a significant impact on transportation. Transportation of boosters and assembled targets would comply with all Department of Transportation, state and local regulations and would not significantly increase daily transport of hazardous materials in the U.S.	There would be no rail traffic and accident rate impacts under alternative 1. Potential impacts to traffic levels, accident rates, and hazardous material transport would be restricted to road transport of target boosters and components. Impacts from worker vehicle trips would remain the same as those described for the proposed action.	No construction or operations related to the proposed action would occur; therefore, no new transportation impacts would occur.
Visual Resources	The existing visual landscape would change under the proposed action; however, because the new buildings and access roads would be built adjacent to similar existing infrastructure in a location that is an active industrial site, no significant adverse visual impacts would occur. No construction or operation activities would be visible from Route 20. The construction of the rail spur would change the current visual landscape for the four residences located near the proposed extension. No other visual impacts would be expected as the rail spur would only be visible from the road and would be an extension of the existing main line railroad.	Under alternative 1, the rail spur would not be constructed, resulting in less alteration of the current visual landscape. Thus, the impacts to visual resources would be slightly less than those described for the proposed action.	No construction or operations related to the proposed action would occur; therefore, visual resources would not be impacted.

Resource Area	Proposed Action	Alternative 1	No Action Alternative
Water Resources	Best management practices and mitigation measures would be utilized to prevent storm water contamination, pollutant discharge, and sediment runoff to Big Nance Creek during construction and operation activities. Trained and qualified spill response and clean-up professionals would respond to incidental or accidental releases of petroleum-based products or hazardous materials in accordance with the Courtland Facility's Spill Prevention Control and Countermeasures Plan and best management practices. Wetlands are not present at the site and would not be adversely impacted by the proposed action. Groundwater would not be directly encountered during construction excavation activities and incidental spills or leaks from construction equipment would not be expected to reach groundwater level. Increased operation activities at the Courtland Facility would not be expected to increase water usage to levels where it would deplete and adversely impact the ground water supply. Therefore, no significant impacts to surface or ground water are expected.	Impacts to water resources would be slightly less than those from the proposed action because 2.9 fewer hectares (7.1 fewer acres) would be disturbed, resulting in less erosion and siltation that could impact water quality.	No construction or operations related to the proposed action would occur; therefore, water resources would not be impacted.

Cumulative Impacts

According to 40 CFR § 1508.7, cumulative impacts are defined as "…the incremental impact of the actions when added to other past, present, and reasonably foreseeable future actions, regardless of what agency (Federal or non-Federal) or person undertakes such other actions." For this analysis, cumulative impacts include impacts from the proposed action and the past, present, and reasonably foreseeable future activities at the Courtland Facility that would affect the resources impacted by the proposed action. The past, present, and reasonably foreseeable future activities reviewed by MDA include the Boost Vehicle Plus (BV+) program currently conducted at Courtland. The MDA determined that no cumulative impacts would be associated with biological resources, cultural or historic resources, geology and soils, land use, noise, socioeconomic or environmental justice, visual resources or water resources. This determination was based on the analysis above that suggests that most of the impacts would be related to temporary construction activities; operational impacts would primarily be limited to on-site activities. A summary of cumulative impacts for air quality, hazardous materials and waste, health and safety, and transportation is presented below.

- **Air Quality -** Construction would generate particulate emissions (dust) that would add to the impacts from other dust sources in the area such as agriculture activities. Standard construction methods would be employed to minimize fugitive dust emissions and reduce the amount of dust generated. Emissions from mobile sources would add cumulatively to emissions from other traffic sources in the area. However, because the emissions from activities related to the proposed action were determined to result in a less than measurable impact, even when combined with other mobile emission sources in the area, no significant impact would be expected.

- **Hazardous Materials and Waste -** Historic soil and ground water contamination was identified in certain areas within the ROI; however, no contamination has been identified at the proposed construction-sites. Thus, there would be no substantial hazardous materials and waste impacts to the environment resulting from historic contamination. The types of hazardous wastes and hazardous materials associated with the proposed activities are similar to hazardous wastes currently generated at the Courtland Facility. However, activities under the proposed action would triple the total quantity of hazardous waste generated at the facility. This estimate takes into account the continuation of the BV+ program and it was determined that this cumulative amount of waste would not exceed the regulatory limit of a small quantity generator. Thus, there should be no cumulative impact from the proposed action.

- **Health and Safety** - No cumulative impacts on health and safety would be expected because appropriate Safety Standard Operating Procedures would be followed for both the BV+ and target assembly activities. ESQDs would take into account different explosive potentials associated with operations at each building. Operations

would take place in separate buildings and intrasite transportation would be coordinated to avoid conflicts.

- **Transportation -** The cumulative impact of the additional personnel associated with the activities considered in this EA and those of other past, present, and reasonably foreseeable activities occurring at the Courtland Facility would not impact transportation. Roads around the facility are estimated to be Level A, well-able to accommodate additional traffic that could be associated with the proposed action or continuation of the BV+ program. As such, cumulative impacts on transportation would not be anticipated.

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ACRONYMS AND ABBREVIATIONS

AB	Administration Building
ADEM	Alabama Department of Environmental Management
AQCR	Air Quality Control Regions
AST	Aboveground Storage Tank
ATK	Alliant Techsystems
BMDS	Ballistic Missile Defense System
BP	Booster Pump Building
BV+	Boost Vehicle Plus
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CO	Carbon Monoxide
CONUS	Continental United States
CAA	Clean Air Act
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
dB	Decibels
dBA	A-weighted decibels
DDESB	Department of Defense Explosives Safety Board
DoD	Department of Defense
DOT	Department of Transportation
EA	Environmental Assessment
EO	Executive Order
EPA	Environmental Protection Agency
ESQD	Explosive Safety Quantity Distance
FEMA	Federal Emergency Management Agency
FS	Fire Station
HAPs	Hazardous Air Pollutants
HVAC	Heating, Ventilation, and Air Conditioning
IB	Inert Building
LMSSC	Lockheed Martin Space Systems Company
kW	Kilowatt
MAB	Missile Assembly Building
MDA	Missile Defense Agency
MM	Missile Magazine
MTF	Motor Transfer Facility
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NH_3	Ammonia
NO_2	Nitrogen Dioxide
NO_X	Nitrogen Oxides
O_3	Ozone
OB	Ordnance Building

OM	Ordnance Magazine
OSHA	Occupational Safety and Health Administration
Pb	Lead
PM	Propellant Magazine
$PM_{2.5}$	Particulate Matter with diameter 2.5 microns or less
PM_{10}	Particulate Matter with diameter 10 microns or less
ppm	parts per million
PSD	Prevention of Significant Deterioration
RCRA	Resource Conservation and Recovery Act
ROI	Region of Influence
SHPO	State Historic Preservation Officer
SM	Service Magazine
SO_2	Sulfur Dioxide
SO_X	Sulfur Oxides
SMHA	Suspect Missile Holding Area
SVHA	Suspect Vehicle Holding Area
SWFPAC	Strategic Weapons Facility Pacific
TBP	Tributyl Phosphate
THAAD	Terminal High Altitude Area Defense
THPO	Tribal Historic Preservation Officer
TMS	Target Missile Systems
TSCA	Toxic Substances Control Act
U.S.	United States
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service
UST	Underground Storage Tank
VMT	Vehicle Miles Traveled
VOCs	Volatile Organic Compounds

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1 PURPOSE AND NEED

1.1 Background

The National Environmental Policy Act (NEPA) of 1969, as amended; the Council on Environmental Quality (CEQ) regulations that implement NEPA (Code of Federal Regulations [CFR], Title 40, Parts 1500-1508); Department of Defense (DoD) Instruction 4715.9 *Environmental Planning and Analysis*; and applicable service environmental regulations that implement these laws and regulations direct DoD lead agency officials to consider potential environmental impacts and consequences when authorizing or approving Federal actions.

This Environmental Assessment (EA) evaluates the potential environmental impacts of constructing and operating additional buildings, roads, rail line and utilities at the Lockheed Martin Space Systems Company (LMSSC) Courtland, Alabama Facility. The Courtland Facility was originally designed to assemble and test interceptor missiles for the DoD Missile Defense Agency's (MDA) Ballistic Missile Defense System (BMDS). The proposed action would support the assembly of target missiles and payloads to meet the increasing rate of BMDS testing requirements.

Currently, major target components are manufactured at various facilities throughout the U.S. and delivered piecemeal to the launch site for target assembly and check-out just prior to launch. This target production process will not be able to meet or sustain the BMDS projected testing requirements. This could create costly mission delays. Streamlining target production is necessary to support the timely fielding of a viable missile defense capability to meet war fighter and homeland national defense needs.

The assembly of targets at the Courtland Facility and shipment directly to the launch range, a "ship and shoot" approach, would substantially reduce manufacturing time and costs and improve target quality. Ideally the assembly and testing time would be significantly reduced.[1] There would also be a reduction in costs associated with deploying fewer personnel to launch sites, maintaining smaller surge crews and less equipment at multiple test locations. Finally combining full target assembly and testing at one location would ensure the viability and reliability of each target.

MDA's testing requirements for target missiles are such that an integration facility could be required to simultaneously process dissimilar rocket motors such as the Minuteman and the C-4 stages. Because Department of Defense Explosives Safety Board (DDESB) safety rules prohibit processing dissimilar rocket motors in a single building, a target integration facility would require two separate missile assembly buildings, two explosive

[1] An estimated two years are required for total acquisition/delivery order time for a target, including contracting through assembly and test.

service magazines, and two inert storage/processing buildings. All buildings would be sited using appropriate Explosive Safety Quantity Distances (ESQDs) for the assembly of specific booster types identified by the MDA.

1.2 Purpose and Need

The purpose of the proposed action would be to construct additional facilities at the LMSSC Courtland, Alabama Facility in which target missiles could be assembled, integrated, checked out and ultimately shipped to a test site for use.

The proposed action is needed to provide additional capabilities to meet the increased demand for reliable target missiles to test the MDA BMDS. Streamlining and consolidating target production is necessary to support the timely fielding of a viable missile defense capability to meet war fighter, national security and homeland defense needs and will help MDA improve quality control and reduce costs.

1.3 Scope of Analysis

This EA considers impacts associated with the construction and operation of the proposed expansion of the Courtland Facility. Construction would add six new buildings and access roads, a rail spur, and extend utilities at the site. Operational activities under the proposed action would include preparation, transport, assembly, integration, and testing, and temporary storage of target missiles and components. Preparation of target boosters and components would consist of the handling of stages and mechanical and electrical materials prior to transport to and assembly at the expanded Courtland Facility. Existing as well as proposed buildings on-site would be used for operation activities. The site already has approximately 10 operational buildings and areas that support missile assembly activities. These would be used to assemble target front sections prior to the completion of new facilities. No target boosters would be handled in existing facilities during construction. Assembled targets would be transported from the Facility via truck (and possibly connecting to other transport modes) for delivery to specific launch site locations that would be determined for each test event. Therefore, transport to and from specific launch locations is not included in the scope of this analysis. The specific BMDS program tests that would use target missiles assembled at the Courtland Facility have not yet been determined and are therefore also outside the scope of this analysis.

Decommissioning the expanded Courtland Facility would address disposal of infrastructure, equipment, and any unused target boosters and components stored on-site. It could involve continued or adaptive use by the Department of Defense or other government agencies, sale back to LMSSC, or removal and ultimate disposal. However, at this time MDA does not know how or when decommissioning would occur and this will be analyzed as appropriate when and if the decision is to be made to decommission the expanded facility.

1.4 Related Environmental Documentation

The CEQ NEPA implementing regulations state that agencies shall incorporate material by reference and that the incorporated material must be cited in the document and its content briefly described. The NEPA analyses identified below have been incorporated by reference and impact determinations have been summarized as appropriate in this document.

- Ballistic Missile Defense Organization, 1999. *Environmental Assessment for Integration, Assembly, Test, and Checkout of National Missile Defense Components at Redstone Arsenal, Alabama*, February.

- U.S. Army Space and Strategic Defense Command, 1994. *THAAD Initial Development Program Environmental Assessment*, March.

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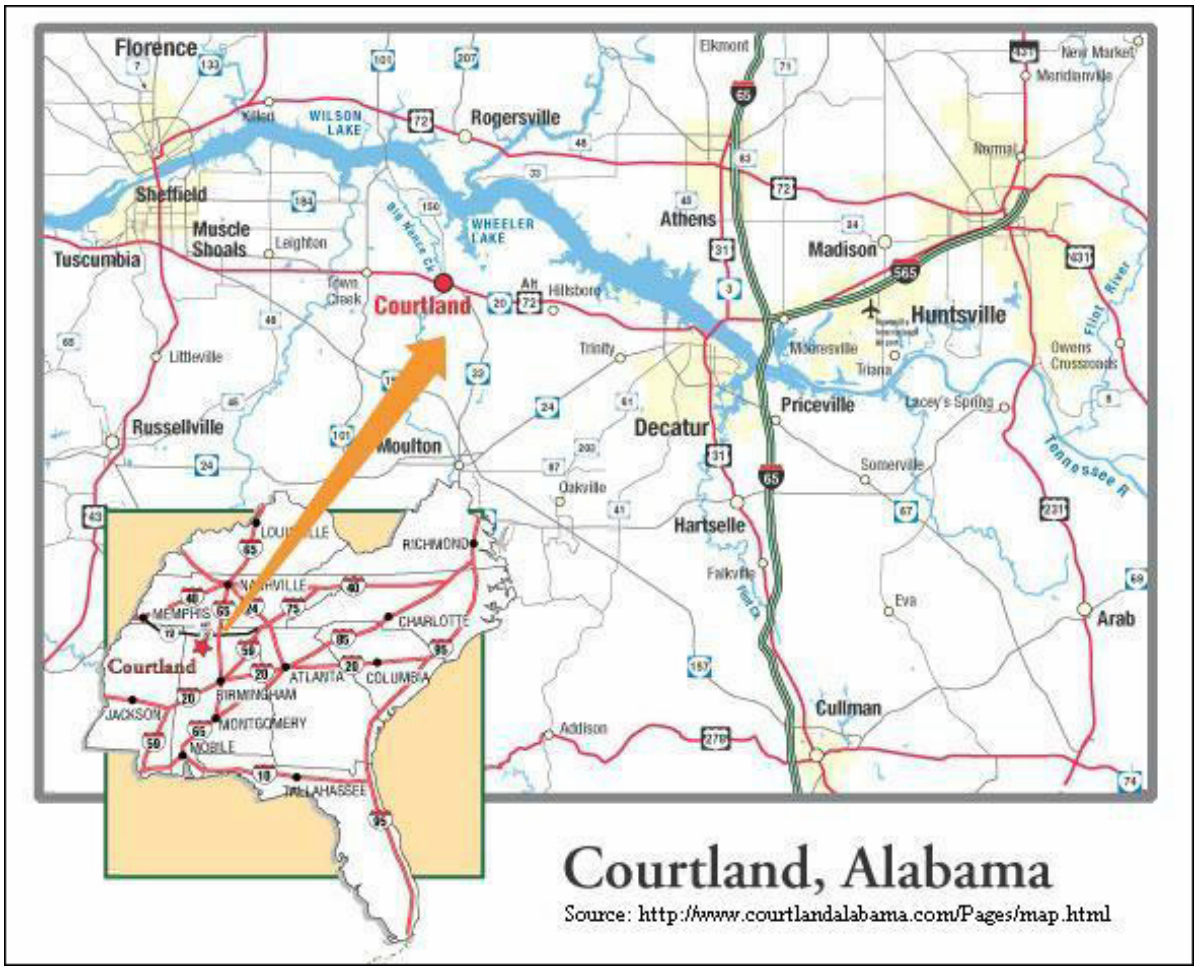
2 DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES

The proposed action consists of construction and operation of an expanded facility at the LMSSC Courtland, Alabama Facility. Construction activities would include construction of six new buildings and access roads, a rail spur, and utilities extensions. Operation activities would include preparation, transport, assembly, integration, and testing, and temporary storage of the target missiles. Preparation of target boosters and components at other facilities would consist of the storage and/or minimal handling or assembly of stages and front end components to prepare targets for transport to the expanded Courtland Facility for integration. Preparation activities already occur at various facilities in the continental U.S. Target components and boosters would be transported via truck and/or rail to the expanded Courtland Facility from locations that could include, but would not be limited to Alliant Techsystems (ATK) in Ogden Utah; Orbital Sciences Corporation, Chandler**,** Arizona; Stennis Space Center, Mississippi; Strategic Weapons Facility Pacific (SWFPAC), Bangor, Washington; Hill Air Force Base (AFB) Utah; Promontory Point, Utah; Camp Navajo, Arizona, and the Lockheed Martin Target Missile Systems (TMS), Huntsville, Alabama. Existing buildings on-site at the Courtland Facility would be used to support operation activities in addition to the proposed new buildings. The following subsections describe the activities that comprise the proposed action.

The Courtland Facility is located in northwest Alabama a few miles from the Courtland town center and 40 miles west of Huntsville. Exhibit 2-1 shows the location of the Courtland Site. The Lockheed Martin-owned facility is located in the 909-hectare (2,245-acre) George C. Wallace Industrial Air Park. The Industrial Park was previously the Courtland Army Air Field, which was used as a basic flying school to train pilots during World War II. The base became inactive in 1947 when the US government downsized and the property was sold to the State of Alabama. The site was eventually sold to the Lawrence County Industrial Board and City of Courtland, Alabama.

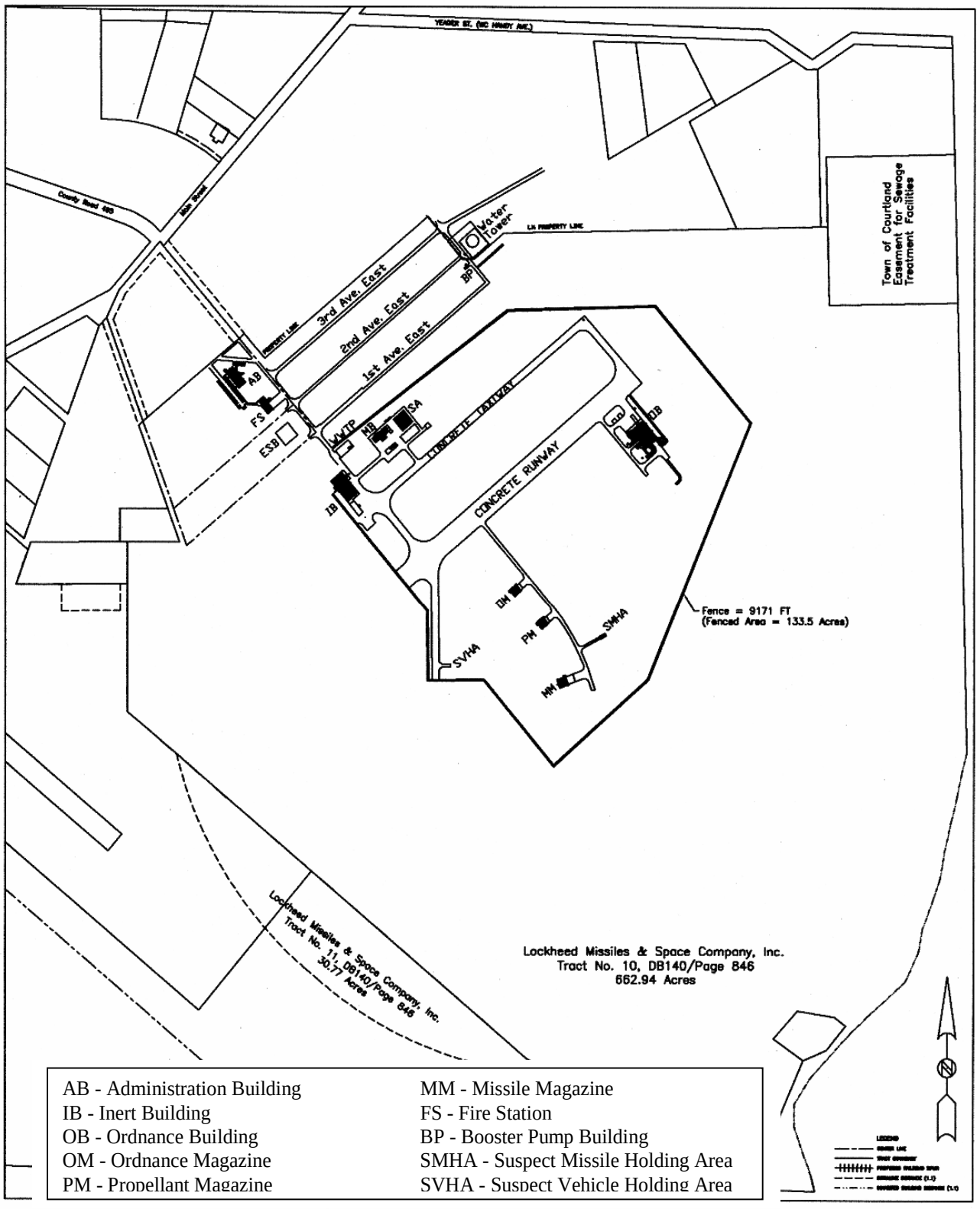
Exhibit 2-1. Location of Courtland Site



Lockheed Martin occupies approximately 268 hectares (663 acres) of the Air Park. The existing facilities were constructed to support the Terminal High Altitude Area Defense (THAAD) system in 1994. There are approximately eight buildings and two storage areas on the LMSSC Courtland site that are already being used to support interceptor missile assembly. These are shown in Exhibit 2-2.

- Administration Building (AB)
- Inert Building (IB)
- Ordnance Building (OB)
- Ordnance Magazine (OM)
- Propellant Magazine (PM)
- Missile Magazine (MM)
- Fire Station (FS)
- Booster Pump Building (BP)
- Suspect Missile Holding Area (SMHA)
- Suspect Vehicle Holding Area (SVHA)

Exhibit 2-2. Map of Existing Courtland Facility



2.1 Construction

2.1.1 Proposed Buildings

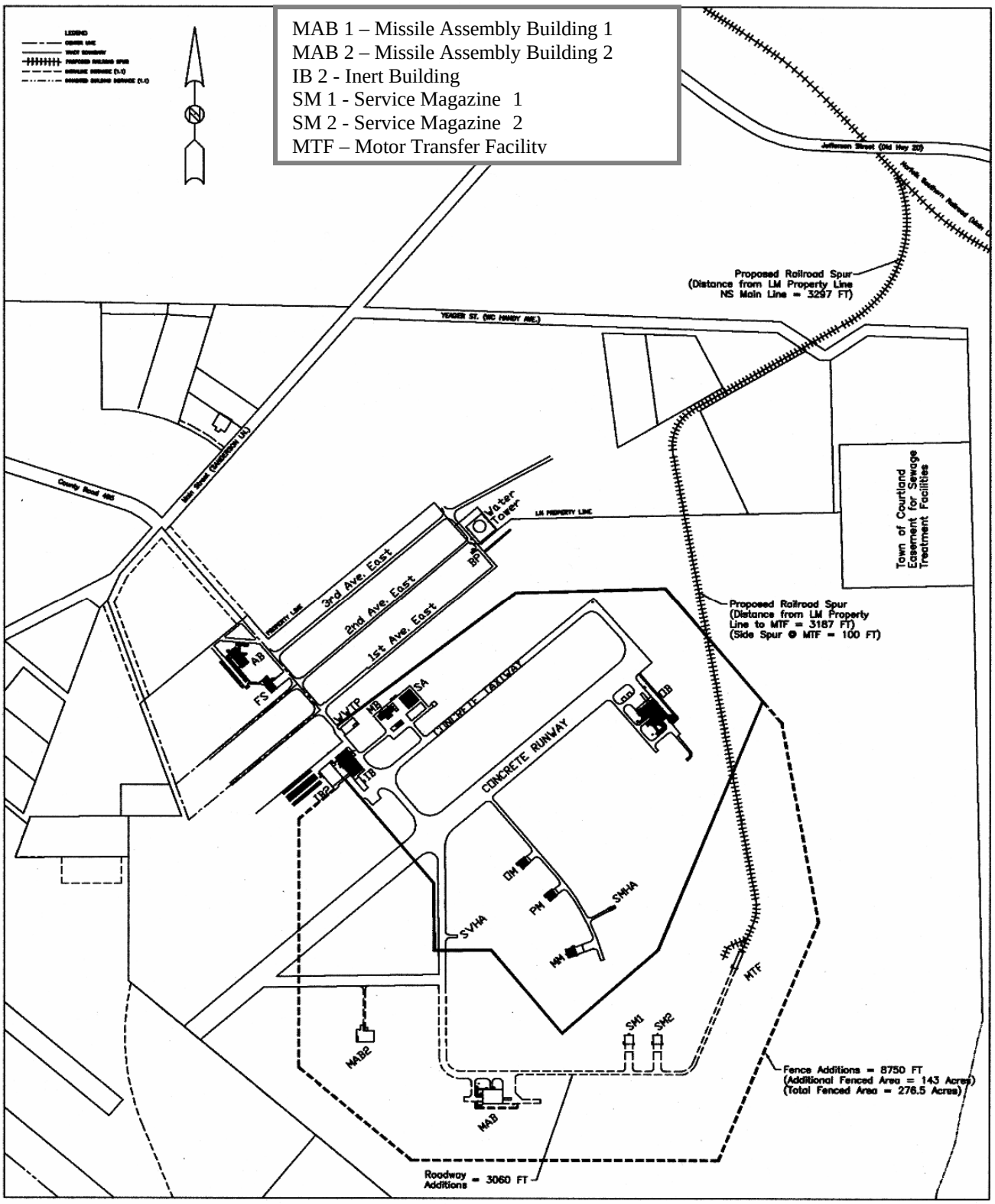
Under the proposed action, six additional buildings would be constructed at the Courtland Facility. One building would be located in the center of the property next to the existing Inert Building, IB-1; all others would be located along the south side of the property on Lockheed Martin owned land. A total of 4.5 hectares (11 acres) would be disturbed by the new buildings and access roads (see Section 2.1.3). The six proposed buildings and their dimensions are listed in Exhibit 2-3 and construction details follow for each building. A map of the site in Exhibit 2-4 shows the locations of the proposed structures.

No modifications are proposed to existing buildings/facilities. The Administration Building (AB), one of the Inert Buildings (IB-1), maintenance areas and the existing missile magazine (MM) would be used to support the new operations and activities proposed for the Courtland Facility. In addition, these buildings/facilities may continue to be used to support other existing operations at the Courtland Facility.

Exhibit 2-3. Description of Proposed Building Construction

Building	Area, square meters (square feet)	Height, meters (feet)
Missile Assembly Building 1 (MAB-1)	1,393 (15,000)	11 (35)
Missile Assembly Building 2 (MAB-2)	1,742 (18,750)	12 (40)
Inert Building 2 (IB-2) and Corridor connecting to IB-1	1,161(12,500) and 56 (600)	5 (20) and 15 (50)
Motor Transfer Facility (MTF)	348 (3,750)	6 (20)
Service Magazine 1 (SM-1)	358 (3,850)	9 (30)
Service Magazine 2 (SM-2)	358 (3,850)	9 (30)

Exhibit 2-4. Proposed Facilities and Rail Spur Locations



Missile Assembly Buildings (MAB-1 and MAB-2)

The MABs would be designed to support the assembly, integration, and testing of target vehicles. MAB-1 would be designated for the processing of up to 68,038 kilograms (150,000 pounds) net explosives weight of target vehicles with an ordnance hazardous classification of 1.1C[2]. The production bay would be 15 meters (50 feet) by 46 meters (150 feet). MAB-2 would be designated for the processing of up to 68,038 kilograms (75,000 pounds) net explosives weight of target vehicles with an ordnance hazardous classification of 1.1C and 1.3C[3]. MAB-2 would have two production bays: one would be 13 meters (45 feet) by 46 meters (150 feet); the other would be 9 meters (30 feet) by 46 meters (150 feet).

To meet DoD Directive 4145.26-M, "DoD Contractors' Safety Manual For Ammunition and Explosives," (September 1997) the two MABs would have lightning and grounding systems as shown in Exhibit 2-5. The catenary lightning system would consist of four 24.3-meter (80-foot) and two 36.5-meter (120-foot) masts at each MAB. A catenary wire would connect the higher masts to the lower masts. A grounding system would consist of an inner and outer girdle encircling the building. The girdles would be connected to the masts to prevent a lightning strike into the ground. Lights would be placed on top of the masts to make them visible to aircraft. The production areas in both MABs would be equipped with conductive floors to dissipate static electricity that could interfere with target electronics and pose a hazard to ordnance operations.

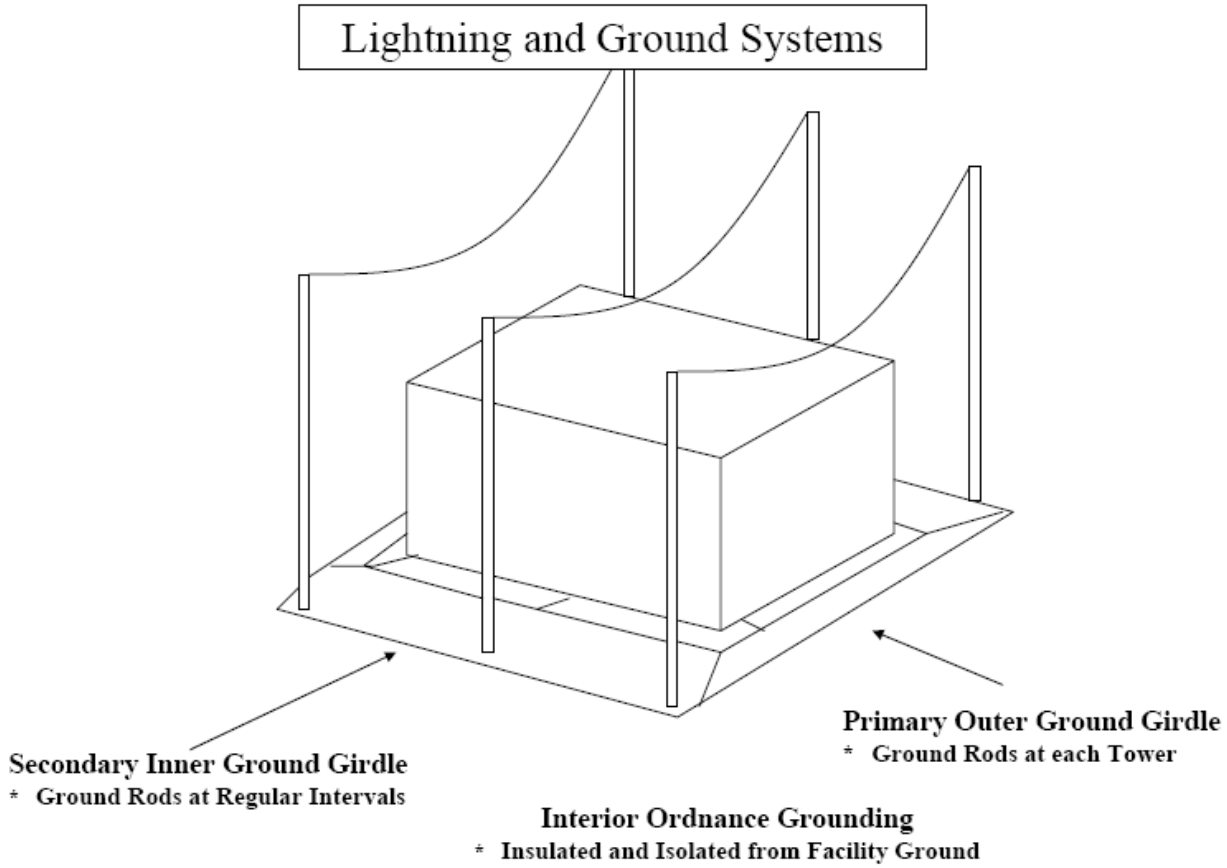
External gaseous nitrogen and gaseous helium supply systems and compressed air would also be available in test areas of each MAB. A dedicated diesel-powered backup generator would maintain security; facility lighting; heating, ventilation, and air conditioning (HVAC); and convenience outlets in the event of a power loss. Backup generators for both MABs would be 300 kilowatt (kW) 277/480 volt diesel-powered with 1,890-liter (500-gallon) aboveground fuel reservoirs. MAB-2 also would house a coatings booth, mix room and material supply storage area to provide specialty surface coating on portions of the target vehicles. The booth would be approximately 19 square meters (200 square feet) and particulate filters would capture overspray.

The MABs would be constructed with roll up doors and subgrade truck loading docks to allow for a K-Loader or missile transporter to align with the docks for a horizontal transfer of the stages or missile assemblies. Subgrade truck docks would minimize the use of cranes or lifts and would increase the speed and safety of unloading/loading operations.

[2] 1.1C hazard classification is defined as mass detonating explosives in storage compatibility grouping C. This grouping includes bulk propellants, propelling charges and devices containing propellant with or without their own means of initiation. Upon initiation these items deflagrate, explode or detonate.

[3] 1.3C hazard classification is defined as mass fire, minor blast or fragment producing explosives in storage compatibility grouping C, which includes items as outlined in footnote 2 above.

Exhibit 2-5. Lightning and Grounding Systems



Inert Building 2 (IB-2)

Inert Building 2 (IB-2) would be located to the west of Inert Building 1 (IB-1) on the concrete apron. It would be sited for the processing of 4.5 kilograms (10 pounds) of ordnance hazardous classification 1.4C[4] and 14.5 kilograms (32 pounds) of 1.3C simultaneously. The IB-2 would be sited for less net explosive weight than the MABs as assembled targets would not be held within them. A 15-meter (50-foot) long environmentally controlled corridor would be constructed above ground to connect IB-2 to the existing IB-1. The processing area in IB-2 would be 24 meters (80 feet) by 31 meters (100 feet). IB-2 would have a conductive floor and an isolated building-wide grounding system to dissipate any charge to ground. Three 3.6-meter (12-foot) high and 3.6-meter (12-foot) wide roll-up doors would allow for the transfer of components in and out of the facility. IB-2 would share the existing diesel powered backup generator from IB-1 that would maintain security, facility lighting, HVAC and convenience outlets.

[4] 1.4C hazard classification is defined as explosives producing moderate fire but no blast or fragments in storage compatibility grouping C, which includes items as defined in footnote 2 above.

Motor Transfer Facility (MTF)

The proposed Motor Transfer Facility (MTF) would be located at the end of the proposed rail spur connecting the main rail line running through the town of Courtland to the facility. It would be designed to allow access to either end of a rail car delivering motor stages. The building would be equipped with two roll-up doors**,** 5 meters (18 feet) high and 4.8 meters (16 feet) wide. The MTF would be designated for the transfer of up to 34,019 kilograms (75,000 pounds) net explosives weight of target vehicles with an ordnance hazardous classification of 1.1C and 1.3C. The MTF would be sited for less net explosive weight than the MABs as assembled targets would not be held within them.

Service Magazines (SM-1, SM-2)

Under the proposed action, two service magazines (SM-1 and SM-2) would be constructed. Service magazines would be designed to hold missile components and boosters prior to use, and assembled targets that cannot be shipped immediately off-site. However, these service magazines would not be intended for the long-term storage of boosters or assembled systems. These would be designated to hold up to 68,039 kilograms (150,000 pounds) net explosives weight with an ordnance hazardous classification of 1.1C and 1.3C. The bunker-type buildings would be covered with soil and seeded with native grasses. Each would have four 21-meter (70-foot) long bays. The height of the SMs would be 4.8 meters (16 feet). The bunkers would be built several feet above the ground to ensure that the truck dock is at grade level to allow for easy transfer of targets, stages or other components from trucks. A single backup 8 kW diesel powered generator would service both magazines in case of power failure to ensure HVAC, humidity, and security systems remain operational.

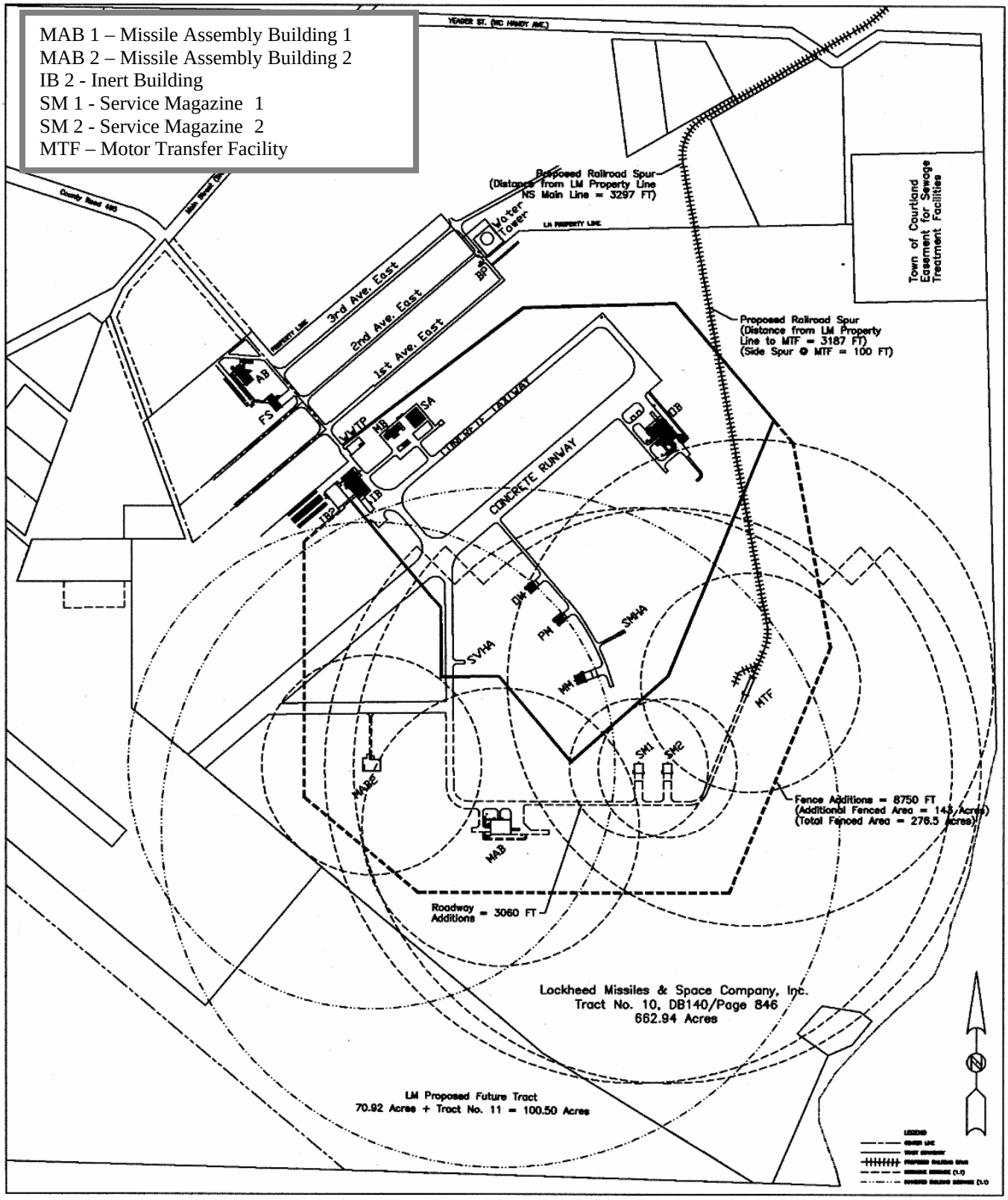
2.1.1.1 Storage of Explosive Components

Storage of explosive components such as rocket motors would comply with all applicable Federal, state and local requirements. Based on the net explosive weight planned for each proposed building, preliminary ESQDs have been calculated around each storage location to safeguard personnel, infrastructure and equipment from potential fires or explosions.

The interline building distances would not impinge upon other proposed or existing inhabited facilities or public transportation roads. However, the ESQDs for the MABs would require an extension of the Missile Protection Ordnance Zone by 40.7 hectares (100.5 acres) to the southwest. Lockheed Martin has already obtained an easement to approximately 12 hectares (30 acres). The other 28 hectares (70.5 acres) lie primarily within the Lawrence County Industrial Airpark Building Restriction Zone and Runway Protection Zone, which both restrict any construction in the area. The Lawrence County Commission, which owns the airport, has granted a preliminary easement for the

extended Missile Ordnance Protection Zone. The easement would continue to allow the property to be used for agricultural purposes and would continue the ban on permanent activities. Final review and approval of proposed buildings sites would be made by the Defense Contract Management Authority in coordination with a contracting officer at MDA. Exhibit 2-6 shows the ESQD arc of each building and the location of the easement.

Exhibit 2-6. Explosive Safety Quantity Distances for Buildings



2.1.1.1 Site Preparation Activities

Subject to the completion of applicable environmental requirements, the proposed construction activities are anticipated to require approximately twelve months to complete. The intent would be to use a local construction company based in Huntsville or Decatur, Alabama to complete the construction.

All of the six proposed buildings would be constructed on land owned by Lockheed Martin. IB-2 would be constructed on the concrete apron next to IB-1. It is possible that the existing concrete designated area for IB-2 would be demolished. If so, removed concrete would be taken to a plant off-site where it would be crushed and recycled.

Each of the building construction areas would undergo site preparation (clearing and grading), foundation excavation and backfill, utility connection, and building assembly activities. Finally, the site would be cleaned, seeded, and landscaped with native vegetation. Typical heavy duty construction equipment would be required such as bulldozers, graders, dump trucks, cement trucks, cranes, front-end loaders/backhoes, roller, power hand tools, compactor, asphalt spreader, and compactors. Construction vehicles would be parked overnight on the concrete apron and driven to the construction sites along access roads.

Sites identified for construction would be cleared and grubbed and a minimum of 15 centimeters (6 inches) of topsoil would be removed in areas to receive fill. Excavated topsoil would be stockpiled for reuse in landscaping. Some grading might be necessary although the site is essentially flat.

During construction, erosion control methods would be used such as silt fences and hay bales. Seeding and erosion control blankets would be used on all unpaved surfaces that would be disturbed by construction. Construction would conform to state and local site drainage requirements. Mitigation measures would be taken to prevent storm water contamination and any pollutant discharge to local water bodies such as Big Nance Creek that runs along the west to southwest side of the property. State-issued storm water permits would be required and obtained for construction activities.

2.1.1.2 Building Assembly and Site Restoration Activities

New concrete slabs would be poured to form the foundation for all six of the buildings; all buildings would be only above grade. The two MABs, MTF and IB-2 would be constructed of prefabricated steel structures that would be assembled on-site. Other materials that would be used in the construction of these buildings include brick masonry or concrete masonry units, mortars, embedded metals, grouting, bonding compounds and caulking, and associated cleaning agents. The SMs would be constructed with concrete floors and walls poured in place. Concrete would be trucked in from a local source. The

exterior walls and ceilings would be covered with earth to create a bunker-style building that would minimize impact from accidental explosions. Interior work in all six buildings would include installation of utilities (i.e., electricity, water, and communications) and HVAC to provide a climate-controlled environment for the target boosters.

Grounds-related work would include construction debris removal, site restoration, and seeding and landscaping with native plants.

2.1.2 Extension of Rail Line

The proposed action would include the construction of a rail spur that would facilitate the transport of some of the rocket motors to the facility. The spur would extend 1.9 kilometers (1.2 miles) from the main rail line in the Town of Courtland and terminate at the proposed MTF at the Courtland Facility. The rail spur would be constructed on a strip of land owned by Lawrence County[5] that runs between two privately-owned plots before crossing on to Lockheed Martin property. The breakdown of the rail line is provided in Exhibit 2-7.

Exhibit 2-7. Dimensions of Rail Spur

Location	Kilometers	Miles
On-site (Lockheed Martin Property)*	0.9	0.6
Off-site (Lawrence County Property)	1.0	0.6
Total	1.9	1.2

*Approximately 30 meters (100 feet) of the rail on Lockheed Martin property would branch off the spur just prior to the MTF. Rail cars would be able to park to the side of the MTF without blocking the track.

Norfolk Southern operates the main rail line between Chattanooga and Memphis, Tennessee. The main line is only used for freight trains. The spur would begin at Norfolk Southern's Mile Post 383-A, which is located near the Jefferson Street overpass. A dirt road at Jefferson Street provides an at-grade crossing of the mainline that would be used as a construction access road. Trains traveling westbound on the mainline to the Courtland Facility would need to pass the junction and back down the proposed Lockheed Martin spur. The spur would connect to the mainline via a manual switch. Another switch would be located at the 30-meter (100-foot) stretch of rail beyond the MTF on Lockheed Martin Property. Exhibit 2-4 shows where the spur would connect to the main line.

The rail spur would be constructed on top of an older, unused rail bed that runs approximately southeast towards the site. It would cross over a 4-meter (12-foot) deep ditch. The ditch is dry except during precipitation events when water runs east toward

[5] Lawrence County has granted an easement for the construction of the rail spur along this strip of land.

the Town of Courtland's sewage treatment plant. A 37-meter (120-foot) long trestle would be constructed over the ditch. The trestle would be constructed of concrete and steel with 9-meter (30-foot) columns. The spur also would cross over Yeager Road and buried gas and water mains on the south side of the road. Yeager Road begins as a two-lane paved road and devolves into a one-lane gravel road that terminates at the Town of Courtland Sewage Treatment Facility.

Constructing the roadbed would require clearing and grubbing (and top soil storage). Typical heavy-duty construction equipment (e.g., front-end loaders, bulldozers, graders, water wagons, compactors, excavators, drill rigs, cranes, scrapers, dump trucks, and other diesel-powered and gas-powered support equipment) would be used for clearing, excavation, and grading work. Limited cuts and fills for grading would be required as the terrain, especially along the abandoned rail bed, is essentially flat. A construction right-of-way would be established approximately 15 meters (50 feet) wide on either side of the rail bed. Subballast and ballast stones would be layered on top of the graded bed. A typical rail bed has a subballast layer approximately 9 meters (30 feet) wide and 0.3 meters (1 foot) high and a ballast layer about 5 meters (16 feet) wide and 0.3 meters (1 foot). Under these conditions, approximately 8,093 cubic meters (10,585 cubic yards) of material would be required.

The new rail spur would pass by four residential homes. The closest is located approximately 55 meters (180 feet) from the rail trestle crossing. Other houses are located approximately 274 meters (0.2 miles), 644 meters (0.4 miles), and 966 meters (0.6 miles) from the rail trestle crossing.

There are currently about 10 freight trains per day on the main line, some with up to 100 cars. MDA expects that there would be approximately ten train shipments per year on the spur, totaling 20 passes over Yeager Road. Each train would be approximately three cars long and would travel at a maximum of 15 kilometers per hour (10 miles per hour) along the spur.

2.1.3 Utilities and Additional Infrastructure

Under the proposed action, construction would require connecting new utilities to existing ones, including electric utilities, natural gas mains, municipal water lines, sanitary and storm sewer, fire protection water, fiber optic cable, and telephone communications (telecom). Exhibit 2-8 presents the required extension and where applicable, the burial depth, of new utilities.

Exhibit 2-8. New Utilities Extensions

Utility	Extension, meters (feet)	Minimum Depth, meters (feet)
Electric	1,524 (5,000)	1.2 (4) for concrete encased high voltage 0.6 (2) for all others
Natural Gas	1,524 (5,000)	1.2 (4)
Municipal Water	762 (2,500)	Below frost line
Sanitary Sewer	1,524 (5,000)	0.9 (3)
Fire Protection Water	1,524 (5,000)	Below frost line
Fiber optic	1,524 (5,000)	0.6 (2)
Telecom	1,524 (5,000)	0.6 (2)

Electricity and natural gas are supplied to the site by local providers. Gas service is provided through three-inch gas lines; sewer and water services are also provided locally through eight-inch and twelve-inch lines, respectively. Installation of additional sanitary sewer lines under the proposed action also would require three lift stations.

Fire protection water is available in an elevated water tank adjacent to the facility. The tank is owned by the Town of Courtland and holds 3,785 cubic meters (one million gallons) of municipal water. Lockheed Martin's booster pump located next to the tank would supply required pressure and volume in the event of a fire.

The proposed action includes the construction of new access roads. These roads would be used for all construction vehicles before becoming permanent. The roads would be comprised of a local limestone gravel base course brought in from off-site and would be topped with asphalt. Approximately 1,084 meters (3,500 feet) of road way would be constructed on the site with a width of 9 meters (30 feet) at all points. Combined with that used around the footprint of new buildings and for structures and walkways, a total area of 14,400 square meters (154,600 square feet) would be covered by asphalt as a result of the proposed action. Approximately 2,927 cubic meters (3,828 cubic yards) of gravel and sand would be needed. The finished grade slopes for roads and parking lots would not be steeper than five percent and would facilitate storm water drainage.

Earthen berms would be constructed around the two MABs and the MTF as protective measures in the unlikely event of an explosion. Each berm would be approximately 853 meters (2,800 feet) long and 4.3 meters (14 feet) high. They would be 18 meters (59 feet) wide at the base and 0.9 meter (3 feet) wide at the top. Each would consist of 55,812 cubic meters (73,000 cubic yards) of soil and would be seeded with grass to provide stabilizing vegetation. Soil would be used from the excavated foundations of the

buildings and supplemented by an off-site source as needed. The berms would be placed as close as possible to the buildings.

In addition, approximately 58 hectares (143 acres) of Lockheed Martin-owned land, which is occasionally leased to local farmers to grow cotton and corn, would be fenced off to regulate the explosive quantity-distance safety buffer around the new facilities. All crop-producing land inside and outside the fenced area would return to grassland and local farmers would harvest the grass. A total of 2,667 meters (8,750 feet) of fencing would be placed around the additional structures. It would consist of a 2-meter (6-foot) high chain link fence, gates, concrete post bases and fence system grounding.

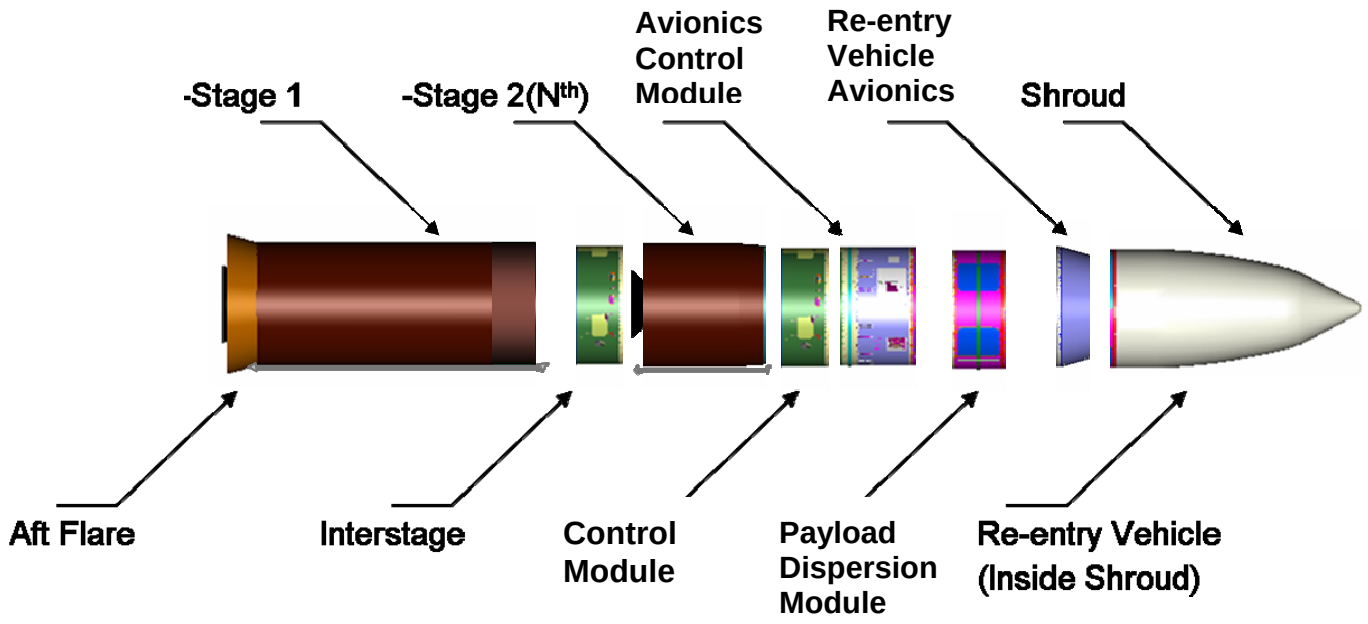
2.2 Operations

Operation activities under the proposed action would consist of preparation, transport, assembly, integration, and testing, and temporary storage of target missiles. Target missiles are those that are used to represent an incoming enemy missile to test the capabilities of BMDS interceptor systems. Operation activities and their locations on-site are described in subsections below.

2.2.1 Background on Targets

Targets are typically composed of one or more rocket motors (also known as boosters or stages) and a front section comprised of a reentry vehicle that may be covered by a shroud, a payload deployment module and an avionics control module. Adapters or interstages separate the motors and front section from each other. Targets would be assembled, or in some cases, disassembled at the facility. Disassembly activities would be expected to have the same environmental impacts as those associated with assembly and are therefore presented together in this EA. Exhibit 2-9 presents the primary components of a target missile.

Exhibit 2-9. Typical Target Missile Components



Solid propellant boosters would be handled and integrated at the Courtland Facility. Propellants consist of integrated fuel and oxidizer. An oxidizer is a substance such as perchlorate, permanganate, peroxide, or nitrate that produces oxygen to support the combustion of organic matter, powdered metals and other flammable material. Solid propellants are typically polybutadiene matrix, acrylonitrile oxidizer and powdered aluminum.

Any target booster components that would require liquid propellant (e.g., hypergols) would be fueled at the launch site, not at the Courtland Facility. No cryogenic propellants would be used or handled on-site. In rare cases where assembled targets would not be used in a BMDS test due to malfunction, test cancellation or other unforeseen occurrence, targets may be disassembled at the Courtland Facility. During the disassembly of targets, trace amounts of hypergols could be found in emptied lines and tanks. However, these systems would remain sealed and the components would be removed and sent to off-site facilities for proper handling. Minor amounts of compressed gas could be used in bench-scale testing.

The front section of the target typically consists of a steel or aluminum housing assembly, sensors, guidance and control electronics, radio transmitters and receivers, power supplies (which may include lithium or nickel-cadmium batteries), minor amounts of electrical explosive device, and small solid or liquid propellant motors. Front sections may contain objects that imitate threat missiles as well as simulants to imitate the characteristics of the payload of a threat missile. Simulants would be handled and loaded into the front section at the Courtland Facility. Simulants that could be used include

tributyl phosphate (TBP)[6], diatomaceous earth, talcum powder, cornmeal, water, steel, and plastic.

2.2.2 Preparation and Transport

Preparation of target boosters and components would consist of the storage and/or handling or assembly of stages to prepare targets for transport and integration. Final assembly operations would result in the production of small amounts of regulated wastes and *de minimis* emissions of volatile organic compounds and hazardous air pollutants. These preparation activities already occur at various facilities in the continental U.S. and were assumed to be routine in that they would not result in any significant environmental impact. Therefore, preparation activities are not analyzed further in this EA.

Target components and boosters would be transported via truck and/or rail to the Courtland Facility from locations that could include, but would not be limited to: ATK in Ogden Utah; Orbital Sciences Corporation, Chandler, Arizona; Stennis Space Center, Mississippi; SWFPAC, Bangor, Washington; Hill AFB, Utah; Promontory Point Utah; Camp Navajo, Arizona; and the Lockheed Martin Huntsville TMS, Alabama. Transport of boosters and components would comply with all U.S. Department of Transportation (DOT) requirements for shipping of explosive materials.

A conservative analysis would assume that under surge assembly conditions, a maximum of 20 targets would be assembled at Courtland per year and that each target would be comprised of four stages (i.e., three boosters and a front section).[7] Under these conditions, a total of 80 roundtrip shipments by truck or railroad would be required assuming that each booster would be shipped individually by truck and/or rail to the Courtland Facility. A total of 160 trips would be made, although only 80 would be carrying hazardous material, as the returning transport vehicle would be assumed to be empty. A conservative assumption would be that all 80 boosters would be shipped to the Courtland Facility from the site located furthest away, in this case the SWFPAC Facility in Bangor, Washington. The analysis would consider the contribution of these shipments to the average daily traffic volume and the likelihood of accidents on routes to and from the Courtland Facility. This is a credible worst case analysis; in reality, some of the shipments would be comprised of inert components or smaller net explosive weight boosters. Current MDA plans are for targets with only one, or more frequently, two boosters. Also, under normal, non-surge conditions, there would be fewer shipments.

[6] The use of TBP as a simulant was evaluated in the Vertical Gun Environmental Assessment (MDA, 2004). TBP is an odorless, colorless liquid that is non-explosive, non-flammable, and stable under normal temperatures and pressures. It has been used a solvent, plasticizer, antifoaming agent, flame retardant, and also in desiccant defoliants.

[7] This is a worst-case analysis; currently MDA tests would typically require targets with only two stages.

2.2.3 Assembly, Integration and Check Out

Total propellant quantities for target vehicles that would be assembled at the Courtland Facility range from less than 4,082 kilograms to over 72,574 kilograms (9,000 pounds to over 160,000 pounds). Examples of boosters that could be taken out of storage or assembled include, but are not limited to solid fuel boosters such as the SR-19, Castor IV B, M-57, SR-73, C-4 1st stage, and C-4 2nd stage. The solid propellant would remain intact during assembly and would not be exposed or opened in anyway. No spin balancing of boosters would take place at the Courtland Facility.

The front sections of the target vehicles would be constructed to various degrees at other contractor facilities and then transported to the Courtland Facility for final assembly and mating to the launch vehicle. Activities that could occur at the Courtland Facility include attaching the front section to the boosters, loading of simulants or explosives, and spinning of the front section to confirm proper weight distribution. All assembly, testing, simulant loading, and spinning would be performed in the vertical or off-vertical position.

In some cases, specialty surface coatings would be applied to the target sections in a paint booth in MAB-2. The primary coating would be composed of the paint and a solvent that would be sprayed or hand-applied. Solids in the coatings are non-toxic and 90 percent of the overspray would be captured by particulate filters.

All integration and stage mating would be performed horizontally. Targets would initially be "soft-mated." During soft-mate testing, the boosters, interstages, and front section are linked electronically in a flight-like configuration that would allow access to instrumentation and electronic packages. Electronic tests would confirm that the systems are properly functioning. Component tests include radio frequency testing of avionics and guidance and control systems, testing of hydraulic actuators for control surfaces, as well as inert testing of operational ordnance systems to verify that the signals have reached the ordnance simulators. No ordnance testing, i.e., static firing or launching would occur under the proposed action. After successful soft-mate tests, the boosters, interstages and front section are bolted together for "hard-mate" tests. Hard-mate tests are similar to those during soft-mate tests. The Common Erector, a device to move assembled targets from the horizontal to vertical position, may be required for some tests.

The assembly process for each target would require the use of small amounts of solvents and sealants. The solvent would most likely be isopropyl alcohol (or another environmentally acceptable cleaner). Over several days of assembly, a maximum of 0.5 liter (1 pint) of isopropyl alcohol and of 7.5 liters (2 gallons) sealant would be used per target. Other materials that could be used during assembly include batteries, adhesives, resins, and paints. No other hazardous materials would be used during this process, and any hazardous wastes that would be generated would be handled according to all applicable federal and state regulations.

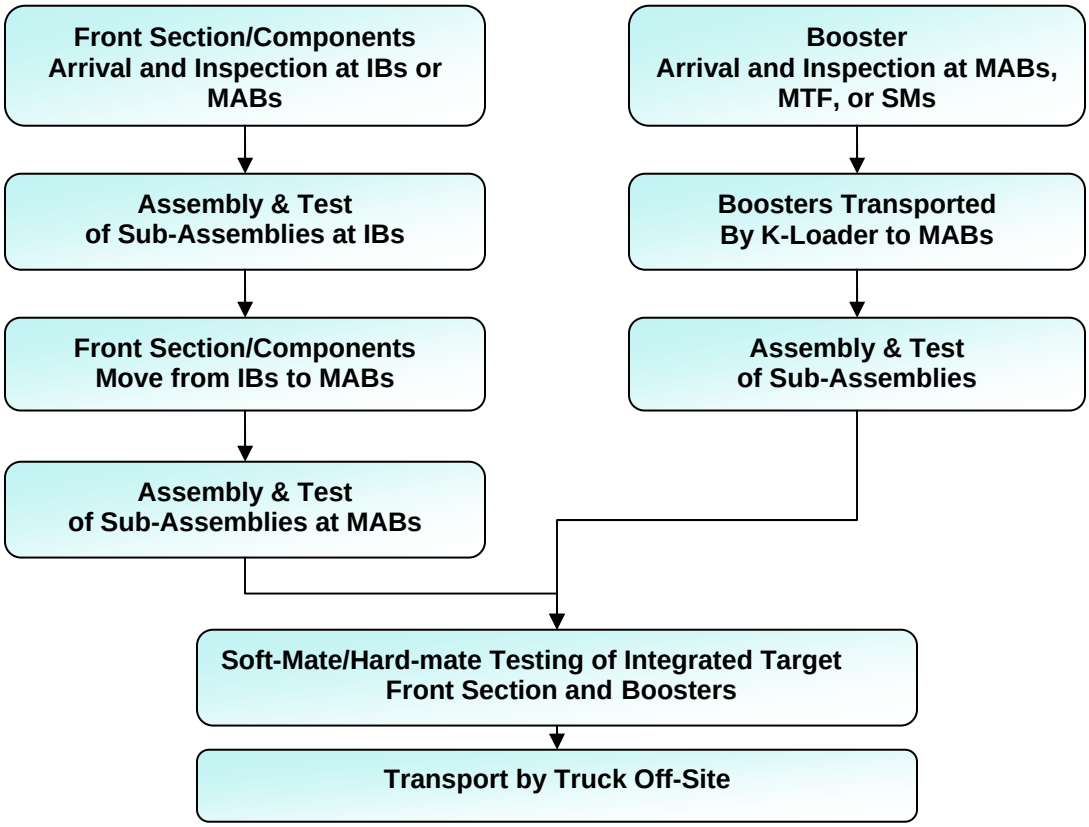
2.2.3.1 Production

The facility would be designed to assemble additional target missiles and payloads. The nominal design production rate would be 12 missiles per year with a surge capability of up to 20 per year. At that rate, a planned permanent workforce of 90 people would be required; approximately 20 others would be brought in on a rotational basis. The Courtland Facility currently employs approximately 40 people to support the Boost Vehicle Plus (BV+) program. Target assembly typically requires four weeks; production capacity is bound primarily by the net explosives weight limit of the MABs.

2.2.3.2 Target Process Flow

Exhibit 2-10 presents a flow diagram of the movement of boosters and components around the site. As shown in Exhibit 2-10, the front section, components and boosters would be shipped to the Courtland Facility via aircraft, truck or rail. Aircraft would land either at Redstone Arsenal or Huntsville International Airport. Boosters would be transferred to trucks for over-the-road transport to the Courtland Facility. Truck deliveries would arrive via Alabama Highway 20 through the Valley Landing Golf Course along County Road 495 and through one of two gates. Rail deliveries would arrive via the constructed rail spur.

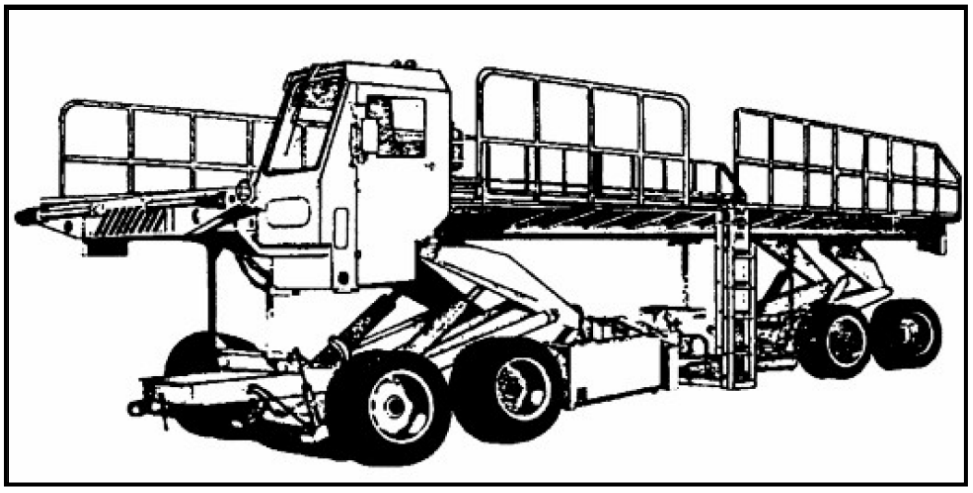
Exhibit 2-10. Flow Diagram of Operation Activities



Missile components and hardware would be transferred by trailer to the IBs where they would be assembled and tested. The assembly initially could be performed in the existing IB-1, with subsequent transition of forward section processing to the IB-2. After forward section components and hardware have been initially tested, they would then be transferred to the MABs for integration with the rocket motors.

Boosters would arrive at the Courtland Facility in an environmentally controlled trailer. Motors delivered by rail would be received in the MTF where they would be inspected. Boosters would be transferred via truck trailer or K-loader to one of the MABs or SMs. Boosters arriving by truck would be received and inspected at the MABs or possibly one of the SMs. The K-loader, as shown in Exhibit 2-11, would be a 27,270-kilogram (60,000-pound) capacity truck with a vertically-adjustable flat bed. The trailer containing the booster would be "roll transferred" from the rails within the delivery vehicle (train car or truck) to the rails on the K-loader bed. The K-Loader would drive the booster to one of the MABs. The motors would be roll transferred to rails on air pallets within the MAB. Only in rare cases would the motor be sent to an SM or the suspect missile holding area as these areas are not intended for long-term storage of boosters or assembled systems.

Exhibit 2-11. Drawing of K-Loader



Once inside an operations building, transport of motors is accomplished through the use of air pallets. After final check out, the target would be either loaded on to the K-loader for transport to temporary storage in one of the service magazines or to the Common Transporter for transport off-site. The Common Transporter is a specially-designed trailer that would provide a controlled environment for the assembled target during transport. The Common Transporter would take the targets either over the road to launch sites or to the Redstone Arsenal (72.4 kilometers [45 miles] east) of Courtland). From Redstone, aircraft would fly the target to the launch site. Transport of the assembled target missile off-site would not take place via train.

Transport of target vehicles would comply with the U.S. DOT hazardous material transportation and permitting requirements. Hazardous materials transport requirements include packaging, labeling, and manifests to describe the shipment and accompany it throughout the journey. Transportation plans would be developed that include

- Packaging requirements,
- Accident planning,
- State trooper escorts,
- Satellite tracking,
- Nighttime transport,
- Radio communication between teams,
- Set travel route, and
- Confirmation of weight limits of bridges along the route.

2.3 Alternatives to the Proposed Action

Alternative 1 would consist of the construction of six new buildings, access roads, and utilities expansion to facilitate target assembly, integration and testing. However, the rail line would not be extended to join the Norfolk Southern main rail line onto the Courtland Facility property. Rocket boosters and components and assembled targets would be transported to the Courtland Facility only by truck.

2.4 No Action Alternative

The no action alternative consists of not constructing the six new buildings, access roads, rail spur, and utilities. Under the no action alternative the MDA would not be able to construct additional assembly and integration facilities at the Courtland site. Under No Action the MDA would continue to receive and assemble targets and payloads for test events at existing facilities as has been done in the past. Without a single target integration capability, the MDA would not have the benefits of streamlining production of targets needed for BMDS testing. It would lose the cost benefits associated with consolidating equipment and personnel at one facility and time would be lost with longer production processes.

2.5 Alternatives Considered But Not Carried Forward

2.5.1 Alternative Locations for MDA Target Integration Facilities

Consistent with MDA's Comprehensive Siting Analysis Process (MDA Directive 4165.02, July 2002), MDA conducted a siting analysis to identify potential locations for its integrated target assembly facilities. As part of this siting analysis, MDA used exclusionary criteria to define the minimum essential requirements that potential sites would have to meet to be considered as viable candidate locations. Exclusionary criteria

were developed based on MDA's goals of reducing target vehicle production time and costs. Exclusionary criteria were:

- The site should be located in the continental U.S. (CONUS).
- The site should have demonstrated capability in processing Minuteman and C-4 boosters
- The site should have sufficient acreage to satisfy ESQDs required for simultaneous processing of Minuteman and C-4 booster-based target vehicles.
- The site should have sufficient acreage to support two missile assembly buildings, two explosive storage bunkers, an inert processing facility, and up to 150 personnel.

MDA applied the exclusionary criteria to the nine potential sites in CONUS with demonstrated capability in processing Minuteman and C-4 boosters: Hill AFB, Utah; SWFPAC, Washington; Strategic Weapons Facility Atlantic, Georgia; Redstone Arsenal, Alabama; Yellow Creek, Mississippi; Yuma Proving Ground, Arizona; Eastern Range (Cape Canaveral), FL; Vandenberg AFB, CA; and LMSSC Courtland, Alabama and determined that only the LMSSC Courtland, Alabama site was not excluded. The other eight sites either did not have or could not commit sufficient acreage at any given time due to existing mission obligations, Thus, these sites did not meet the purpose of and need for the proposed action and were not considered further in this EA.

2.5.2 Alternative Configuration for Courtland Target Integration Facilities

An alternative configuration for the Courtland Target Integration Facilities would have included construction of six new buildings, access roads, rail spur, utilities, and an extension of the existing runway and associated takeoff facilities at the Lawrence County Airport. The runway extension would have allowed C-17 aircraft to takeoff and land at the airport. The runway extension portion of this alternative was not carried forward when the cost and construction schedule were found to be prohibitive. Thus, this alternative site configuration was not considered further in this EA.

3 AFFECTED ENVIRONMENT

This section gives an overview of the affected environment and the resource areas that may be impacted. The affected environment is described succinctly to provide a context for understanding potential impacts. The level of detail provided for each resource area is commensurate with the potential for impact to that resource area.

Twelve resource areas were considered to provide a context for understanding the potential effects of the proposed action and to provide a basis for assessing the severity of potential impacts, with attention focused on key issues. The resource areas considered include: air quality, biological resources, cultural resources, geology and soils, hazardous materials and hazardous waste, health and safety, land use, noise, socioeconomics and environmental justice, transportation and infrastructure, visual resources, and water resources. Airspace issues are addressed within the Transportation section as the Proposed Action does not include any airborne activities.

For each resource area discussed in this EA, the definition of the resource, Region of Influence (ROI), and existing environmental conditions are provided. The definition of the resource describes relevant laws and regulations that pertain to the resource area. The ROI describes a unique region for each resource area that represents the area with the potential to be affected by the proposed action. The existing conditions describe the environment within the ROI for each resource area discussed.

3.1 Air Quality

Definition of Resource. Air quality in a given location is usually measured in terms of the concentration of various air pollutants in the atmosphere. Air quality is determined by the type and amount of pollutants emitted into the atmosphere, the size and topography of the air basin, and the prevailing meteorological conditions. The following subsections present a discussion of the pollutants regulated under the Clean Air Act (CAA) (ambient air quality standards for criteria pollutants, air toxics [hazardous air pollutants (HAPs)], and regional haze).

3.1.1 Criteria Pollutants

The primary Federal legislation that addresses air quality is the CAA of 1970 (as amended in 1977 and 1990). The purpose of the CAA is to preserve air quality and to protect public health and welfare. Under the authority of the CAA and amendments, EPA established a set of National Ambient Air Quality Standards (NAAQS) for criteria pollutants: carbon monoxide (CO), nitrogen dioxide (NO_2), ozone (O_3), PM with diameter 10 microns or less (PM_{10}) and 2.5 microns or less ($PM_{2.5}$), sulfur dioxide (SO_2), and lead (Pb). The NAAQS established "primary" standards to protect public health and "secondary" standards designed to protect the public welfare by addressing the effects of

air pollution on vegetation, soil, materials, visibility, and other aspects of the general welfare. Alabama has incorporated the Federal NAAQS standards into its state ambient air quality standards (Alabama Administrative Code, Chapter 335-3-1).

Concentrations of criteria air pollutants in ambient air are used to determine ambient air quality in the U.S. by comparing them to the maximum allowable airborne concentrations specific in the applicable air quality standards for these pollutants. Exhibit 3-1 summarizes the Federal and Alabama ambient air quality standards.

The CAA requires the adoption of NAAQS to protect the public health, safety, and welfare from known or anticipated effects of criteria air pollutants. According to EPA guidelines, an area with air quality better than the NAAQS is designated as being in attainment, while areas that currently have or have had worse air quality are classified as nonattainment or maintenance areas, respectively. Pollutants in an area may be designated as unclassified when data are lacking for EPA to form a basis of attainment status. Air quality monitors are used to determine compliance with the NAAQS and to evaluate the impact of pollution control strategies. EPA uses the monitoring results to designate areas into the following categories.

1. **Nonattainment Areas** – Locations where measured concentrations exceed the NAAQS. Areas designated as nonattainment for ozone are classified as marginal, moderate, serious, severe, extreme, or Section 185A (previously called transitional). Areas designated as nonattainment for PM or CO are classified as moderate or serious.
2. **Maintenance Areas** – Previously designated nonattainment areas that have been redesignated because they have demonstrated compliance with the NAAQS for a period of time.
3. **Attainment Areas** – The areas of the country in which ambient pollutant concentrations have always been in compliance with the NAAQS, or have been redesignated after a number of years as a maintenance area.
4. **Unclassifiable** – Areas where no ambient monitoring record exists. Most of the areas are rural, remote areas and are assumed to be in attainment.

Exhibit 3-1. Federal and Alabama Ambient Air Quality Standards

Pollutant	Average Time	National and State Standards[a]	
		Primary[b,c]	Secondary[b,d]
O_3	1 hour	235 micrograms per cubic meter ($\mu g^{*}/m^3$) (0.12 parts per million [ppm])[e]	Same as primary
CO	8 hours	10 milligrams per cubic meter (mg^{**}/m^3) (9 ppm)	Same as primary
	1 hour	40 mg/m^3 (35 ppm)	Same as primary
NO_2	Annual Arithmetic Mean	100 $\mu g/m^3$ (0.053 ppm)	Same as primary
SO_2	Annual Arithmetic Mean	80 $\mu g/m^3$ (0.03 ppm)	Same as primary
	24 hours	365 $\mu g/m^3$ (0.14 ppm)	1,300 $\mu g/m^3$ (0.5 ppm)
	3 hours	1,300 $\mu g/m^3$ (0.5 ppm)	Same as primary
PM_{10}	Annual arithmetic Mean	50 $\mu g/m^3$	Same as primary
	24 hours	150 $\mu g/m^3$	Same as primary
$PM_{2.5}$	Annual arithmetic Mean	15 $\mu g/m^3$	Same as primary
	24 hours	65 $\mu g/m^3$	Same as primary
Pb	Quarterly Arithmetic Mean	1.5 $\mu g/m^3$	Same as primary

Source: EPA, 2006 (http://epa.gov/air/criteria.html)

* $\mu g = 10^{-6}$ grams; ** $mg = 10^{-3}$ grams

[a] These standards, other than for ozone and those based on annual averages, must not be exceeded more than once per year. The ozone standard is attained when the expected number of days per calendar year with a maximum hourly average concentration above the standard is equal to or less than one.

[b] Concentration is expressed first in the units in which it was adopted and is based on a reference temperature of 25°C (77°F) and a reference pressure of 760 millimeters (30 inches) of mercury. All measurements of air quality must be corrected to a reference temperature of 25°C (77^{o}F) and a reference pressure of 760 millimeters (30 inches) of mercury; parts per million (ppm) in this table refers to ppm by volume or micromoles of pollutant per mole of air.

[c] National primary standards are the levels of air quality necessary, with an adequate margin of safety, to protect the public health.

[d] National secondary standards are the levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

[e] Parts per million by volume or micromoles per mole of gas

The official list of nonattainment areas and a description of their boundaries can be found in the Code of Federal Regulations (40 CFR Part 81) and pertinent Federal Register notices; an unofficial list can be found on EPA's website. (EPA, 2006a)

For areas that are designated nonattainment, the CAA establishes levels and timetables for each region to achieve attainment of the NAAQS. States must prepare a State Implementation Plan, which documents how the region will reach its attainment levels by the required date. The Plan includes inventories of emissions within the area and establishes emissions budgets that are designed to bring the area into compliance with the NAAQS. In maintenance areas, the Plan documents how the State intends to maintain compliance with NAAQS. To facilitate the planning process, the U.S. is divided into Air Quality Control Regions (AQCR), which because of common meteorological, industrial and/or socioeconomic factors are considered single units for air pollution.

In addition, any proposed Federal action in a nonattainment or maintenance area must be demonstrated to meet the requirements of the General Conformity Rule (40 CFR 51, 40 CFR 93). This rule mandates that the Federal government not engage, support, or provide financial assistance for licensing or permitting, or approve any activity not conforming to an approved State Implementation Plan.

3.1.2 Air Toxics

In addition to the NAAQS, the CAA also authorizes EPA to regulate emissions of HAPs, also known as toxic air pollutants or air toxics. HAPs are pollutants that cause or may cause cancer or other serious health effects, such as reproductive effects or birth defects, or adverse environmental and ecological effects. EPA is required to control 188 HAPs; a complete list of these HAPs can be found on EPA's website. (EPA, 2006b)

3.1.3 Regional Haze

Under the regional haze rule (64 Fed. Reg. 35714, dated July 1, 1999), States are required to develop State Implementation Plans to address visibility at designated mandatory Class I areas, including 156 designated national parks, wilderness areas, and wildlife refuges. General features of the regional haze rule are that States are required to prepare an emissions inventory of haze-related pollutants (i.e., volatile organic compounds [VOCs], nitrogen oxides [NO_X], SO_2, PM_{10}, $PM_{2.5}$, and ammonia [NH_3]) from all sources in constituent counties. Most States will develop their regional haze State Implementation Plan in conjunction with their $PM_{2.5}$ State Implementation Plan over the next several years.

3.1.4 Prevention of Significant Deterioration (PSD)

PSD is a regulation incorporated in the CAA that limits increases of pollutants in clean air areas even though ambient air quality standards are being met. The CAA area

classification scheme for PSD establishes three classes of geographic areas and applies increments of different stringency to each class. Class I areas include parks and wilderness areas, Class II areas are for attainment or unclassified area, and Class III areas are for nonattainment areas.

Entities planning construction or modification of a facility that is in an attainment area may be subject to PSD regulations if classified as a "major" source or "major" modification. A new source is considered major if it is one of 28 specifically designated industrial categories and has the potential to emit more than 91 metric tons (100 tons) per year of a regulated pollutant. If the new source is not one of the designated industrial categories, it is considered major if it has the potential to emit more than 227 metric tons (250 tons) per year of a regulated pollutant. A modification is considered major if it occurs at an existing major source and causes emission increases of regulated pollutants above "significant" emission rate levels defined in the regulations (and summarized in Exhibit 3-2). Major sources must obtain a PSD permit from the state prior to either building a new facility or introducing modifications. (40 CFR 52.21)

Exhibit 3-2. Emission Rate Increases Considered "Significant" for PSD Regulations

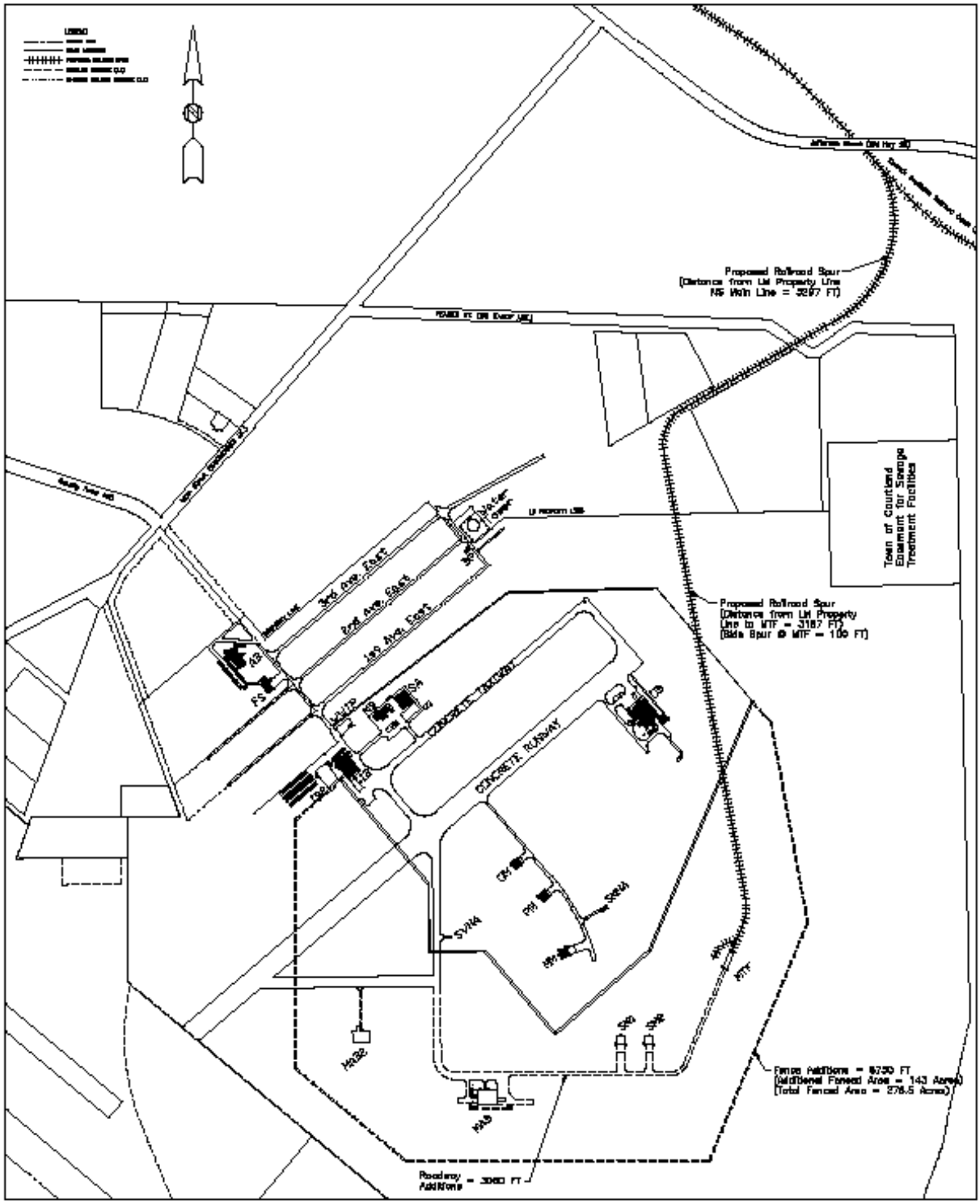
Pollutant	PSD Significant Emission Rate (tons per year)
NO_X	40
CO	100
VOC	40
Particulate Matter	25
PM_{10}	15
SO_2	40
Sulfuric Acid Mist	7
Pb	0.6

Source: 40 CFR 51.166(b)(23)(i)

Region of Influence. The ROI for air quality is the Lawrence County Industrial Airpark and surrounding areas within Lawrence County that may be affected by the proposed action. Exhibit 3-3 shows the general location of the Courtland Facility and Industrial Airpark in relation to the Town of Courtland. Exhibit 3-4 shows the proposed location of construction activities at and near the Courtland Facility.

Exhibit 3-3. General Region of Influence

Exhibit 3-4. Locations of Proposed Activities at the Courtland Facility and Surrounding Environs



Existing Conditions. The following sections discuss existing conditions in the ROI in order to consider impacts of the proposed action on air quality.

Climate and Meteorology

The Alabama climate is characterized by generally warm, humid summers with little daily temperature change. In Courtland, temperatures range from an average high in July of 32°C (90°F) to an average winter low of -1°C (30°F) in January. Average morning humidity ranges from 90 percent in late spring through early fall to 80 percent in late fall through early spring. (City-data.com, 2006) Average annual rainfall in Lawrence County is 140.0 centimeters (55.1 inches) (Community Profile Network, Inc., 1998), with approximately 16.5 centimeters (6.5 inches) in March, the rainiest month, and approximately eight centimeters (three inches) in August, the driest month. (City-data.com, 2006) Across northern Alabama, thunderstorms occur about 60 days per year, most frequently in mid-summer. Severely cold weather is rare and measurable snow usually falls only twice a year in the northern part of the state, amounting to between 8 and 10 centimeters (3 and 4 inches). (NCDC, 2005)

Hazardous Weather Conditions

The Alabama tornado season begins in November and continues through early May, peaking in March and April. (NCDC, 2005) The state averages 20 tornadoes per year (NCDC, 2005); however, from 1950 to 1995 only twelve tornadoes were recorded in Lawrence County. (The Tornado Project, 1999) Destructive hurricanes reach the coastal areas of Alabama about once every seven years. The highest wind speeds recorded inland have been 97-105 kilometers per hour (60-65 miles per hour). (NCDC, 2005)

Site Air Quality

The Lawrence County Industrial Airpark is located in a PSD Class II area within the Tennessee River Valley-Cumberland Mountains AQCR. (40 CFR Part 81.72) All of Lawrence County, including the Industrial Airpark, is considered in attainment for all NAAQS. (U.S. EPA, 2005) The nearest air quality monitoring station for ozone and particulate matter ($PM_{2.5}$) is located in the city of Decatur, approximately 32 kilometers (20 miles) to the east. In 2005, the station reported a fourth-highest daily maximum 8-hour average ozone concentration of 0.079 ppm and a $PM_{2.5}$ annual mean of 13.6 $\mu g/m^3$, both of which are in attainment for NAAQS.

The nearest nonattainment and PSD Class III area is the Birmingham metropolitan area, located approximately 164 kilometers (102 miles) southeast of the Airpark, which is classified as non-attainment for $PM_{2.5}$ and non-attainment Subpart 1 for 8-hour ozone. (U.S. EPA, 2005) The nearest PSD Class I Area is the Sipsey Wilderness Area located approximately 37 kilometers (23 miles) to the south.

A number of current operations at the Courtland Facility result in small-scale emissions that may affect air quality in the area, including transportation of BV+ missile components and emissions from four diesel-powered emergency generators. However, the Courtland Facility falls below the 100 tons per year or more emissions threshold for any regulated air pollutant and thus is not considered a Major Source subject to Title V of the CAA. The Courtland Facility is not required to have any air permits from the Alabama Department of Environmental Management (ADEM). Current operations do not include launches or testing of rocket motors and so emissions of hazardous air pollutants fall below the regulatory threshold of 10 tons per year of any one HAP, or 25 tons per year of a combination of HAPs.

3.2 Biological Resources

Definition of Resource. Native or naturalized flora (vegetation), fauna (wildlife), and the habitats in which they occur are collectively referred to as biological resources. This section identifies flora, fauna, and wetland resources in Lawrence County and at the Lawrence County Industrial Airpark that could potentially be affected by the proposed action. Applicable Federal, state, and local statutes that are designed to protect special status species present within the affected area are also cited in this section.

The U.S. Fish and Wildlife Service (USFWS) administers the Endangered Species Act, which states that all Federal departments and agencies shall seek to conserve endangered species and threatened species. Endangered species include any plant or animal species in danger of extinction throughout all or a significant portion of its range. The Act defines a threatened species as any species that is likely to become endangered within the foreseeable future throughout all or a significant portion of its range.

Special status species are defined as plant or animal species that are candidates for, proposed as, or listed as sensitive, threatened, or endangered by USFWS. In addition to federally listed species, certain wildlife species are afforded state protection under the Nongame Species Regulation (AAC 220-2-.92) and the Invertebrate Species Regulation (AAC 220-2-.98). The Alabama Department of Conservation and Natural Resources enforces this regulation which limits the "…take, capture, kill, or attempt to take, capture or kill, possess, sell, trade…" of designated nongame wildlife and invertebrate species.

Region of Influence. The ROI for biological resources is the Lawrence County Industrial Airpark and surrounding areas within Lawrence County that may be affected by the proposed action.

Existing Conditions. The following sections discuss the existing conditions at the site and were based on descriptions of the general ecological region and a site survey conducted in 2006.

Vegetation

Lawrence County falls within an ecological region identified as the Southeastern Mixed Forest Province, which consists predominately of broadleaf deciduous and needleleaf evergreen trees. Major tree species in this province include loblolly pine (*Pinus taeda*) and shortleaf pine (*Pinus echinata*), in association with oak (*Quercus alba*), hickory (*Carya glabra*), and red maple (*Acer rubrum*). Common grasses include bluestem (Andropogon spp.) and panic grass (Panicum spp.). (Bailey, 1995) Common plant species present at the Airpark include the eastern red cedar (*Juniperus virginiana*), also known as red juniper; kudzu (*Pueraria montana),* an invasive species; and red clover grass (*Trifolium pratense*), cultivated as animal fodder. (Ludlow, personal communication, 2006)

Wildlife

Wildlife habitat within and surrounding the Airpark is composed of scattered stands of trees, managed grassland, and agricultural fields, which may provide food, shelter, and nesting sites for a number of wildlife species. Common mammal species that may be found at the Airpark include the eastern cottontail rabbit (*Sylvilagus floridanus*), armadillo (*Dasypus novemcinctus*), striped skunk (Mephitis mephitis), white-tailed deer (*Odocoileus virginianus*), virginia opossum (*Didelphis virginiana*), raccoon (*Procyon lotor*), and gray squirrel (*Sciurus carolinensis*). Common bird species may include the red-tailed hawk (*Buteo jamaicensis*), cardinal (*Cardinalis cardinalis*), eastern bluebird (*Sialia sialis*), Carolina wren (*Thryothorus ludovicianus*), and tufted titmouse (*Baeolophus bicolor*). Other species may include the eastern garter snake (*Thamnophis sirtalis sirtalis*) and copperhead snake (*Agkistrodon contortrix*). No sensitive invertebrate, fish, or amphibian species occur within the Airpark. (Bailey, 1995)

Within Lawrence County, the following areas may be considered highly productive, rare, or protected habitats/communities. The Airpark, however, contains no localized areas considered particularly productive to wildlife due to the industrial nature of the site.

- *Mallard-Fox Creek State Wildlife Management Area*. Located approximately 18 kilometers (11 miles) northeast of Courtland between Lawrence and Morgan Counties near Decatur. Encompasses 1,483 acres and supports mostly waterfowl and small game.
- *Black Warrior State Wildlife Management Area.* Located approximately 56 kilometers (35 miles) south of Courtland between Lawrence and Winston Counties. Encompasses 98,000 acres and supports both big and small game.
- *William B. Bankhead National Forest.* Located approximately 56 kilometers (35 miles) south of Courtland between Lawrence and Winston Counties. Encompasses approximately 180,000 acres and contains the Sipsey Wilderness Area, one of only two designated wilderness areas in the state.

- *Prairie Grove Cedar Glades, The Nature Conservancy*. Located approximately 24 kilometers (15 miles) southwest of Courtland. Encompasses 191 acres and supports many rare plant species including the endangered Lyrate bladder-pod.

Special Status Species

Exhibit 3-5 provides a list of special status flora and fauna species that may be present in Lawrence County, as well as short descriptions of their preferred habitat. Fish and mussel species would not be present at the Airpark due to lack of aquatic habitat (see also Section 3.12 for discussion of aquatic resources).

Exhibit 3-5. Special Status Species within Lawrence County, Alabama

Common Name	Scientific Name	Federal Status	State Status	Preferred Habitat
Mammals				
Gray bat	*Myotis grisescens*	E	SP	Caves or cave-like habitats
Indiana bat	*Myotis sodalis*	E	SP	Limestone caves
Birds				
American peregrine falcon	*Falco peregrinus anatum*	DM	SP	A dominant landscape feature, usually a cliff; occasionally trees or tall manmade structures
Bald eagle	*Haliaeetus leucocephalus*	T[8]	SP	Coastal areas, river, lakes, and reservoirs with forested shorelines or cliff
Red-cockaded woodpecker	*Picoides borealis*	E	SP	Open stands of pines, usually Longleaf pine, with a minimum age of 80 to 120 years
Fish				
Tuscumbia darter	*Etheostoma tuscumbia*		SP	Vegetated spring pools with slow current; usually associated with watercress
Mussels				
Alabama moccainshell	*Medionidus acutissimus*	T	SP	Clear, moderately flowing freshwater rivers and creeks; sand or gravel substrates
Dark pigtoe	*Pleurobema furvum*	E	SP	Clear, moderately flowing freshwater rivers and creeks; sand or gravel substrates

[8] *Haliaeetus leucocephalus*, listed as Threatened in conterminous U.S., was proposed for delisting on July 6, 1999; the public comment period on the proposed delisting was reopened on February 16, 2006.

Common Name	Scientific Name	Federal Status	State Status	Preferred Habitat
Fine-lined pocketbook mussel	*Lampsilis altilis*	T	SP	Clear, moderately flowing freshwater rivers and creeks; sand or gravel substrates
Orangenacre mucket	*Lampsilis perovalis*	T	SP	Moderately to swiftly flowing freshwater rivers; sand or gravel substrates
Pink mucket pearly mussel	*Lampsilis abrupta*	E	SP	Moderately to swiftly flowing freshwater rivers; sand, gravel, or rocky substrates
Pyramid pigtoe	*Pleurobema rubrum*		SP	Moderately to swiftly flowing freshwater rivers; sand and mud substrates
Rough pigtoe	*Pleurobema plenum*	E	SP	Moderately to swiftly flowing freshwater rivers; sand, gravel, or rocky substrates
Round pigtoe	*Pleurobema sintoxia*		SP	Moderately to swiftly flowing freshwater rivers; sand, gravel, and mud substrates
Sheepnose	*Plethobasus cyphyus*	C	SP	Moderately to swiftly flowing freshwater rivers; sand, gravel, and mud substrates
Spectaclecase	*Cumberlandia monodonta*	C	SP	Freshwater riverine microhabitats that are sheltered from the main force of current; sand, gravel, and mud substrates
Triangular kidneyshell	*Ptychobranchus greenii*	E	SP	Moderately to swiftly flowing freshwater rivers or creeks; sand or gravel substrates
Tubercled blossom	*Epioblasma torulosa*	E, EXPN		Swiftly flowing freshwater rivers; sand or gravel substrates
Plants				
Fleshy-fruit glade cress	*Leavenworthia crassa*	C		Limestone cedar glades and glade-like areas (open pastures, cultivated fields, and roadsides with calcareous soils)
Leafy prairie clover	*Dalea foliosa*	E		Open, thin-soiled limestone glades and limestone barrens

Common Name	Scientific Name	Federal Status	State Status	Preferred Habitat
Lyrate bladderpod	*Lesquerella lyrata*	T		Limestone cedar glades and glade-like areas (open pastures, cultivated fields, and roadsides with calcareous soils)
Price's potato-bean	*Apios priceana*	T		Open, wooded slopes and floodplain edges with well-drained, calcareous soils

Sources: Alabama Natural Heritage Program, 2006; NatureServe, 2006; USFWS, 2006.
Key: C – Candidate Species; E – Endangered; EXPN – Experimental Population, Non-Essential; T – Threatened; DM – Delisted Taxon, Recovered, Being Monitored First Five Years; SP – State Protected under the Nongame Species Regulation (220-2.92) or the Invertebrate Species Regulation (220-2.98)

As described in earlier sections, tree stands, managed grassland, and agricultural fields comprise the wildlife and plant habitat at the Airpark. The preferred habitats of special status species potentially present in the ROI do not occur at the Courtland Facility or within 91 meters (100 yards) of construction sites where ground-disturbing activities would occur.

3.3 Cultural Resources

Definition of Resource. Cultural resources include prehistoric and historic sites, structures, districts, artifacts, or any other physical evidence of human activity considered important to a culture, subculture, or community for scientific, traditional, religious, or any other reason. Cultural resources of particular concern include properties listed or eligible for inclusion in the National Register of Historic Places (National Register).

Section 101(b)(4) of NEPA established a Federal policy for the conservation of historic and cultural, as well as the natural, aspects of the nation's heritage. Regulations implementing NEPA stipulate that Federal agencies must consider the consequences of their undertakings on historic and cultural resources. (40 CFR Part 1502.16[g]) These guidelines are typically met under Section 106 of the National Historic Preservation Act. Requirements under Section 106 include the identification of significant historic properties that may be impacted by the proposed action, as well as consultation with the State Historic Preservation Officer (SHPO), or Tribal Historic Preservation Officer (THPO).

Region of Influence. The term ROI is synonymous with the area of potential effect as defined under cultural resources regulations (36 CFR 800.16[d], *Protection of Historic Properties, Program Alternatives*). In general, the ROI for cultural resources encompasses areas requiring ground disturbance (e.g., areas of new facility or utility construction) and all buildings or structures requiring modification, renovation,

demolition, or abandonment. The ROI for this analysis is the Courtland Facility and surrounding areas including the area for the proposed rail spur (see Exhibits 3-3 and 3-4).

Existing Conditions. A Phase I archaeological survey was conducted in the ROI and no prehistoric archaeological resources were identified. One potential historic home site was discovered about 30 meters (98 feet) from the proposed rail spur. There are no buildings or structures at the Lawrence County Industrial Airpark listed on the National Register; however, the town of Courtland has several historic properties listed on the National Register. The Courtland Historic District has more than 100 buildings and sites on the National Register of Historic Places. (Community Profile Network, 1998) The closest historic property is 0.93 kilometers (0.58 miles) from the beginning of the proposed rail spur and 1.9 kilometers (1.2 miles) from the Lockheed Martin property line.

The original inhabitants of what is now the state of Alabama were the Alabama, the Cherokee, the Chicksaw, the Choctaw, the Koasati, and the Muskogee (Creek) tribes. Most Native Americans were forced to leave Alabama during the Indian Removals of the 1800's. Except for the descendants of Alabama Indians who escaped from Removal, these tribes no longer exist in Alabama. (Native Languages of the Americas, 2006)

There are three federally-recognized Native American tribes with claims to land in Alabama.

- The Poarch Band of Creek Indians, which is located in the town of Atmore along the state's southern border (500 Nations, 2006)
- The Muskogee Creek Nation of Oklahoma
- The Eastern Band of Cherokee Indians of North Carolina. (U.S. Department of the Interior, 2006)

There are nine state-recognized Native American tribes in Alabama, though none are located in Lawrence County. (500 Nations, 2006)

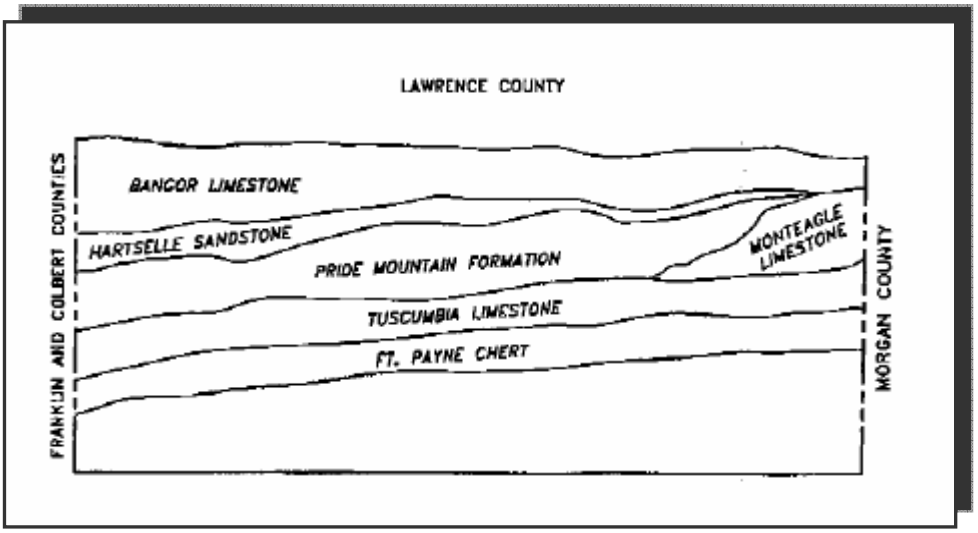
3.4 Geology and Soils

Definition of Resource. The geology of a particular area can be described as the physical nature and history of the earth, the composition of the rocks from which it is composed, and the changes in which it has undergone or is undergoing. Soils are defined as earth material which has been modified and acted upon by physical, chemical, and biological agents so as to be able to support rooted plants. These earth resources are described in terms of how they could contribute to erosion, flooding, and seismicity.

Region of Influence. The ROI for this resource includes the geology and soils located within the boundaries of the construction sites described in the proposed action.

Existing Conditions. The Courtland Facility is located in the Highland Rim section of the Interior Low Plateau physiographic province. This section is typically characterized as an area of low relief and flat to rolling topography. The ROI is underlain by rocks of Paleozoic and Mesozoic age that dip slightly to the south, southwest, and west. (USACE, 1997) The formations in this area include Fort Payne chert, Tuscumbia Limestone, and Monteagle Limestone, as seen in the generalized geologic cross-section presented in Exhibit 3-6. The Fort Payne chert is a dark gray siliceous limestone with abundant beds of dark nodular chert. The Fort Payne chert is overlain by the Tuscumbia Limestone, which is in turn overlain by the Monteagle Limestone. (USACE, 1997)

Exhibit 3-6. Generalized Geologic Cross-Section, Former Courtland Army Airfield



Source: USACE, 1997

Soil samples at the Courtland Facility were collected during a 1997 Site Inspection by the U.S. Army Corps of Engineers (USACE). Sampling indicated that the top surface soil layer is composed of an organic loamy soil. Low plasticity reddish-brown inorganic clay with occasional deposits of weathered limestone and chert is encountered from 1.2 meters (4 feet) to 4.9 meters (16 feet). At depths below 4.9 meters (16 feet), an inorganic slightly silty clay of high plasticity is encountered, with colors ranging from light gray to reddish-brown. Limestone is typically encountered at depths below 6 to 9 meters (20 to 30 feet), although the thickness of the clay layers and depths to limestone vary throughout the site due to the solubility of the limestone formation.

The proposed building sites are on a soil type identified as Etowah loam, eroded, and undulating phase. The proposed rail line would traverse three soils types classified as (1) Cumberland loam, eroded, undulating phase; (2) Etowah loam, undulating phase; and (3) Etowah loam, eroded, undulating phase. Erosion hazard for all of these soil types is considered slight under ordinary climatic conditions. (NRCS, 2006)

The ROI is not characterized as a particularly active area for seismic activity. Small, non-damaging, felt earthquakes occur about once a year. Alabama's earthquake history includes about 12 small- to moderate-sized damaging events. (USGS, 2006) The largest recent earthquake recorded in Alabama was a magnitude 4.9, which occurred south of the Eastern Tennessee seismic zone near Atmore, Alabama, on October 24, 1997. Because the potential of seismic activity in the ROI is unlikely, this topic is not further addressed in the consideration of environmental consequences.

3.5 Hazardous Materials and Hazardous Waste

Definition of Resource. Hazardous wastes are defined by the Resource Conservation and Recovery Act (RCRA) Section 1004(5) as "a solid waste, or combination of solid wastes, which because of its quantity, concentration, or physical, chemical, or infectious characteristics may (a) cause, or significantly contribute to, an increase in mortality or an increase in serious irreversible or incapacitating reversible illness or (b) pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, disposed of, or otherwise managed." While the definition refers to "solids," it has been interpreted to include semisolids, liquids, and contained gases. (Wentz, 1989) Hazardous waste is further defined in 40 CFR 261.3 as any solid waste that possesses hazardous characteristics of toxicity, ignitability, corrosivity, or reactivity, or is listed as a hazardous waste in Subpart D of 40 CFR Part 261.

Hazardous materials and hazardous wastes are also encompassed within the definition of hazardous substances as identified in the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) (42 U.S.C. Sections 9601-9675) and the Toxic Substances Control Act (TSCA) (15 U.S.C. Sections 2601-2671). The Hazardous Materials Transportation Act (49 U.S.C. Section 1801, Parts 172-173) regulates the transportation of hazardous materials. (Legal Information Institute, 2005) Chapter 335-14 of the Alabama Administrative Code describes the state's Hazardous Waste Management System headed by the ADEM.

Region of Influence. The ROI for hazardous materials and waste handling includes the Courtland Facility, Industrial Airpark, and residences located near the Airpark. Transportation of hazardous materials including explosives is addressed in Section 3.10, Transportation and Infrastructure.

Existing Conditions. The Courtland Facility is classified as a small quantity generator of hazardous waste. Hazardous waste produced on-site in 2005 was 245 kilograms (560 pounds), with an average of two hazardous waste shipments off-site per year. All hazardous waste generated at the Courtland Facility is shipped to a certified waste Treatment, Storage, and Disposal Facility. The designated Environment, Safety, and Health officer is responsible for tracking hazardous wastes and for proper hazardous waste identification, storage, transportation, and disposal.

The site has two 180/270 day accumulation storage areas for hazardous waste, which are secured with either fencing or a locked storage container. Each site contains a 55-gallon barrel that contains mostly solvent contaminated debris, off-specification (expired) chemicals, batteries, and various adhesives, resins, and paints. These barrels are transported by forklift and truck.

On-site there are two underground storage tanks (USTs) that were installed in the 1990s and previously held diesel and gasoline, each with a 7,570-liter (2,000-gallon) capacity. There are also two aboveground storage tanks (ASTs) that previously held waste oil, each with a 1,136-liter (300-gallon) capacity. All of the aforementioned USTs and ASTs are empty and in temporary closure; however, there are four back-up emergency generators at the facility with aboveground diesel fuel tanks. The capacity of these tanks ranges from 1,136 to 1,893 liters (300 to 500 gallons). Visual inspections of the tanks for leaks are performed daily.

The Courtland Facility currently uses small quantities of hazardous materials for general operations and stores them on-site in appropriately labeled and secured containers and storage areas. These materials include solvents, sealants, primers, paints, hydraulic fluids and oils, epoxy adhesives and resins, lubricants, and curing agents. The Courtland Facility follows directives on the applicable Material Safety Data Sheets for any hazardous materials with which employees may come into contact.

Historic Site Operations

The Courtland Facility is on the site on the George C. Wallace Industrial Airpark. The Airpark was previously the U.S. government-owned Courtland Army Air Field that served as a basic flight school to train pilots during World War II. The base became inactive in 1947 when the U.S. government downsized and the property was sold to the State of Alabama. The site was eventually sold to the Lawrence County Industrial Board and City of Courtland, Alabama.

Releases and disposal of hazardous substances and petroleum products occurred historically at the Courtland Facility as a result of activities at the former Courtland Army Air Field. The USACE and a contractor for Lockheed Martin conducted Phase I, II, and III assessment and remediation activities on-site from 1991 to 1997. The USACE conducted a preliminary investigation of the Air Field in 1991 to characterize the existing contamination and determine remedial actions that are protective of human health and the environment. In 1992, several geophysical surveys were conducted to identify underground areas of increased electromagnetic conductivity caused by chemical plumes or ferromagnetic objects such as buried metals remaining from Army activities. Anomalies were identified in several locations west of the water tower and around the Inert Building -1 and storage area. Areas of increased conductivity were thought to be caused by cultural interference (building foundations, utilities pipelines), buried metallic

debris or conductive chemicals. However, it was concluded that a conductive plume would not be caused by jet fuel or gasoline. (Final Report of Tract A Geophysical Survey, 1992; Addendum to the Final Report of Tract A Geophysical Survey, 1992; Final Report of Tract B Geophysical Survey Courtland Air Park)

Two areas containing anomalies were excavated and revealed the presence of an Army landfill. Scrap metal, trash drums, and military ordnance contributed to the finding of volatiles, semi-volatiles, pesticides, hydrocarbons and inorganics. Ground water monitoring wells were installed and testing confirmed that the concentrations did not exceed U.S. EPA Drinking Water Maximum Contamination Levels.. (USACE Mobile District Site Inspection Report 1, 1997)

In 1993, USACE oversaw the removal of six remaining fuel USTs. Foundation excavations for a pumping station near the water tower revealed soil contaminated with less than 100 ppm petroleum hydrocarbons and dibenzofuran (a non-hazardous coal tar derivative). The soil was disposed of at the Lawrence County landfill and the site backfilled. (Report of Excavation and Characterization of Petroleum Hydrocarbon Contaminated Soils, 1994) Asbestos-containing cement board was found in the former hangar area and surrounding trailer staging area but was determined to be non-friable. (Asbestos Survey at Courtland, Alabama, 1994)

Records indicate that prior to 1989 several commercial biocides were aerially applied at the Courtland Facility. In 1995, three buried pesticide vaults were found near what would become the fire station. The containers and their remnant contents were removed and the soil around them excavated. Approximately 4,164 liters (1,100 gallons) and five 208-liter (55-gallon) drums of chlorinated pesticide and asbestos containing water and soil were disposed of in a RCRA hazardous waste landfill. The pesticide vaults and abandoned water wells were officially closed and sealed in 1996. (Report of Phase III Site Remediation Activities, 1996)

In 1997, USACE completed investigations and sampling of debris piles, soil, and ground water on property owned by Lockheed Martin. The USACE determined that there were only minor impacts to soils from pesticides and petroleum hydrocarbon contamination, none of which exceed U.S. EPA Region III Industrial Risk Based Concentrations. The USACE also concluded that the impact to ground water from the soil contamination was negligible, and issued a recommendation for no further action. In 2001, at the request of the U.S. Army Corps of Engineers, Bhates Environmental Associates confirmed the closure of a total of 11 ground water monitoring wells; this was the last known remediation and monitoring activity at the Courtland Facility. No further remediation or long-term monitoring activities are planned. No past or current soil contamination or hazardous waste issues are located within the proposed construction areas.

3.6 Health and Safety

Definition of Resource. Health and safety includes the consideration of any activities, occurrences, or operations that have the potential to affect the well-being, safety or health of workers or members of the public. Safety and health risks to workers and the public primarily would be related to accidents involving explosions or fires on the site.

Region of Influence. The ROI for health and safety is the Courtland Facility, Industrial Airpark, residences located near the Airpark, and transportation routes from the following six sites to the Courtland Facility: the Alliant Techsystems (ATK) in Ogden Utah; Orbital Sciences Corporation, Chandler**,** Arizona; Stennis Space Center, Mississippi; Strategic Weapons Facility Pacific (SWFPAC), Bangor, Washington; Promontory Point Utah, Camp Navajo, Arizona; and the Lockheed Martin Target Missile Systems (TMS), Huntsville, Alabama.

Existing Conditions. All National Fire Protection Association, Occupational Safety and Health Administration (OSHA), and applicable state and Federal guidelines for health and safety are followed at the Courtland Facility. Compliance with these regulations is the responsibility of the designated Environment, Safety, and Health officer, who enforces established standard operating procedures to meet occupational and system safety requirements.

Health and safety requirements at the Courtland Facility include monitoring and prevention of worker exposure to workplace chemicals and physical hazards, hearing and respiratory protection, and oversight of all hazardous or potentially hazardous operations. The Environment, Safety, and Health officer conducts monthly health and safety inspections in manufacturing areas to identify corrective action needs, and conducts quarterly inspections in office areas.

Emergency response capabilities available to the site include a fire station and a medical clinic located in downtown Courtland just a few miles from the site. The nearest hospital is approximately 40 kilometers (25 miles) away in the town of Moulton. Medical helicopters can be requested from the town of Florence, approximately 32 kilometers (20 miles) west. All of the on-site guards are certified Emergency Medical Technicians. Two employees are OSHA 1910.120-certified for incidental spill containment and cleanup. Spill kits and pads are present on-site. Large-scale spills are handled by a contractor, Mid South Testing, Inc, located in the town of Decatur approximately 34 kilometers (21 miles) east of the Courtland Facility.

Employees on-site can be evacuated to three underground storm shelters and one aboveground storm shelter in the event of a tornado or other severe weather.

The Courtland Facility has coordinated its site emergency plan with the Lawrence County Emergency Management Agency and the local fire department. (Ludlow, personal communication, 2006)

3.7 Land Use

Definition of Resource. Land use is defined as the way land is developed and used in terms of the various activities that occur on it, including economic production, natural resources protection, or institutional uses. Potential issues typically stem from encroachment of one land use or activity on another or an incompatibility between adjacent land uses that leads to encroachment.

Region of Influence. The ROI for land use includes the Industrial Airpark and those surrounding areas potentially affected by the use of the Courtland Facility.

Existing Conditions. The Courtland Facility resides on the George C. Wallace Industrial Airpark. The Airpark encompasses 909 hectares (2,245 acres) and is zoned for industrial uses. Exhibit 3-7 shows that Lockheed Martin owns the largest tract of land in the Airpark; the remaining property is primarily owned by the Lawrence County Airport and the Town of Courtland.

Exhibit 3-7. Ownership of Industrial Airpark

Owner	Area in Hectares (Acres)
Lockheed Martin Space Systems Company	268 (663)
Lawrence County Airport	162 (400)
The Industrial Development Board of Lawrence County	217 (537)
Town of Courtland	168 (407)
Town of Courtland (Valley Landing Golf Course)	81 (200)
Courtco Inc. (Vinyl Graphics/Screen printing)	5.6 (14)
BranShaw Mechanical (Industrial Maintenance)	4.5 (11)
Grant Smith (Division of Courtco Inc)	2 (5)
A & A Bonded Warehouse	0.8 (2)

Source: Zills, personal communication, 2006

The Industrial Park was previously the Courtland Army Air Field during World War II. It was home to more than 1,500 service personnel; the footprint of demolished residences can be seen in the golf course. The Air Field had four active airstrips that provided training space for pilots who flew the 500 military aircraft parked there. The base became inactive in 1947 when the U.S. government downsized.

Much of the land owned by the airport is either covered in tree stands or is open and leased for agricultural uses, as are the approximately 58 hectares (143 acres) on the south side of the Lockheed Martin property. Farmers typically grow cotton and feed corn on these lands. Within the Lockheed perimeter fence, the property around the magazines and operations buildings is not developed, but the grasses are cut and sold by local farmers.

Four residential structures are located near the Lockheed Martin property. The closest is 0.9 kilometers (0.57 miles) from the Lockheed Martin Administration Building on Sanderson Lane. Two others are located 1.3 kilometers (0.83 miles) away on Shackleford Road and Yeager Road; the fourth is 2 kilometers (1.3 miles) away on the far side of Big Nance Creek.

All proposed activities other than transport by truck or rail would take place on and would not be expected to extend over the Lockheed Martin property line.

3.8 Noise

Definition of Resource. Noise is often defined as unwanted or annoying sound that is typically associated with human activity. Noise sources can be continuous (e.g., constant noise from traffic on a busy street or refrigeration units) or transient, single events (e.g., passing noise from a jet overflight or an explosion).

Noise is usually measured and expressed in decibels. Decibels (dB) are measured on a logarithmic scale, which means that an increase of one decibel represents a tenfold increase in sound energy, and an increase of two decibels represents a one hundredfold increase in sound energy. Noise associated with industrial activities is most commonly measured on a scale designated as A-weighted decibels (dBA), which de-emphasizes low and extremely high frequency sounds to which the human ear is less sensitive and which has been shown to correlate well with the perceived relative intensity (i.e., loudness) of sound. Noise levels are regulated by Federal, state, and local ordinances and regulations. Federal standards include the OSHA 8-hour time weighted average level of 85 dB to protect worker health and safety, as well as the EPA 24-hour time weighted average level of 65 dBA.

Region of Influence. The ROI for noise is the Courtland Facility, residences located near the Airpark, and the town of Courtland.

Existing Conditions. The primary existing noise sources at the Airpark are the on-site industries and the airport. Various operations associated with an industrial site generate noise, including operation of tractor trailer trucks, forklifts, and other heavy machinery. The airport receives an average of two to three aircraft per day, typically Cessna and crop dusters, although it can handle up to an eight-passenger Gulfstream aircraft. Background

noise levels include sound from wind, rain, farming activities, traffic, and trains. Approximately 10 trains per day pass within 1.6 kilometers (1 mile) of the facility and sound their locomotive horns at the public grade crossing in Courtland.

Persons and various biological resources that may be subject to stress and/or interference from noise are referred to as noise sensitive receptors. They may include residential communities and transient lodging (i.e., hotels and motels), hospitals, special care facilities, public or private educational facilities, libraries, parks, wildlife refuges, and wilderness areas. The noise sensitive receptors in the vicinity of the Courtland Facility include scattered single-family private residences and the town of Courtland to the north/northeast. In addition to being a residential community, the town of Courtland contains a public library and a school.

3.9 Socioeconomics and Environmental Justice

Definition of Resource. Socioeconomics are the basic attributes and resources associated with the human environment, in particular population and economic activity. Socioeconomic resources consist of population, employment, and income. Other aspects may include the allocation of the assets of the community, such as its schools, housing, and public services.

Environmental justice is the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. Executive Order (EO) 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, tasks Federal agencies to make achieving environmental justice part of their mission by identifying and addressing disproportionately high and adverse public health or environmental effects of programs, policies, and activities on minority and low-income populations. EO 13045, *Protection of Children from Environmental Health Risks and Safety Risks*, directs Federal agencies, as appropriate and consistent with the agency's mission, to make it a high priority to identify and assess environmental health risks and safety risks that may disproportionately affect children.

Region of Influence. The ROI is assumed to be the area surrounding the Courtland Facility, including the town of Courtland.

Existing Conditions. The following sections describe conditions in and surrounding Courtland, Alabama in terms of population, ethnicity and age distribution, and income and employment.

Population, Ethnicity, and Age Distribution

The town of Courtland covers 6 square kilometers (2.3 square miles), and as of the 2000 Census, had a population of 769. Based on information from the 2000 Census, the U.S. Census Bureau estimates a 1.4 percent decrease in Courtland's population between 2000 and 2004. The population decreased by 12.0 percent from 1990 to 2000, in contrast to the state population that increased by 10.1 percent during this time. (Thompson Gale, 2005)

Lawrence County has a total population of 34,803. Nine similarly sized small towns exist in a 32-kilometer (20-mile) radius of Courtland; none has a population over 3,500 people. The nearest city with a population over 50,000 is Decatur, Alabama 37.5 kilometers (23.3 miles) east of Courtland. The median age of the population in Decatur is 35.5 years old with 72.2 percent of the population over the age of 18. (U.S. Census Bureau, 2000)

As seen in Exhibit 3-8, the ethnic distribution in Courtland differs from that in Lawrence County and Alabama. A greater percentage of the population is Black or African American in Courtland compared to the county and state distributions, while a smaller percentage of Courtland's population is White compared to the county and state distributions.

Exhibit 3-8. Ethnic Distribution of Courtland, Lawrence County and the State of Alabama

Population Observation	Courtland (percent)	Lawrence County (percent)	Alabama (percent)
White	54.2	77.8	71.1
Black or African American	40.4	13.4	26.0
American Indian or Alaska Native	2.1	5.4	0.5
Asian	0.3	0.1	0.7
Native Hawaiian or Other Pacific Islander	0.1	0.0	0.0
Other race	0.0	0.3	0.7
Two or more races	2.9	3.1	1.0
Hispanic or Latino (of any race)	0.9	1.1	1.7

Source: U.S. Census Bureau, 2000

The nearest public schools to the Courtland Facility are Courtland High School (grades 8 through 12), Tennessee Valley Learning Center (grades 7 through 12), and RA Hubbard Elementary School (grades K through 7). Both the high school and learning center are located at 1205 Tennessee Street in downtown Courtland, about five kilometers (three

miles) from the Courtland facility. The elementary school is located at 12905 Jesse Jackson Parkway, also about five kilometers (three miles) from the Courtland Facility. (City-data.com, 2006)

Exhibit 3-9 below summarizes the distribution of the population by age. The data show that Courtland has a very similar percentage of children under the age of 5 and 18 years when compared to the U.S., Alabama, and Lawrence County.

Exhibit 3-9. Distribution of Population by Age, in percent of persons, 2000

Age Category	U.S.	Alabama	Lawrence County	Courtland
Under 5 years	6.8%	6.7%	6.3%	6.0%
Under 18 years	25.7%	25.3%	25.7%	27.8%
18 to 44 years	39.9%	38.8%	38.5%	35.7%
45 to 64 years	22.0%	22.9%	23.7%	23.0%
65 and older	12.4%	13.0%	12.1%	13.5%

Source: U.S. Census Bureau, 2000

As of 2000 there were 363 total housing units in Courtland, including 89 mobile homes. Among all units, 226 were owner-occupied, 90 were renter-occupied, and 47 were vacant. The median value of owner-occupied housing units was $66,000 and median monthly payment of renters was $265. (U.S. Census Bureau, 2000)

Income and Employment

The U.S .Census Bureau showed a per capita income of $14,456 in Courtland in 1999. This is about 20 percent less than the state per capita income of $18,189 and 12 percent less than the Lawrence County per capita income of $16,515. In 1999, 20.2 percent of individuals in Courtland lived below the poverty level, which is a greater percentage than both the county and state percentages, which are 15.3 percent and 16.1 percent, respectively. (U.S. Census Bureau, 2000)

Among the members of the Courtland population who are 16 years of age and older in the 2000 census, 57.4 percent are in the labor force, comparable to the 58.6 percent and 59.1 percent in the labor force in the county and state, respectively. (U.S. Census Bureau, 2000) In 2003, the Lawrence County unemployment rate was 6.4 percent, which was about two percent higher than the state rate. (EPDA, 2006) The major industry in Courtland is manufacturing, which employs over 30 percent of the population. Construction, retail trade, and education, health, and social services each employ about 10 percent of the Courtland labor force. The proportions of individuals in each industry are similar for Lawrence County. The largest employer in the county is International

Paper, which employs 1,466 people. (EPDA, 2006) The next largest employers are Calaway Systems, Inc (64 employees) and DSI Trucking (54 employees). (EPDA, 2006)

3.10 Transportation and Infrastructure

Definition of Resource. Transportation generally refers to the movement of people and goods. Regulations pertaining to transportation are implemented by the Department of Transportation (DOT) and are located in Title 49 of the CFR. Title 49 includes regulations applicable to railroads (49 CFR 200-299), highways (49 CFR 300-399; 49 CFR 500-599), transportation safety (49 CFR 800-899), hazardous material transportation (49 CFR 171-180), and surface transportation generally (49 CFR 1000-1199).

Infrastructure encompasses public and private utilities, and their capacity to accommodate the movement of people and goods. Infrastructure includes roadways, railways, ports, and airports. Within the context of infrastructure, goods include water, power, fuel, communications, waste disposal, and other vital services.

Region of Influence. The ROI for transportation and infrastructure includes the Lawrence County Industrial Airpark, where the Courtland Facility is located, as well as the transportation routes used to deliver target boosters and components to the facility. This would include transport by road or rail from: Alliant Techsystems (ATK) in Ogden Utah; Orbital Sciences Corporation, Chandler, Arizona; Stennis Space Center, Mississippi; Strategic Weapons Facility Pacific (SWFPAC), Bangor, Washington; Promontory Point Utah, Camp Navajo, Arizona; and the Lockheed Martin Target Missile Systems (TMS), Huntsville, Alabama to the Courtland Facility.

Existing Conditions. The following sections describe the accessibility of the Courtland Facility by road, rail and air, followed by a discussion of the infrastructure in terms of existing utilities at the site.

Accessibility by Road

The Industrial Airpark is adjacent to the east-west highway U.S. 72A (Alabama Highway 20) a four lane, divided highway that directly connects with the north-south interstate I-65/I-565, 42 kilometers (26 miles) to the east of the facility. As U.S. Route 72A/AL 20 approaches the town of Courtland, approximately three kilometers (two miles) to the east and west, the highway splits so that U.S. 72A passes around the town to the north and AL 20 (Jefferson Street) passes directly through the town. The Courtland Facility is accessible via Sanderson Lane, a road about 1.6 kilometers (1 mile) long that branches southwest off AL 20 about 1.6 kilometers (1 mile) to the west of downtown Courtland. The 2004 annual average daily traffic on U.S. 72A/AL 20 where it is adjacent to the Airpark was 9,910. (ALDOT 2004) Highway U.S. 72A/AL 20 connects to Decatur 32

kilometers (20 miles) eastward and the cities of Florence, Sheffield, Tuscumbia, and Muscle Shoals 32 kilometers (20 miles) to the west.

Level of service is a term used to qualitatively describe the operating conditions of a roadway based on factors such as speed, travel time, maneuverability, delay, and safety. The level of service of a facility is designated with a letter, A to F, with A representing the best operating conditions and F the worst. The Alabama DOT has not conducted any formal analysis of the levels of service of the roads around Courtland. (Adams, personal communication, 2006) However, based on observed levels of traffic on the roadways going in and out of the Airpark, a level of service designation of A would be appropriate for this region.

Transport routes between the supplier sites and the Courtland Facility would be primarily on highways with levels of service between A and C. Thus, the trucks would typically be traveling in conditions of free flow, with low volumes of traffic and for shorter durations on roads with stable flow but occasional restrictions based on higher traffic volume. Exhibit 3-10 shows the approximate distances between the six known supplier sites and Courtland.

Exhibit 3-10. Approximate Shipping Distances to Courtland

Shipment Sites	Approximate Distance, kilometers (miles)
Alliant Techsystems (ATK), Ogden, Utah	2,718 (1,689)
Orbital Sciences Corporation, Chandler, Arizona	2,607 (1,620)
Stennis Space Center, Mississippi	599 (372)
Strategic Weapons Facility Pacific (SWFPAC), Bangor, Washington	4,173 (2593)
Hill Air Force Base (AFB), Utah	2,834 (1761)
Promontory Point, Utah	2,964 (1842)
Camp Navajo, Arizona	2426 (1508)
Lockheed Martin Target Missile Systems (TMS), Huntsville, Alabama	69 (43)

Current operations at the Courtland Facility require shipments of hazardous materials, including rocket motors containing solid propellants, to and from the site. Assembled missiles are shipped in sealed canisters inside a Missile Transporter, which is a special trailer designed to support the canisterized missile structurally and environmentally during transport. (BMDO, 1999) All transportation is performed in accordance with appropriate U.S. DOT approved procedures and routing, as well as Occupational Safety and Health Administration (OSHA) requirements and U.S. Army safety regulations, as

described in the *Booster Vehicle Assembly Operations at Lockheed Martin Facilities, Courtland, Alabama Record of Environmental Consideration.* (MDA, 2002)

Accessibility by Rail

A rail line operated by Norfolk Southern runs east-west through Courtland from Decatur to Muscle Shoals, where a switching and maintenance facility is located. (Hollis, pers. comm., 2006) Approximately 10 trains per day run on this line, which is approximately 1.6 kilometers (one mile) from the Lockheed Martin Facility. Norfolk Southern provides switching service two and three times daily in the immediate area from their Decatur and Sheffield yards to serve Champion Paper Corporation in Courtland. In addition, three local trains operate daily between Sheffield and Chattanooga. Norfolk Southern and CSX interchange at Decatur, Alabama. (courtlandalabama.com, 2006)

Accessibility by Air

The airport is located on about 101 hectares (250 acres) of the Airpark and is owned by the Lawrence County Commission. It has two active runways—one is a lighted runway that is 1,524 by 46 meters (5,000 by 150 feet), and the secondary runway is 1,067 by 46 meters (3,500 by 150 feet). (courtlandalabama.com, 2006) Approximately 83 percent of planes traveling in and out the airport are considered transient general aviation; eight percent are military and eight percent local general aviation. (AirNav, LLC, 2006) Mainly corporate and private pilots use the runways and most of the traffic at the airport is transit, as there are 70 to 80 fuel sales a month from people flying through. (Stancil, 2005) The airport has numerous ramps for most general aviation and cargo aircraft operations.

The airspace over the Lawrence County Airport is uncontrolled; it is primarily used by general aviation aircraft operating under Visual Flight Rules.

The Courtland Facility encompasses one of the abandoned runways and two large painted "X"s visible from the air indicate to incoming planes that this runway is inactive. At the existing Ordnance Building, a catenary lightning protection system consists of six tall metal masts. Lights on top of the masts make them visible to incoming and outgoing aircraft.

The closest commercial airport to the Airpark is Northwest Alabama Regional Airport in Muscle Shoals, 32 kilometers (20 miles) to the west. The closest international airport is Huntsville International Airport, which is 50 kilometers (31 miles) east from the Airpark via U.S. 72 / AL 20, and has over 70 daily commercial flights. (courtlandalabama.com, 2006)

Infrastructure

Joe Wheeler Electric Membership Corp provides the electric service to the Industrial Airpark. Lawrence & Colbert Gas provides the natural gas service through three-inch gas lines. West Morgan-East Lawrence County Water and Sewer Authority provides sewer and water services through eight-inch and twelve-inch lines, respectively. (NAIDA 2006) In 2005, the Courtland Facility used approximately 3 gigawatts of electricity, 3 million gallons of water, and 100,000 cubic feet of natural gas.

3.11 Visual Resources

Definition of Resource. Visual resources are defined as the natural and man-made features that constitute the aesthetic qualities of an area. Landforms, surface water, vegetation and human-made features are the fundamental characteristics of an area that define the visual environment and form the overall impression that an observer receives of an area.

The importance of visual resources and any changes in the visual character of an area are influenced by social considerations, including the public value placed on the area, public awareness of the area, and community concern for the visual resources in the area. The visual resources of an area and any proposed changes to these resources can be evaluated in terms of "visual dominance" and "visual sensitivity." Visual dominance describes the level of noticeability that occurs as the result of a visual change in an area. The levels of visual dominance vary from "not noticeable" to a significant change that demands attention and cannot be disregarded. Visual sensitivity depends on the setting of an area.

Region of Influence. The ROI for visual resources includes the entire Lawrence County Industrial Airpark, as well as surrounding portions of Lawrence County from which the building construction may be visible.

Existing Conditions. The Lawrence County Industrial Airpark is located within the Highland Rim section of the Interior Low Plateau physiographic province, south of the Tennessee River basin. The region is characterized by smooth, rolling plains with scattered forestland and agricultural fields. The Airpark is not visible from highway U.S. 20/72, as it is blocked by the tree line. The only visible landmark near the Courtland Facility is the 3,785-liter (1,000-gallon) water tower owned by the Town of Courtland and located on the Lockheed Martin northern property line. The proposed rail spur would be visible from Jefferson Street and Shackleford Drive.

3.12 Water Resources

Definition of Resource. Water resources in a given basin are usually described within the context of surface water and ground water availability. Water resources are dependent upon a combination of factors that include precipitation, climate, geology, and

topography. Surface waters are defined as waters that are open to the atmosphere, and include oceans, rivers, lakes, streams, estuaries, reservoirs, or other collectors that are influenced by surface waters. Ground water is defined as water, both fresh and saline, that is located beneath the Earth's surface. Typical sources of ground water include aquifers and aquifer sources, such as springs and wells.

The Clean Water Act regulates all discharges into "waters of the United States." Wetlands and intermittent streams are both considered waters of the United States. The goal of the Clean Water Act is to restore and maintain the chemical, physical, and biological integrity of the nation's waters. Section 404 of the Clean Water Act requires consultation prior to the alteration of streams or waters of the U.S., and most alteration activities require permits. Compliance with Section 404 of the Clean Water Act within the State of Alabama is administered by the Mobile District of USACE. The Clean Water Act also requires that all point sources discharging pollutants into waters of the U.S. must obtain a National Pollution Discharge Elimination System permit. Construction activities discharging runoff into wetlands or streams may also require a permit.

Pursuant to Title 22, Section 22-22-1 et seq., Code of Alabama 1975, the ADEM is the basic authority for water quality in the State. The department administers a number of programs related to the State's surface water quality, including setting and enforcing standards related to Clean Water Act, the Safe Drinking Water Act, and many other regulations that provide oversight for interstate/intrastate streams, sole source aquifers, and wellhead protection. (ADEM Water Quality Branch, 2006)

Region of Influence. The ROI includes the water resources located at the Lawrence County Industrial Airpark, as well as the ground water aquifer from which the Courtland Facility site would draw its water.

Existing Conditions. The following subsections describe the existing surface water, floodplains, wetlands and ground water at the Courtland Facility.

Surface Water

The primary surface water resource in the region surrounding the Courtland Facility is Big Nance Creek, which empties into the Wheeler Lake section of the Tennessee River, located 12 kilometers (7.2 miles) north of the site. The creek is located approximately 0.8 kilometers (0.5 miles) from the proposed building construction sites and 0.35 kilometers (0.22 miles) from the beginning of the proposed rail spur. Big Nance Creek falls under the Fish and Wildlife water use classification, meaning its water is best suited for "fishing, propagation of fish, aquatic life, and wildlife, and any other usage except for swimming and water contact sports or as a source of water supply for drinking or food processing purposes." (Alabama Administrative Code Chapter 335-6-10, 11)

In 1996, Alabama's Clean Water Act Section 303(d) List of Impaired Waters first designated Big Nance Creek as non-supporting of state water quality standards for fish and wildlife. This was primarily a result of siltation/ sedimentation and some pesticide contamination from agricultural activities. (ADEM, 1996) From 1996 to 2002, Big Nance was designated a High Priority watershed and was targeted by Alabama's Clean Water Action Plan. (EPA, 2005) The draft list for 2006 indicates that Big Nance Creek has been removed from the Section 303(d) list. (ADEM, 2006)

Other surface water features at the Airpark include four gravity-flow settling lagoons at the municipal wastewater treatment plant owned and operated by the town of Courtland. The lagoons are located in the northeast corner of the Airpark boundaries.

Floodplains

The term floodplain refers to 100-year floodplains as determined by the Federal Emergency Management Agency (FEMA), and as depicted on Flood Insurance Rate Maps for all communities that are members of the National Flood Insurance Program. The 100-year floodplain designates the area inundated during a storm having a one percent chance of occurring in any given year. FEMA also locates the 500-year floodplain in areas designated as Floodways. The 500-year floodplain designates the area inundated during a storm having a 0.2 percent chance of occurring in any given year. Lawrence County and the community of Courtland both participate in the National Flood Insurance Program. The Lawrence County Industrial Airpark does not fall within either the 100-year or the 500-year floodplain for Big Nance Creek. (FEMA, 1981)

Wetlands

The USFWS National Wetlands Inventory Map indicates the presence of wetlands in the northern section of the Industrial Airpark. However, in 1999, Lawrence County authorized the construction of the Valley Landing Golf Course, which filled in the majority of wetlands at the Airpark. Low-lying parts of the course will flood during heavy rain and six small lakes still occur throughout; these areas have been incorporated into the golf course and are managed as water hazards. The closest water hazard to the Courtland Facility is on the corner of Sanderson Lane and County Road 495.

Ground water

The major aquifer in the region is the Tuscumbia-Fort Payne, which is comprised of Mississippian carbonate sequence and includes Fort Payne chert, Tuscumbia limestone, and Monteagle Limestone formations. The aquifer supplies significant amounts of water to wells and is currently the primary aquifer for municipal users in Northern Alabama. (USACE, 1997) Water is pumped from the Tuscumbia-Fort Payne Aquifer at depths from 53 to 195 feet and wells in the area typically range in production from 946 to 11,356

liters per minute (250 to 3,000 gallons per minute). (Madison Water and Wastewater Board, 2003)

USACE and a Lockheed Martin contractor have conducted a number of ground water investigations at the Airpark due to concerns about migrating soil contamination. The results of these studies have not indicated the need for ground water remediation activities. (Law Engineering, Inc., 1993; Law Engineering, Inc., 1996; USACE, 1997)

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4 ENVIRONMENTAL CONSEQUENCES

This section examines the potential environmental impacts that could result from implementing the proposed action, alternative 1, and the no action alternative.

- Proposed Action
  - Construction activities – six new buildings and access roads, a rail spur, and utilities extensions
  - Operation activities – preparation, transport, assembly, integration, and testing, and temporary storage of target missiles
- Alternative 1
  - Same as the proposed action, except no rail spur would be constructed and all materials would be shipped to the site by truck
- No Action Alternative
  - Not constructing new buildings, roads, rail spur and utilities extensions at the Courtland Facility and not engaging in target assembly operation activities; existing operations at the site would continue, such as the receipt and assembly of interceptors and payloads

Existing conditions at the Courtland Facility are described by resource area in Chapter 3 of this EA. Similarly, environmental consequences associated with the proposed action, alternative 1, and the no action alternative, are discussed within the context of resource areas. The level of detail discussed for a given resource area is proportional to the potential for impacts. The direct, indirect, and cumulative impacts, as defined in 40 CFR 1508.7 and 1508.8, also are presented for each resource.

4.1 Air Quality

4.1.1 Proposed Action

Both construction and operational activities have the potential to contribute to air quality impacts. Because no launches or testing of rocket motors would be conducted at the Courtland Facility, no emissions from the boosters would be produced to contribute to air quality impacts at the Courtland Facility.

The following construction activities may contribute to air quality impacts:

- Fugitive dust resulting from ground disturbing activities,
- Construction vehicle emissions, and
- Vehicle emissions associated with up to 75 construction workers commuting daily to the site and materials arriving at the site.

The following operational activities may contribute to air quality impacts:

- Transport of target boosters and components to the site,
- Vehicle emissions from up to 50 new employees commuting to and from the Courtland Facility on a daily basis, and
- Emissions from four diesel-powered emergency generators for the new buildings.

Construction

Construction of the six buildings, access roads, a rail spur, and utilities trenches would result in the disturbance of approximately 4.5 hectares (11 acres) of soil. The soil removal activities would result in short-term emissions of fugitive dust, including particulate matter less than 10 microns in diameter (PM_{10}), and construction equipment and support vehicles would release carbon monoxide (CO, nitrogen oxides (NO_X), volatile organic compounds (VOCs), PM_{10}, and sulfur oxides (SO_X). The emissions and potential associated impacts from ground disturbance, construction vehicles, and construction support vehicles are discussed below.

Fugitive Dust from Ground Disturbing Activities

In a 1995 study, the EPA estimated that ground-disturbing activities would result in the release of 1.08 metric tons (1.2 tons) of uncontrolled fugitive dust emissions per 0.4 hectare (1 acre) per month of ground-disturbing activity. (U.S. EPA, 1995) Therefore, the disturbance of 4.5 hectares (11 acres) over nine months would result in 109.4 metric tons (120 tons) of fugitive dust emissions. However, best management practices would be employed to minimize fugitive dust emissions. These practices could include watering exposed soils resulting in an up to 50 percent reduction of overall site fugitive dust emissions and chemical stabilization of exposed inactive areas resulting in an up to 80 percent reduction of overall fugitive dust emissions in these areas. (U.S. Army Space and Missile Defense Command, 1999) For the purposes of this analysis, it was conservatively assumed that dust control measures would be 50 percent effective and that PM_{10} would comprise 50 percent of the total fugitive dust emissions. Therefore the total estimated PM_{10} emissions from ground-disturbing activities would be 27.3 metric tons (30.1 tons).

Construction Vehicle Emissions

Typical heavy-duty construction equipment, such as bulldozers, graders, dump trucks, cement trucks, cranes, front-end loaders/backhoes, roller, power hand tools, asphalt spreader, and compactors, would be required during construction. For the purposes of analysis, it was conservatively assumed that the construction vehicles would be active 10

hours per day for the estimated 180 days of construction.[9] The daily and total emissions from construction vehicles are presented in Exhibit 4-1 (for CO, VOCs, NO_X, and SO_X) and Exhibit 4-2 (PM_{10}).

Construction Support Vehicle Emissions

The analysis assumes that a maximum of 75 construction workers would be on-site to support the construction of the buildings, roads, and rail line for a maximum of 180 days. The 75 construction workers were assumed to commute from Huntsville, which is 56.3 kilometers (35 miles) from the Courtland Facility. This is a conservative estimate; a significant portion of the workers could commute from Decatur or Courtland and its surrounding areas. Exhibit 4-3 presents the daily and total emissions of CO, VOCs, NO_X, and PM_{10} from vehicles supporting the construction activities (note that there are no significant emissions of SO_X from these vehicles).

A summary of emissions from ground disturbing activities, construction vehicles, and construction support vehicles is provided in Exhibit 4-4.

[9] Although total construction time would be expected to take approximately 12 months, only nine of these months were assumed to require ground-disturbing activities. Assuming there are four work-weeks per month, and that each work-week consisted of five days, the total number of construction days would be 180.

Exhibit 4-1. Construction Vehicle Emissions

Equipment	Number	Unit Emission Factors (kg/hr)				Emissions (kg/day)			
		CO	VOC	NO_X	SO_X	CO	VOC	NO_X	SO_X
Bulldozers	2	0.81	0.08	1.89	0.16	16.2	1.7	37.8	3.2
Cement Trucks	2	0.81	0.08	1.89	0.20	16.2	1.7	37.8	4.1
Asphalt Spreader	2	0.81	0.08	1.89	0.16	16.2	1.7	37.8	3.2
Compactors	2	0.31	0.06	0.77	0.06	6.2	1.4	15.3	1.3
Motor Grader	2	0.07	0.02	0.32	0.04	1.4	0.4	6.4	0.8
Dump Truck	3	0.81	0.08	1.89	0.20	24.4	2.6	56.7	6.1
Flatbed Truck	2	0.81	0.08	1.89	0.20	16.2	1.7	37.8	4.1
Backhoe	2	0.81	0.08	1.89	0.16	16.2	1.7	37.8	3.2
Clamshell	2	0.81	0.08	1.89	0.16	16.2	1.7	37.8	3.2
Mobile Crane	1	0.31	0.06	0.77	0.06	3.1	0.7	7.7	0.6
Water Tanker Truck	3	0.81	0.08	1.89	0.20	24.4	2.6	56.7	6.1
Total Emissions, kg/day (lbs/day)						**156.7 (345.5)**	**17.9 (39.5)**	**369.6 (815.0)**	**35.9 (79.2)**
Total Construction Vehicle Emissions, metric tons (tons)[a]						**28.2 (31.1)**	**3.2 (3.6)**	**66.5 (73.3)**	**6.5 (7.1)**

[a] Assumed 180 days of construction

Source: *Compilation of Air Pollutant Emission Factors* (AP-42), Volume II. Dump trucks, flatbed trucks, cement trucks, and water tanker trucks were classified as off highway trucks; backhoes, clamshells, asphalt spreaders, and bulldozers were classified as wheeled dozers; and mobile cranes and compactors were classified as miscellaneous.

Exhibit 4-2. Construction Vehicle PM_{10} Emissions

Equipment	#	Power	PM_{30} Emission Factor (kg/hr)	Ratio of PM_{10} to PM_{30}	Work Hours/Day	PM_{10} Emission Rate (kg/day)
Bulldozers	2	Diesel	0.075	0.5	10	0.8
Cement Trucks	2	Diesel	0.116	0.5	10	1.2
Asphalt Spreader	2	Diesel	0.075	0.5	10	0.8
Compactors	2	Diesel	0.0632	0.5	10	0.6
Motor Grader	2	Diesel	0.0277	0.5	10	0.3
Dump Truck	3	Diesel	0.116	0.5	10	1.7
Flatbed Truck	2	Diesel	0.116	0.5	10	1.2
Backhoe	2	Diesel	0.075	0.5	10	0.8
Clamshell	2	Diesel	0.075	0.5	10	0.8
Mobile Crane	1	Diesel	0.0632	0.5	10	0.3
Water Tanker Truck	3	Diesel	0.116	0.5	10	1.7
Total Daily Emissions, kg/day (lbs/day)						**10.2 (22.5)**
Total Construction Vehicle Emissions, metric tons (tons)[a]						**1.8 (2.0)**

[a] Assumed 180 days of construction.

Source: *of Air Pollutant Emission Factors* (AP-42), Volume II. Dump trucks, flatbed trucks, cement trucks, and water tanker trucks were classified as off highway trucks; backhoes, clamshells, asphalt spreaders, and bulldozers were classified as wheeled dozers; and mobile cranes and compactors were classified as miscellaneous.

Exhibit 4-3. Construction Support Vehicle Emissions

Equipment	Miles/ Trip	Trips/ Day	Unit Emission Factors (g/mi)				Emissions (kg/day)			
			CO	VOC	NO_X	PM_{10}	CO	VOC	NO_X	PM_{10}
Pick-up Trucks	35	2	2.9	0.2	0.3	0.01	0.2	0.01	0.02	0.0004
Buses	35	2	5.3	0.6	11.4	0.2	0.4	0.04	0.8	0.02
Chemical Toilet Trucks	35	2	1.1	0.2	17.8	0.3	0.1	0.01	1.2	0.02
Step Vans	35	20	2.9	0.2	0.3	0.01	2.0	0.1	0.2	0.004
Fuel Trucks	35	2	1.1	0.2	17.8	0.3	0.1	0.01	1.2	0.02
Maintenance Trucks	35	2	2.9	0.2	0.3	0.01	0.2	0.01	0.02	0.0004
Lunch Wagons	35	2	2.9	0.2	0.3	0.01	0.2	0.01	0.02	0.0004
Personal Vehicles	35	150	2.7	0.2	0.3	0.01	14.3	0.82	1.6	0.03
Total Daily Emissions, kg/day (lbs/day)							**17.4 (38.6)**	**1.0 (2.3)**	**5.1 (11.4)**	**0.1 (0.20)**
Total Support Vehicle Emissions, metric tons (tons)[a]							**3.1 (3.5)**	**0.2 (0.2)**	**0.9 (1.0)**	**0.02 (0.02)**

[a] Assumed 180 days of construction

Source: California Environmental Protection Agency, Air Resource Board, 2002. Assumed pick-up trucks, step vans, maintenance trucks, and lunch wagons were light-duty trucks, personal vehicles were 50% light-duty trucks and 50% light-duty cars, chemical toilet and fuel trucks were heavy-duty trucks and buses were urban buses. It was assumed that all vehicles were from 1997 with 100,000 miles and were not subject to inspection and maintenance programs.

Exhibit 4-4. Summary of Construction-related Emissions

Source Type	Total Emissions from Constructions, Metric Tons (Tons)				
	CO	VOC	NO_X	SO_X	PM_{10}
Ground Disturbing Activities	-	-	-	-	36.5 (40.2)
Construction Vehicles	28.2 (31.1)	3.2 (3.6)	66.5 (73.3)	6.5 (7.1)	1.8 (2.0)
Construction Support Vehicles	3.1 (3.5)	0.2 (0.2)	0.9 (1.0)	-	0.02 (0.02)
TOTAL	**31.3 (34.6)**	**3.4 (3.8)**	**67.4 (74.3)**	**6.5 (7.1)**	**38.3 (42.2)**

Although the Courtland Facility is located in an attainment area, a conservative analysis was performed by comparing the total construction emissions to the *de minimis* annual emission levels for NAAQS non-attainment areas (Exhibit 4-5). The comparison was performed to determine if the emissions have the potential to have a negative impact on air quality, although the Facility is not subject to these levels. All of the calculated emissions that would result from construction activities are less than the *de minimis* levels, with the exception of NO_X emissions, as discussed below.

The proposed action would be subject to PSD regulations. The emissions associated with construction activities do not fall into one of the 28 specifically designated industrial categories under PSD regulations and therefore are only subject to an emission limit of 227 metric tons (250 tons) for any regulated pollutant. All of the calculated emissions are significantly below this level. As these comparisons show, with the exception of NO_X, the emissions of all criteria air pollutants and precursor pollutants, associated with the proposed action would not result in a significant impact on ambient air quality.

Exhibit 4-5. Comparison of Construction Emissions to NAAQS *De Minimis* Levels

	Annual Emissions, metric tons (tons)					
	PM_{10}	**NO_X** [a]	**NO_2** [b]	**SO_X**	**CO**	**VOC** [a]
De minimis level – all non-attainment areas	-	-	91 (100)	91 (100)	91 (100)	-
De minimis level – moderate non-attainment areas	91 (100)	-	-	-	-	-
De minimis level – serious non-attainment areas	64 (70)	45 (50)	-	-	-	45 (50)
De minimis level – severe non-attainment areas	-	23 (25)	-	-	-	23 (25)
De minimis level – extreme non-attainment areas	-	9 (10)	-	-	-	9 (10)
Total construction emissions	38.3 (42.2)	67.4 (74.3)	67.4 (74.3)	6.5 (7.1)	31.3 (34.6)	3.4 (3.8)

[a] NO_X and volatile organic compounds (VOCs) are not criteria pollutants, but are controlled under criteria pollutant standards because they lead to the formation of ozone (i.e., they are ozone precursors).
[b] NO_2 emissions were not estimated in this analysis; however, NO_X emissions include NO_2 emissions and therefore serve as a conservative estimate.

Because the calculated NO_X emissions for construction activities exceeded the *de minimis* levels for NAAQS non-attainment areas, additional analysis was performed to determine if these emissions have the potential to have a negative impact on air quality. This analysis, using the EPA's SCREEN3 model, calculated the maximum downwind annual average concentration assuming worst-case meteorological conditions. The analysis is summarized in Appendix B and concluded that a concentration of 110 micrograms per cubic meter ($\mu g/m^3$) 155 meters (509 feet) downwind from the site would be below the NAAQS threshold for NO_2 by 10 $\mu g/m^3$ and thus it is unlikely that these emissions would result in adverse air quality impacts near the site.

Operations

After construction is completed, daily operation of the facility would result in a minor increase in emissions to air. Potential sources of operational emissions include the delivery of target boosters and components, the daily commute of up to 50 new employees, and the operation of emergency generators, and application of surface coatings to the target sections. Emissions from these sources are discussed below.

Transport of Target Boosters and Components to Site

Supplier locations where the boosters and components are currently located are scattered throughout the U.S. As part of the proposed action, the boosters and components would need to be shipped from the supplier locations to the Courtland Facility for assembly and integration. For this analysis, a worst-case scenario was assumed in which

- Trucks used for all shipments needed to support the 20 assembled targets each year came from the furthest supplier location, SWFPAC in Bangor, Washington, and
- Trucks would make 20 roundtrips from the Courtland Facility to Redstone Arsenal to deliver the assembled target.

Emission rates were developed for these trucks using California's emission factors model (California Environmental Protection Agency, Air Resource Board, 2002). It was assumed that all vehicles were 1997 model line haul trucks with 100,000 miles and were not subject to inspection and maintenance programs. Although trucks traveling from supplier facilities to Courtland would cross through multiple states, each with different air quality standards and levels, the emissions from the trucks were compared to the area source emissions baseline in the states with the least amount of emissions of each pollutant, see Exhibit 4-6.

A conservative analysis assumes that under surge assembly conditions, a maximum of 20 targets would be assembled at the Courtland Facility per year and that each target would be comprised of four stages (i.e., three boosters and a front section).[10] If each booster and stage were shipped separately to the Courtland Facility by truck or by rail, this would result in a total of 80 roundtrip (160 one-way trip) shipments. After the targets are assembled at the Courtland Facility, they would be transported by truck to the Redstone Arsenal, 69 kilometers (43 miles) away. This EA does not address transport of assembled missiles beyond Redstone Arsenal as these activities are outside of the scope of this analysis. Exhibit 4-7 presents area source emissions baseline values and the percent increase over this baseline with the addition of worst-case emissions as presented in Exhibit 4-6. Because the percent increase over baseline emissions for each pollutant would be very small (all less than 0.02), it was determined that the addition of 160 one-way vehicle trips per year would not significantly contribute to vehicle emissions in the U.S. Thus, there would be no significant impact to air quality from transport of boosters and stages to the Courtland Facility.

[10] This is a worst-case analysis; currently MDA tests would typically require targets with only two stages.

Exhibit 4-6. Percent Increase Over Baseline with Worse-Case Emissions

State	Area Source Emissions Baseline, metric tons (tons)				Percent Increase with Worst-Case Emissions
	CO	VOC	NO_X	PM_{10}	
Wyoming	369,232 (407,009)	44,488 (49,040)			0.000108 [CO] 0.000225 [VOC]
South Dakota			62,111 (68,466)		0.0127
Washington				200,359 (220,858)	0.0000499

Source: EPA, 2001

Exhibit 4-7. Worst-Case Emissions from Booster and Stage Transport

	Miles/ Trip	One-Way Trips	Unit Emission Factor (g/mi)				Annual Emissions, kg (lbs)			
			CO	VOC	NO_X	PM_{10}	CO	VOC	NO_X	PM_{10}
From supplier to Courtland[a]	2,593	160	1.1	0.2	18.9	0.3	442.7	81.3	7840.4	128.6
From Courtland to Redstone Arsenal[b]	43	40	1.1	0.2	18.9	0.3	1.8	0.3	32.5	0.5
Total Annual Emissions, metric tons (tons)							**0.4 (0.4)**	**0.1 (0.1)**	**7.9 (8.7)**	**0.1 (0.1)**

[a] Includes 80 roundtrips (160 one-way trips) from SWFPAC in Bangor, Washington to the Courtland Facility for boosters and stages
[b] Includes 20 roundtrips (40 one-way trips) between the Courtland Facility and the Redstone Arsenal for assembled targets

If all boosters and stages were transported via rail from supplier locations to the Courtland Facility, the total number of annual shipments would be 80 assuming that the rail cars did not need to return to their place of origin. Even if all shipments were arriving from SWFPAC, the supplier furthest from the Courtland Facility, the addition of 80 trains per year would be insignificant given that 4,315 trains carrying hazardous materials travel through the U.S. daily. (DOT, 1998) According to the Bureau of Transportation Statistics, hazardous material shipments bound for the state of Alabama represent only 1.4 percent of the total amount of hazardous materials shipped per year. (BTS, 2004) In 2005, Alabama reported only 17 hazardous material rail incidents, as compared to the nationwide total of 740. (DOT, 2005) The small increase in annual hazardous material rail shipments to Alabama would not be expected to significantly increase the number of hazardous material rail incidents.

Commuting

It was assumed that during operational activities approximately 50 new workers would commute by car from Huntsville, which is 56.3 kilometers (35 miles) from the Courtland Facility. This is a conservative estimate; a significant portion could commute from Decatur or Courtland and the surrounding areas. Assuming that each worker drives to the site separately and works five days per week, 50 weeks per year, a total of 25,000 one-way car trips (12,500 roundtrips) per year would be expected. Emission rates were developed for these vehicles using California's emission factors model. (California Environmental Protection Agency, Air Resource Board, 2002) It was assumed that 50 percent of the vehicles were light-duty automobiles and 50 percent were light-duty trucks. It was conservatively assumed that these vehicles were model year 1997 with 100,000 miles and were not subject to inspection and maintenance programs. The resulting emission factors are 0.10 grams per kilometer (0.17 grams per mile) for total hydrocarbons, 1.7 grams per kilometer (2.7 grams per mile) for CO, 0.19 grams per kilometer (0.31 grams per mile) for NO_X, and 0.004 grams per kilometer (0.006 grams per mile) for PM_{10}. The total daily and annual emissions associated with worker commuting are presented in Exhibit 4-8. These emission estimates are significantly less than the *de minimis* levels in Exhibit 4-5, indicating that new workers commuting to Courtland to support operational activities would not result in adverse air quality impacts.

Exhibit 4-8. Emissions from Worker Commuting

	Miles/ Trip	Trips/ Day	Unit Emission Factor (g/mi)				Emissions (kg/day)			
			CO	VOC	NO_X	PM_{10}	CO	VOC	NO_X	PM_{10}
Per Worker	35	2	2.7	0.2	0.3	0.01	0.2	0.01	0.02	0.0004
Total Daily, kg/day (lbs/day)							**10 (22.1)**	**0.5 (1.1)**	**1 (2.2)**	**0.02 (0.04)**
Total Annual Emissions, metric tons (tons)							**2.5 (2.8)**	**0.1 (0.1)**	**0.3 (0.3)**	**0.005 (0.006)**

Other Sources

Daily power consumption would be provided by established power sources. Two 300 kW backup generators would be located at the MABs and two 8 kW backup generators at the Inert Buildings and Service Magazines would only be used temporarily in the event of a power failure. Therefore, no significant air quality impacts would be expected from the operation of backup generators.

The application of surface coatings to some of the target sections could result in air emissions. Initial estimates of coating and solvent use would result in the release of about 50 gallons (181 kilograms or 400 pounds) of volatile organic compound (VOC) emissions per year or 0.5 kilograms (1.1 pounds) per day. Solids in the coatings are non-toxic and overspray will be captured at greater than 90 percent efficiency, resulting in particulate emissions of less than 11 kilograms (25 pounds) per year. It was conservatively assumed that all particulate emissions would be 10 microns or less in diameter (PM_{10}); some would likely be larger which would reduce the potential for health effects. When combined with emissions from other operations, these emission estimates are still significantly less than the *de minimis* levels in Exhibit 4-5, indicating that surface coating of the target sections would not result in adverse air quality impacts.

Summary of Air Quality Emissions

No impacts to air quality are expected because the combined emissions of CO, VOC, and PM_{10} associated with construction and operation activities would be below *de minimus* levels. The combined emissions of NOx would be above *de minimus* levels; however, the analysis in Appendix B shows that the maximum downwind annual average concentration would be below the NAAQS threshold for NO_2. Thus it is unlikely that these emissions would result in adverse air quality impacts near the site.

Exhibit 4-9. Comparison of Total Construction and Operation Emissions to NAAQS *De Minimis* Levels

Activity	Annual Emissions, metric tons (tons)			
	CO	VOC	NO_X	PM_{10}
Construction (all activities)	31.3 (34.6)	3.4 (3.8)	67.4 (74.3)	38.3 (42.2)
Boosters and Stage transport	0.4 (0.4)	0.1 (0.1)	7.9 (8.7)	0.1 (0.1)
Employee Commute	2.5 (2.8)	0.1 (0.1)	0.3 (0.3)	0.005 (0.006)
Coating		0.181 (0.2)		0.011 (0.012)
Total Annual Emissions, metric tons (tons)	34.2 (37.8)	3.8 (4.2)	75.6 (83.3)	38.4 (42.3)
Lowest *De Minimis* Levels, metric tons (tons)	91 (100)	9 (10)	9 (10)	64 (70)

4.1.2 Alternative 1

Because alternative 1 is a subset of the activities considered under the proposed action, the potential impacts to air quality would be reduced under alternative 1. Construction of the buildings but not the rail bed would reduce the amount of ground disturbance by 2.9 hectares (7.1 acres) as compared to the proposed action and therefore would reduce the potential for fugitive dust emissions. In addition, the time required to complete construction of the proposed facilities would be reduced by approximately three months. The use of fewer construction vehicles operating for a shorter period of time would reduce vehicle emissions proportionally.

4.1.3 No Action Alternative

Under the no action alternative, no construction or operations related to the proposed action would occur; thus, there would be no impacts to air quality. The current activities that occur at the Courtland Facility would continue including any related air emissions.

4.2 Biological Resources

4.2.1 Proposed Action

Construction

Impacts to biological resources under the proposed action would occur from ground disturbing activities associated with the construction of six new buildings and access roads, a rail spur, and utilities extensions. The proposed construction would result in the loss of approximately 4.5 hectares (11 acres) of agricultural fields, managed lawns, and scattered tree stands. Such areas provide habitat for a limited number of wildlife and plant species. The habitat that would be lost due to construction activities is similar to other habitat in the area and the wildlife species that are displaced by the construction may be able to relocate to these areas.

The riparian corridor on either side of Big Nance Creek may provide a more productive habitat for greater numbers of wildlife and plant species in the area; however, this potential habitat is 1.6 kilometers (1 mile) away from the construction sites and would not be directly impacted by ground disturbing activities. Fugitive dust, air emissions, and noise associated with the proposed construction activities pose potential direct short-term impacts to biological resources at and around the construction sites and near Big Nance Creek. However, best management practices such as watering exposed soils and chemical stabilization would be employed to minimize fugitive dust emissions so that no significant impact on biological resources would be expected. As shown above, emissions from construction vehicles and support vehicles were determined to be unlikely to result adverse air quality impacts near the site.

Because the nearest highly productive, rare, or protected habitats/communities are 16 kilometers (10 miles) outside the region of influence, no impacts are expected to these areas from the proposed construction activities.

Because none of the preferred habitats of the federally listed or proposed threatened or endangered animal or plant species presented in Exhibit 3-5 are expected to occur in the region of influence, any habitat that would be lost due to construction would not be expected to impact any threatened or endangered species.

Construction noise may startle wildlife and temporarily disrupt their activities (i.e., feeding/foraging, breeding, or resting). Existing sources of noise around the Courtland Facility include the passage of at least 10 daily freight trains through the area and small aircraft taking off and landing at the Airpark. There are no significant noise sources from current operations at the Courtland Facility other than vehicle traffic. Some wildlife species would likely become accustomed to the construction noise; others may not adapt and would leave the area permanently. However, the construction noise would last less

than one year and it possible that some species would return to the area after completion of the construction.

Operations

Operational activities with the potential to impact biological resources include trains on the proposed rail spur and additional traffic entering and exiting the site. Trains and the associated noise on the rail spur could temporarily disrupt local wildlife. However, train deliveries to the Courtland Facility would be no more than three cars long, would be traveling at no more than 15 kilometers per hour (10 miles per hour) and would occur at maximum six to seven times per month. In addition, wildlife in the area is already accustomed to longer and more frequent freight trains on the main Norfolk Southern line.

The addition of 50 new employees as well as the up to 160 deliveries of boosters and stages would increase traffic levels at the Courtland Facility although existing wildlife is accustomed to vehicle traffic. Thus, there would be no significant impacts to biological resources from operation activities at the Courtland Facility.

4.2.2 Alternative 1

Under alternative 1, the rail spur would not be constructed so the total area of disturbance would be limited to 1.5 hectares (3.7 acres). Impacts to biological resources would be slightly less than that of the proposed action because 2.9 fewer hectares (7.1 fewer acres) would be exposed to ground disturbing activities and less habitat would be lost under this alternative.

4.2.3 No Action Alternative

Under the no action alternative, no construction or operations related to the proposed action would occur; thus, there would be no new impacts to biological resources. The current activities that occur at the Courtland Facility would continue including any related impacts to biological resources.

4.3 Cultural Resources

4.3.1 Proposed Action

Construction

Ground disturbing construction activities associated with the proposed action have the potential to impact cultural resources in the immediate vicinity of the construction area. However, there are no known cultural resources on the property that would be disturbed during construction. A Phase I archaeological survey of the ROI did not identify any pre-historic archaeological resources. Should any cultural materials be encountered during

construction, activities in the area would immediately be halted and a qualified archaeologist would be notified to evaluate the find. Subsequent actions would follow the guidance provided; therefore, no impacts to archaeological resources would be anticipated.

In addition, there are no sites listed on the National Register of Historic Places (National Register) that are located on the Courtland Facility or along the path of the proposed rail spur. According to the National Register, the closest listed historic properties are in the Courtland Historic District, 0.93 kilometer (0.58 miles) from the junction of the rail spur with the Norfolk Southern main line. These properties would not be impacted by construction activities. Additionally one potential historic home site was discovered approximately 30 meters (98 feet) west of the proposed rail spur. This potential historic home site would be avoided during rail spur construction. If avoidance is not possible, MDA would coordinate with the SHPO to determine if further testing or specific mitigations are required, thus, no impacts on historic properties are expected from construction activities.

Operations

All operational activities with the exception of transportation to and from the Courtland Facility would be conducted within proposed buildings or on access roads or the rail spur. Therefore, no impacts to cultural or historic resources would be expected from operational activities.

In accordance with the requirements of Section 106 of the National Historic Preservation Act, the MDA contacted the Alabama Historic Preservation Division to request their concurrence on MDA's determination that there would be no adverse effects to properties that are listed or eligible for listing on the National Register or other cultural resources. A copy of the correspondence between the MDA and the Alabama Historic Preservation Division is presented in Appendix A.

4.3.2 Alternative 1

Under alternative 1, the rail spur would not be constructed so the total area of disturbance would be limited to 1.5 hectares (3.7 acres). Potential impacts to buried, unknown cultural or historic resources would be reduced because 2.9 fewer hectares (7.1 fewer acres) would be exposed to ground disturbing activities under this alternative. Should any cultural materials be encountered during construction, activities in the area would immediately be halted and a qualified archaeologist would be notified to evaluate the find. Subsequent actions would follow the guidance provided; therefore, no impacts to archaeological resources would be anticipated.

4.3.3 No Action Alternative

Under the no action alternative, no construction or operations related to the proposed action would occur; thus, there would be no new impacts to cultural resources. The current activities that occur at the Courtland Facility would continue including any related impacts to cultural resources.

4.4 Geology and Soils

4.4.1 Proposed Action

Construction

Potential impacts to geology and soils under the proposed action would consist of soil and ground disturbing activities and the potential for leaks and spills associated with the proposed action. A total of 4.5 hectares (11 acres) would be disturbed by the construction, which would result in both short- and long-term impacts on soils. The short-term impacts would include the potential for increased erosion and siltation during construction, while the long-term soil impacts would include compaction and mixing of soil horizons. The short- and long-term impacts on soil from construction would not be significant. There are no geologic features present at the site that would be impacted by construction activities under the proposed action.

Construction activities would occur in areas adjacent to an existing industrial facility with natural soils already altered as a result of the area's extensive agricultural history. The terrain in this area is flat and the new construction would not alter existing drainage patterns. Soils exposed during construction would be temporarily susceptible to increased erosion caused by wind or rain, but any such erosion would be very minor and short lived. Disturbed areas would be controlled to the extent practicable to minimize erosion and sediment runoff through the use of best management practices, such as silt fences, hay bales, temporary vegetation seeding, and erosion control blankets would be used on all unpaved surfaces that would be disturbed by construction in order to minimize erosion and siltation of nearby water bodies.

There is potential for soil contamination from spills or leaks from construction equipment, but any impacts would be temporary and localized. Large spills or leaks would be handled according to standard spill response protocol, which could include delineating the extent of the contamination and removing it. Therefore, any potential soil contamination impacts would be contained and would not be significant.

Operations

There is potential for soil contamination from spills or leaks of the simulants, solvents, paints, and sealants; however, any impacts would be temporary and localized. Large

spills or leaks would be handled according to standard spill response protocol, which could include delineating the extent of the contamination and removing it. Therefore, any potential soil contamination impacts would be contained and would not be significant.

4.4.2 Alternative 1

Under alternative 1, the rail spur would not be constructed and the total area disturbed would be 1.5 hectares (3.7 acres). Impacts to geology and soils would be slightly less than that of the proposed action because 2.9 fewer hectares (7.1 fewer acres) would be exposed to ground disturbing activities that could result in erosion and siltation. In addition, disturbed areas would be controlled to the extent practicable by the use of best management practices to minimize erosion and sediment runoff.

4.4.3 No Action Alternative

Under the no action alternative, no construction or operations related to the proposed action would occur; thus, there would be no new impacts to geology and soils. The current activities that occur at the Courtland Facility would continue including any related impacts to geology and soils.

4.5 Hazardous Materials and Hazardous Waste

4.5.1 Proposed Action

Construction

The hazardous materials that could be used as part of construction include diesel fuel, anti-freeze, hydraulic fluid, lubricating oils, welding gases, and small amounts of paints, thinners, and adhesives. Construction activities could generate non-hazardous and hazardous waste including construction debris, empty containers, spent solvents, waste oil and anti-freeze, spill cleanup materials (if necessary), and lead-acid batteries from construction equipment. Construction contractors would safely remove these wastes from the site for appropriate disposal in accordance with applicable requirements. It is not expected that the amount of hazardous waste generated would exceed Lockheed Martin's allowable limits to maintain the designation of a small quantity generator. Thus, there should be no significant impact from hazardous materials or hazardous waste from construction activities.

Operations

The hazardous materials that could be used as part of operation activities would include

- Solid rocket propellants,

- Simulants including TBP, and
- Solvents, paints, sealants, batteries, and coatings.

The Environment, Safety, and Health officer at the Courtland Facility would be responsible for complying with applicable local, state, or Federal laws and regulations when conducting operations involving hazardous materials. The Courtland Facility has standard operating procedures in place to minimize the hazard associated with storing, handling, and transporting target missile components and other hazardous materials. Transportation of hazardous materials is discussed in Section 4.10.

The solid rocket propellant would arrive at the Courtland facility pre-loaded in the target missile boosters. Because the solid propellant would remain intact during integration and assembly activities and would not be exposed or opened in any way, no significant impacts are expected during proposed operations.

In rare cases where assembled targets would not be used in a BMDS test due to malfunction, test cancellation or other unforeseen occurrence, targets may be disassembled at the Courtland Facility. During the disassembly of targets, trace amounts of hypergolic propellants could be found in emptied lines and tanks. Hypergolic propellants are fuels and oxidizers that ignite on contact with each other and do not require an ignition source. However, the emptied lines and tanks would remain sealed and would be immediately shipped to off site facilities for proper handling. The Courtland Facility would not handle or store hypergolic propellants. Thus, no significant impacts would be expected. Otherwise, liquid propellants would not be handled at the Courtland Facility under the proposed action.

Under the proposed action, simulants would be loaded into targets assembled at the Courtland Facility. Most simulants that would be used in targets assembled at the Courtland Facility are common products such as diatomaceous earth, talcum powder, cornmeal, water, steel, and plastic that would not qualify as hazardous materials. TBP is non-explosive, non-flammable, and stable under normal temperatures and pressures and would be handled in accordance with its Material Safety Data Sheet using established operating procedures. No adverse impacts are anticipated from the handling of TBP at the Courtland Facility.

As a result of the proposed action, the daily activities at the Courtland Facility would increase; this would include an increase in the hazardous waste generation of solvents, sealants, batteries, adhesives, resins, paints, and coatings. The amount of these substances stored, used, and generated at the Courtland Facility is expected to triple under the proposed action, but would not exceed the regulatory limit of a small quantity generator. On-site waste management capacity is adequate to manage this amount of waste and standard hazardous waste management procedures, as described in Section 3.5, would be applied to hazardous wastes generated from activities associated with the

proposed action. Such procedures would serve to minimize onsite releases and ensure offsite treatment and disposal in accordance with Resource Conservation and Recovery Act regulations and other applicable regulations. In addition, solids in the coatings are non-toxic. Particulate filters in the booth would capture 90 percent of the overspray and any wastes from the coating operations would be managed in compliance with applicable regulations. Therefore, impacts associated with hazardous waste management would not be significant.

4.5.2 Alternative 1

Under alternative 1, fewer hazardous materials would be used and generated with the construction limited to buildings, roads and utilities extensions. However, operation activities would be the same as those under the proposed action. Thus, the use and generation of hazardous materials and waste from operations would be the same as under the proposed action, with the same potential for impacts.

4.5.3 No Action Alternative

Under the no action alternative, no construction or operations related to the proposed action would occur; thus, there would be no new impacts from hazardous materials or hazardous waste. The current activities that occur at the Courtland Facility would continue including any related impacts from hazardous materials and hazardous waste.

4.6 Health and Safety

4.6.1 Proposed Action

Potential impacts to the health and safety of workers and the public would be related to construction accidents and operational accidents including the handling of boosters and chemicals. The potential for transportation accidents is addressed in Section 4.10.

Construction

General safety procedures would be followed to protect construction workers, employees and the public during site preparation and construction activities. During the site preparation and construction phase, there may be typical construction-related occupational exposures to fugitive dust kicked up from land disturbances and to pollutants exhausted from vehicles and earth-moving equipment, including PM, NO_X, SO_X, and CO. Based on the geophysical surveys conducted at the Courtland Facility and on historical photographs of the site, MDA does not expect to encounter any buried metals or other materials during construction. Thus, no unusual health and safety risks would be created as a result of construction activities.

Operations

The solid propellant boosters could present an explosive hazard to workers and potentially to farmers harvesting grasses within the ESQDs. Because the solid propellant is sensitive to heat, it might be possible for propellants to ignite following an accident such as dropping a booster. The Courtland Facility implements specific handling requirements for operations involving propellants that would reduce the likelihood of any accidents resulting in the ignition of boosters at the Courtland Facility. In addition, the Courtland Facility would provide several safety and security systems, and procedures to ensure the protection of personnel and equipment during operation activities.

The ESQDs require that propellants, explosives or ordnance be separated by certain distances based on their explosive potential and type. HVAC systems at all proposed buildings would ensure the proper storage temperatures and humidity for the boosters. If an accident or explosion were to occur during the time of year when farmers are harvesting grasses as approved within the ESQD, there could be death, injury or economic loss. However, such a scenario is extremely unlikely because such an accident is improbable and would be even more unlikely at specific harvest times during the year.

Because the solid propellant motors would remain intact during integration and assembly activities and would not be exposed or opened in any way, health and safety impacts associated with operations at the Courtland Facility only include moving the booster for assembly and not handling the solid rocket propellant directly. No exposure impacts are expected during the proposed operations. Liquid propellants would not be handled at the Courtland Facility under the proposed action. No firing of the booster would occur at the Courtland Facility, thus workers should not be exposed to emissions from any propellants.

Personnel performing surface coating operations would be equipped with appropriate personal protective equipment and trained to apply the coating in accordance with safe handling procedures.

4.6.2 Alternative 1

Under alternative 1, the rail spur would not be constructed. This reduction in the construction area and total timeframe for construction would reduce the potential for construction-related accidents that could impact the health and safety of workers. Operations activities would be the same for both the proposed action and alternative 1 and the potential for health and safety impacts would be the same.

4.6.3 No Action Alternative

Under the no action alternative, no construction or operations related to the proposed action would occur; thus, there would be no new impacts to health and safety. The

current activities that occur at the Courtland Facility would continue including any related impacts to health and safety.

4.7 Land Use

4.7.1 Proposed Action

Construction

Potential impacts to land use would be related to the construction of the new buildings, roads, rail spur and utilities extensions. Most of the construction, with the exception of the rail spur, would take place on Lockheed Martin-owned property that is zoned for industrial uses. However, as a result of the proposed action approximately 58 hectares (143 acres) of the Courtland Facility, which is currently leased for agricultural uses, would be fenced off to allow for the buffer zone to meet the ESQD requirements. Farming activities would be stopped and the land returned to grassland. However, farmers would be allowed to harvest the grass for sale.

The rail spur would be constructed on property owned by the U.S. government. The property is currently unoccupied grassland with small stands of trees. The rail spur would be built on an older rail bed. Although the rail spur would result in several trains passing through the area per month, this is expected to be compatible with existing land use on the surrounding properties. No privately owned property would be affected; therefore, no significant land use impacts would be expected.

Operations

The ESQD extension resulting from the proposed operation of the MABs would extend onto Lawrence County Airport property, and would impact land use in that area. Approximately 12 hectares (30 acres) of the 40.7 hectare (100.5 acre) extension does not currently fall within the Industrial Airpark Building Restriction Zone and Runway Protection Zone. However, no change in land use would occur in this area other than that it could not be leased out for permanent activities such as construction of a building. Current leasing for agriculture uses would continue. No change would take place to the designation of the remaining 28 hectare (70.5 acre) plot, which already falls under the Airpark's restriction zones. Therefore, operation activities under the proposed action would not have a significant impact on land use in this area.

4.7.2 Alternative 1

Under alternative 1, the rail spur would not be constructed and Lawrence County would maintain responsibility for the property the rail spur would have occupied. Potential land use impacts from construction and operation activities would be limited to those on the Industrial Airpark as described under the proposed action.

4.7.3 No Action Alternative

Under the no action alternative, no construction or operations related to the proposed action would occur; thus, there would be no new impacts to land use. The current activities that occur at the Courtland Facility would continue including any related impacts to land use in the surrounding properties.

4.8 Noise

4.8.1 Proposed Action

Construction

Construction would result in intermittent, short-term noise effects that would be temporary, lasting for the duration of the noise generating construction activities, which would include preparation (clearing and grading), foundation excavation and backfill, utility connection, and building assembly. Typical heavy-duty construction equipment would be required such as bulldozers, graders, dump trucks, cement trucks, cranes, front-end loaders/backhoes, roller, power hand tools, asphalt spreader, and compactors. Currently, noise is produced at the Airpark from the use of heavy machinery, such as forklifts and tractor-trailers, associated with industrial activities at the site. Typical sound levels from construction equipment are listed in Exhibit 4-10.

Exhibit 4-10. Typical Construction Noises (dBA)

Source	Noise Level (Peak)	Distance from Source			
		15 meters (50 feet)	30 meters (100 feet)	61 meters (200 feet)	122 meters (400 feet)
Heavy trucks	95	84-89	78-83	72-77	66-71
Dump trucks	108	88	82	76	70
Concrete mixer	105	85	79	73	67
Jackhammer	108	88	82	76	70
Scraper	93	80-89	74-82	68-77	60-71
Dozer	97	87-102	81-96	75-90	69-84
Generator	106	76	70	64	58
Crane	104	75-88	69-82	63-76	55-70
Loader	104	73-86	67-80	61-74	55-68
Grader	108	88-91	82-85	76-79	70-73
Dragline	105	85	79	73	67
Piledriver	105	95	89	83	77
Fork lift	100	95	89	83	77

Source: Golden, 1980 as cited in FAA, 1996

The Department of Defense Noise–Land Use Compatibility Guidelines state that sensitive land use, such as residential areas, are incompatible with annual day-night average noise level greater than 65 dBA.[11] (MDA, 2003) At a distance of 122 meters (422 feet) all construction activities produce a noise level between 55 and 73 dBA, except a dozer, which can produce sound levels up to 84 dBA at that distance.

Most residential homes are more than 274 meters (899 feet) from the junction of the rail spur with the main rail line and are approximately 1.6 kilometers (1 mile) further from the proposed building construction sites. Because all construction activities would occur during daytime hours there would not be any additional penalty added when considering the day-night average sound levels therefore, based on the noise levels in Exhibit 4-9, these homes are unlikely to be exposed to noise levels greater than 65 dBA from building or rail spur construction.

Construction of the proposed rail spur and the operation of trains along the proposed rail spur would pass within 55 meters (180 feet) of a residential house on Yeager Road. However, the owner's primary residence is in the town of Courtland and thus does not live in this house. Further, construction noise associated with the rail spur would be temporary.

Operations

No significant contributions to local noise levels would be expected from operations on the new rail spur. The new spur would extend 1.9 kilometers (1.2 miles) from the main rail line, which currently accommodates about 10 freight trains per day, some with up to 100 cars. Although the rail spur would pass by four residences located approximately 55 meters (180 feet), 274 meters (0.2 miles), 644 meters (0.4 miles), and 966 meters (0.6 miles) from the rail trestle crossing, the number of trains on the rail spur should not contribute significantly to local noise levels. There would be a maximum of 80 rail shipments per year; or six to seven per month.[12] A more realistic estimate is that there would be 40 train shipments per year; or three per month.[13] In addition, the trains on the rail spur would be only three cars long and travel at a maximum of 15 kilometers per hour (10 miles per hour), producing less noise than the longer trains that travel faster and

[11] The day-night average noise level takes into account that people are generally more sensitive to intrusive sound events at night, and the background sound levels are normally lower at night because of decreased human activity. Therefore a "penalty" may be added to sound levels which occur during night hours, to include these factors. Typically, a 10 dB penalty is added to sound levels occurring between 10 p.m. and 7 a.m. The 24-hour average sound level, including this 10 dB penalty, is known as the day-night average sound level. This 10 dB penalty means that one nighttime sound event is equivalent to 10 daytime events of the same level. (http://www.faa.gov/region/aea/noise/measure.htm

[12] This assumes a worst-case scenario where the Courtland facility would be working in constant surge-assembly mode to produce 20 missiles per year with four components each (three boosters and one front section) and all deliveries would take place separately and via train.

[13] This assumes that some of the boosters and components would arrive together and that approximately half of them would arrive via train and half via truck.

more frequently on the main rail line through Courtland. Local residents also are accustomed to several freight trains passing through the area daily. Therefore, no significant impacts from train noise would be expected from a moderate change in the number of trains passing through the region.

4.8.2 Alternative 1

Under alternative 1, no rail spur would be constructed and train activity would not take place on the rail spur. Thus, noise impacts would be limited to those associated with construction and operations on the Courtland Facility property, approximately one mile from the residences. This would result in fewer overall noise impacts than those described for the proposed action.

4.8.3 No Action Alternative

Under the no action alternative, no construction or operations related to the proposed action would occur; thus, there would be no new impacts from noise. The current activities that occur at the Courtland Facility would continue including any related impacts from noise.

4.9 Socioeconomics and Environmental Justice

4.9.1 Proposed Action

Socioeconomics

Construction

Construction activities that could produce socioeconomic impacts are the hiring of approximately 75 construction workers. A local construction company would be used from the Huntsville-Decatur-Courtland area, requiring no housing for construction workers because it is assumed that they would commute daily from the local area. A temporary increase in population would be expected throughout the twelve-month construction process during which construction workers would likely support the economy of the area by bringing revenue to Courtland businesses such as gas stations and restaurants.

All sanitary waste resulting from construction activities under the proposed action would be sent to the City of Decatur-Morgan County Sanitary Landfill, which has a permitted average daily volume of 700 tons per day. Construction waste generated under the proposed action would not exceed the landfill's permitted capacity and would not result in significant impacts. Thus, there should be no adverse impact from construction activities on socioeconomic conditions.

Operations

Operations activities that could impact socioeconomics include the hiring and possible relocation of an additional 50 employees to the Huntsville-Decatur-Courtland area. Under the proposed action, an additional 50 employees would be hired to support target assembly operations. In addition, 20 new employees would be brought in on a rotational basis. The Courtland Facility currently employs approximately 40 people to support the Boost Vehicle Plus (BV+) program.

The Huntsville-Decatur-Courtland area attracts high numbers of people qualified to support the proposed action; however, some new employees would be expected to relocate to the area. A sudden increase in population could cause stress on the existing town infrastructure. Although unlikely, population changes could be somewhat larger because some of the workers may bring families.

As indicated by the Lawrence County Industrial Development Board, Lawrence County is working to increase industrial and population growth in the area. (Lawrence County Industrial Development Board, 2006) Housing sources for new employees could be found in the 47 unoccupied housing units in Courtland (U.S. Census Bureau, 2000) or 20 miles east in the city of Decatur with a population of over 50,000 and more housing options. (Thompson Gale, 2005) Thus, there should be no significant impact on housing availability in the ROI associated with operation activities.

In 2005, the Courtland Facility utilized approximately 3 gigawatts of electricity, 3 million gallons of water, and 100,000 cubic feet of natural gas. Extrapolating from these past rates, utilities usage under the proposed action would be expected to double or triple with the addition of 50 new employees.

Environmental Justice

Construction

As discussed in Section 3.9, a greater percentage of the population is Black or African American in Courtland compared to the county and state distributions (see Exhibit 3-8). About 20 percent of Courtland's population lives below the poverty line, about five percent higher than the county and state levels. Construction activities would be limited to actions on the Courtland Facility or on U.S. government-owned property and would not impact these populations. As discussed above, the temporary influx of 75 construction workers from the local area would likely have a positive impact on the local economy for the twelve-month duration of the construction. Construction crews would not significantly consume community services such as medical facilities and all utilities in the area have sufficient capacity to accommodate the proposed population increase. Thus, there would not be any adverse impacts to minority or low-income populations.

Operations

Operations activities with the potential to impact environmental justice include the potential addition of up to 50 permanent workers and their families to the Huntsville-Decatur-Courtland area. However, the influx of new employees would likely have a positive impact on the local economy. Both community services such as medical facilities and all utilities in the area have sufficient capacity to accommodate the proposed population increase. Health and environmental impacts from the proposed action and alternatives are not expected to exceed applicable thresholds of significance for any impact category.

Children's Health

Effects from the proposed action are not concentrated in areas that might contain proportionally more children, like schools. Exhibit 4-11 shows the percentage of the population under the age of 18 in the U.S., Courtland, and Alabama.

Exhibit 4-11. Percentage of Population under Age 18

	U.S.	Alabama	Courtland
Percent of Population Under Age 18	25.7	25.3	27.8

Although Courtland has a slightly higher percentage of children under the age of 18 as compared to the U.S. and state of Alabama, the types of effects from the proposed action should not be disproportionate to the health and safety of children as compared to adults. Therefore, impacts of the proposed action on children's health and safety should not be disproportionate as defined under EO 13045.

4.9.2 Alternative 1

Under alternative 1, construction and operation activities would occur in the same location as described under the proposed action. Thus, the impacts to socioeconomics and environmental justice populations and children's health would be the same as those under the proposed action.

4.9.3 No Action Alternative

Under the no action alternative, no construction or operations related to the proposed action would occur; thus, there would be no new impacts to socioeconomics and environmental justice. The current activities that occur at the Courtland Facility would

continue including any related impacts to socioeconomics, environmental justice and children's health.

4.10 Transportation

4.10.1 Proposed Action

Under the proposed action, potential impacts to transportation and infrastructure from construction and operation activities would be associated with level of service (traffic) impacts and accident potential on road, rail and aircraft. Specifically, potential level of service impacts would stem from road transportation of the construction workforce, up to 75 people, and later 50 new employees to support operational activities at the facility; truck and rail transportation of boosters and components to the site; truck transport of the target from the site to the Redstone Arsenal. Accident potentials would be associated with the transport of hazardous (explosive) rocket boosters.

Construction

Level of Service

The daily commute of construction workers and vehicles to and from the Courtland Facility would last for approximately 12 months. A maximum of 75 construction workers and 23 vehicles (196 vehicle trips) were assumed to commute from Huntsville, 56.3 kilometers (35 miles) to the Courtland Facility. For purposes of this analysis it was assumed that all construction workers would commute from Huntsville. The route between Huntsville and the Courtland Facility is comprised of essentially two highways (565 and Route 20) and three miles on local roads. Although the Alabama Department of Transportation has not conducted any formal analysis of the levels of service of the roads around Courtland, observed levels of traffic on the roadways going in and out of the Airpark and on highways 565 and 20 indicate that a level of service designation of A would be appropriate for this region. Thus, the addition of 196 construction worker vehicle trips per day would not significantly impact traffic levels on these roads.

Construction of the rail spur, specifically linking it to the main line, would be coordinated with Norfolk Southern so as not to interfere with rail traffic. Thus, no impacts to rail traffic would be expected from proposed construction activities.

No impacts to air traffic at the Airpark would be expected from proposed construction activities. Catenary lightning protection masts would have lights at the top to make them visible to incoming and outgoing aircraft. Such masts already exist at the site and no impacts have been observed on air traffic.

Operations

Level of Service

The addition of 50 new workers at the Courtland Facility would result in 100 vehicle trips per day. For purposes of this analysis it was assumed that all workers would commute 56.3 kilometers (35 miles) from Huntsville to Courtland on Routes 565 and 20 and on three miles worth of local roads. Although the Alabama Department of Transportation has not conducted any formal analysis of the levels of service of the roads around Courtland, observed levels of traffic on the roadways going in and out of the Airpark and on highways 565 and 20 indicate that a level of service designation of A would be appropriate for this region. Thus, the addition of 100 worker vehicle trips per day would not significantly impact traffic levels on these roads.

Because boosters and components would be delivered from any combination of supplier facilities and the number of targets assembled annually could vary between 12 and 20, the actual number of vehicles miles traveled to Courtland as part of the operational activities is unknown. However, a maximum credible scenario would consist of the transport of up to 20 target boosters and components from the SWFPAC facility, which is 4,173 kilometers (2,593 miles) away, the farthest supplier from Courtland. A round trip would consist of 8,346 kilometers (5,186 miles). In addition, up to four round trips would be required to support the assembly of each target; therefore, up to 80 round trips would be required annually. Using these assumptions, the approximate maximum number of vehicle miles traveled (VMT) annually would be 667,684 kilometers (414,880 miles). Most of these miles would be traveled by tractor-trailer on highways. Furthermore, fewer miles would actually be traveled, as most deliveries would come from suppliers closer to Courtland.

The worst-case rail transport scenario would be that a maximum of 60 deliveries would take place via the rail spur. The addition of three rail cars to a maximum of six or seven trains per month would not significantly impact rail service on the Norfolk Southern main rail line.

No impacts to air traffic would be expected from operation activities under the proposed action. All aircraft used for the proposed action would takeoff and land at Redstone Arsenal and would not use the Airpark. Transportation activities at the Courtland Facility would be essentially unchanged from existing practices and are not expected to cause an adverse impact on air traffic flying in and out of the Airpark.

Accident Analysis

Statistics published by the Federal Motor Carrier Safety Administration indicated that 2,880,000,000,000 VMT were recorded in 2002 with an injury rate of 100 per

100,000,000 VMT. (U.S. DOT BTS, 2003) Based on the annual VMT, the 414,880 miles associated with the proposed action represents less than 0.001 percent of the total VMT in the U.S. annually, and would result in an annual injury rate of approximately 0.4. Over the course of a five-year period, this could result in a total of two accidents, which would not be considered to be a significant impact on transportation.

Over-the-road transport of rocket boosters would pose an accident hazard. Because the solid propellant is sensitive to heat, it might be possible for propellants to ignite following an accident. However, such transport takes place on a daily basis; approximately 1.3 billion tons of hazardous materials are transported annually by road and rail in the U.S. (U.S. DOT BTS, 2005) Under the proposed action, a maximum of 60 boosters per year[14] would be transported by road and rail to the Courtland Facility. It was determined that this would not significantly increase daily transport of hazardous materials in the entire U.S. In addition, Norfolk Southern is one of the main rail carriers in the U.S. and transports hazardous materials regularly. In addition, transportation would occur by truck or rail in specialized shipping containers on flatbeds designed to protect them from damage and accidental ignition in the event of an accident.

Assembled targets would be transported in the common transporter to either the launch site or the Redstone Arsenal. Although hazardous materials including boosters and other items with explosive potential are transported along U.S. roadways, the transport of an assembled target is less common. In particular the weight of the common transporter and target would be greater than for trucks conveying single boosters. Further, the explosive potential would be greater than for trucks carrying individual boosters or components. However, transportation of boosters and assembled targets would comply with all Department of Transportation, state and local regulations. All requirements as outlined in DoD Directive 4145.26-M, "DoD Contractors' Safety Manual For Ammunition and Explosives", (September 1997) regarding intraplant motor vehicle and rail transportation would be followed. Federal hazardous material transport requirements are specified in 49 CFR 100-185 and include packaging, labeling, manifests to describe the shipment and accompany it throughout the journey. Route selection would ensure that all roads and bridges were capable of supporting the weight requirements of the common transporter and target between Courtland and Redstone Arsenal and between Courtland and the launch sites. Thus, no significant impact is expected from the transport of hazardous materials under the proposed action.

4.10.2 Alternative 1

Under alternative 1, the rail spur would not be constructed and all booster and component deliveries would take place by truck. As described under the proposed action, traffic

[14] Assuming a maximum of 20 targets would be assembled annually at Courtland and each target would be comprised of three boosters. This is a conservative analysis; annual production would likely be closer to 12 targets per year with two boosters each.

levels, accident rates and hazardous material transport would not be significantly affected by over-the-road transport of target boosters and components. However, the number of employees would remain the same as under the proposed action for operation activities. Thus, there would be no significant impact to transportation and infrastructure under alternative 1.

4.10.3 No Action Alternative

Under the no action alternative, no new construction or operation activities would occur and no additional boosters or components would have to be transported over the road or by rail to the Courtland Facility. Thus, there would be no impact on transportation under the no action alternative.

4.11 Visual Resources

4.11.1 Proposed Action

Construction

The construction of six additional buildings, access roads, and a rail spur under the proposed action would not result in significant impacts to visual resources. The existing visual landscape would change under the proposed action; however, because the new buildings and access roads would be built adjacent to similar existing infrastructure in a location that is an active industrial site, no significant adverse visual impacts would occur. Currently, a water tower is the only structure at the Courtland Facility that can be viewed from Route 20 because the tree line constitutes a visual obstruction. None of the structures proposed would be higher than the tree line and therefore no changes to the facility would be visible from Route 20.

The construction of the rail spur would change the current visual landscape for the four residences located near the proposed extension. No other visual impacts would be expected as the rail spur would only be visible from the road and would be an extension of the existing main line railroad.

Operations

No impacts to visual resources would result from operational activities at the Courtland Facility.

4.11.2 Alternative 1

Under alternative 1, the rail spur would not be constructed, resulting in less alteration of the current visual landscape. Thus, the impacts to visual resources would be slightly less than that of the proposed action.

4.11.3 No Action Alternative

Under the no action alternative, no construction or operations related to the proposed action would occur; thus, there would be no new impacts to visual resources. The current activities that occur at the Courtland Facility would continue including any related impacts to visual resources.

4.12 Water Resources

4.12.1 Proposed Action

Construction

Potential impacts to water resources could result from soil and ground disturbing activities associated with the proposed construction of six new buildings and access roads, a rail spur, and utilities extensions. Such disturbances would result in a temporary increase in soil erosion and siltation of nearby surface water bodies during the nine months of ground-disturbing construction activity. This could increase turbidity and alter other water quality parameters (e.g., dissolved oxygen, pH, hardness levels, and chemical concentrations).

Big Nance Creek is the only natural surface water body located within the ROI. As described in Section 3.12, Big Nance Creek has historically been in violation of state water quality standards due to siltation problems and some pesticide contamination. In 2006, the Alabama Department of Environmental Management has proposed to remove Big Nance Creek from its list of impaired state waters. Significant impacts to the water quality of Big Nance Creek could occur as a result of the proposed action if erosion and siltation from construction activities is not controlled. However, as described in Section 4.4, best management practices such as silt fences, hay bales, temporary vegetation seeding, and erosion control blankets would be used on all unpaved surfaces that would be disturbed by construction in order to minimize erosion and siltation of nearby water bodies. A construction permit would be obtained from the Alabama Department of Environmental Management and all construction activities would conform to site drainage and storm water management requirements.

Wetlands would not be adversely impacted by proposed construction activities. As discussed in Section 3.12, wetlands located within the ROI have been filled in or otherwise altered to become part of the Valley Landing Golf Course. Due to the topography of the area, runoff from the construction sites would drain into Big Nance Creek, which is in the opposite direction from the water hazards at the golf course. Because of the altered nature of the wetlands in the ROI and site drainage patterns, no adverse impacts to wetlands are expected.

Ground water would not be directly encountered during construction excavation activities and incidental spills or leaks from construction equipment would not be expected to reach groundwater level.

Operations

In addition, small and occasional spills or leaks of petroleum-based products (e.g., diesel fuel or oil) or hazardous materials associated with construction equipment could cause small impacts to Big Nance Creek. To prevent such impacts, all temporary storage tanks or sheds that contain such material would have secondary containment features such as berms or dikes to contain spilled contents, and would have appropriate spill response equipment appropriate for the materials present. Trained and qualified spill response and clean-up professionals would respond to incidental or accidental releases of petroleum-based products or hazardous materials in accordance with the Courtland Facility's Spill Prevention Control and Countermeasures Plan and best management practices. Mitigation measures would be taken to prevent storm water contamination and any pollutant discharge to Big Nance Creek.

No adverse impacts to wetlands would be expected as a result of the proposed action.

Increased operation activities at the Courtland Facility are not expected to increase water usage to levels where it would deplete and adversely impact the ground water supply.

4.12.2 Alternative 1

Under alternative 1, the rail spur would not be constructed so the total area of disturbance would be 2.6 hectares (6.3 acres). Impacts to water resources would be slightly less than that of the proposed action because 2.9 fewer hectares (7.1 fewer acres) would be disturbed, resulting in less erosion and siltation that could impact water quality.

4.12.3 No Action Alternative

Under the no action alternative, no construction or operations related to the proposed action would occur; thus, there would be no new impacts to water resources. The current activities that occur at the Courtland Facility would continue including any related impacts to water resources.

4.13 Cumulative Impacts

According to 40 CFR § 1508.7, cumulative impacts are defined as "…the incremental impact of the actions when added to other past, present, and reasonably foreseeable future actions, regardless of what agency (Federal or non-Federal) or person undertakes such other actions." For this analysis, cumulative impacts include impacts from the proposed action and the past, present, and reasonably foreseeable future activities at the Courtland

Facility that would affect the resources impacted by the proposed action. The past, present, and reasonably foreseeable future activities reviewed by MDA include the BV+ program currently conducted at Courtland. The MDA determined that no cumulative impacts would be associated with biological resources, cultural or historic resources, geology and soils, land use, noise, socioeconomic or environmental justice, visual resources or water resources. This determination was based on the analysis above that suggests that most of the impacts would be related to temporary construction activities; operational impacts would primarily be limited to on-site activities. The following sections present the resources evaluated for cumulative impacts.

- Air Quality
- Hazardous Materials and Waste
- Health and Safety
- Transportation and Infrastructure

4.13.1 Air Quality

Construction would generate particulate emissions (dust) that would add to the impacts from other dust sources in the area such as agriculture activities. Standard construction methods would be employed to minimize fugitive dust emissions and reduce the amount of dust generated. Emissions from mobile sources would add cumulatively to emissions from other traffic sources in the area. However, because the emissions from activities related to the proposed action were determined to result in a less than measurable impact, even when combined with other mobile emission sources in the area no significant impact would be expected.

4.13.2 Hazardous Materials and Waste

Historic soil and ground water contamination was identified in certain areas within the region of influence; however, no contamination has been identified at the proposed construction sites. Thus, there would be no substantial hazardous materials and waste impacts to the environment resulting from historic contamination.

The types of hazardous wastes and hazardous materials associated with the proposed activities are similar to hazardous wastes currently generated at the Courtland Facility. However, activities under the proposed action would triple the generation of hazardous waste. This estimate takes into account the continuation of the BV+ program and it was determined that this cumulative amount of waste would not exceed the regulatory limit of a small quantity generator. Thus, there should be no cumulative impact from the proposed action.

4.13.3 Health and Safety

No cumulative impacts on health and safety would be expected because appropriate Safety Standard Operating Procedures would be followed for both the BV+ and target assembly activities. Operations would take place in separate buildings and intrasite transportation would be coordinated to avoid conflicts.

4.13.4 Transportation

The cumulative impact of the additional personnel associated with the activities considered in this EA and those of other past, present, and reasonably foreseeable activities occurring at the Courtland Facility would not impact transportation. Roads around site are estimated to be Level A, well-able to accommodate additional traffic that could be associated with the proposed action or expansion of the BV+ program. As such, cumulative impacts on transportation would not be anticipated.

4.14 Irreversible or Irretrievable Commitment of Resources

Irreversible and irretrievable resource commitments are related to the use of nonrenewable resources and the effects that use of these resources may have on future generations. The use or destruction of specific resources (e.g., energy and minerals) that cannot be replaced within a reasonable time frame is termed an irreversible commitment of that resource.

The proposed action would not be expected to result in the loss of threatened or endangered species or cultural resources such as archaeological or historic sites.

Some irreversible or irretrievable commitment of resources would occur, such as dedication of raw materials and labor required for the construction of the proposed buildings, access roads, and rail spur. The proposed action would result in an increased use of diesel fuels required by supporting ground vehicles during construction and operations. Energy also would be irreversibly and irretrievably committed to the proposed action. Facilities would utilize natural gas, water, and electricity in support of operations; however, the activities considered in this EA would not commit natural resources in significant quantities.

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Appendix A Consultation Letters

DEPARTMENT OF DEFENSE
MISSILE DEFENSE AGENCY
7100 DEFENSE PENTAGON
WASHINGTON, DC 20301-7100

DTR

APR 13 2006

Mrs. Joyce A. Bear, NAGPRA Contact
Muscogee Creek Nation of Oklahoma
P.O. Box 580
Okmulgee, OK 74447

Re: Environmental Assessment for the Proposed Expansion of the Lockheed Martin Courtland Facility, Courtland, Alabama

Dear Mrs. Bear:

In accordance with the National Environmental Policy Act, the Missile Defense Agency (MDA) is preparing an Environmental Assessment to evaluate the potential environmental consequences of constructing, operating, and planning for decommissioning of additional facilities at the Lockheed Martin Space Systems Company's Courtland Facility in Courtland, Alabama. The facilities would support the delivery, assembly, integration, and component-level testing of target missiles for the Ballistic Missile Defense System. MDA is requesting the Muscogee Creek Nation of Oklahoma's view of the Proposed Action to confirm that it would not have any adverse effect upon the Community's interest.

The Lockheed Martin Courtland Facility is located in the Lawrence County Industrial Airpark in Courtland, Alabama. The Industrial Airpark, also known as George C. Wallace Industrial Airpark, encompasses 2,245 acres of which the Lockheed Martin facility occupies 663 acres. The Industrial Park was previously the Courtland Army Air Field during World War II, which became inactive in 1947.

Under the proposed action, a total of 11 acres would be disturbed for the construction of six new surface buildings, access roads, utilities extensions and a new railroad spur. Building construction would take place solely on property owned and operated by Lockheed Martin. Rail construction would take place on Lockheed Martin property and on Lawrence County property. The county has granted an easement for the construction of the rail spur. Undeveloped portions of the property have been leased for agricultural uses for several decades and those uses have not revealed the presence of any historic properties or structures. Two maps are enclosed. Enclosure 1 shows the location

of the proposed project and its relation to the Town of Courtland. Enclosure 2 presents the Area of Potential Effect showing the proposed facility expansion.

Missile assembly activities similar to the proposed action have been taking place at the site for over a decade. Under the proposed action, the presence of explosive materials, namely solid propellant rocket motors, would require that a maximum explosion radius be established around each of the proposed buildings. The combined radii would require an extension of the Missile Protection Ordnance Zone of 100.5 acres to the southwest of Lockheed Martin property. The Lawrence County Commission, which owns the airport and land over which the radius would extend, has granted a preliminary easement for the zone. Under the easement, the property would continue to be leased for agricultural purposes and the ban would continue on permanent activities.

MDA has reviewed National Landmarks and the National Register of Historic Places to determine that there are no historic buildings or structures on the Lockheed Martin property or at the Lawrence County Industrial Airpark. Based on the available information, MDA is prepared to make a determination of no adverse impacts to cultural or historic resources.

We request that you respond as soon as it is feasible within a 30 calendar-day timeframe so that we may conduct any necessary follow-up activities, and incorporate your response into the scope of study, as appropriate. If we do not hear back from you within that time frame, we will assume concurrence with the determination that the proposed action will not have any adverse impact upon the Muscogee Creek Nation of Oklahoma or its interests, and we will send a copy of the Draft EA when completed.

Thank you for your assistance in this matter. If you require further information to complete this request, please do not hesitate to contact me at (703) 697-4123 or Crate.J.Spears@mda.mil.

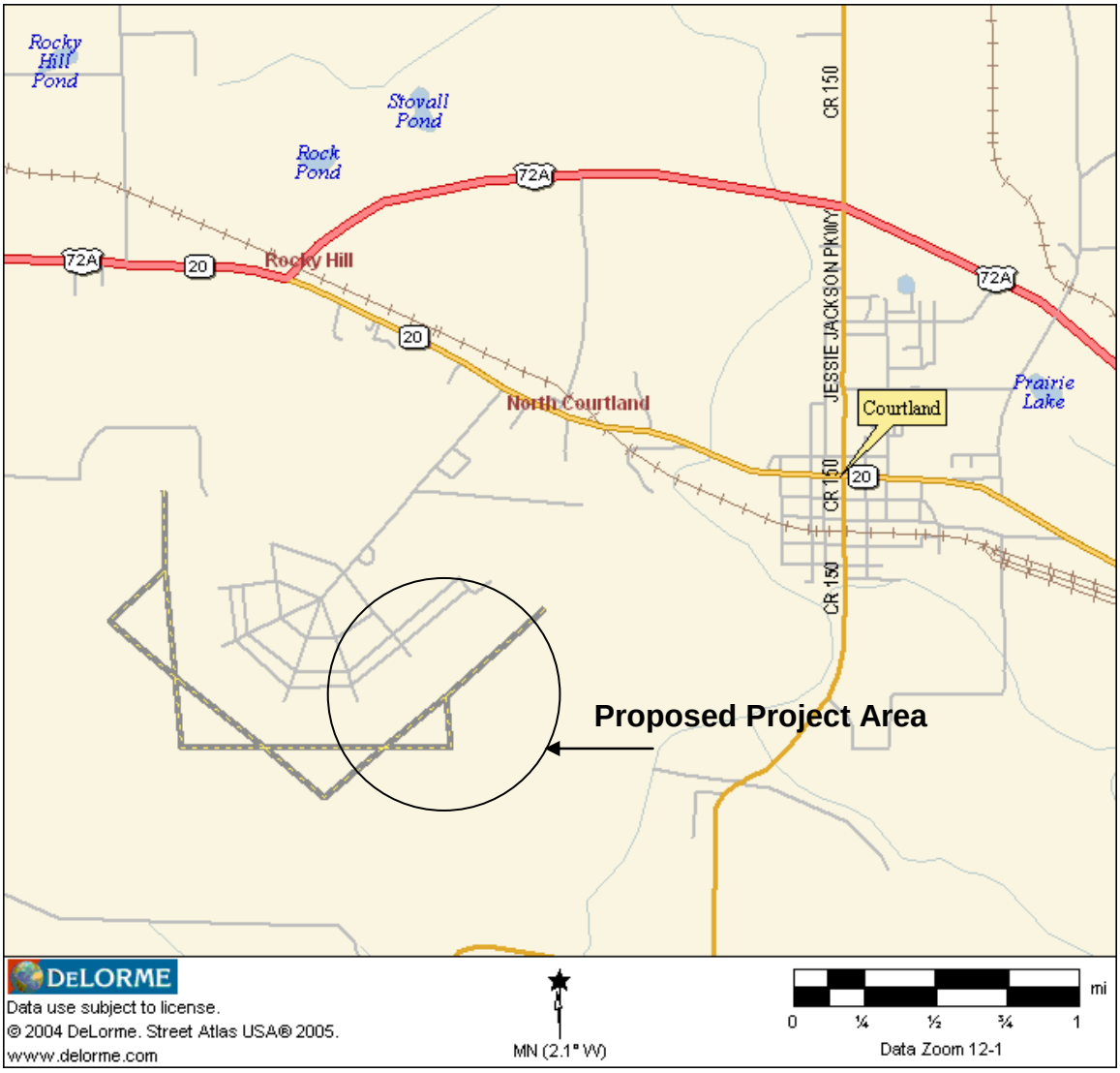
Sincerely,

Crate J. Spears
Environmental Manager

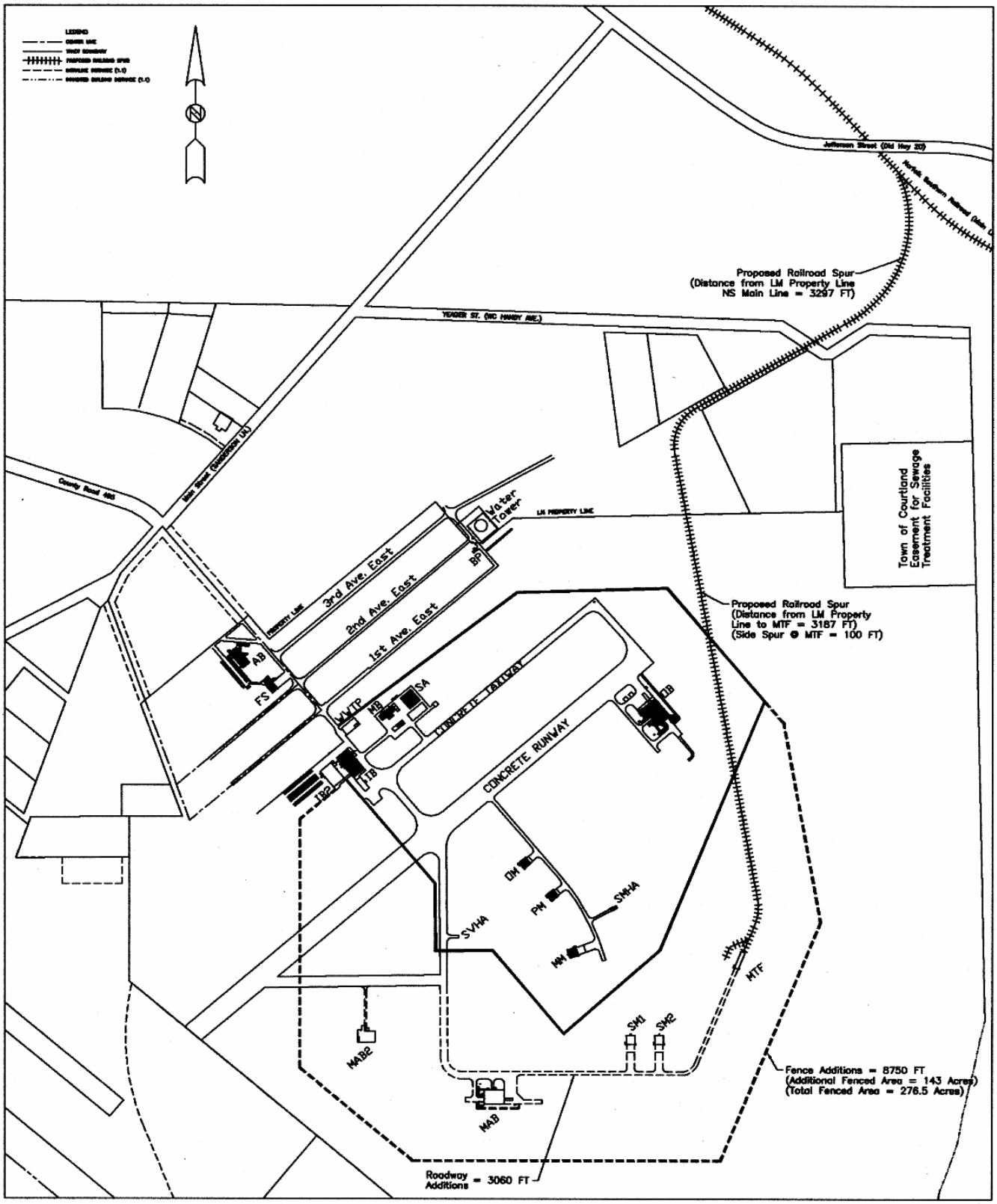
cc: ICF Consulting (Ms. Shaver)
MDA/DTR (Mr. Wheeler)

Enclosures: As stated

Enclosure 1: Map Showing Location of Courtland Facility, Alabama



Enclosure 2: Area of Potential Effect



DEPARTMENT OF DEFENSE
MISSILE DEFENSE AGENCY
7100 DEFENSE PENTAGON
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DTR

APR 13 2006

Poarch Band of Creek Indians
Robert Thrower, THPO
5811 Jack Springs Road
Atmore, AL 36502

Re: Environmental Assessment for the Proposed Expansion of the Lockheed Martin Courtland Facility, Courtland, Alabama

Dear Mr. Thrower:

In accordance with the National Environmental Policy Act, the Missile Defense Agency (MDA) is preparing an Environmental Assessment to evaluate the potential environmental consequences of constructing, operating, and planning for decommissioning of additional facilities at the Lockheed Martin Space Systems Company's Courtland Facility in Courtland, Alabama. The facilities would support the delivery, assembly, integration, and component-level testing of target missiles for the Ballistic Missile Defense System. MDA is requesting the Poarch Band of Creek Indians' view of the Proposed Action to confirm that it would not have any adverse effect upon the Community's interest.

The Lockheed Martin Courtland Facility is located in the Lawrence County Industrial Airpark in Courtland, Alabama. The Industrial Airpark, also known as George C. Wallace Industrial Airpark, encompasses 2,245 acres of which the Lockheed Martin facility occupies 663 acres. The Industrial Park was previously the Courtland Army Air Field during World War II, which became inactive in 1947.

Under the proposed action, a total of 11 acres would be disturbed for the construction of six new surface buildings, access roads, utilities extensions and a new railroad spur. Building construction would take place solely on property owned and operated by Lockheed Martin. Rail construction would take place on Lockheed Martin property and on Lawrence County property. The county has granted an easement for the construction of the rail spur. Undeveloped portions of the property have been leased for agricultural uses for several decades and those uses have not revealed the presence of any historic properties or structures. Two maps are enclosed. Enclosure 1 shows the location

of the proposed project and its relation to the Town of Courtland. Enclosure 2 presents the Area of Potential Effect showing the proposed facility expansion.

Missile assembly activities similar to the proposed action have been taking place at the site for over a decade. Under the proposed action, the presence of explosive materials, namely solid propellant rocket motors, would require that a maximum explosion radius be established around each of the proposed buildings. The combined radii would require an extension of the Missile Protection Ordnance Zone of 100.5 acres to the southwest of Lockheed Martin property. The Lawrence County Commission, which owns the airport and land over which the radius would extend, has granted a preliminary easement for the zone. Under the easement, the property would continue to be leased for agricultural purposes and the ban would continue on permanent activities.

MDA has reviewed National Landmarks and the National Register of Historic Places to determine that there are no historic buildings or structures on the Lockheed Martin property or at the Lawrence County Industrial Airpark. Based on the available information, MDA is prepared to make a determination of no adverse impacts to cultural or historic resources.

We request that you respond as soon as it is feasible within a 30 calendar-day timeframe so that we may conduct any necessary follow-up activities, and incorporate your response into the scope of study, as appropriate. If we do not hear back from you within that time frame, we will assume concurrence with the determination that the proposed action will not have any adverse impact upon the Poarch Band of Creek Indians or its interests, and we will send a copy of the Draft EA when completed.

Thank you for your assistance in this matter. If you require further information to complete this request, please do not hesitate to contact me at (703) 697-4123 or Crate.J.Spears@mda.mil.

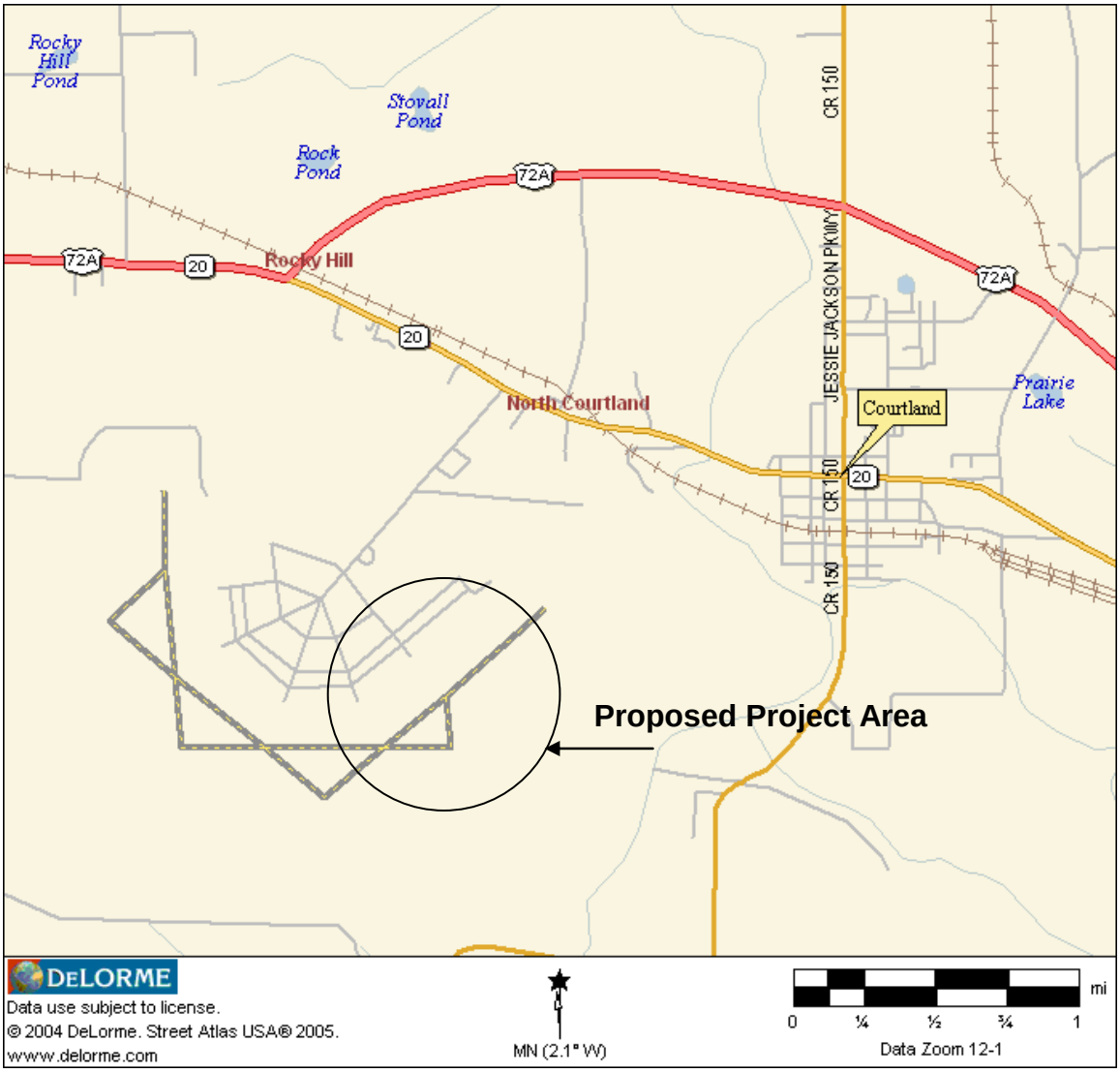
Sincerely,

Crate J. Spears
Environmental Manager

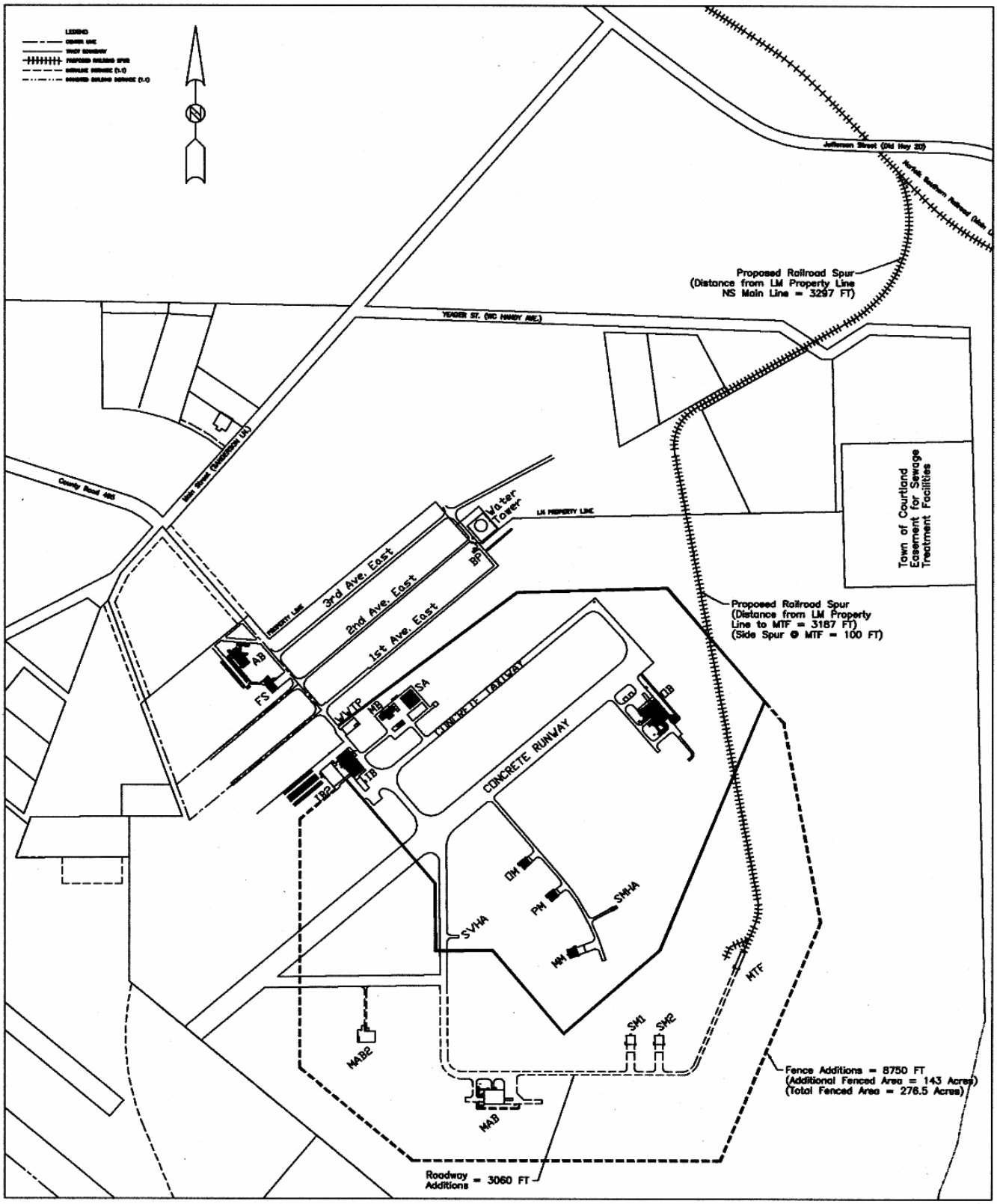
cc: ICF Consulting (Ms. Shaver)
MDA/DTR (Mr. Wheeler)

Enclosures As stated

Enclosure 1: Map Showing Location of Courtland Facility, Alabama



Enclosure 2: Area of Potential Effect



DEPARTMENT OF DEFENSE
MISSILE DEFENSE AGENCY
7100 DEFENSE PENTAGON
WASHINGTON, DC 20301-7100

DTR

APR 13 2006

Elizabeth Brown
Interim Executive Director
Alabama Historical Commission
Alabama State Historic Preservation Office (ALSHPO)
468 South Perry Street
Montgomery, AL 36130

Re: Environmental Assessment for the Proposed Expansion of the Lockheed Martin Courtland Facility, Courtland, Alabama

Dear Ms. Brown:

In accordance with the National Environmental Policy Act, the Missile Defense Agency (MDA) is preparing an Environmental Assessment to evaluate the potential environmental consequences of constructing, operating, and planning for decommissioning of additional facilities at the Lockheed Martin Space Systems Company's Courtland Facility in Courtland, Alabama. The facilities would support the delivery, assembly, integration, and component-level testing of target missiles for the Ballistic Missile Defense System.

The Lockheed Martin Courtland Facility is located in the Lawrence County Industrial Airpark in Courtland, Alabama. Courtland is located in northern central Lawrence County in the Northwest corner of Alabama. The Industrial Airpark, also known as George C. Wallace Industrial Airpark, encompasses 2,245 acres of which the Lockheed Martin facility occupies 663 acres. The Industrial Park was previously the Courtland Army Air Field during World War II, which became inactive in 1947.

Under the proposed action, a total of 11 acres would be disturbed for the construction of six new surface buildings, access roads, utilities extensions and a new railroad spur. Building construction would take place solely on property owned and operated by Lockheed Martin. Rail construction would take place on Lockheed Martin property and on Lawrence County property. The county has granted an easement for the construction of the rail spur. Undeveloped portions of the property have been leased for agricultural uses for several decades. Farming has not revealed the presence of any historic properties or structures. Two maps are enclosed. Enclosure 1 shows the location

of the proposed project and its relation to the Town of Courtland. Enclosure 2 presents the Area of Potential Effect showing the proposed facility expansion.

Missile assembly activities similar to the proposed action have been taking place at the site for over a decade. Under the proposed action, the presence of explosive materials, namely solid propellant rocket motors, would require that a maximum explosion radius be established around each of the proposed buildings. The radii would require an extension of the Missile Protection Ordnance Zone of 100.5 acres to the southwest off of Lockheed Martin property. The Lawrence County Commission, which owns the airport and land over which the radius would extend, has granted a preliminary easement for the zone. Under the easement, the property would continue to be leased for agricultural purposes and the ban would continue on permanent activities.

MDA has reviewed National Landmarks and the National Register of Historic Places to determine that there are no historic buildings or structures on the Lockheed Martin property or at the Lawrence County Industrial Airpark. Based on the available information, MDA is prepared to make a determination of no adverse impacts to cultural or historic resources.

Pursuant to 36 CFR 800, MDA is requesting the view of the State Historic Preservation Office on the proposed action. MDA is requesting that the State Historic Preservation Officer identify historic properties that are listed in, or are eligible for listing in the Alabama Register. Additionally, we have sent letters to three federally-recognized Indian tribes with claims within the state of Alabama (the Poarch Band of Creek Indians, the Eastern Band of Cherokee Indians, and the Muscogee Creek Nation of Oklahoma) to confirm that the Proposed Action would not have an adverse impact on their interests. MDA is requesting that the State Historic Preservation Officer identify any other tribes that may have interests in the Proposed Action.

We request that you respond as soon as it is feasible within a 30 calendar-day timeframe so that we may conduct any necessary follow-up activities, and incorporate your response into the scope of study, as appropriate. If we do not hear back from you within that time frame, we will assume concurrence and will send a copy of the Draft EA when completed.

Thank you for your assistance in this matter. If you require further information to complete this request, please do not hesitate to contact me at (703) 697-4123 or Crate.J.Spears@mda.mil.

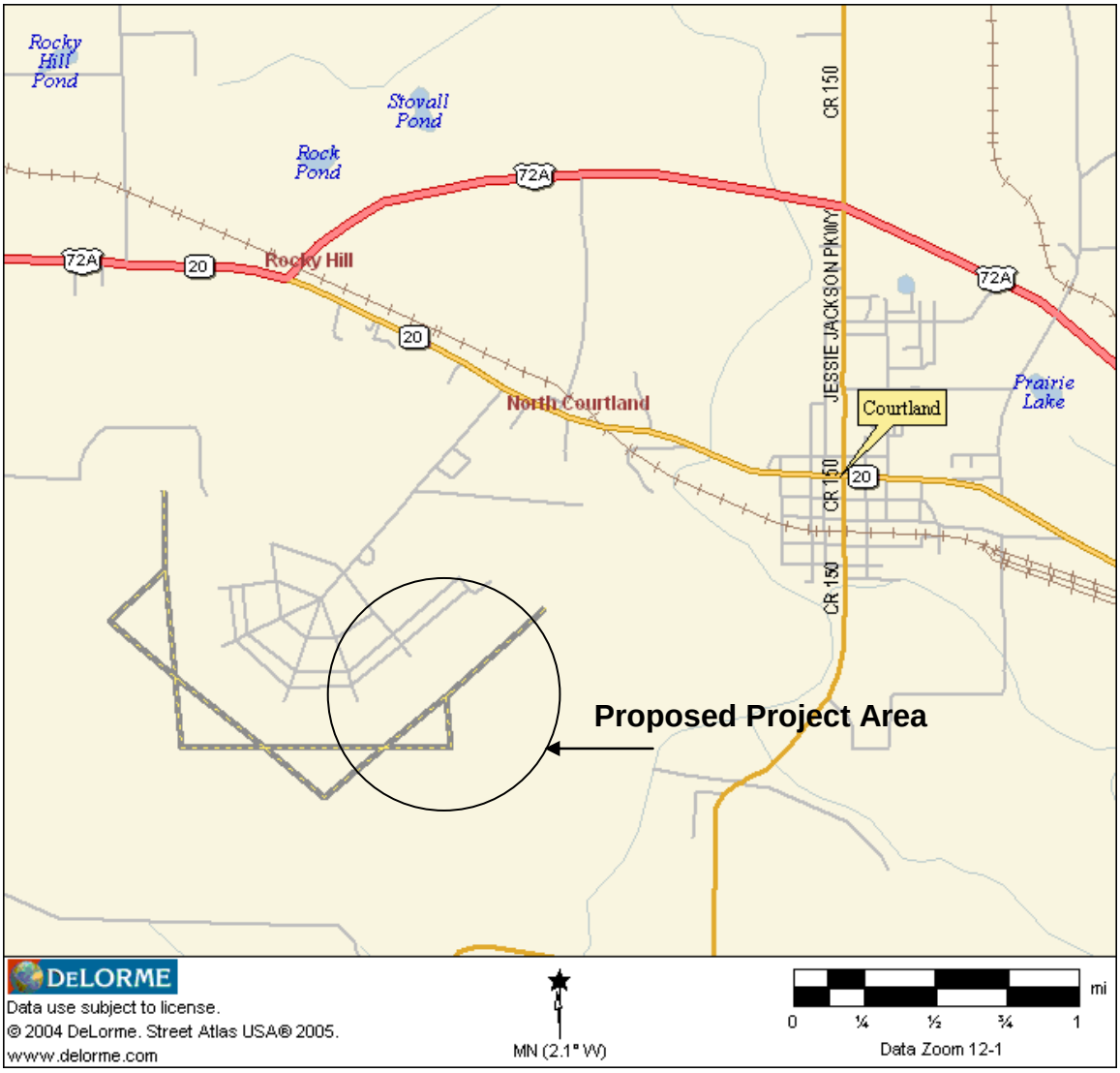
Sincerely,

Crate J. Spears
Environmental Manager

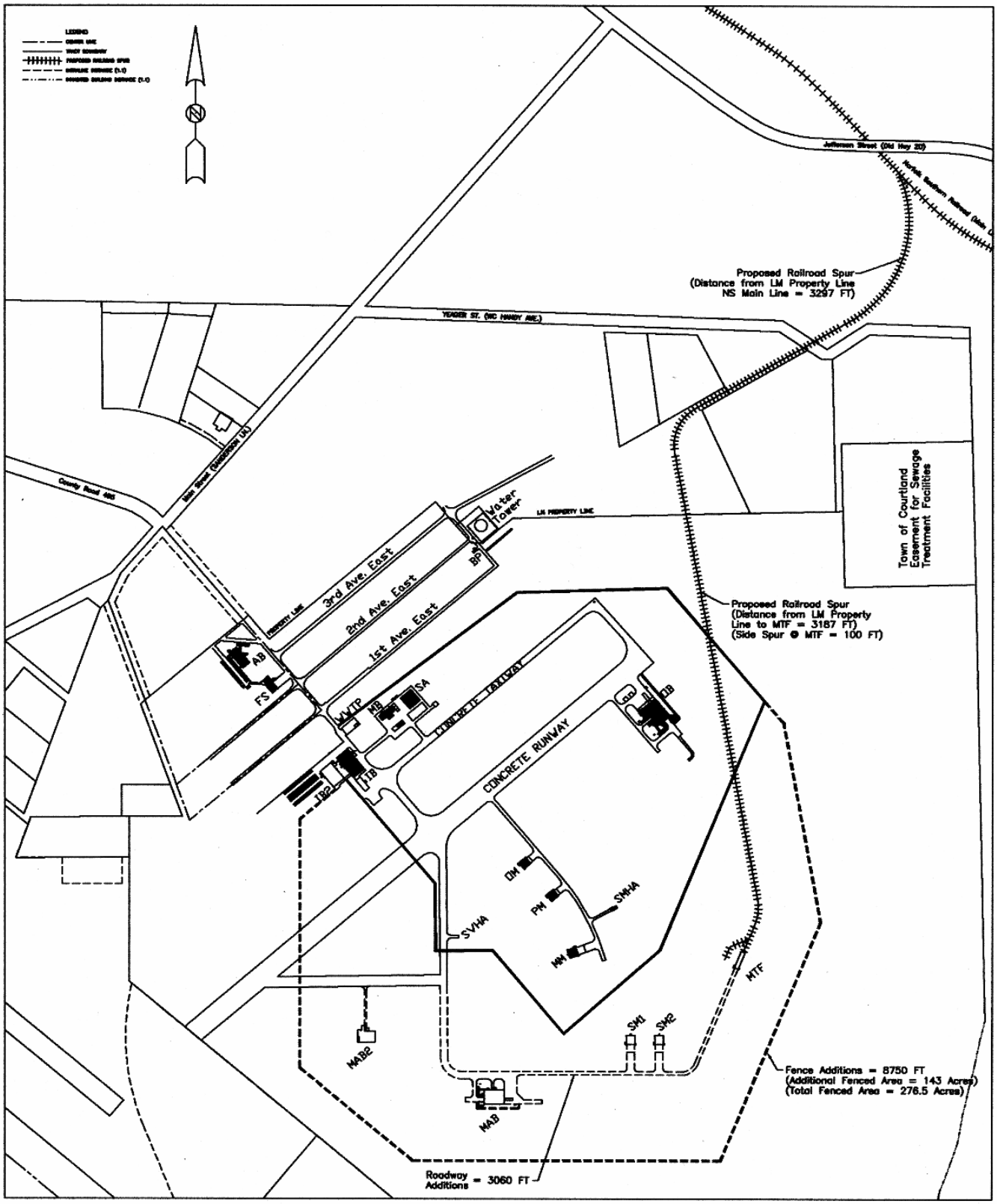
cc: ICF Consulting (Ms. Shaver)
MDA/DTR (Mr. Wheeler)

Enclosures: As stated

Enclosure 1: Map Showing Location of Courtland Facility, Alabama



Enclosure 2: Area of Potential Effect



preserveALA
ALABAMA HISTORICAL COMMISSION

May 21, 2006

Crate J. Spears
Environmental Manager
Department of Defense, Missile Defense Agency
7100 Defense Pentagon
Washington, D.C. 20301-7100

Re: AHC 2006-0780; Environmental Assessment for the Proposed Expansion of Lockheed Martin Courtland Facility, Lawrence County, Alabama

Dear Mr. Spears:

468 South Perry Street
Montgomery, Alabama
36130-0900

tel 334 242•3184
fax 334 240•3477

Upon review of the above referenced project, the Alabama Historical Commission has determined that we will need additional information in order to complete our review of your project. Please complete and return the enclosed Project Review Consultation Form and Survey Form. The Survey Form should be completed for each structure over 50 years old located within or adjacent to each project area. Please note that we will need the project areas plotted on a USGS topographic map at a scale of approximately 1: 50,000 and color photos of the project area. These forms indicate the information required for a timely and adequate review of your project.

Please be aware that our agency does not coordinate federal undertakings with Native American tribes. Please contact Robert Thrower, Tribal Historic preservation Officer for the Poarch Creek Indians, for assistance at

5811 Jack Springs Road
Atmore, Alabama 36502
251-368-9136 ext. 2281
rgthrower@hotmail.com

We appreciate your efforts on this issue. Should you have any questions, please contact Amanda McBride of our office. Please reference the AHC tracking number above in all correspondence.

Very truly yours,

Elizabeth Ann Brown
Deputy State Historic Preservation Officer

EAB/ALM/alm

Enclosure: PRC Form and Survey Form

Alabama Historical Commission
468 S. Perry St.
Montgomery, AL 36130-0900
334-242-3184

PROJECT REVIEW CONSULTATION

APPLICANT_____ PROJECT COUNTY_____

ADDRESS_____ CITY_____ STATE____ ZIP_____

CONTACT PERSON_____ TELEPHONE_____

ADDRESS_____ CITY_____ STATE____ ZIP_____

FEDERAL PROGRAM_____ TYPE OF ASSISTANCE_____

SIGNATURE_____ DATE_____

I. GENERAL INFORMATION

1. Project description_____
_____
_____

2. Has the identical project been previously submitted for review? If yes, enclose a copy of the State Historic Preservation Officer's comments. (Y/N):_____

3. Give the project's Township, Range, and Section description.

TOWNSHIP_____ RANGE_____ SECTION_____

4. How many acres are in the project area?_____

5. Attach a clearly labeled copy of a USGS topographic map indicating the precise location of the project. (Be sure to include the name of the quad sheet from which it came.)

6. Please provide at least one representative photograph of the project area, and be sure to include directional information (facing east, northwest, etc.).

II. STANDING STRUCTURE INFORMATION

1. Will the project involve the rehabilitation, relocation, or demolition of any structure over 50 years old? (Y/N)_____

2. If yes, what was the date of construction?_____

3. Attach photographs of the front and rear elevations.

4. Have plans and specifications for the rehabilitation, relocation, or demolition been completed? If yes, enclose a copy of those plans. (Y/N)_____

5. Are there any structures over 50 years old that are adjacent to or within sight of any of the boundaries of the proposed project? (Y/N)_____

6. If yes, what was the date of construction?_____

7. If applicable, enclose a brief contextual overview of information relating to the historic background of any structure, site, or districts within the project area or pertaining to any adjacent structures, sites or districts.(i.e. Its relationship to any historic events, persons, industries or commerce.)

8. Attach photographs of any structures over 50 years old adjacent to the project area.

9. Is the rehabilitation, relocation, or demolition located within or near a nationally designated historic district, site or structure? If yes, give the name of the district, site or structure. (Y/N)_____

Name:_____

III. SITE INFORMATION

1. To your knowledge, has a cultural resource assessment been conducted in the proposed porject area? If yes, enclose a copy of the archaeologist's report. (Y/N)_____

2. Has the ground at the project location been disturbed other than by agriculture? If yes, please describe the ground disturbance.(Y/N)_____
_____

3. Describe the present use and condition of the property._____
_____
_____

IV ADDITIONAL INFORMATION

Please elaborate on the above questions and/or include any additional information you feel may be helpful in the review process of your project. Attach additional pages if necessary.

Alabama Historical Commission Survey Form

Survey Number:	Section/Township/Range: - -
County:	Quadrangle:
Property Name:	Proximity to Town: ☐Unknown ☐N/A ☐Within town limits ☐Within 1 mile ☐1-5 miles ☐5-10 miles
Property Address:	Property Category: ☐Building ☐District
City: Zip:	Related Resource Group (Mill village, farm, suburb):
Photograph Number: Roll Numbers(s)	Surveyor:
Negative Number(s)	Survey Date:

[Construction Date]
☐circa

[Height]:
☐N/A ☐Other:
☐1 story ☐1 ½ story ☐2 story
☐2 ½ story ☐3 story
☐Basement?

[Use]
Historic
. Current
. .
☐☐Unknown
☐☐Other
☐☐Agriculture
☐☐Cemetery
☐☐Commerce/Trade
☐☐Defense
☐☐Education
☐☐Government
☐☐Health Care
☐☐Industry/Processing
☐☐Multiple Dwelling
☐☐Recreation/Culture
☐☐Religion
☐☐Secondary Structure
☐☐Single Dwelling—farm
☐☐Single Dwelling—Non farm
☐☐Social
☐☐Transportation
☐☐Vacant/Not in Use

Historic Function:
Current Function:

[Common Form]
[Commercial, Religious & Residential]
☐Unknown ☐N/A
☐With Ell
☐Other:
☐Akron Plan—religious
☐Bungalow
☐Central Passage(Hall)
☐Coastal/Creole Cottage
☐Contemporary
☐Cross gable—religious—tower in ell
☐Dogtrot
☐Double pen
☐Double Pile
☐Double Shotgun
☐E-Plan
☐Extended I-house
☐Foursquare
☐Free standing commercial —flat roof
☐Free standing commercial—gable front
☐Free standing commercial—parapet front
☐Front gable—center steeple--religious
☐Front gable—central tower--religious
☐Front gable—no steeple--religious
☐Front gable—side steeple--religious
☐Front gable—side tower--religious
☐Front gable—twin tower--religious
☐Gas Station
☐H-plan
☐I-house
☐Irregular
☐L-plan
☐Manufactured Home
☐Massed plan
☐Minimal Traditional
☐One-part commercial block
☐Pyramidal
☐Quonset
☐Raised Cottage
☐Ranch
☐Rectangular Plan
☐Rotunda Plan--religious
☐Saddlebag
☐Shed
☐Shotgun
☐Side Hall
☐Single pen
☐Split Level
☐Spraddle roof
☐Square Plan
☐Temple Front—commercial
☐Three-part vertical--commercial
☐Tidewater Cottage
☐T-plan
☐Two-part commercial block
☐U-Plan
☐Vault--commercial
☐Vertical block--commercial

[Style Elements]
☐Common Form with no stylistic details

☐Common Form with stylistic details
[Select all that apply]
☐Federal
☐Greek Revival
☐Italianate
☐Gothic Revival
☐Queen Anne
☐Stick/Eastlake
☐Second Empire
☐Romanesque Revival
☐Renaissance Revival
☐Colonial Revival
☐Classical Revival
☐Tudor Revival
☐Mediterranean/Spanish Revival
☐Craftsman
☐Art Moderne
☐Art Deco
☐Classical Modern
☐International
☐Miesian
☐New Formalism
☐Brutalsim
☐Other:

[High Style]
[Select all that apply]
☐Federal
☐Greek Revival
☐Italianate
☐Gothic Revival
☐Queen Anne
☐Stick/Eastlake
☐Second Empire
☐Romanesque Revival
☐Renaissance Revival
☐Colonial Revival
☐Tudor Revival
☐Classical Revival
☐Mediterranean/Spanish Revival
☐Craftsman
☐Art Moderne
☐Art Deco
☐Classical Modern
☐International
☐Miesian
☐New Formalism
☐Brutalism
☐Other:

[Main Roof Configuration]
☐N/A
☐Unknown
☐Other:
☐Clipped gable
☐Conical
☐Cross gable
☐Flat
☐Front gable
☐Gable on hip
☐Gambrel
☐Hip
☐Hip on gable
☐Hip with cross gables
☐Hip with double front gables
☐Hip with triple front gables
☐Mansard
☐Monitor
☐Multi-gable
☐Pyramidal
☐Round
☐Sawtooth
☐Shed
☐Side gable
☐Spraddle
☐Vaulted

[Roof Material]
☐N/A
☐Other:
☐Asphalt
☐Built-up
☐Composite
☐Metal
☐Slate
☐Tar
☐Tile
☐Wood

[Features]
☐N/A
☐Other:
☐Belfry
☐Decorative dormer
☐Decorative gable
☐Dormer
☐Parapet
☐Steeple/Spire
☐Tower/Turret

[Chimney Configuration]
☐No chimneys present

Number of Exterior
Materials #1 Materials #3
Materials #2 Materials #4

Number of Interior
Materials #1 Materials #3
Materials #2 Materials #4

Number of Central
Materials #1 Materials #3
Materials #2 Materials #4

[Chimney Configuration continued]
Number of End
Materials #1 Materials #3
Materials #2 Materials #4

Number of Front
Materials #1 Materials #3
Materials #2 Materials #4

[Exterior Wall Material]

Primary
. Secondary
. . Replacement
. . .
☐☐☐N/A
☐☐☐Unknown
☐☐☐Other:
☐☐☐Aluminum Siding
☐☐☐Asphalt
☐☐☐Beaded Weatherboard
☐☐☐Board & Batten
☐☐☐Brick—Common Bond
☐☐☐Brick—Flemish Bond
☐☐☐Brick—Mixed Bond
☐☐☐Brick—Other
☐☐☐Brick—Undetermined Bond
☐☐☐Brick—veneer
☐☐☐Cast Iron
☐☐☐Composite
☐☐☐Concrete—Block
☐☐☐Concrete—Cast
☐☐☐Concrete—Molded Block
☐☐☐Concrete—Poured
☐☐☐Corrugated Metal
☐☐☐Curtain Wall
☐☐☐Drop Siding/Novelty Siding
☐☐☐Fiberglass
☐☐☐Flushboard
☐☐☐Glass Block
☐☐☐Log—Diamond notch
☐☐☐Log—Full Dovetail
☐☐☐Log—Half Dovetail
☐☐☐Log—Saddle Notch
☐☐☐Log—Square Notch
☐☐☐Log—V-Notch
☐☐☐Log with Weatherboard
☐☐☐Permastone
☐☐☐Pigmented Structural Glass
☐☐☐Plate Glass
☐☐☐Plastic
☐☐☐Plywood
☐☐☐Porcelain Enameled Metal
☐☐☐Sheet Metal
☐☐☐Stone—Cut
☐☐☐Stone—Natural
☐☐☐Stucco
☐☐☐Terra Cotta
☐☐☐Tile
☐☐☐Vertical Board
☐☐☐Vinyl Siding
☐☐☐Weatherboard
☐☐☐Wood Shingle

[Principal Porch Integrity]
☐N/A
☐Other:
☐Altered
☐Not original—contemporary
☐Not original—historic
☐Original
☐Reconstruction
☐Removed or fallen

[Principal Porch Type]
☐N/A
☐Unknown
☐Other:
☐Attached
☐Door hood
☐Entry porch
☐Inset/Loggia
☐Porte Cochere
☐Recessed
☐Stoop

[Foundation Material]
☐N/A
☐Unknown
☐Other:
☐Brick
☐Concrete--Block
☐Concrete--Poured
☐Stone
☐Wood

[Foundation Type]
☐N/A
☐Unknown
☐Other:
☐Continuous
☐Piers
☐Piers with infill
☐Slab

[Principal Window Pane Configuration]
(4/4, 6/6, 4/1, etc.) _____

[Principal Window Type]
☐N/A
☐Unknown
☐Other:
☐Awning
☐Casement
☐Double Hung
☐Fixed
☐Hopper
☐Jalousie

[Window Material]
☐Other:
☐Metal
☐Synthetic
☐Wood

[Landscape features]
☐N/A
☐Unknown
☐Other:
☐Casual/unplanned yard
☐Designed drives/walks
☐Designed plantings/beds
☐Designed fencing/walls
☐Drainage/irrigation systems
☐Fence/Hedgerows
☐Field systems
☐Formal/geometric features
☐Informal/Picturesque
☐Pasture
☐Pecan/other groves/orchards
☐Pond
☐Terracing/contouring
☐Woods

[National Register]
☐Not listed
☐Individually Listed
☐Listed in District
Registered as:

[WRITTEN DESCRIPTION]
[ADDITIONAL INFORMATION]
[SKETCHES]

DEPARTMENT OF DEFENSE
MISSILE DEFENSE AGENCY
7100 DEFENSE PENTAGON
WASHINGTON, DC 20301-7100

JUN 14 2006

Elizabeth Ann Brown
Interim Executive Director
Alabama Historical Commission
Alabama State Historic Preservation Office (ALSHPO)
468 South Perry Street
Montgomery, AL 36130

Re: AHC 2006- 0780; Environmental Assessment for the Proposed Expansion of the Lockheed Martin Courtland Facility, Courtland, Alabama

Dear Ms. Brown:

In response to your letter dated May 21, 2006, we have completed the Project Review Consultation form and Survey Form required for the Alabama Historical Commission review. The appropriate photographs and maps can be found on the attached CD. Three types of structures that are more than 50 years old were located in and around the proposed project area: two chimneys, several concrete slab building pads and a concrete apron. Note that none of the structures are buildings. Also note that none of the structures over 50 years old identified on the property would be impacted by the construction.

We request that you respond by as soon as it is feasible within a 30 calendar-day timeframe so that we may conduct any necessary follow-up activities, and incorporate your response into the scope of study, as appropriate. If we do not hear back from you within that time frame, we will assume concurrence and will send a copy of the Draft EA when completed.

Thank you for your assistance in this matter. If you require further information to complete this request, please do not hesitate to contact me at (703) 697-4123 or Crate.Spears@mda.mil.

Sincerely,

CRATE SPEARS
Environmental Manager

cc: Deborah K. Shaver, ICF Consulting
George Wheeler, MDA

Enclosures:
As stated

Alabama Historical Commission
468 S. Perry St.
Montgomery, AL 36130-0900
334-242-3184

PROJECT REVIEW CONSULTATION

APPLICANT **Missile Defense Agency** PROJECT COUNTY **Lawrence**

ADDRESS **7100 Defense Pentagon, Washington, DC 20301-7100**

CONTACT PERSON **Crate Spears, Environmental Manager**

TELEPHONE **(703) 697-4123**

FEDERAL PROGRAM **Target missile assembly building, road and railspur construction at the Lockheed Martin Space Systems Company site, 200 Lockheed Martin Way, Courtland, Alabama, 35618.**

TYPE OF ASSISTANCE **N/A**

SIGNATURE 

DATE **June 13, 2006**

I. GENERAL INFORMATION

1. **Project Description**

   The Missile Defense Agency is proposing to construct six new surface buildings, access roads, utilities extensions and a new railroad spur. Building construction would take place solely on property owned and operated by Lockheed Martin. Rail construction would take place on Lockheed Martin Space Systems Company property and on Lawrence County property. Attached pictures show the location of the proposed buildings, roads and railspur. None of the structures over 50 years old identified on the property or adjacent would be impacted by the construction.

2. **Has the identical project been previously submitted for review?** No.

3. **Location:** Township: 4 South Range: 8 West Section: 36 and extends West into Section 35.

4. **How many acres are in the project area?** 11 acres.

5. USGS 7.5 Minute Courtland Quadrangle, Lawrence County, Alabama map attached.

6. **Representative photographs of the project area are attached with directional information.**

II. STANDING STRUCTURE INFORMATION

1. **Will the project involve the rehabilitation, relocation, or demolition of any structure over 50 years old?** Yes, part of a concrete apron.

2. **If yes, what was the date of construction?** Circa 1942.

3. **Attach photographs of the front and rear elevations.** Not applicable. All buildings and rail spur would be constructed on flat ground. The only demolition would be associated with the break up of part of the concrete apron.

4. **Have plans and specifications for the rehabilitation, relocation, or demolition been completed?** No.

5. **Are there any structures over 50 years old that are adjacent to or within sight of any of the boundaries of the proposed project?** Yes.

6. **If yes, what was the date of construction?** Circa 1942.

7. **If applicable, enclose a brief contextual overview of information relating to the historic background of any structure, site, or districts with in the project area or pertaining to any adjacent structures, sites or districts (i.e., its relationship to any historical events, person, industries, or commerce).**

   The U.S. War Department used the property from 1942 to 1944 as an Army Air Force basic flying school for pilot training. It consisted of a housing area, runways, aprons, control tower, and other facilities needed to maintain a complete Army airfield installation. Abandoned on the property now occupied by Lockheed Martin Space Systems Company are:

   - **Two (2) chimneys** that are approximately 9 meters (30 feet) high and made of brick. They are located about 91 meters (300 feet) from the nearest proposed construction site on the concrete apron (see below). The chimneys are not within the proposed construction areas and would not be impacted by proposed activities at the site.

   - **Several concrete building pads.** These pads are the remains of building foundations from the Courtland Army Airbase. At least two building pads are found on Lockheed Martin Space Systems Company property. No known pads are within the proposed construction areas.

In addition, several building pads (an unknown number) are located along County Road 495 on the Valley Landing Golf Course. They are approximately 914 meters (3000 feet) away from the Lockheed Martin property line.

- **Concrete apron** located 122 meters (400 feet) from the inactive runway on Lockheed Martin Space Systems Company property. Approximately 13,100 square feet of the concrete would be removed for the construction of one building. No other activities would impact the apron or the runway.

8. **Photographs of the chimneys, building pads and concrete apron are attached and their locations marked on the aerial map.**

9. **Is the rehabilitation, relocation, or demolition located within or near a nationally designated historic district, site or structure?**

   Yes. The Courtland Historic District is located 0.93 kilometers (0.58 miles) from the beginning of the proposed rail spur and 1.9 kilometers (1.2 miles) from the Lockheed Martin Space Systems Company property line.

III. SITE INFORMATION

1. **To our knowledge, NO cultural resource assessment has been conducted of the proposed project area.**

2. **Has the ground at the project location been disturbed other than by agriculture?**

   No, the land designated for the construction of new buildings, roads and rail spur has not been disturbed by any activities other than agriculture. (The exception is that the land under the concrete apron was disturbed by the apron's construction.) The land not designated for new construction has been disturbed by agriculture as well as for the prior construction of ten Lockheed Martin buildings on 200 fenced acres.

3. **Describe the present use and condition of the property.**

   Presently, the 600 acre property is owned by Lockheed Martin Space Systems Company, which has about 40 employees. The facility is being used for a Department of Defense Missile Defense Agency missile assembly program.

Alabama Historical Commission Survey Form

Survey Number:	Section/Township/Range: 35 / 4 SOUTH / 8 WEST
County: LAWRENCE	Quadrangle: COURTLAND
Property Name: LOCKHEED MARTIN SPACE SYSTEMS COMPANY	Proximity to Town: ☐Unknown ☐N/A ☑Within town limits ☐Within 1 mile ☐1-5 miles ☐5-10 miles
Property Address: 200 LOCKHEED MARTIN WAY	Property Category: ☐Building ☐District INDUSTRIAL AIRPARK
City: COURTLAND Zip: 35618	Related Resource Group (Mill village, farm, suburb):
Photograph Number: Roll Numbers(s) Negative Number(s)	Surveyor: Survey Date: 6-13-06

[Construction Date]
☑circa 1942

[Height]:
☐N/A ☐Other:
☐1 story ☐1 ½ story ☐2 story
☐2 ½ story ☐3 story
☐Basement?

[Use]
Historic
Current

☐☐Unknown
☐☑Other
☐☐Agriculture
☐☐Cemetery
☐☐Commerce/Trade
☐☐Defense
☐☑Education
☑☐Government
☐☐Health Care
☐☐Industry/Processing
☐☐Multiple Dwelling
☐☐Recreation/Culture
☐☐Religion
☐☐Secondary Structure
☐☐Single Dwelling—farm
☐☐Single Dwelling—Non farm
☐☐Social
☐☐Transportation
☐☐Vacant/Not in Use

Historic Function: CONCRETE APRON
Current Function: SAME

[Common Form]
[Commercial, Religious & Residential]
☐Unknown ☑N/A
☐With Ell
☐Other:
☐Akron Plan—religious
☐Bungalow
☐Central Passage(Hall)
☐Coastal/Creole Cottage
☐Contemporary
☐Cross gable—religious—tower in ell
☐Dogtrot
☐Double pen
☐Double Pile
☐Double Shotgun
☐E-Plan
☐Extended I-house
☐Foursquare
☐Free standing commercial —flat roof
☐Free standing commercial—gable front
☐Free standing commercial—parapet front
☐Front gable—center steeple--religious
☐Front gable—central tower--religious
☐Front gable—no steeple--religious
☐Front gable—side steeple--religious
☐Front gable—side tower--religious
☐Front gable—twin tower--religious
☐Gas Station
☐H-plan
☐I-house
☐Irregular
☐L-plan
☐Manufactured Home
☐Massed plan
☐Minimal Traditional
☐One-part commercial block
☐Pyramidal
☐Quonset
☐Raised Cottage
☐Ranch
☐Rectangular Plan
☐Rotunda Plan--religious
☐Saddlebag
☐Shed
☐Shotgun
☐Side Hall
☐Single pen
☐Split Level
☐Spraddle roof
☐Square Plan
☐Temple Front—commercial
☐Three-part vertical--commercial
☐Tidewater Cottage
☐T-plan
☐Two-part commercial block
☐U-Plan
☐Vault--commercial
☐Vertical block--commercial

[Style Elements]
☑Common Form with no stylistic details

☐Common Form with stylistic details
[Select all that apply]
☐Federal
☐Greek Revival
☐Italianate
☐Gothic Revival
☐Queen Anne
☐Stick/Eastlake
☐Second Empire
☐Romanesque Revival
☐Renaissance Revival
☐Colonial Revival
☐Classical Revival
☐Tudor Revival
☐Mediterranean/Spanish Revival
☐Craftsman
☐Art Moderne
☐Art Deco
☐Classical Modern
☐International
☐Miesian
☐New Formalism
☐Brutalsim
☐Other:

[High Style]
[Select all that apply]
☐Federal
☐Greek Revival
☐Italianate
☐Gothic Revival
☐Queen Anne
☐Stick/Eastlake
☐Second Empire
☐Romanesque Revival
☐Renaissance Revival
☐Colonial Revival
☐Tudor Revival
☐Classical Revival
☐Mediterranean/Spanish Revival
☐Craftsman
☐Art Moderne
☐Art Deco
☐Classical Modern
☐International
☐Miesian
☐New Formalism
☐Brutalism
☐Other:

[Main Roof Configuration]
☑N/A
☐Unknown
☐Other:
☐Clipped gable
☐Conical
☐Cross gable
☐Flat
☐Front gable
☐Gable on hip
☐Gambrel
☐Hip
☐Hip on gable
☐Hip with cross gables
☐Hip with double front gables
☐Hip with triple front gables
☐Mansard
☐Monitor
☐Multi-gable
☐Pyramidal
☐Round
☐Sawtooth
☐Shed
☐Side gable
☐Spraddle
☐Vaulted

[Roof Material]
☑N/A
☐Other:
☐Asphalt
☐Built-up
☐Composite
☐Metal
☐Slate
☐Tar
☐Tile
☐Wood

[Features]
☑N/A
☐Other:
☐Belfry
☐Decorative dormer
☐Decorative gable
☐Dormer
☐Parapet
☐Steeple/Spire
☐Tower/Turret

[Chimney Configuration]
☑No chimneys present

Number of Exterior
Materials #1 Materials #3
Materials #2 Materials #4

Number of Interior
Materials #1 Materials #3
Materials #2 Materials #4

Number of Central
Materials #1 Materials #3
Materials #2 Materials #4

[Chimney Configuration continued]
Number of End
Materials #1 Materials #3
Materials #2 Materials #4

Number of Front
Materials #1 Materials #3
Materials #2 Materials #4

[Exterior Wall Material]

Primary
Secondary
Replacement
☑ ☑ ☑ N/A
☐ ☐ ☐ Unknown
☐ ☐ ☐ Other:
☐ ☐ ☐ Aluminum Siding
☐ ☐ ☐ Asphalt
☐ ☐ ☐ Beaded Weatherboard
☐ ☐ ☐ Board & Batten
☐ ☐ ☐ Brick—Common Bond
☐ ☐ ☐ Brick—Flemish Bond
☐ ☐ ☐ Brick—Mixed Bond
☐ ☐ ☐ Brick—Other
☐ ☐ ☐ Brick—Undetermined Bond
☐ ☐ ☐ Brick—veneer
☐ ☐ ☐ Cast Iron
☐ ☐ ☐ Composite
☐ ☐ ☐ Concrete—Block
☐ ☐ ☐ Concrete—Cast
☐ ☐ ☐ Concrete—Molded Block
☐ ☐ ☐ Concrete—Poured
☐ ☐ ☐ Corrugated Metal
☐ ☐ ☐ Curtain Wall
☐ ☐ ☐ Drop Siding/Novelty Siding
☐ ☐ ☐ Fiberglass
☐ ☐ ☐ Flushboard
☐ ☐ ☐ Glass Block
☐ ☐ ☐ Log—Diamond notch
☐ ☐ ☐ Log—Full Dovetail
☐ ☐ ☐ Log—Half Dovetail
☐ ☐ ☐ Log—Saddle Notch
☐ ☐ ☐ Log—Square Notch
☐ ☐ ☐ Log—V-Notch
☐ ☐ ☐ Log with Weatherboard
☐ ☐ ☐ Permastone
☐ ☐ ☐ Pigmented Structural Glass
☐ ☐ ☐ Plate Glass
☐ ☐ ☐ Plastic
☐ ☐ ☐ Plywood
☐ ☐ ☐ Porcelain Enameled Metal
☐ ☐ ☐ Sheet Metal
☐ ☐ ☐ Stone—Cut
☐ ☐ ☐ Stone—Natural
☐ ☐ ☐ Stucco
☐ ☐ ☐ Terra Cotta
☐ ☐ ☐ Tile
☐ ☐ ☐ Vertical Board
☐ ☐ ☐ Vinyl Siding
☐ ☐ ☐ Weatherboard
☐ ☐ ☐ Wood Shingle

[Principal Porch Integrity]
☑ N/A
☐ Other:
☐ Altered
☐ Not original—contemporary
☐ Not original—historic
☐ Original
☐ Reconstruction
☐ Removed or fallen

[Principal Porch Type]
☑ N/A
☐ Unknown
☐ Other:
☐ Attached
☐ Door hood
☐ Entry porch
☐ Inset/Loggia
☐ Porte Cochere
☐ Recessed
☐ Stoop

[Foundation Material]
☐ N/A
☐ Unknown
☐ Other:
☐ Brick
☐ Concrete--Block
☑ Concrete--Poured
☐ Stone
☐ Wood

[Foundation Type]
☐ N/A
☑ Unknown
☐ Other:
☐ Continuous
☐ Piers
☐ Piers with infill
☐ Slab

[Principal Window Pane Configuration]
(4/4, 6/6, 4/1, etc.) _____

[Principal Window Type]
☑ N/A
☐ Unknown
☐ Other:
☐ Awning
☐ Casement
☐ Double Hung
☐ Fixed
☐ Hopper
☐ Jalousie

[Window Material]
☐ Other:
☐ Metal
☐ Synthetic
☐ Wood

[Landscape features]
☑ N/A
☐ Unknown
☐ Other:
☐ Casual/unplanned yard
☐ Designed drives/walks
☐ Designed plantings/beds
☐ Designed fencing/walls
☐ Drainage/irrigation systems
☐ Fence/Hedgerows
☐ Field systems
☐ Formal/geometric features
☐ Informal/Picturesque
☐ Pasture
☐ Pecan/other groves/orchards
☐ Pond
☐ Terracing/contouring
☐ Woods

[National Register]
☑ Not listed
☐ Individually Listed
☐ Listed in District
Registered as:

[WRITTEN DESCRIPTION]
[ADDITIONAL INFORMATION]
[SKETCHES]

Alabama Historical Commission Survey Form

Survey Number:	Section/Township/Range: 35 / 4 South / 8 West
County: LAWRENCE	Quadrangle: COURTLAND
Property Name: LOCKHEED MARTIN SPACE SYSTEMS COMPANY	Proximity to Town: ☐Unknown ☐N/A ☑Within town limits ☐Within 1 mile ☐1-5 miles ☐5-10 miles
Property Address: 200 LOCKHEED MARTIN WAY	Property Category: ☐Building ☐District NA Industrial Airpark
City: COURTLAND Zip: 35618	Related Resource Group (Mill village, farm, suburb):
Photograph Number: Roll Numbers(s)	Surveyor:
Negative Number(s)	Survey Date: 6-13-06

[Construction Date]
☑circa 1942

[Height]:
☐N/A ☐Other:
☐1 story ☐1 ½ story ☑2 story
☐2 ½ story ☐3 story
☐Basement?

[Use]
Historic
Current

☐☐Unknown
☐☐Other
☐☐Agriculture
☐☐Cemetery
☐☐Commerce/Trade
☐☐Defense
☐☐Education
☑☐Government
☐☐Health Care
☐☐Industry/Processing
☐☐Multiple Dwelling
☐☐Recreation/Culture
☐☐Religion
☐☐Secondary Structure
☐☐Single Dwelling—farm
☐☐Single Dwelling—Non farm
☐☐Social
☐☐Transportation
☐☑Vacant/Not in Use

Historic Function: CHIMNEYS
Current Function: NONE

[Common Form]
[Commercial, Religious & Residential]
☐Unknown ☑N/A
☐With Ell
☐Other:
☐Akron Plan—religious
☐Bungalow
☐Central Passage(Hall)
☐Coastal/Creole Cottage
☐Contemporary
☐Cross gable—religious—tower in ell
☐Dogtrot
☐Double pen
☐Double Pile
☐Double Shotgun
☐E-Plan
☐Extended I-house
☐Foursquare
☐Free standing commercial —flat roof
☐Free standing commercial—gable front
☐Free standing commercial—parapet front
☐Front gable—center steeple--religious
☐Front gable—central tower--religious
☐Front gable—no steeple--religious
☐Front gable—side steeple--religious
☐Front gable—side tower--religious
☐Front gable—twin tower--religious
☐Gas Station
☐H-plan
☐I-house
☐Irregular
☐L-plan
☐Manufactured Home
☐Massed plan
☐Minimal Traditional
☐One-part commercial block
☐Pyramidal
☐Quonset
☐Raised Cottage
☐Ranch
☐Rectangular Plan
☐Rotunda Plan--religious
☐Saddlebag
☐Shed
☐Shotgun
☐Side Hall
☐Single pen
☐Split Level
☐Spraddle roof
☐Square Plan
☐Temple Front—commercial
☐Three-part vertical--commercial
☐Tidewater Cottage
☐T-plan
☐Two-part commercial block
☐U-Plan
☐Vault--commercial
☐Vertical block--commercial

[Style Elements]
☑Common Form with no stylistic details

☐Common Form with stylistic details
[Select all that apply]
☐Federal
☐Greek Revival
☐Italianate
☐Gothic Revival
☐Queen Anne
☐Stick/Eastlake
☐Second Empire
☐Romanesque Revival
☐Renaissance Revival
☐Colonial Revival
☐Classical Revival
☐Tudor Revival
☐Mediterranean/Spanish Revival
☐Craftsman
☐Art Moderne
☐Art Deco
☐Classical Modern
☐International
☐Miesian
☐New Formalism
☐Brutalsim
☐Other:

[High Style]
[Select all that apply]
☐Federal
☐Greek Revival
☐Italianate
☐Gothic Revival
☐Queen Anne
☐Stick/Eastlake
☐Second Empire
☐Romanesque Revival
☐Renaissance Revival
☐Colonial Revival
☐Tudor Revival
☐Classical Revival
☐Mediterranean/Spanish Revival
☐Craftsman
☐Art Moderne
☐Art Deco
☐Classical Modern
☐International
☐Miesian
☐New Formalism
☐Brutalism
☐Other:

[Main Roof Configuration]
☑N/A
☐Unknown
☐Other:
☐Clipped gable
☐Conical
☐Cross gable
☐Flat
☐Front gable
☐Gable on hip
☐Gambrel
☐Hip
☐Hip on gable
☐Hip with cross gables
☐Hip with double front gables
☐Hip with triple front gables
☐Mansard
☐Monitor
☐Multi-gable
☐Pyramidal
☐Round
☐Sawtooth
☐Shed
☐Side gable
☐Spraddle
☐Vaulted

[Roof Material]
☑N/A
☐Other:
☐Asphalt
☐Built-up
☐Composite
☐Metal
☐Slate
☐Tar
☐Tile
☐Wood

[Features]
☑N/A
☐Other:
☐Belfry
☐Decorative dormer
☐Decorative gable
☐Dormer
☐Parapet
☐Steeple/Spire
☐Tower/Turret

[Chimney Configuration]
☐No chimneys present

Number of Exterior 2, BRICK
Materials #1 Materials #3
Materials #2 Materials #4

Number of Interior
Materials #1 Materials #3
Materials #2 Materials #4

Number of Central
Materials #1 Materials #3
Materials #2 Materials #4

[Chimney Configuration continued]
Number of End
Materials #1 Materials #3
Materials #2 Materials #4

Number of Front
Materials #1 Materials #3
Materials #2 Materials #4

[Exterior Wall Material]

Primary
Secondary
Replacement

- [x] [x] [x] N/A
- [ ] [ ] [ ] Unknown
- [ ] [ ] [ ] Other:
- [ ] [ ] [ ] Aluminum Siding
- [ ] [ ] [ ] Asphalt
- [ ] [ ] [ ] Beaded Weatherboard
- [ ] [ ] [ ] Board & Batten
- [ ] [ ] [ ] Brick—Common Bond
- [ ] [ ] [ ] Brick—Flemish Bond
- [ ] [ ] [ ] Brick—Mixed Bond
- [ ] [ ] [ ] Brick—Other
- [ ] [ ] [ ] Brick—Undetermined Bond
- [ ] [ ] [ ] Brick—veneer
- [ ] [ ] [ ] Cast Iron
- [ ] [ ] [ ] Composite
- [ ] [ ] [ ] Concrete—Block
- [ ] [ ] [ ] Concrete—Cast
- [ ] [ ] [ ] Concrete—Molded Block
- [ ] [ ] [ ] Concrete—Poured
- [ ] [ ] [ ] Corrugated Metal
- [ ] [ ] [ ] Curtain Wall
- [ ] [ ] [ ] Drop Siding/Novelty Siding
- [ ] [ ] [ ] Fiberglass
- [ ] [ ] [ ] Flushboard
- [ ] [ ] [ ] Glass Block
- [ ] [ ] [ ] Log—Diamond notch
- [ ] [ ] [ ] Log—Full Dovetail
- [ ] [ ] [ ] Log—Half Dovetail
- [ ] [ ] [ ] Log—Saddle Notch
- [ ] [ ] [ ] Log—Square Notch
- [ ] [ ] [ ] Log—V-Notch
- [ ] [ ] [ ] Log with Weatherboard
- [ ] [ ] [ ] Permastone
- [ ] [ ] [ ] Pigmented Structural Glass
- [ ] [ ] [ ] Plate Glass
- [ ] [ ] [ ] Plastic
- [ ] [ ] [ ] Plywood
- [ ] [ ] [ ] Porcelain Enameled Metal
- [ ] [ ] [ ] Sheet Metal
- [ ] [ ] [ ] Stone—Cut
- [ ] [ ] [ ] Stone—Natural
- [ ] [ ] [ ] Stucco
- [ ] [ ] [ ] Terra Cotta
- [ ] [ ] [ ] Tile
- [ ] [ ] [ ] Vertical Board
- [ ] [ ] [ ] Vinyl Siding
- [ ] [ ] [ ] Weatherboard
- [ ] [ ] [ ] Wood Shingle

[Principal Porch Integrity]
- [x] N/A
- [ ] Other:
- [ ] Altered
- [ ] Not original—contemporary
- [ ] Not original—historic
- [ ] Original
- [ ] Reconstruction
- [ ] Removed or fallen

[Principal Porch Type]
- [x] N/A
- [ ] Unknown
- [ ] Other:
- [ ] Attached
- [ ] Door hood
- [ ] Entry porch
- [ ] Inset/Loggia
- [ ] Porte Cochere
- [ ] Recessed
- [ ] Stoop

[Foundation Material]
- [x] N/A
- [ ] Unknown
- [ ] Other:
- [ ] Brick
- [ ] Concrete--Block
- [ ] Concrete--Poured
- [ ] Stone
- [ ] Wood

[Foundation Type]
- [x] N/A
- [ ] Unknown
- [ ] Other:
- [ ] Continuous
- [ ] Piers
- [ ] Piers with infill
- [ ] Slab

[Principal Window Pane Configuration]
(4/4, 6/6, 4/1, etc.) NA

[Principal Window Type]
- [x] N/A
- [ ] Unknown
- [ ] Other:
- [ ] Awning
- [ ] Casement
- [ ] Double Hung
- [ ] Fixed
- [ ] Hopper
- [ ] Jalousie

[Window Material]
- [ ] Other:
- [ ] Metal
- [ ] Synthetic
- [ ] Wood

[Landscape features]
- [x] N/A
- [ ] Unknown
- [ ] Other:
- [ ] Casual/unplanned yard
- [ ] Designed drives/walks
- [ ] Designed plantings/beds
- [ ] Designed fencing/walls
- [ ] Drainage/irrigation systems
- [ ] Fence/Hedgerows
- [ ] Field systems
- [ ] Formal/geometric features
- [ ] Informal/Picturesque
- [ ] Pasture
- [ ] Pecan/other groves/orchards
- [ ] Pond
- [ ] Terracing/contouring
- [ ] Woods

[National Register]
- [x] Not listed
- [ ] Individually Listed
- [ ] Listed in District

Registered as:

[WRITTEN DESCRIPTION]
[ADDITIONAL INFORMATION]
[SKETCHES]

Alabama Historical Commission Survey Form

Survey Number:	Section/Township/Range: 35 / 4 SOUTH / 8 WEST
County: LAWRENCE	Quadrangle: COURTLAND
Property Name: LOCKHEED MARTIN SPACE SYSTEMS COMPANY	Proximity to Town: ☐Unknown ☐N/A ☑Within town limits ☐Within 1 mile ☐1-5 miles ☐5-10 miles
Property Address: 200 LOCKHEED MARTIN WAY	Property Category: ☐Building ☐District INDUSTRIAL AIRPARK
City: COURTLAND Zip: 35618	Related Resource Group (Mill village, farm, suburb):
Photograph Number: Roll Numbers(s)	Surveyor:
Negative Number(s)	Survey Date: 6-13-06

[Construction Date]
☑circa 1942

[Height]:
☑N/A ☐Other:
☐1 story ☐1 ½ story ☐2 story
☐2 ½ story ☐3 story
☐Basement?

[Use]
Historic
Current

- ☐☐Unknown
- ☐☐Other
- ☐☐Agriculture
- ☐☐Cemetery
- ☐☐Commerce/Trade
- ☐☐Defense
- ☐☐Education
- ☑☐Government
- ☐☐Health Care
- ☐☐Industry/Processing
- ☐☐Multiple Dwelling
- ☐☐Recreation/Culture
- ☐☐Religion
- ☐☐Secondary Structure
- ☐☐Single Dwelling—farm
- ☐☐Single Dwelling—Non farm
- ☐☐Social
- ☐☐Transportation
- ☐☑Vacant/Not in Use

Historic Function: BUILDING FOUNDATIONS
Current Function: ↳ NONE

[Common Form]
[Commercial, Religious & Residential]
☐Unknown ☑N/A
☐With Ell
☐Other:
☐Akron Plan—religious
☐Bungalow
☐Central Passage(Hall)
☐Coastal/Creole Cottage
☐Contemporary
☐Cross gable—religious—tower in ell
☐Dogtrot
☐Double pen
☐Double Pile
☐Double Shotgun
☐E-Plan
☐Extended I-house
☐Foursquare
☐Free standing commercial —flat roof
☐Free standing commercial—gable front
☐Free standing commercial—parapet front
☐Front gable—center steeple--religious
☐Front gable—central tower--religious
☐Front gable—no steeple--religious
☐Front gable—side steeple--religious
☐Front gable—side tower--religious
☐Front gable—twin tower--religious
☐Gas Station
☐H-plan
☐I-house
☐Irregular
☐L-plan
☐Manufactured Home
☐Massed plan
☐Minimal Traditional
☐One-part commercial block
☐Pyramidal
☐Quonset
☐Raised Cottage
☐Ranch
☐Rectangular Plan
☐Rotunda Plan--religious
☐Saddlebag
☐Shed
☐Shotgun
☐Side Hall
☐Single pen
☐Split Level
☐Spraddle roof
☐Square Plan
☐Temple Front—commercial
☐Three-part vertical—commercial
☐Tidewater Cottage
☐T-plan
☐Two-part commercial block
☐U-Plan
☐Vault--commercial
☐Vertical block--commercial

[Style Elements]
☑Common Form with no stylistic details

☐Common Form with stylistic details
[Select all that apply]
☐Federal
☐Greek Revival
☐Italianate
☐Gothic Revival
☐Queen Anne
☐Stick/Eastlake
☐Second Empire
☐Romanesque Revival
☐Renaissance Revival
☐Colonial Revival
☐Classical Revival
☐Tudor Revival
☐Mediterranean/Spanish Revival
☐Craftsman
☐Art Moderne
☐Art Deco
☐Classical Modern
☐International
☐Miesian
☐New Formalism
☐Brutalsim
☐Other:

[High Style]
[Select all that apply]
☐Federal
☐Greek Revival
☐Italianate
☐Gothic Revival
☐Queen Anne
☐Stick/Eastlake
☐Second Empire
☐Romanesque Revival
☐Renaissance Revival
☐Colonial Revival
☐Tudor Revival
☐Classical Revival
☐Mediterranean/Spanish Revival
☐Craftsman
☐Art Moderne
☐Art Deco
☐Classical Modern
☐International
☐Miesian
☐New Formalism
☐Brutalism
☐Other:

[Main Roof Configuration]
☑N/A
☐Unknown
☐Other:
☐Clipped gable
☐Conical
☐Cross gable
☐Flat
☐Front gable
☐Gable on hip
☐Gambrel
☐Hip
☐Hip on gable
☐Hip with cross gables
☐Hip with double front gables
☐Hip with triple front gables
☐Mansard
☐Monitor
☐Multi-gable
☐Pyramidal
☐Round
☐Sawtooth
☐Shed
☐Side gable
☐Spraddle
☐Vaulted

[Roof Material]
☑N/A
☐Other:
☐Asphalt
☐Built-up
☐Composite
☐Metal
☐Slate
☐Tar
☐Tile
☐Wood

[Features]
☑N/A
☐Other:
☐Belfry
☐Decorative dormer
☐Decorative gable
☐Dormer
☐Parapet
☐Steeple/Spire
☐Tower/Turret

[Chimney Configuration]
☑No chimneys present

Number of Exterior
Materials #1 Materials #3
Materials #2 Materials #4

Number of Interior
Materials #1 Materials #3
Materials #2 Materials #4

Number of Central
Materials #1 Materials #3
Materials #2 Materials #4

[Chimney Configuration continued]
Number of End
Materials #1 Materials #3
Materials #2 Materials #4

Number of Front
Materials #1 Materials #3
Materials #2 Materials #4

[Exterior Wall Material]

Primary
Secondary
Replacement

- [x] [x] [x] N/A
- [ ] [ ] [ ] Unknown
- [ ] [ ] [ ] Other:
- [ ] [ ] [ ] Aluminum Siding
- [ ] [ ] [ ] Asphalt
- [ ] [ ] [ ] Beaded Weatherboard
- [ ] [ ] [ ] Board & Batten
- [ ] [ ] [ ] Brick—Common Bond
- [ ] [ ] [ ] Brick—Flemish Bond
- [ ] [ ] [ ] Brick—Mixed Bond
- [ ] [ ] [ ] Brick—Other
- [ ] [ ] [ ] Brick—Undetermined Bond
- [ ] [ ] [ ] Brick—veneer
- [ ] [ ] [ ] Cast Iron
- [ ] [ ] [ ] Composite
- [ ] [ ] [ ] Concrete—Block
- [ ] [ ] [ ] Concrete—Cast
- [ ] [ ] [ ] Concrete—Molded Block
- [ ] [ ] [ ] Concrete—Poured
- [ ] [ ] [ ] Corrugated Metal
- [ ] [ ] [ ] Curtain Wall
- [ ] [ ] [ ] Drop Siding/Novelty Siding
- [ ] [ ] [ ] Fiberglass
- [ ] [ ] [ ] Flushboard
- [ ] [ ] [ ] Glass Block
- [ ] [ ] [ ] Log—Diamond notch
- [ ] [ ] [ ] Log—Full Dovetail
- [ ] [ ] [ ] Log—Half Dovetail
- [ ] [ ] [ ] Log—Saddle Notch
- [ ] [ ] [ ] Log—Square Notch
- [ ] [ ] [ ] Log—V-Notch
- [ ] [ ] [ ] Log with Weatherboard
- [ ] [ ] [ ] Permastone
- [ ] [ ] [ ] Pigmented Structural Glass
- [ ] [ ] [ ] Plate Glass
- [ ] [ ] [ ] Plastic
- [ ] [ ] [ ] Plywood
- [ ] [ ] [ ] Porcelain Enameled Metal
- [ ] [ ] [ ] Sheet Metal
- [ ] [ ] [ ] Stone—Cut
- [ ] [ ] [ ] Stone—Natural
- [ ] [ ] [ ] Stucco
- [ ] [ ] [ ] Terra Cotta
- [ ] [ ] [ ] Tile
- [ ] [ ] [ ] Vertical Board
- [ ] [ ] [ ] Vinyl Siding
- [ ] [ ] [ ] Weatherboard
- [ ] [ ] [ ] Wood Shingle

[Principal Porch Integrity]
- [x] N/A
- [ ] Other:
- [ ] Altered
- [ ] Not original—contemporary
- [ ] Not original—historic
- [ ] Original
- [ ] Reconstruction
- [ ] Removed or fallen

[Principal Porch Type]
- [x] N/A
- [ ] Unknown
- [ ] Other:
- [ ] Attached
- [ ] Door hood
- [ ] Entry porch
- [ ] Inset/Loggia
- [ ] Porte Cochere
- [ ] Recessed
- [ ] Stoop

[Foundation Material]
- [ ] N/A
- [ ] Unknown
- [ ] Other:
- [ ] Brick
- [ ] Concrete--Block
- [x] Concrete--Poured
- [ ] Stone
- [ ] Wood

[Foundation Type]
- [ ] N/A
- [x] Unknown
- [ ] Other:
- [ ] Continuous
- [ ] Piers
- [ ] Piers with infill
- [ ] Slab

[Principal Window Pane Configuration]
(4/4, 6/6, 4/1, etc.) _____

[Principal Window Type]
- [x] N/A
- [ ] Unknown
- [ ] Other:
- [ ] Awning
- [ ] Casement
- [ ] Double Hung
- [ ] Fixed
- [ ] Hopper
- [ ] Jalousie

[Window Material]
- [ ] Other:
- [ ] Metal
- [ ] Synthetic
- [ ] Wood

[Landscape features]
- [x] N/A
- [ ] Unknown
- [ ] Other:
- [ ] Casual/unplanned yard
- [ ] Designed drives/walks
- [ ] Designed plantings/beds
- [ ] Designed fencing/walls
- [ ] Drainage/irrigation systems
- [ ] Fence/Hedgerows
- [ ] Field systems
- [ ] Formal/geometric features
- [ ] Informal/Picturesque
- [ ] Pasture
- [ ] Pecan/other groves/orchards
- [ ] Pond
- [ ] Terracing/contouring
- [ ] Woods

[National Register]
- [x] Not listed
- [ ] Individually Listed
- [ ] Listed in District

Registered as:

[WRITTEN DESCRIPTION]
[ADDITIONAL INFORMATION]
[SKETCHES]

preserveALA
ALABAMA HISTORICAL COMMISSION

July 21, 2006

Crate J. Spears
Environmental Manager
Department of Defense, Missile Defense Agency
7100 Defense Pentagon
Washington, D.C. 20301-7100

Re: AHC 2006-0780; Environmental Assessment for the Proposed Expansion of Lockheed Martin Courtland Facility, Lawrence County, Alabama

Dear Mr. Spears:

468 South Perry Street
Montgomery, Alabama
36130-0900

tel 334 242•3184
fax 334 240•3477

Thank you for forwarding additional information regarding the above-referenced project. There are additional issues that need clarification.

1. What were the approximate construction dates for the non-extant structures represented by the chimney and concrete pads? What was the nature/use of the buildings? These areas may contain significant archaeological features associated with the structures. Were the buildings associated with the runways of Courtland AAB?
2. What is the total square footage of the concrete apron?
3. We recommend that the fence crossing the runway should not be solid (a visual divider) so that the runway can still be read as such.
4. Is it possible to avoid crossing the runway with the fence?

We appreciate your efforts on this issue. Should you have any questions, please contact Amanda McBride of our office. Please reference the AHC tracking number above in all correspondence.

Very truly yours,

Elizabeth Ann Brown
Deputy State Historic Preservation Officer

EAB/ALM/SME/alm

DEPARTMENT OF DEFENSE
MISSILE DEFENSE AGENCY
7100 DEFENSE PENTAGON
WASHINGTON, DC 20301-7100

SEP 22 2006

Elizabeth Ann Brown
Interim Executive Director
Alabama Historical Commission
Alabama State Historic Preservation Office (ALSHPO)
468 South Perry Street
Montgomery, AL 36130

Re: AHC 2006-0780; Environmental Assessment for the Proposed Expansion of the Lockheed Martin Courtland Facility, Courtland, Alabama

Dear Ms. Brown:

In response to the request from the Eastern Band of Cherokee Indians of July 17, 2006, the Phase I Archaeological Survey for the proposed expansion of the Lockheed Martin missile assembly and integration facilities in Courtland, Alabama has been completed. The enclosed survey considered all land disturbing activities in the Area of Potential Effect (APE) to identify any potential cultural resources. The survey was conducted in accordance with the "Policy for Archaeological Survey and Testing in Alabama" and concludes that the lack of artifacts in addition to the previous ground disturbance in the APE indicates that the proposed construction activities would have no adverse impacts on prehistoric or historic resources. MDA has reviewed the survey and concurs with this determination.

We seek your concurrence regarding the determination that the proposed expansion activities would have no effect on historic resources. Thank you for your assistance. If you need additional information, please do not hesitate to contact me at (703) 697-4123 or at Crate.Spears@mda.mil.

Sincerely,

Crate J. Spears
Environmental Manager

cc: Deborah K. Shaver, ICF Consulting
Mark Hubbs, Senior Historian, SMDC
George Wheeler, MDA

Enclosure:
As stated

Phase I Archaeological Survey

Proposed Expansion of the Lockheed Martin Courtland Facility, Courtland, Alabama (AHC 2006-0780)

Prepared for:

Department of Defense
Missile Defense Agency
7100 Defense Pentagon
Washington, DC 20301-7100

Prepared by:

U.S. Army Space and Missile Defense Command (USASMDC)
Historical Office
P.O. Box 1500
Huntsville, AL 35807

September 21, 2006

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Table of Figures

ABSTRACT

The U.S. Army Space and Missile Defense Command at the request of the Missile Defense Agency (MDA) conducted a phase I archaeological survey at the Lockheed Martin missile assembly and integration facility at Courtland, Alabama. MDA proposes to expand these facilities which would include construction of six new buildings with associated access roads and a new rail spur line. The area of potential effects (APE) for this project is the 11 acres which would be disturbed as a result of new construction.

A records search revealed that the APE had been extensively disturbed during the construction of Courtland Airbase in 1942. This disturbance included tree clearing, grading, leveling, and the installation of a storm water drainage system under parts of the APE. The APE has also been cultivated extensively since World War II. No prehistoric sites were discovered during this survey, and only a single potential prehistoric chert flake was discovered. A historic artifact scatter was found near the rail spur route but would not be directly impacted by construction.

The lack of artifacts and the previous ground disturbance in the APE indicates that the proposed construction activities described in this survey report would have no adverse impacts to prehistoric or historic resources.

Chapter 1 - Project Background and Environment

Proposed Action

At the request of the MDA, the USASMDC Historical Office conducted a Phase I survey of properties which have the potential to be affected by MDA actions. Consultation with the Alabama Historical Commission for this action began in July 2006 (AHC 2006-0780). It was determined that a Phase I survey was required to determine if prehistoric resources may be in the project area. Under the proposed action, the MDA would construct six new surface buildings with associated access roads and utility extensions adjacent to the southern edge of Lockheed Martin's current missile assembly and integration facility at Courtland, Alabama (see Figures 1 and 2). In addition to the building construction, a railway spur would be constructed to connect the new facilities with an existing World War II era railroad bed. A total of approximately 11 acres would be disturbed by the new construction. Most of the ground disturbance would require clearing and leveling to the depth of approximately six inches. Actual building foundation footers would require trenching. The APE for the project is the area of ground disturbance for the new buildings, access roads and rail spur (see Figure 3).

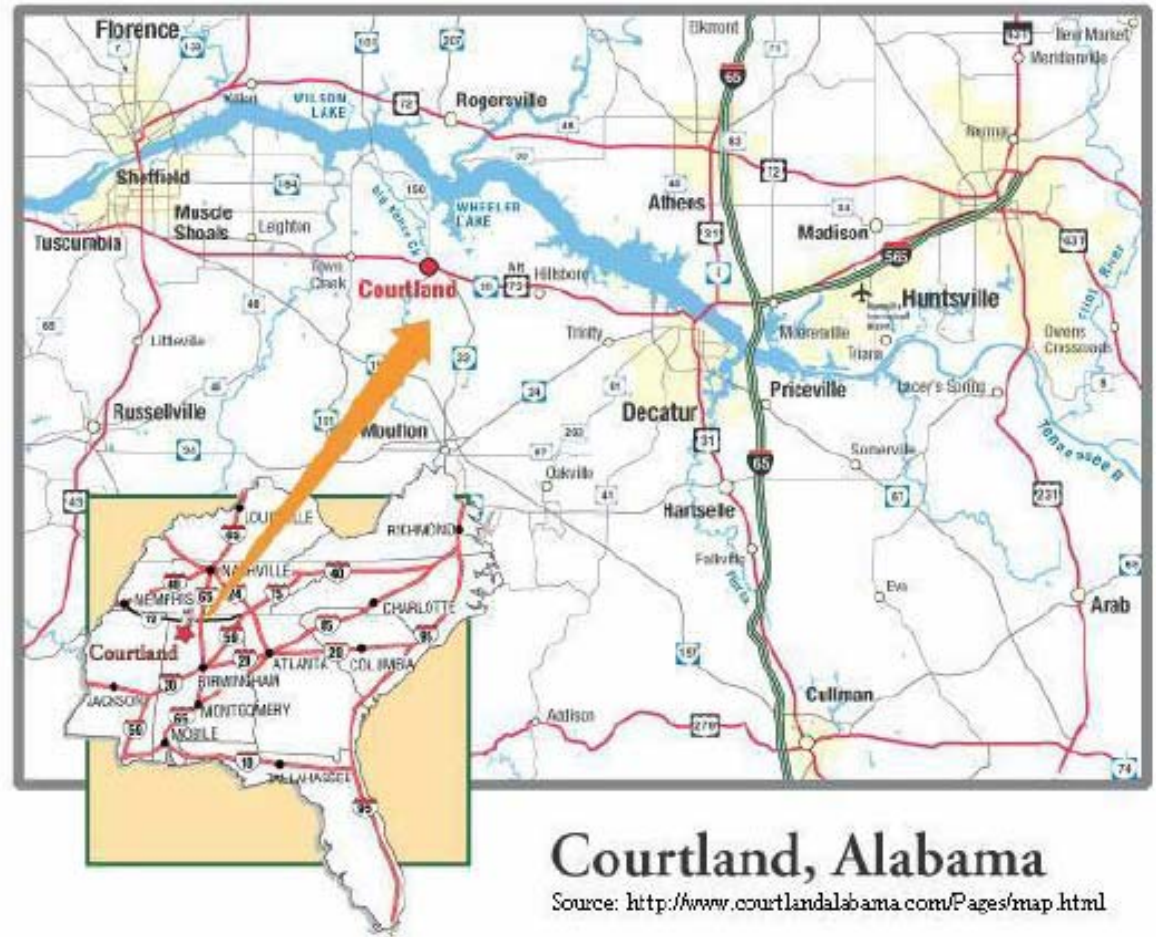


FIGURE 1 – Location of Courtland Site

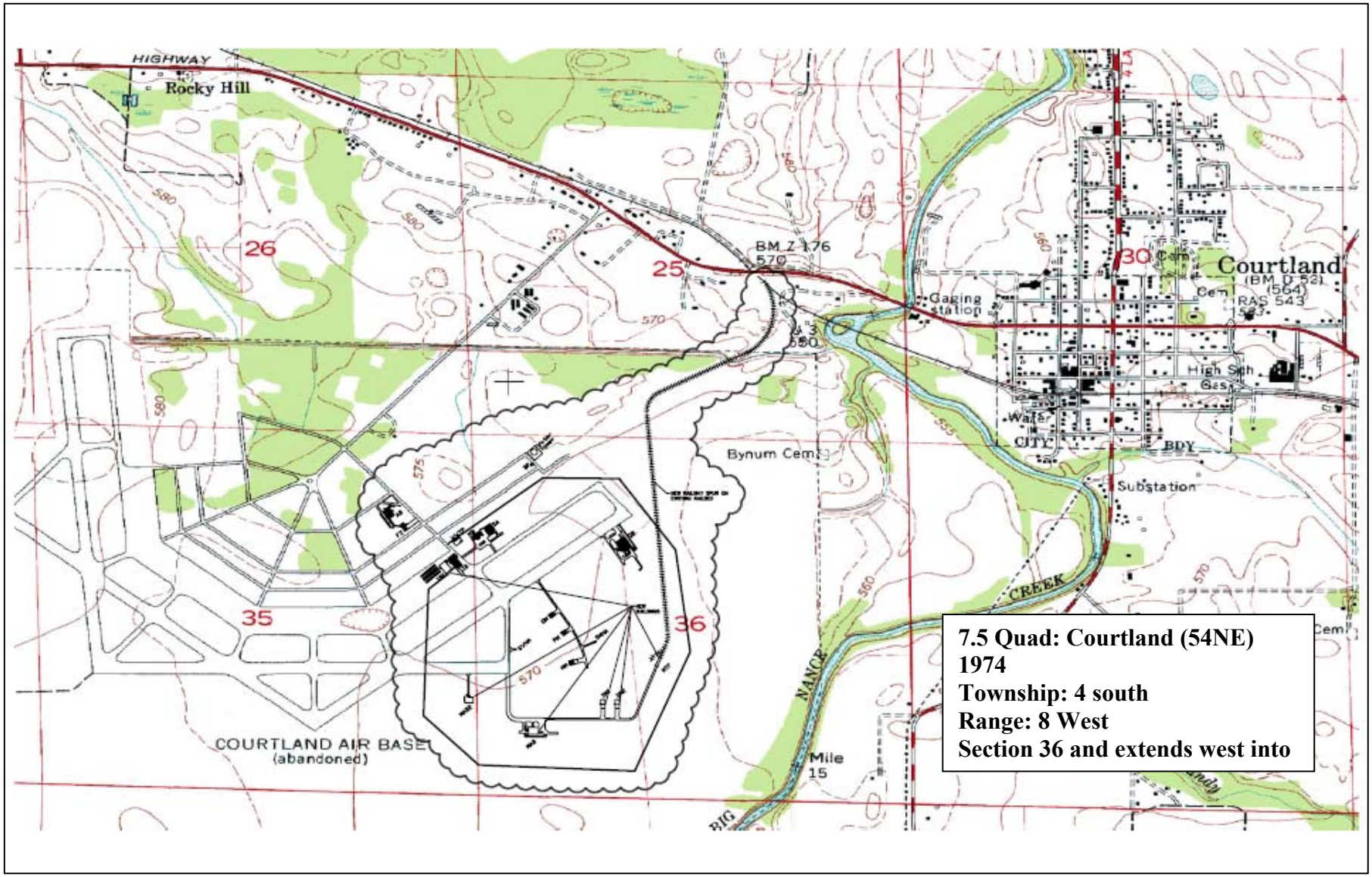


FIGURE 2 – Phase I Project Area

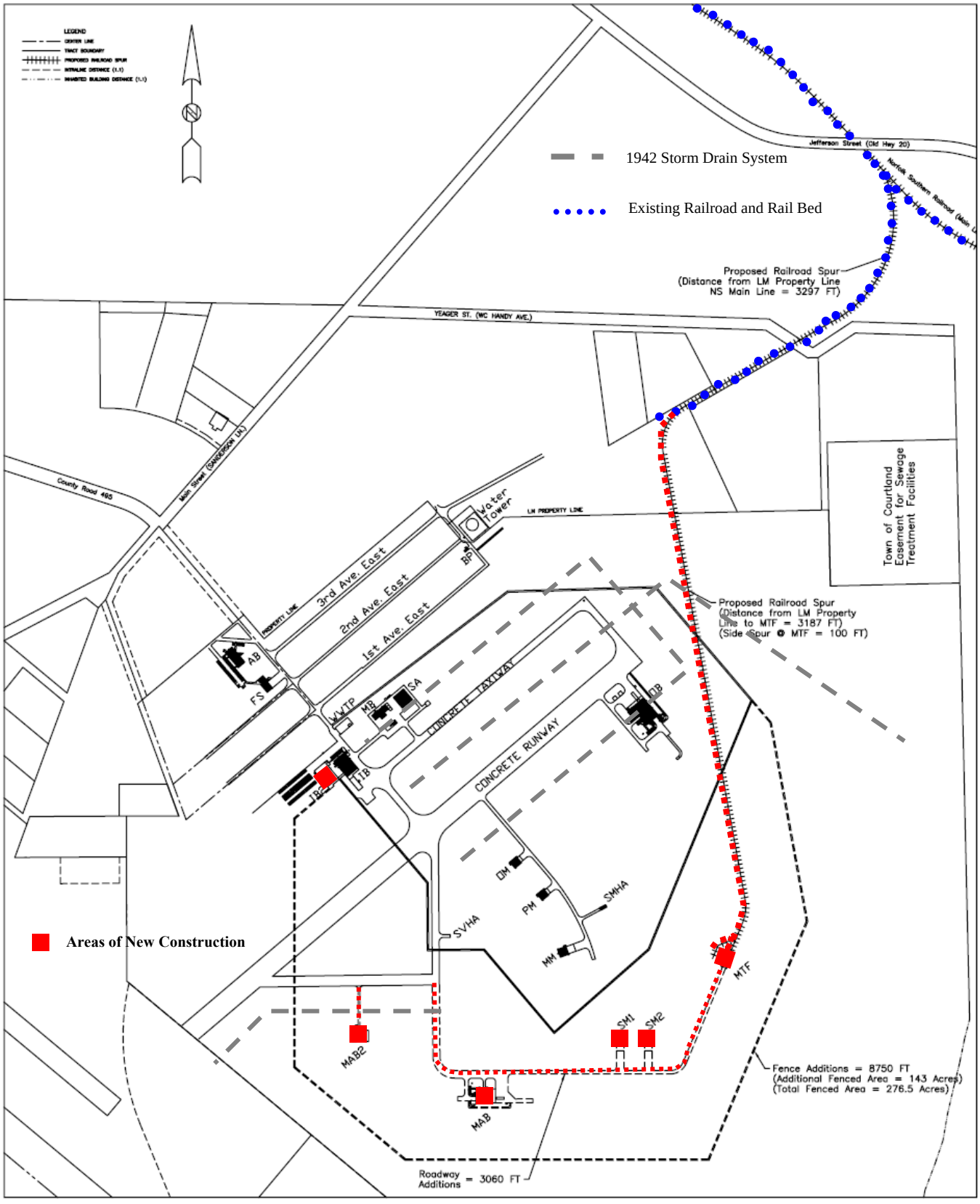


FIGURE 3 – Courtland Project Area of Potential Effects

Literature Search and Records Review - Previous Site Disturbance

The Lockheed Martin Courtland Facility is located 2 miles west of the Courtland town center. Lockheed Martin owns 663 acres of the 2,245 acre George C. Wallace Industrial Air Park. The Industrial Air Park was previously the Courtland Army Airfield. In 1942 the U.S. Army acquired the farmland west of Courtland to build an airfield to house a basic flying school to train pilots during World War II. The mission of the base eventually expanded to include B-24 bomber transition training. Training activities at Courtland ended with the close of World War II, and the base became inactive in 1947.[1]

The property was eventually transferred to state and municipal authorities. The land in what had been the cantonment area was eventually turned into a public golf course. The west runway and associated infrastructure became the Lawrence County Airport. Lockheed Martin acquired the east runway area in 1992. The open areas south of the runways and taxi-ways were eventually put back into cultivation. There are no extant buildings from the World War II period, although several concrete foundations and two 30-foot chimneys can still be seen in parts of the old airbase. None of those resources are in the APE.

Aerial photos from the immediate post war time frame reveal that the ground disturbance for the APE was much greater than previously suspected. A 1949 photo reveals that almost the entire airbase south of the runway complex was cleared and grubbed and all trees and major vegetation were removed. The patchwork of small farms and cultivated areas, as is seen in adjacent properties, has been erased on airbase land due to this disturbance (see Figure 4). Additionally the land immediately adjacent to the runways and taxi-ways out to several hundred feet was graded and leveled to match the surface of the concrete covered runways. This tree clearing and ground leveling was done to remove aboveground aviation safety hazards near the operational area of the airbase. The clearing provided unobstructed views of the landing areas and removed hazards that could be encountered if errant aircraft did not make approaches and landings on the designated runways.

A 1974 as-built plan of the airbase storm water system also indicates that an extensive underground storm drain system extends under part of the APE (see Figure 3).[2] These drains included concrete culverts that were installed approximately four feet underground. A 3 foot by 5 foot concrete drain was installed at ground level approximately every 140 feet along the drainage system. One of these drains was found during the surface survey for Missile Assembly Building #2 (see Figure 5).

A 1960 aerial map shows little change in the landscape around the runways. However maps from 1965 and 1977 show extensive cultivation with numerous farm roads and trails visible in the fields in the APE (see Figure 6).

The current Lockheed Martin complex was constructed in 1994. According to Lockheed Martin on-site personnel, all the area inside the current security fence was graded and leveled during construction activities.

[1] U.S. Army Space and Strategic Defense Command. *Theater High Altitude Area Defense (THAAD) Initial Development Program Environmental Assessment.* Huntsville, AL. March 1994 . P.1-45 and 2-13

[2] Mabry Engineering Company. *Utility Map, General Condition of Utilities, Basic Flying School – Courtland, Alabama.* 1974.

Soils, Topography and Current Ground Conditions

The land in most of the APE was cultivated until last season and some remains of last year's corn crop are still evident. Those areas were not plowed this year. The area in the northern part of the APE is currently planted in cotton. The area where the corn had previously been grown now has scattered corn stalks and various tall brushy plants. The dry weather has prevented grasses from thriving in this area. The ground is mostly bare earth with 60 to 70 percent visibility.

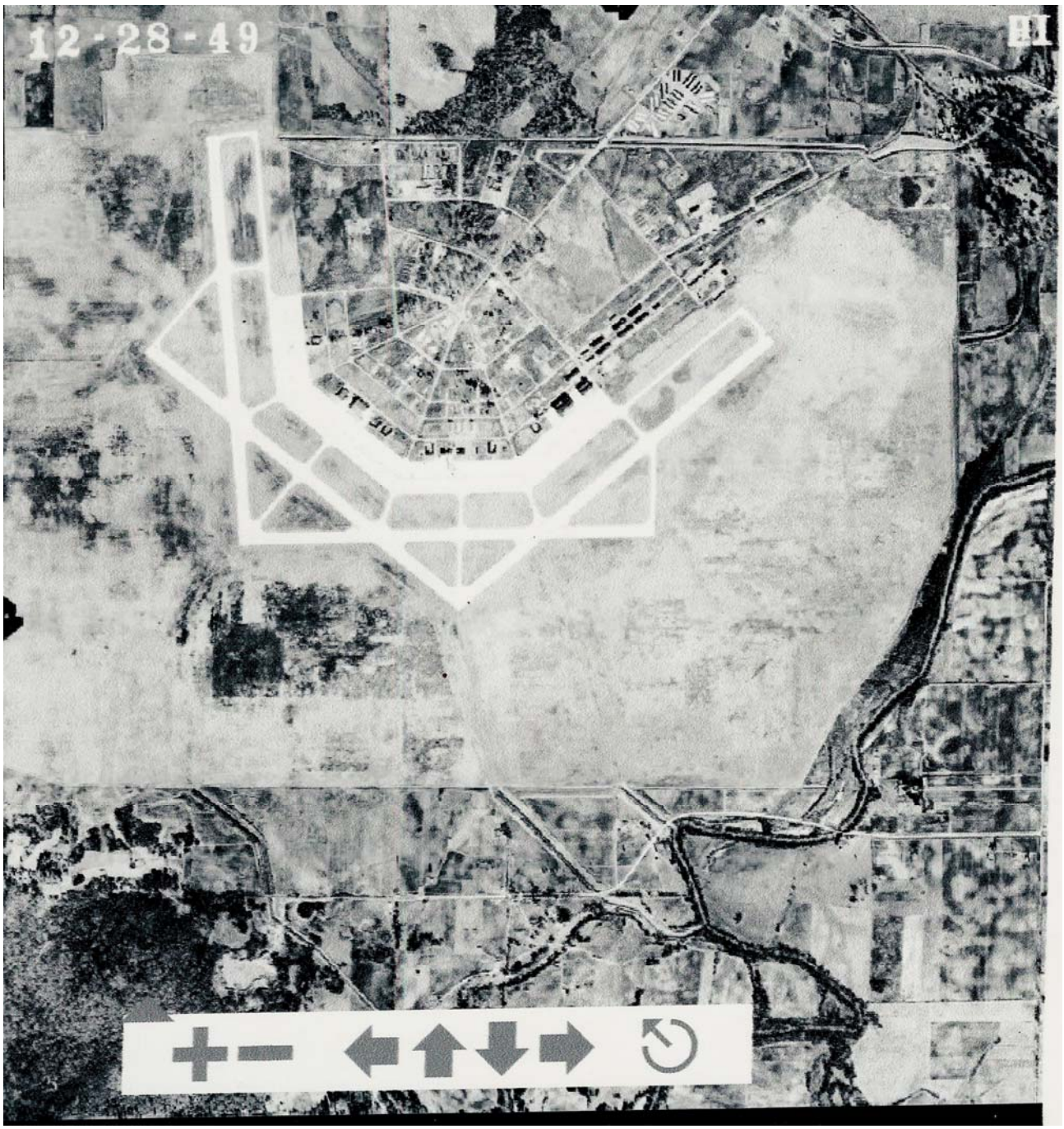


FIGURE 4 - 1949 Aerial Map of Courtland Airbase Showing Extensive Clearing South of the Runway Complex (Courtesy University of Alabama)

FIGURE 5 – Southeast View of Concrete Drain Associated With the 1942 Storm Water Drainage System (Photo by author)

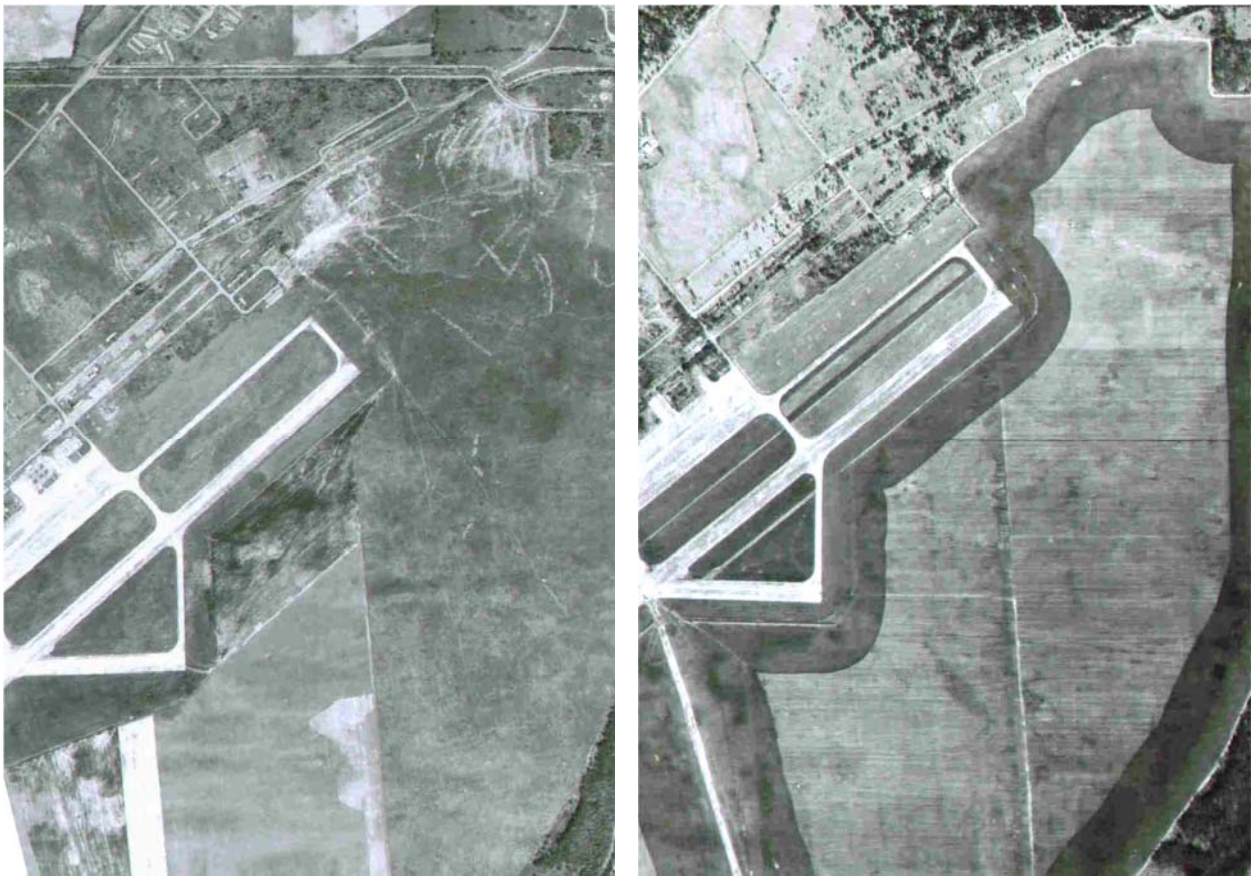


FIGURE 6 - 1965 and 1977 Aerial Photos Showing Cultivation Patterns in the APE (Courtesy Lockheed Martin)

There is no organic loam on the surface of the APE. A sandy, reddish-brown, low plasticity, inorganic clay soil extends from the surface to approximately 16 feet below the surface. A substantial amount of weathered chalky limestone is present on and below the surface.[1] This limestone ranges from gravel to cobble size. The larger cobbles exhibit substantial plow strikes. Shovel Test Pits (STPs) revealed a plow zone of 25 to 30 centimeters. The clay below the plow zone was essentially the same soil and limestone make up, but a slightly darker brown in color.

The ground is level with little variation in elevation. This may be due to the clearing and leveling that was done during the 1942 airbase construction.

[1] Parrish, William K. *Site Inspection Report, Courtland Site Inspection, Courtland Alabama*. Mobile District, US Army Corps of Engineers, 1997. p. 27

CHAPTER 2 - Field Methods and Results

The field work for this project was conducted by Mark Hubbs of the USASMDC Historical Office on September 5th, 6th and 7th 2006. It consisted of an intensive pedestrian survey that was supplemented by STPs on the planned footprint for five of the six planned new buildings. The sixth building will be constructed on the old World War II aircraft parking apron and was discussed with the Alabama Historical Commission in previous correspondence.

The first step in this survey was to consult historical maps and aerial photographs from the airbase to determine the extent of disturbance from the 1942 construction of the airbase. Aerial photos also helped to determine the extent of cultivation in the post-World War II era. No pre-World War II maps or aerial photos were available.

Due to the previously disturbed nature of the ground in the APE as described in Chapter 1, STPs were determined to be unnecessary in the portions of the project area where ground disturbance is not expected to exceed 6 inches (road and rail spur routes). The pedestrian survey was divided into five sections. Each section was designed to cover building footprints and road/rail spur routes that were included in those areas (see Figure 7).

STPs were dug on the footprint of each of the 5 proposed buildings. STPs were dug to approximately 18 to 24 inches deep and the soil was sifted through a ¼ inch screen. Some of the proposed building sites had recent auger holes that were installed by engineers to test soil conditions. The soil from each one of these was also sifted to check for the presence of artifacts (see Figure 8).

Section 1, Missile Assembly Building #2 (MAB2)

MAB#2 is the western-most building of the project and is located about 100 meters due south of a World War II taxi-way. The 1942 storm drainage system was constructed through this same area. Six north-south transects 5 meters apart were walked over this area. The base point for this series of transects was plotted by GPS (N34° 39.298 – WO87° 20.128) at the north-west corner of the survey area.

It was during the walking of these transects that the 3 foot by 5 foot concrete drain from the 1942 storm water drainage system was discovered. A single chert flake was found on the second transect. The flake was not recovered. No other artifacts, prehistoric or historic were discovered.

One STP was dug on the western edge of the building footprint. The soil from a recent auger hole in the center of the footprint was also screened. No prehistoric or historic artifacts were discovered.

Section 2, Missile Assembly Building (MAB)

The MAB is located approximately 300 meters south-east of the MAB2. The base point for this series of transects was located at the north-east corner of the search area at N34° 39.220 – WO87° 20.829. Corn rows in this area were oriented east-west and they greatly facilitated walking transects through this area. Transects were walked every six rows or approximately 12 feet. No prehistoric or historic artifacts were discovered in Section 2.

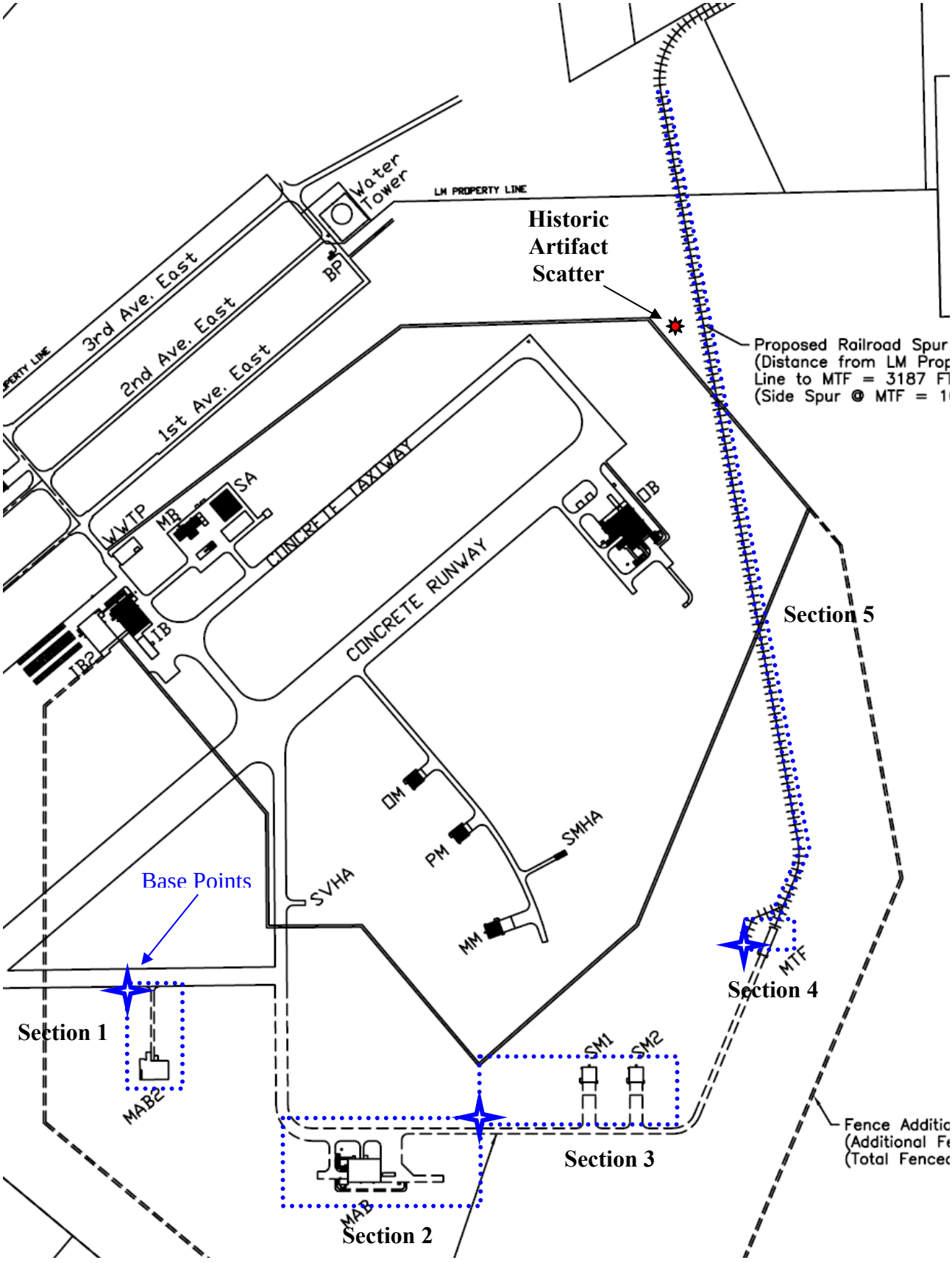


FIGURE 7 - Location of Pedestrian Survey Areas

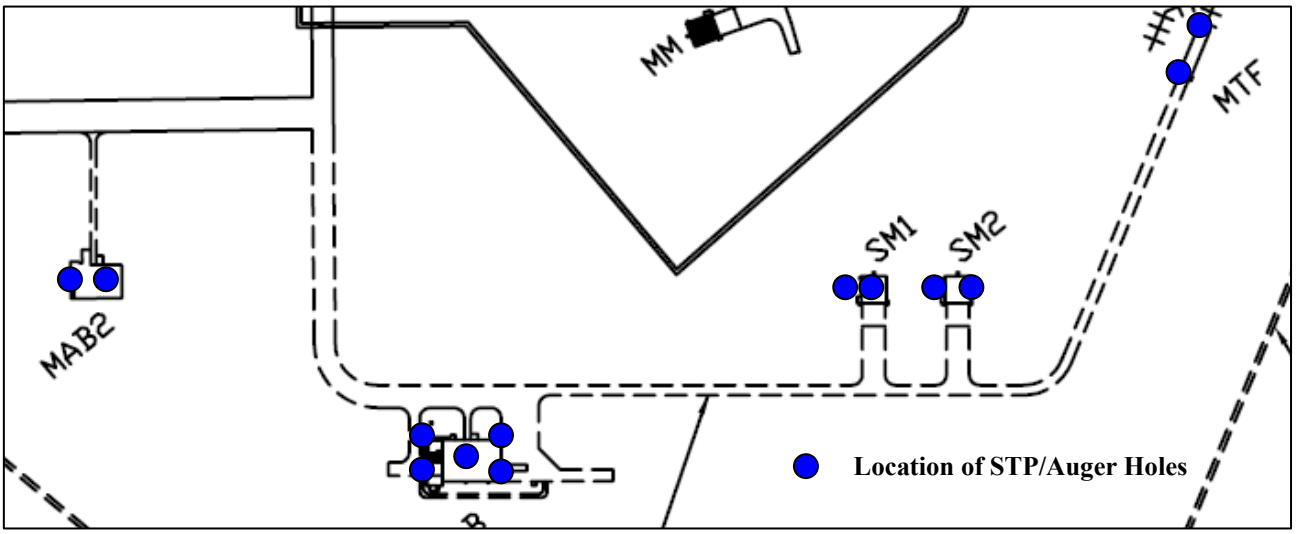


FIGURE 8 - Locations of STPs and Auger Holes

Auger holes had already been dug at the four corners of this building footprint. Those holes were inspected and the soil was screened. An additional STP was dug in the center of the footprint. No prehistoric or historic artifacts were discovered.

Section 3, Service Magazine (SM) #1 and #2

SM#1 and SM#2 are located about 60 meters apart and are situated about 325 meters west of the MAB. The base point for this section is the same as that for Section 2 (N34° 39.220 – WO87° 20.829) and is located on the south-west corner of this search area. As in Section 2, the east-west corn rows acted as guides in walking transects. No prehistoric or historic artifacts were discovered in Section 3.

An auger hole in the center of the SM#1 footprint was inspected and the spoil was screened. An STP was dug on the eastern side of the SM#1 footprint and two STPs were dug on the west and east sides of SM#2. No prehistoric or historic artifacts were discovered.

Section 4, Motor Transfer Facility (MTF)

The MTF is located about 230 meters north-east of SM#2. Four 50-meter transects were walked along the east-west corn rows that cover this small building site. The base point was plotted on the north-west corner of the search area at N34° 39.359 – WO87° 20.617. No prehistoric or historic artifacts were discovered in Section 4.

STPs were dug on the south and north ends of the proposed building footprint. No prehistoric or historic artifacts were discovered.

Section 5, Rail Spur Route

The proposed rail spur extends from near the MTF about 900 meters to where it would tie in with the existing World War II era rail bed. This route passes through that area disturbed by the 1942

storm drainage system. The first transect was walked at an azimuth of 350° to the northern end of the route and then back to the MTF about 10 meters east of the first transect. The northern half of the transect crosses a field that is currently cultivated in cotton. No prehistoric artifacts were discovered. However, about 20 meters west of the proposed route at N34° 39.765 – WO87° 19.650, an historic artifact scatter was observed. This medium density scatter was approximately 5 to 8 meters in diameter and consisted of green bottle glass, blue bottle glass, cut nails and shards of transfer decorated and undecorated ceramics.

The transfer ware shards appear to date to the late 19th or early 20th century. It is not known if this scatter represents a home site or garbage disposal area. The 1942 storm drainage system was constructed directly through the area of this artifact scatter.

CHAPTER 3 - Conclusions and Recommendations

No prehistoric sites were discovered during this survey, and only a single potential prehistoric chert flake was discovered. Additionally, a conversation with a Lockheed Martin employee who grew up in the area revealed that the project area was not considered a fruitful area to hunt Indian artifacts in the years before the construction of the Lockheed Martin plant in 1994. Most local field walker artifact hunters concentrated their searches along Nance Creek, about 1 kilometer to the east.

The extensive clearing and leveling that was done by the U.S. Army Air Corps during World War II would have destroyed or degraded any prehistoric sites that may have been in the APE. The likelihood of any intact buried sites in this area is extremely remote.

The historic artifact scatter that was found adjacent to the rail spur route may represent a late 19th century or early 20th century home site. However, the scatter is located where the 1942 storm water drainage system was installed. Any subsurface deposits would most likely have been disturbed by cultivation or the excavation for the storm drain.

Regardless of the likelihood of previous disturbance, it is recommended that this site be avoided during construction of the new rail spur bed. If avoidance of the site is not possible, MDA should consider further testing of the site to determine its integrity and significance.

The lack of artifacts and the previous ground disturbance in the APE indicates that the proposed construction activities described in this survey report would have no adverse impacts to prehistoric or historic resources.

APPENDIX

Mark E. Hubbs
Curriculum Vitae

U.S. Army Space and Missile Defense Command
Historical Office
Attn: SMDC-HO
P.O. Box 1500
Huntsville, AL 35807
256-955-2830
mark.hubbs@smdc.army.mil

DEGREES and SPECIALIZED TRAINING

Masters of Art in Archeology & Heritage
Leicester University - Leicester, England. Degree Date 2003

Masters of Science - Major: Environmental Management
Samford University, Birmingham, Alabama. Degree Date 2000

Bachelors of Arts – Major History, Minor Anthropology
Henderson State University, Arkadelphia, Arkansas. Degree Date 1981

National Environmental Policy Compliance Course (1992)
Introduction to preparing NEPA documents

Federal Projects and Historic Preservation Law (1993)
Introduction to Section 106 of the National Historic Preservation Act

PROFESSIONAL EXPERIENCE

Historic Preservation – Cultural Resource Management

More than 18 years experience of progressive responsibility in cultural resource management projects in both the private and Government sectors. These projects include cultural resource surveys, writing historic contexts, archaeological monitoring, compliance planning, and Section 106 consultation for historic properties and historic preservation planning.

Currently serving as the Senior Historian for the U.S. Army Space and Missile Defense Command and the subject matter expert for all archaeological, historic preservation and cultural resource management issues that may affect command and project site selection, environmental analysis, construction planning and infrastructure improvement.

Previously served as the primary cultural resource specialist and archaeologist, for program activities at four Army installations:

- Stanley R. Mickelsen Safeguard Complex (SRMSC), North Dakota
- Fort Greely, Alaska · Adak Island, Alaska
- U.S. Army Kwajalein Atoll, Republic of the Marshall Islands
- Wake Island

Duties included Phase I and II archaeological surveys, Section 106 compliance, historic building surveys and Native American/Native Alaskan consultation.

Authored several historic preservation planning documents including:

- *Fort Greely Integrated Cultural Resource Management Plan*
- *SRMSC Historic Preservation Plan*
- *U.S. Army Kwajalein Atoll Historic Preservation Plan*
- *A Pyramid on the Prairie – Preserving a Cold War Landmark* (a white paper presented to the National Park Service for the potential acquisition of the SRMSC)

Participated in historic building surveys and studies to document National Register eligible buildings at USASMDC installations. I was contributing author on several associated reports including: ·

- *SRMSC Historic Context for Properties*
- *SRMSC Historic American Engineering Record*
- *Survey of Cold War Era Properties at the U.S. Army Kwajalein Atoll*

Participated in archaeological surveys at the U.S. Army Kwajalein Atoll to determine the presence and significance of prehistoric and World War Two archaeological resources. I was the principle archaeologist for archaeological surveys at Fort Greely, Alaska to determine the presence of prehistoric resources in areas of potential development.

National Environmental Policy Act Compliance

Responsible for National Environmental Policy Act (NEPA) compliance, planning, analysis, and documentation support to the US Army Space and Missile Defense Command (USASMDC) and the Missile Defense Agency (MDA) and was a primary writer for several National Missile Defense, Theater Missile Defense, and installation planning environmental assessments including:

- *Micronesia Cable System Environmental Assessment*
- *Fort Greely Installation Environmental Assessment*
- *HELSTF Environmental Assessment*
- *GMD Extended Test Range Environmental Impact Statement*
- *Tactical High Energy Laser Environmental Assessment*
- *GMD IFICS Data Terminal Environmental Assessment*
- *Theater High Altitude Area Defense Pacific Flight Test Environmental Assessment*
- *Tactical High Energy Laser Environmental Assessment*
- *Wake Island Liquid Fuel Rocket Environmental Assessment*

Project manager for several NEPA analyses including the *United States Army Kwajalein Atoll Real Property Master Plan EA*, and the *Wake Island International Monitoring System EA*. As project manager, supervised several other analysts who collected data, coordinated with project and safety engineers, and consulted with

state and federal agencies, and then integrated the analysis into the environmental assessment. As project manager, also solicited public comment by means of published "Notices of Availability", and then integrated public comments into the analysis. Represented the government during consulting and coordination with several state and federal agencies that regulate the affected environments normally analyzed in NEPA documents.

PRIVATE PUBLICATIONS

Superfluous Steame & Other Grosse Humors, Clay Pipe and Tobacco Use in 18th Century North America. On The Trail Magazine, Historical Enterprises. September 2004

More Worthless Fellows Could Not Be Found - The Early Fur Trade Along the Red River of the North and the Rise of the Metis. On The Trail Magazine, Historical Enterprises. May 2003

A Rebel Shot Causes 'Torture and Despair'. Naval History Magazine. April 2002

Massacre on Wake Island. Naval History Magazine. February 2001

Uniforms of the 7th Infantry Division at Kwajalein Atoll, Operation Flintlock, February, 1944. Military Collector & Historian Magazine. October 1996

A Pyramid on the Prairie – A Federal Program Aims to Preserve a Cold War Legacy. Huntsville News, Newspaper. September 1995

Operation Flintlock - The Capture of Kwajalein Atoll. Redstone Rocket Newspaper. October 1994

A Pandemonium of Torture and Despair – The Capture of St. Charles and the Explosion of the USS Mound City. Army History Magazine. December 1992

DEPARTMENT OF DEFENSE
MISSILE DEFENSE AGENCY
7100 DEFENSE PENTAGON
WASHINGTON, DC 20301-7100

DT/DF

OCT 1 0 2006

Ms. Elizabeth Ann Brown
Interim Executive Director
Alabama Historical Commission
Alabama State Historic Preservation Office (ALSHPO)
468 South Perry Street
Montgomery, AL 36130

Re: AHC 2006-0780: Environmental Assessment for the Proposed Expansion of the Lockheed Martin Courtland Facility, Lawrence County, Alabama

Dear Ms. Brown:

In response to your letter dated July 21, 2006 and related questions, we offer the following clarifications.

1. What were the approximate construction dates for the non-extant structures represented by the chimney and concrete pads? What was the nature/use of the buildings? These areas may contain significant archeological features associated with the structures. Were the buildings associated with the runways of Courtland AAB?

   The chimney and concrete pads represent the Army Air Corps Base built in 1942. The buildings at the Air Army Corps Base were used to house and feed personnel. Additional buildings provided office space and warehouses for material storage. The concrete pads remaining from the buildings are not associated with the Courtland AAB runways.

2. What is the total square footage of the concrete apron?

   Lockheed Martin owns approximately 600,000 square feet of the concrete apron. Of this total area, approximately 27,840 square feet will be disturbed for the new building.

3. We recommend that the fence crossing the runway should not be solid (a visual divider) so that the runway can still be read as such.

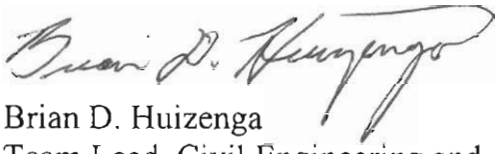
   The fence crossing the runway will not be a solid. Instead, the fence will be chain link, and there are no current plans to insert slats in the linking.

4. Is it possible to avoid crossing the runway with a fence?

   Unfortunately, this is not possible. The fence is necessary for security purposes.

If you have any additional questions or wish to discuss the matter further, please contact Mr. Crate Spears at (703) 697- 4123 or Crate.Spears@mda.mil.

Sincerely,



Brian D. Huizenga
Team Lead, Civil Engineering and
Environmental Management Division

DEPARTMENT OF DEFENSE
MISSILE DEFENSE AGENCY
7100 DEFENSE PENTAGON
WASHINGTON, DC 20301-7100

DTR

APR 13 2006

Eastern Band of Cherokee Indians
Russell Townsend, THPO
Qualla Boundary Reservation
PO Box 455
Cherokee, NC 28719

Re: Environmental Assessment for the Proposed Expansion of the Lockheed Martin Courtland Facility, Courtland, Alabama

Dear Mr. Townsend:

In accordance with the National Environmental Policy Act, the Missile Defense Agency (MDA) is preparing an Environmental Assessment to evaluate the potential environmental consequences of constructing, operating, and planning for decommissioning of additional facilities at the Lockheed Martin Space Systems Company's Courtland Facility in Courtland, Alabama. The facilities would support the delivery, assembly, integration, and component-level testing of target missiles for the Ballistic Missile Defense System. MDA is requesting the Eastern Band of Cherokee Indians' view of the proposed action to confirm that it would not have any adverse effect upon their interests.

The Lockheed Martin Courtland Facility is located in the Lawrence County Industrial Airpark in Courtland, Alabama. The Industrial Airpark, also known as George C. Wallace Industrial Airpark, encompasses 2,245 acres of which the Lockheed Martin facility occupies 663 acres. The Industrial Park was previously the Courtland Army Air Field during World War II, which became inactive in 1947.

Under the proposed action, a total of 11 acres would be disturbed for the construction of six new surface buildings, access roads, utilities extensions and a new railroad spur. Building construction would take place solely on property owned and operated by Lockheed Martin. Rail construction would take place on Lockheed Martin property and on Lawrence County property. The county has granted an easement for the construction of the rail spur. Undeveloped portions of the property have been leased for agricultural uses for several decades and those uses have not revealed the presence of any historic properties or structures. Two maps are enclosed. Enclosure 1 shows the location

of the proposed project and its relation to the Town of Courtland. Enclosure 2 presents the Area of Potential Effect showing the proposed facility expansion.

Missile assembly activities similar to the proposed action have been taking place at the site for over a decade. Under the proposed action, the presence of explosive materials, namely solid propellant rocket motors, would require that a maximum explosion radius be established around each of the proposed buildings. The combined radii would require an extension of the Missile Protection Ordnance Zone of 100.5 acres to the southwest of Lockheed Martin property. The Lawrence County Commission, which owns the airport and land over which the radius would extend, has granted a preliminary easement for the zone. Under the easement, the property would continue to be leased and the ban would continue on permanent activities.

MDA has reviewed National Landmarks and the National Register of Historic Places to determine that there are no historic buildings or structures on the Lockheed Martin property or at the Lawrence County Industrial Airpark. Based on the available information, MDA is prepared to make a determination of no adverse impacts to cultural or historic resources.

We request that you respond as soon as it is feasible within a 30 calendar-day timeframe so that we may conduct any necessary follow-up activities, and incorporate your response into the scope of study, as appropriate. If we do not hear back from you within that time frame, we will assume concurrence with the determination that the proposed action will not have any adverse impact upon the Eastern Band of Cherokee Indians or its interests, and we will send a copy of the Draft EA when completed.

Thank you for your assistance in this matter. If you require further information to complete this request, please do not hesitate to contact me at (703) 697-4123 or Crate.J.Spears@mda.mil.

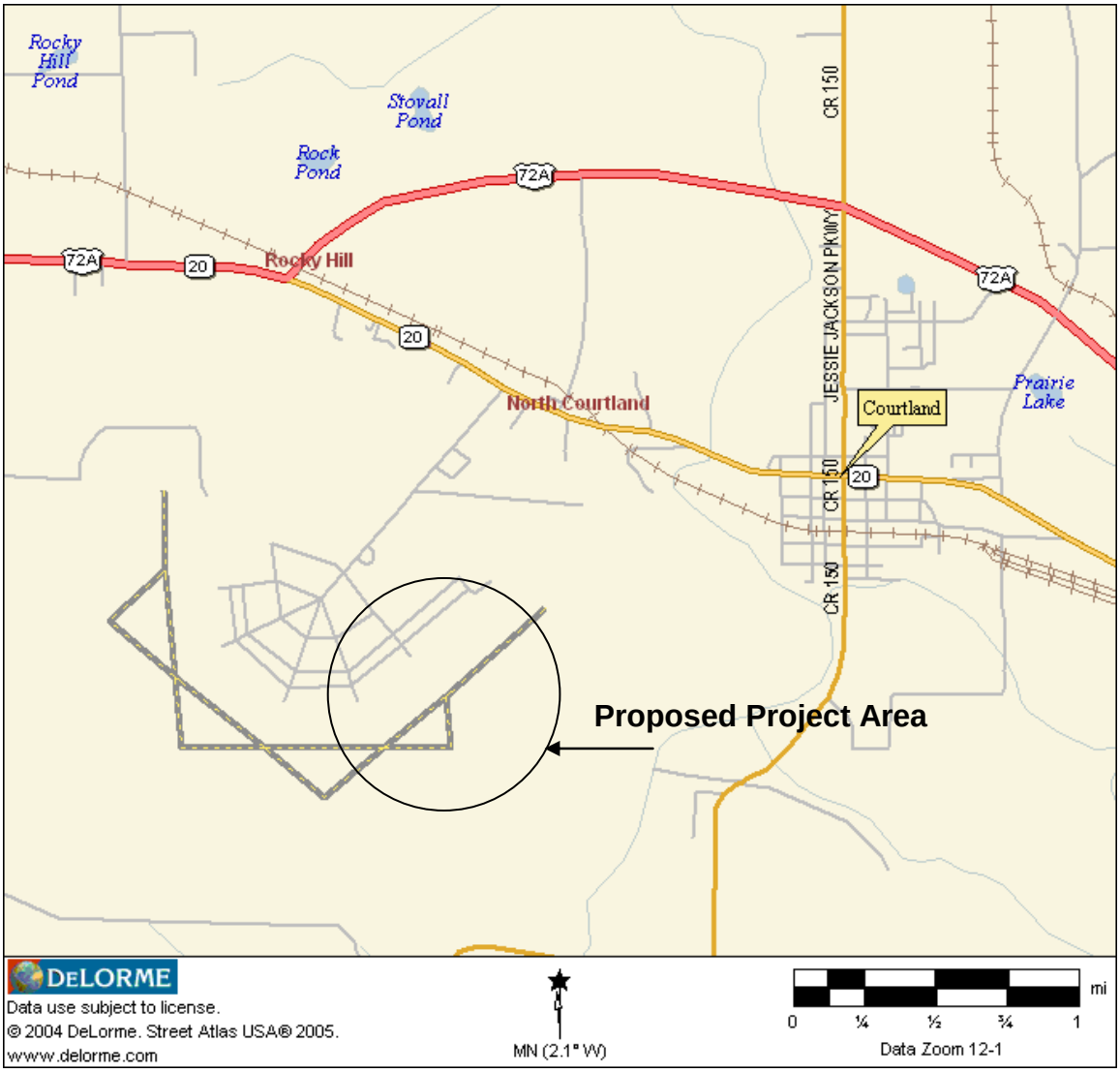
Sincerely,

Crate J. Spears
Environmental Manager

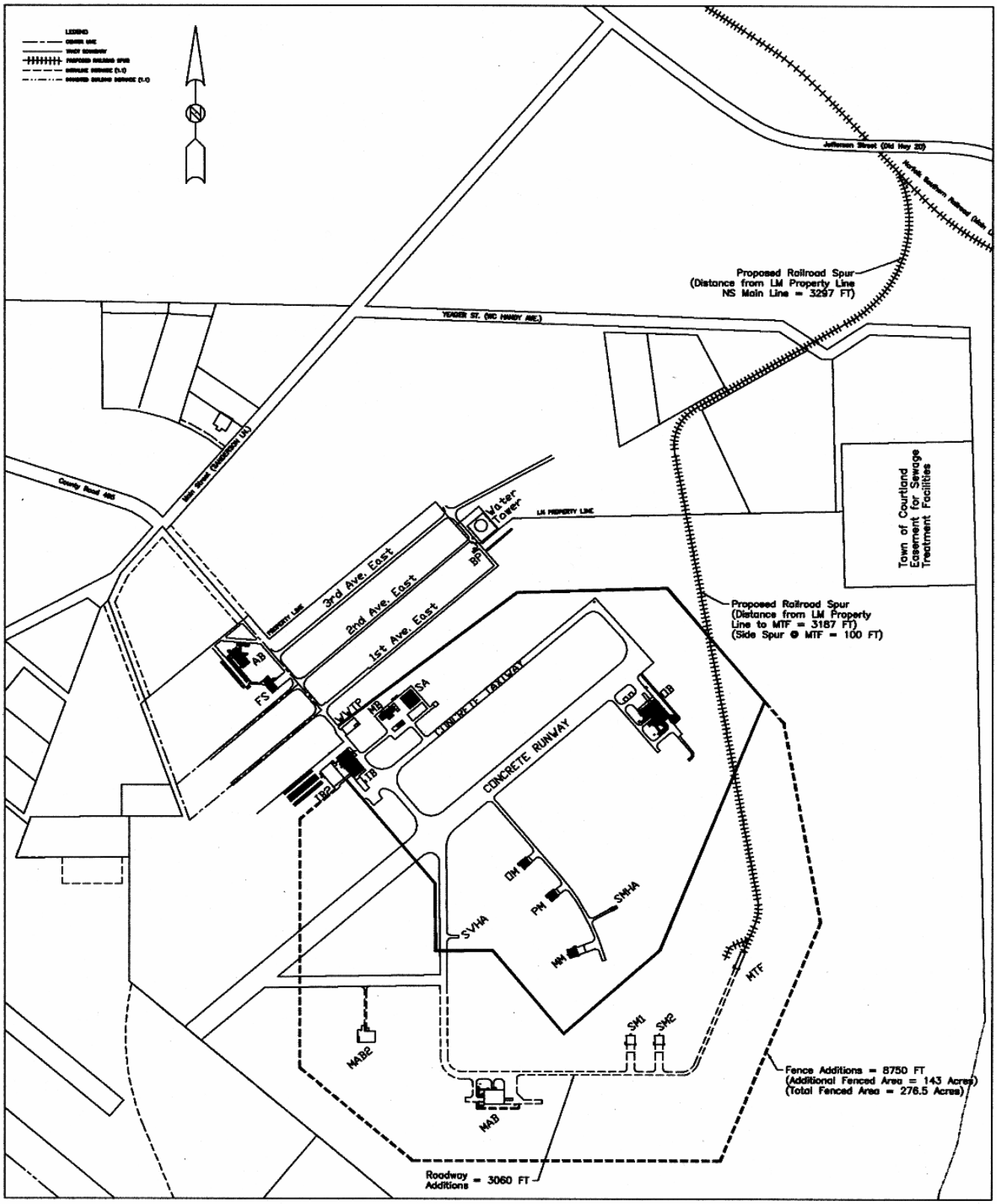
cc: ICF Consulting (Ms. Shaver)
MDA/DTR (Mr. Wheeler)

Enclosures: As stated

Enclosure 1: Map Showing Location of Courtland Facility, Alabama



Enclosure 2: Area of Potential Effect



Eastern Band of Cherokee Indians
Tribal Historic Preservation Office
P.O. Box 455
Cherokee, NC 28719
Ph: 828-488-0237 Fax 828-488-2462

DATE: 6 - June - 06

TO: Department of Defense
Missile Defense Agency
ATTN: Crate J. Spears
Environmental Manager
7100 Defense Pentagon
Washington, DC 20301-7100

PROJECT(S): **Proposed EA for proposed expansion of the Lockheed Martin Courtland Facility, Courtland, Lawrence County, Alabama.**

The Tribal Historic Preservation Office of the Eastern Band of Cherokee Indians is in receipt of the above-referenced project information and would like to thank you for the opportunity to comment on this proposed NHPA Section 106 activity.

The project's location is within the aboriginal territory of the Cherokee people. This area may have cultural, archaeological, or religious significance to the Eastern Band of Cherokee Indians. Potential cultural resources are subject to damage or destruction from land disturbing activities requiring new ground disturbance, or vegetation manipulation. Additionally, adverse effects to ethnographic sites, such as traditional Native American campsites or burials, can reduce the interpretative or spiritual significance of a site to Tribal and United States culture and history. The EBCI THPO requests any cultural resource data, including phase I archeological reports, topo maps, historical research, or archives research, forwarded to the Alabama Historical Commission for comment also be to this office in accordance with Section 106 of the NHPA. The EBCI THPO looks forward to participating in the project review process as a consulting party as stipulated in Section 106 of the National Historic Preservation Act of 1966.

If we can be of further service, or if you have any comments or questions, please feel free to contact me at (828) 488-0237 ext 2.

Sincerely,

Tyler B. Howe
Tribal Historical Preservation Specialist
Eastern Band of Cherokee Indians

DEPARTMENT OF DEFENSE
MISSILE DEFENSE AGENCY
7100 DEFENSE PENTAGON
WASHINGTON, DC 20301-7100

JUN 19 2006

Eastern Band of Cherokee Indians
Tyler B. Howe
Tribal Historical Preservation Specialist
PO Box 455
Cherokee, NC 28719

Re: Environmental Assessment for the Proposed Expansion of the Lockheed Martin Courtland Facility, Courtland, Alabama

Dear Mr. Howe:

Per your request dated June 6, 2006, the enclosed CD contains copies of the Project Review Consultation and Survey Forms that were requested by the Alabama Historical Commission on May 21, 2006. The Missile Defense Agency (MDA) provided the forms to the Alabama Historical Commission on June 16, 2006. MDA has requested a response by July 17, 2006. In addition, the MDA is requesting information or concerns about sites that may have cultural significance to the Tribe in or near the project area (per letter sent April 13, 2006). We request that you respond by July 17, 2006 so that we may conduct any necessary follow-up activities and incorporate your response into the Final Environmental Assessment.

If you have any further questions or wish to discuss the matter further, please contact me at (703) 697-4123 or Crate.Spears@mda.mil.

Sincerely,

CRATE SPEARS
Environmental Manager

cc: Deborah K. Shaver, ICF Consulting
George Wheeler, MDA
Elizabeth Ann Brown, Alabama Historical Commission (letter only)

Enclosures: As stated

Eastern Band of Cherokee Indians
Tribal Historic Preservation Office
P.O. Box 455
Cherokee, NC 28719
Ph: 828-488-0237 Fax 828-488-2462

DATE: 17 - July - 06

TO: Department of Defense
Missile Defense Agency
ATTN: Crate Spears
Environmental Manager
7100 Defense Pentagon
Washington, DC 20301-7100

PROJECT(S): **Proposed Expansion of the Lockheed Martin Courtland Facility, Courtland, Alabama.**

The Tribal Historic Preservation Office of the Eastern Band of Cherokee Indians would like to thank you for the continued opportunity to comment on this proposed NHPA Section 106 activity.

The project's location is within the aboriginal territory of the Cherokee people. Because archeological sites are located close to riverine and topographic environments that contained prehistoric and historic Native American habitation, and because "the land designated for the construction of new buildings, roads and rail spur has not been disturbed by any activities other than agriculture," the EBCI THPO requests a phase I archaeological survey. This area may have cultural, archaeological, or religious significance to the Eastern Band of Cherokee Indians. A phase I archeological survey should take place throughout the entire Area of Potential Effect (APE) to ensure that any potential cultural resources are identified. Potential cultural resources are subject to damage or destruction from land disturbing activities requiring new ground disturbance, or vegetation manipulation. Detrimental adverse effects can damage or destroy the historical, cultural, or scientific integrity of historic or prehistoric resources.

Additionally, adverse effects to ethnographic sites, such as traditional Native American campsites or burials, can reduce the interpretative or spiritual significance of a site to Tribal and United States culture and history. This office can not make a recommendation regarding the above referenced projects at this time. The EBCI THPO requests any cultural resource data, including phase I archeological reports, topo maps, historical research, or archives research forwarded to the Alabama Historical Commission for comment also be to this office in accordance with Section 106 of the NHPA. This office must review this material before any recommendation can be made regarding the above-referenced undertakings. This office looks forward to participating in the project review

process as a consulting party as stipulated in the National Historic Preservation Act of 1966.

If we can be of further service, or if you have any comments or questions, please feel free to contact me at (828) 488-0237 ext 2.

Sincerely,

Tyler B. Howe
Tribal Historical Preservation Specialist
Eastern Band of Cherokee Indians

DEPARTMENT OF DEFENSE
MISSILE DEFENSE AGENCY
7100 DEFENSE PENTAGON
WASHINGTON, DC 20301-7100

Eastern Band of Cherokee Indians
Tyler B. Howe
Tribal Historic Preservation Specialist
P.O. Box 455
Cherokee, NC 28719

AUG 2 8 2006

Re: Environmental Assessment for the Proposed Expansion of the Lockheed Martin Courtland Facility, Courtland, Alabama

Dear Mr. Howe:

Per your request dated July 17, 2006, the Missile Defense Agency (MDA) agrees to conduct a Phase I archaeological survey in consultation with the Alabama Historical Commission and in accordance with the "Policy for Archaeological Survey and Testing in Alabama." (http://www.preserveala.org/106program.html) The survey will focus on the entire Area of Potential Effect where land disturbing activities would occur, ensuring that any potential cultural resources are identified. The timeline for completion of the survey is not yet known, but the MDA will keep you apprised of any discoveries made during the survey process. In addition, a copy of the completed report will be sent for your review.

If you have any further questions or wish to discuss the matter further, please contact me at (703) 697-4123 or Crate.Spears@mda.mil.

Sincerely,

Crate Spears
Environmental Manager

cc: Deborah K. Shaver, ICF International
George Wheeler, MDA
Elizabeth Ann Brown, Alabama Historical Commission

DEPARTMENT OF DEFENSE
MISSILE DEFENSE AGENCY
7100 DEFENSE PENTAGON
WASHINGTON, DC 20301-7100

SEP 26 2006

Eastern Band of Cherokee Indians
Tyler B. Howe
Tribal Historic Preservation Specialist
P.O. Box 455
Cherokee, NC 28719

Re: AHC 2006-0780; Environmental Assessment for the Proposed Expansion of the Lockheed Martin Courtland Facility, Courtland, Alabama

Dear Mr. Howe:

In response to your request dated July 17, 2006, the Phase I Archaeological Survey for the proposed expansion of the Lockheed Martin missile assembly and integration facilities in Courtland, Alabama has been completed. The enclosed survey considered all land disturbing activities in the Area of Potential Effect (APE) to identify any potential cultural resources. The survey was conducted in accordance with the "Policy for Archeological Survey and Testing in Alabama" and concludes that the lack of artifacts in addition to the previous ground disturbance in the APE indicates that the proposed construction activities would have no adverse impacts on prehistoric or historic resources. MDA has reviewed the survey and concurs with this determination.

If you need any additional information, please do not hesitate to contact me at (703) 697-4123 or Crate.Spears@mda.mil.

Sincerely,

Crate J. Spears
Environmental Manager

cc:
Deborah K. Shaver, ICF International
George Wheeler, MDA
Elizabeth Ann Brown, Alabama Historical Commission
Mark Hubbs, Senior Historian, SMDC

Enclosure:
As stated

DEPARTMENT OF DEFENSE
MISSILE DEFENSE AGENCY
7100 DEFENSE PENTAGON
WASHINGTON, DC 20301-7100

DTR

APR 13 2006

Larry Goldman, Field Supervisor
Daphne Ecological Services Field Office
U.S. Fish and Wildlife Service
1208-B Main Street
Daphne, AL 36526

Re: Environmental Assessment for the Proposed Expansion of the Lockheed Martin Courtland Facility, Courtland, Alabama

Dear Mr. Goldman:

In accordance with the National Environmental Policy Act (NEPA), the Missile Defense Agency (MDA) is preparing an Environmental Assessment (EA) to evaluate the potential environmental consequences of constructing, operating, and planning for decommissioning of additional facilities at the Lockheed Martin Space Systems Company's Courtland Facility in Courtland, Alabama. The facilities would support the delivery, assembly, integration, and component-level testing of target missiles for the Ballistic Missile Defense System.

The Lockheed Martin Courtland Facility is located in the Lawrence County Industrial Airpark in Courtland, Alabama. Courtland is located in northern central Lawrence County in the Northwest corner of Alabama. The Industrial Airpark, also known as George C. Wallace Industrial Airpark, encompasses 2,245 acres of which the Lockheed Martin facility occupies 663 acres.

Under the proposed action, a total of 11 acres would be disturbed for the construction of six new surface buildings, access roads, utilities extensions and a new railroad spur. Building construction would take place solely on property owned and operated by Lockheed Martin. Rail construction would take place on Lockheed Martin property and on Lawrence County property. The county has granted an easement for the construction of the rail spur on an abandoned rail bed on their property. Undeveloped portions of the Lockheed Martin property have been leased for agricultural uses for several decades. Two maps are enclosed. Enclosure 1 shows the location of the proposed

project and its relation to the Town of Courtland. Enclosure 2 presents the Area of Potential Effect showing the proposed facility expansion.

MDA has developed a list of Federally-listed and proposed threatened and endangered species using records obtained from the Alabama Natural Heritage Program and the U.S. Fish and Wildlife Service's Threatened and Endangered Species Database System. This list is presented in Enclosure 3. We are requesting your concurrence that these are the only Federally-listed and proposed threatened and endangered species that occur in Lawrence County, and that no designated critical habitat for these species is found within the proposed project area.

We request that you respond as soon as it is feasible within your 30 calendar-day timeframe so that we may schedule any necessary follow-up activities, and incorporate your response into the scope of study, as appropriate. Also, please let us know about instructions for any further coordination and consultation. We, or our contractor ICF Consulting, may contact you prior to this date to discuss the project and schedule a meeting.

Thank you for your assistance in this matter. If you require further information to complete this request, please do not hesitate to contact me at (703) 697-4123 or Crate.J.Spears@mda.mil.

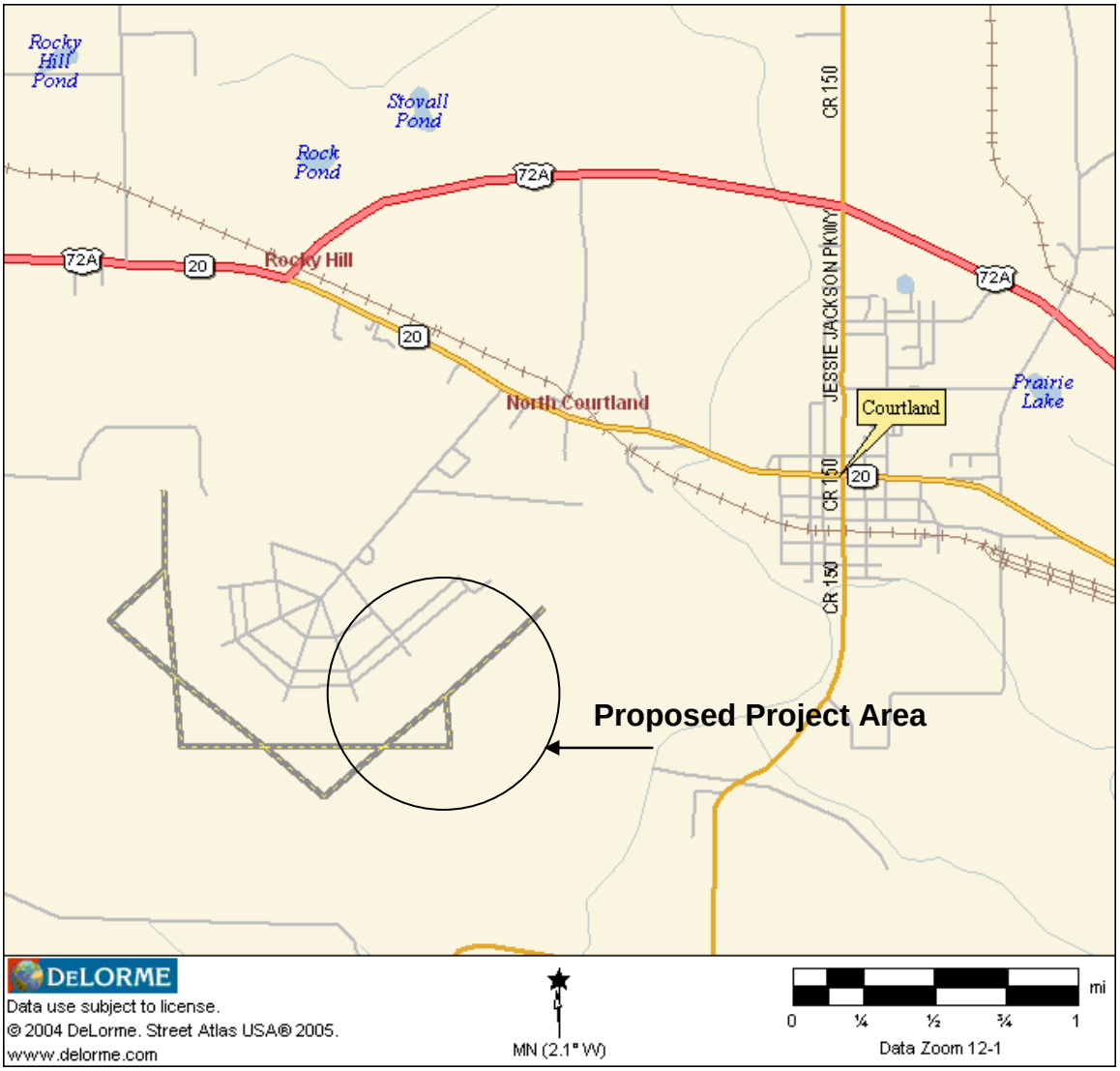
Sincerely,

Crate J. Spears
Environmental Manager

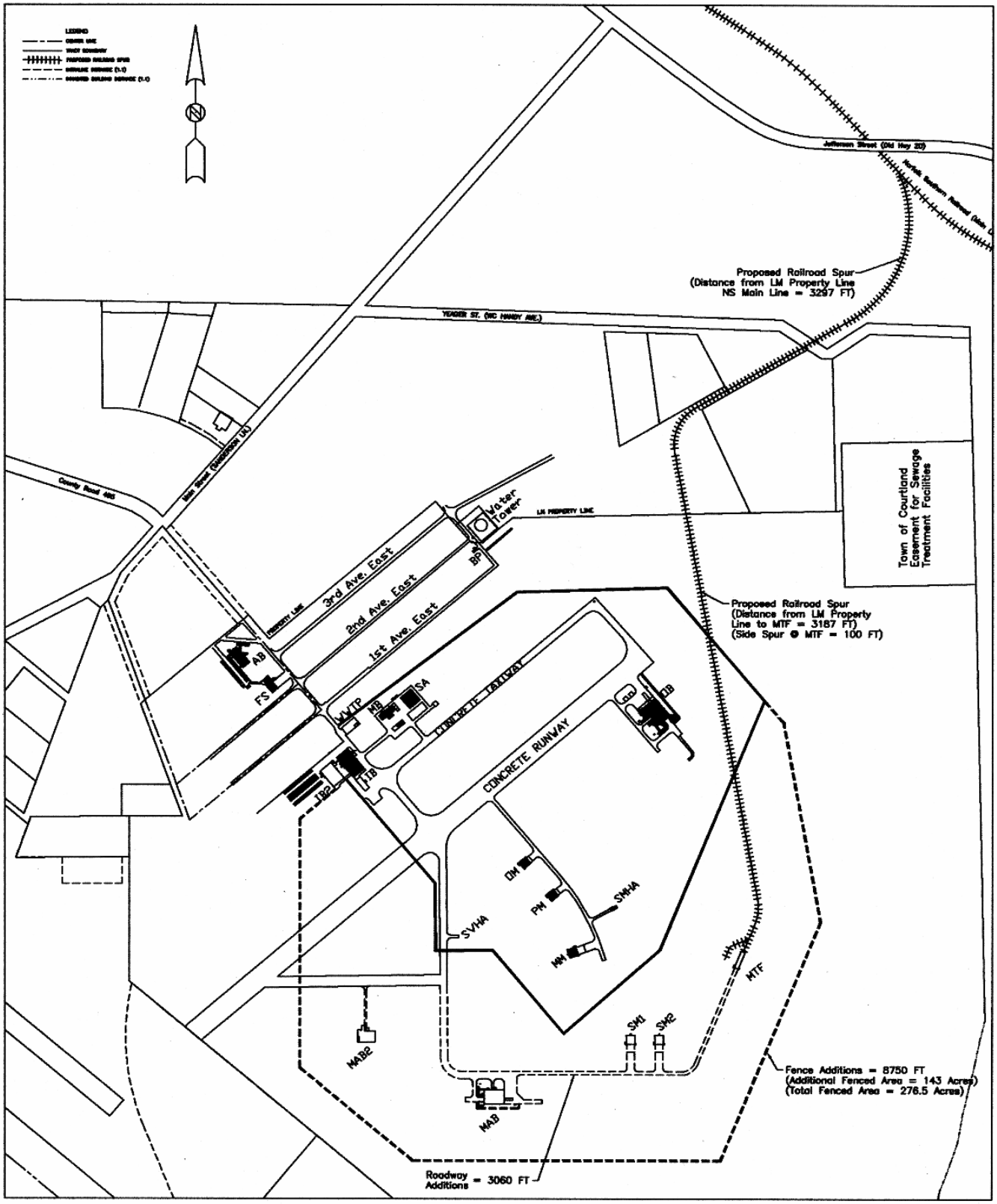
cc: ICF Consulting (Ms. Shaver)
MDA/DTR (Mr. Wheeler)

Enclosures: As stated

Enclosure 1: Map of Location of Courtland Facility, Alabama



Enclosure 2: Area of Potential Effect



Enclosure 3. Special Status Species within Lawrence County, Alabama

Common Name	Scientific Name	Federal Status	State Status	Preferred Habitat
Mammals				
Gray bat	*Myotis grisescens*	E	SP	Caves or cave-like habitats
Indiana bat	*Myotis sodalis*	E	SP	Limestone caves
Birds				
American peregrine falcon	*Falco peregrinus anatum*	DM		A dominate landscape feature, usually a cliff; occasionally trees or tall manmade structures
Bald eagle	*Haliaeetus leucocephalus*	T1	SP	Coastal areas, river, lakes, and reservoirs with forested shorelines or cliff
Red-cockaded woodpecker	*Picoides borealis*	E	SP	Open stands of pines, usually Longleaf pine, with a minimum age of 80 to 120 years
Fish				
Tuscumbia darter	*Etheostoma tuscumbia*		SP	Vegetated spring pools with slow current; usually associated with watercress
Mussels				
Alabama moccainshell	*Medionidus acutissimus*	T	SP	Clear, moderately flowing freshwater rivers and creeks; sand or gravel substrates
Dark pigtoe	*Pleurobema furvum*	E	SP	Clear, moderately flowing freshwater rivers and creeks; sand or gravel substrates
Fine-lined pocketbook mussel	*Lampsilis altilis*	T	SP	Clear, moderately flowing freshwater rivers and creeks; sand or gravel substrates
Orangenacre mucket	*Lampsilis perovalis*	T	SP	Moderately to swiftly flowing freshwater rivers; sand or gravel substrates

1 *Haliaeetus leucocephalus*, listed as Threatened in conterminous U.S., was proposed for delisting on July 6, 1999; the public comment period on the proposed delisting was reopened on February 16, 2006.

Common Name	Scientific Name	Federal Status	State Status	Preferred Habitat
Pink mucket pearly mussel	*Lampsilis abrupta*	E	SP	Moderately to swiftly flowing freshwater rivers; sand, gravel, or rocky substrates
Pyramid pigtoe	*Pleurobema rubrum*		SP	Moderately to swiftly flowing freshwater rivers; sand and mud substrates
Rough pigtoe	*Pleurobema plenum*	E	SP	Moderately to swiftly flowing freshwater rivers; sand, gravel, or rocky substrates
Round pigtoe	*Pleurobema sintoxia*		SP	Moderately to swiftly flowing freshwater rivers; sand, gravel, and mud substrates
Sheepnose	*Plethobasus cyphyus*	C	SP	Moderately to swiftly flowing freshwater rivers; sand, gravel, and mud substrates
Spectaclecase	*Cumberlandia monodonta*	C	SP	Freshwater riverine microhabitats that are sheltered from the main force of current; sand, gravel, and mud substrates
Triangular kidneyshell	*Ptychobranchus greenii*	E	SP	Moderately to swiftly flowing freshwater rivers or creeks; sand or gravel substrates
Tubercled blossom	*Epioblasma torulosa*	E, EXPN		Swiftly flowing freshwater rivers; sand or gravel substrates
Plants				
Fleshy-fruit glade cress	*Leavenworthia crassa*	C		Limestone cedar glades and glade-like areas (open pastures, cultivated fields, and roadsides with calcareous soils)
Leafy prairie clover	*Dalea foliosa*	E		Open, thin-soiled limestone glades and limestone barrens
Lyrate bladderpod	*Lesquerella lyrata*	T		Limestone cedar glades and glade-like areas (open pastures, cultivated fields, and roadsides with calcareous soils)

Common Name	Scientific Name	Federal Status	State Status	Preferred Habitat
Price's potato-bean	*Apios priceana*	T		Open, wooded slopes and floodplain edges with well-drained, calcareous soils.

Sources: Alabama Natural Heritage Program, 2006; NatureServe, 2006; USFWS, 2006
Key: E – Endangered; EXPN – Experimental Population, Non-Essential; T – Threatened; DM – Delisted Taxon, Recovered, Being Monitored First Five Years; SP – State Protected under the Nongame Species Regulation (220-2-.92) or the Invertebrate Species Regulation (220-2.98)

United States Department of the Interior

FISH AND WILDLIFE SERVICE
1208-B Main Street
Daphne, Alabama 36526

IN REPLY REFER TO
2006-FA-0185

May 1, 2006

Mr. Crate J. Spears, Environmental Manager
Department of Defense
Missile Defense Agency
7100 Defense Pentagon
Washington, D.C. 20301-7100

Dear Mr. Spears:

This responds to your letter dated April 13, 2006, requesting fish and wildlife resources information associated with the Missile Defense Agency's (MDA) proposal to prepare an Environmental Assessment (EA) for the potential environmental consequences of constructing, operating, and planning for decommissioning of additional facilities at the Lockheed Martin Space Systems Company's Courtland Facility in Courtland, Lawrence County, Alabama. The proposed actions would support the delivery, assembly, integration, and component-level testing of target missiles for the Ballistic Missile Defense System. Therefore, we have reviewed the list of Federal protected species located at, or in the vicinity of, the proposed action. Our report is submitted under the provisions of the Endangered Species Act (ESA)(87 Stat. 884, as amended; 16 U.S.C. 1531 et seq.), Fish & Wildlife Coordination Act (48 Stat. 401, as amended: 16 U.S.C. 661- 66c et seq.), and the Clean Water Act (PL 92-500, as amended; 33 U.S.C. 1251 et seq.).

Threatened & Endangered Species

Our records indicate that no endangered, threatened, or candidate species, or critical habitat occur in the project area. Therefore, no further endangered species consultation will be required for the project unless: 1) the identified action is subsequently modified in a manner that causes an effect on a listed species or on proposed or designated critical habitat; 2) new information reveals the identified action may affect Federally protected species or designated critical habitat in a manner or to an extent not previously considered; or 3) a new species is listed or a critical habitat is designated under the Endangered Species Act that may be affected by the identified action.

The project should be designed and implemented such that impacts to other trust resources (i.e. fish, wildlife, and plants) located near, or in, the project area are minimized.

Fish and Wildlife Coordination Act

We recommend strict adherence and implementation of Best Management Practices (BMPs) during and following project construction. Approximately 11 acres would be disturbed for the construction of the six new office buildings, their associated parking lots and access roads/driveways, utilities extensions, and a new railroad spur. The construction of the buildings, road, and railroad infrastructure will increase the amount of impervious surface area onsite. Therefore, we recommend adherence to appropriate BMPs for stormwater management.

Wetlands Advisory

Upon review of the National Wetland Inventory (NWI) maps, it appears that there may be wetlands in the project area. The U.S. Army Corps of Engineers (USACE) recommends that an applicant/developer contact them if any amount of fill material may be placed in a water of the U.S., including any wetland. This includes mechanical land clearing and temporary stream rerouting or diversion. This also includes temporary or permanent basins constructed in intermittent or perennial streams for erosion control or storm water management purposes. If the project involves a discharge of fill material into water of the U.S., the applicant/developer will be required to apply for a Department of the Army permit. For very small impacts, the project could possibly be authorized under one the USACE's Nationwide Permits or Regional Permits (with verification by the USACE). However, projects impacting more than 0.5 acres of wetlands or 300 feet of stream will likely require an Individual Department of the Army Permit. The USACE will work with the applicant/developer to assess and minimize the impacts and determine possible mitigation requirements to compensate for stream and wetland or other losses and protect water quality and fish and wildlife.

Recommended Best Management Practices

We recommend that best management practices (BMPs) be implemented to minimize erosion and prevent sedimentation of drainages in the vicinity of the project area, both during and after the proposed residential development. We also recommend developing an erosion control plan tailored to the site. Any work that results in exposed earth should be executed during periods when significant rainfall is not predicted. We recommend the proposed activities occur during the low-flow, dry season of the year (June through October) to reduce erosion and sedimentation potential. We recommend the use of silt fence, hay bales, and mulch to stabilize bare soil areas, where practicable. All erosion controls should be inspected routinely, especially during and immediately following significant rain events to ensure no impacts to nearby surface waters and aquatic habitat. Prompt corrective action should be taken if erosion or sedimentation is observed. Immediate revegetation of disturbed areas with a native species or an annual grass is an important measure to reduce erosion.

For additional information regarding BMPs, see the following technical publication:

Roberts, B.C. 1995. Best Management Practices for Erosion and Sediment Control. Eastern Federal Lands Highway Design, Federal Highway Administration Report No. FHWA-FLP-94-005, 21400. 187 pp.

For specific techniques, see "The Alabama Handbook for Erosion Control, Sediment Control and Stormwater Management on Construction Sites and Urban Areas" (2003), available from Alabama Soil and Water Conservation Committee or on-line (2002 version) at:
http://www.swcc.state.al.us/pdf/handbook_erosionctrl.pdf.

If you have any questions or need additional information, please contact Mr. Rob Hurt at (256) 353-7243 ext. 29. Please refer to the reference number located at the top of this letter in future phone calls or written correspondence.

Sincerely,

Carol A. Pollio
Acting Field Supervisor

cc: Rob Hurt, USFWS, Decatur, AL

DEPARTMENT OF DEFENSE
MISSILE DEFENSE AGENCY
7100 DEFENSE PENTAGON
WASHINGTON, DC 20301-7100

DTR

APR 13 2006

Billy Frost
District Conservationist
Natural Resources Conservation Service
Suite 4
13075 Highway 157
Moulton, AL 35650

Re: Environmental Assessment for the Proposed Expansion of the Lockheed Martin Courtland Facility, Courtland, Alabama

Dear Mr. Frost:

In accordance with the National Environmental Policy Act, the Missile Defense Agency (MDA) is preparing an Environmental Assessment to evaluate the potential environmental consequences of constructing, operating, and planning for decommissioning of additional facilities at the Lockheed Martin Space Systems Company's Courtland Facility in Courtland, Alabama. The facilities would support the delivery, assembly, integration, and component-level testing of target missiles for the Ballistic Missile Defense System. MDA is requesting a Natural Resources Conservation Service determination as to whether the site contains prime, unique statewide, or local important farmland. To assist in that effort, we have included three copies of Farmland Conversion Impact Rating application as well as applicable maps.

The Lockheed Martin Courtland Facility is located in the Lawrence County Industrial Airpark in Courtland, Alabama. The Industrial Airpark, also known as George C. Wallace Industrial Airpark, encompasses 2,245 acres of which the Lockheed Martin facility occupies 663 acres. The Industrial Park was previously the Courtland Army Air Field during World War II, which became inactive in 1947.

Under the proposed action, a total of 11 acres would be disturbed for the construction of six new surface buildings, access roads, utilities extensions and a new railroad spur. Building construction would take place solely on property owned and operated by Lockheed Martin. Rail construction would take place on Lockheed Martin property and on Lawrence County property. The county has granted an easement for the construction of the rail spur. Undeveloped portions of the property have been leased for

agricultural uses for several decades. Two maps are enclosed. Enclosure 1 shows the location of the proposed project and its relation to the Town of Courtland. Enclosure 2 presents the Area of Potential Effect showing the proposed facility expansion.

Missile assembly activities similar to the proposed action have been taking place at the site for over a decade. Under the proposed action, the presence of explosive materials, namely solid propellant rocket motors, would require that a maximum explosion radius be established around each of the proposed buildings. The combined radii would require an extension of the Missile Protection Ordnance Zone of 100.5 acres to the southwest of Lockheed Martin property. The Lawrence County Commission, which owns the airport and land over which the radius would extend, has granted a preliminary easement for the zone. Under the easement, the property would continue to be leased and the ban would continue on permanent activities.

We request that you respond as soon as it is feasible within the 45 calendar-day timeframe so that we may schedule meetings, site visits or surveys, conduct any necessary follow-up activities, and incorporate your response into the scope of study, as appropriate.

Thank you for your assistance in this matter. If you require further information to complete this request, please do not hesitate to contact me at (703) 697-4123 or Crate.J.Spears@mda.mil.

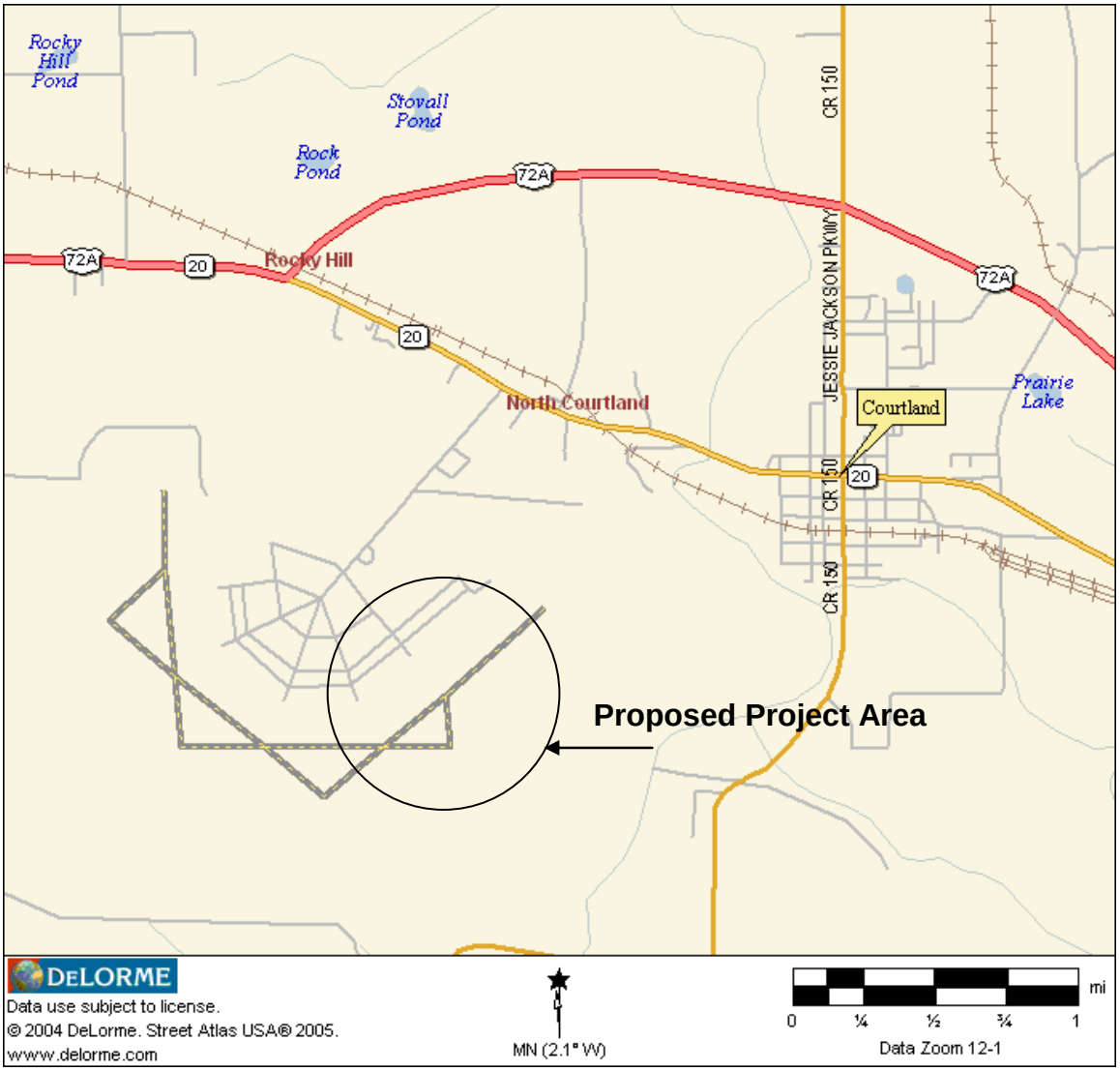
Sincerely,

Crate J. Spears
Environmental Manager

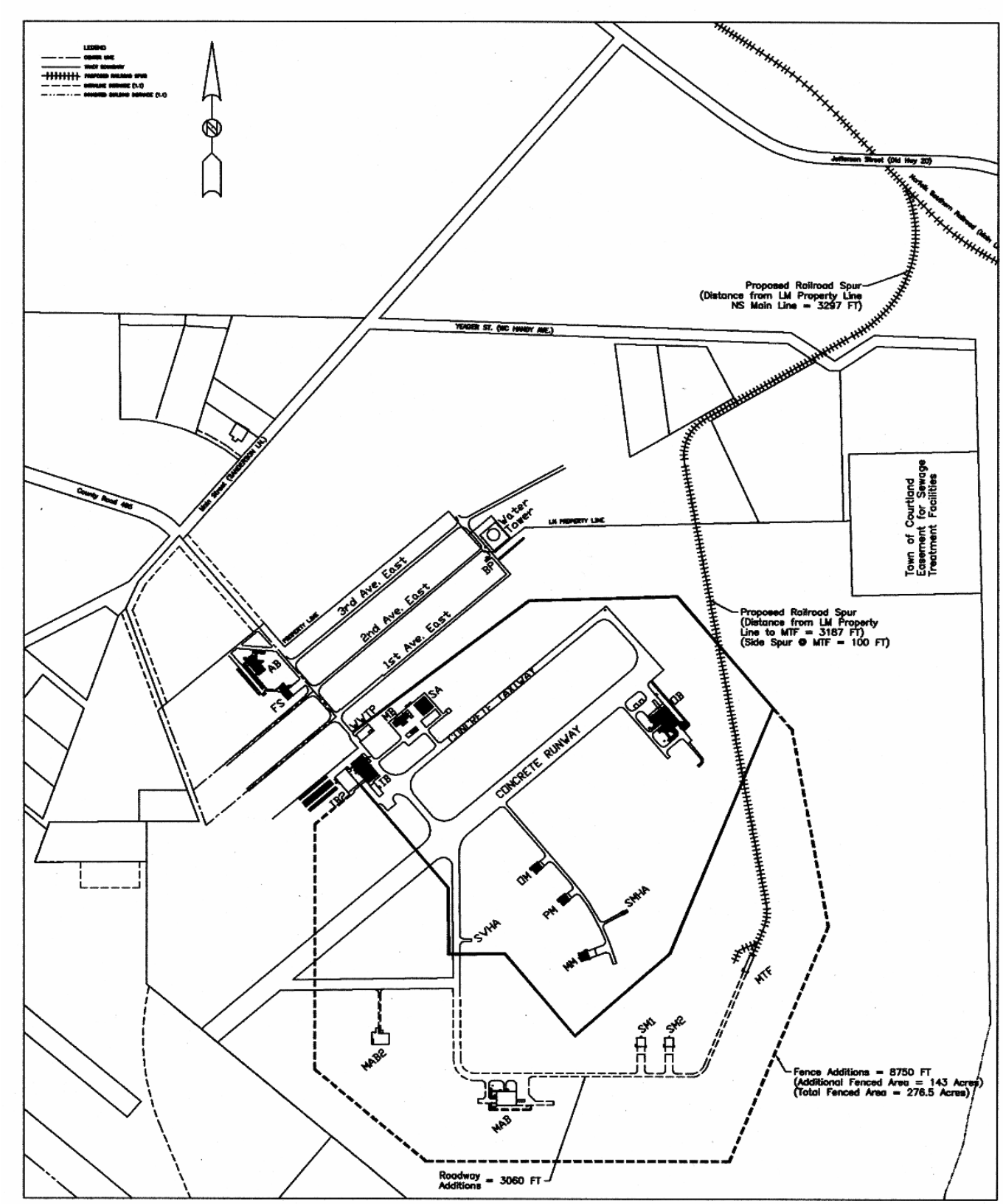
cc: ICF Consulting (Ms. Shaver)
MDA/DTR (Mr. Wheeler)

Enclosures: As stated

Enclosure 1: Map of Location of Courtland Facility, Alabama



Enclosure 2: Area of Potential Effect



U.S. Department of Agriculture

FARMLAND CONVERSION IMPACT RATING

PART I *(To be completed by Federal Agency)*	Date Of Land Evaluation Request 3/7/06
Name Of Project Expansion of Lockheed Martin Courtland Facility	Federal Agency Involved Dept of Defense Missile Defense Agency
Proposed Land Use Building Construction and grassland	County And State Lawrence County, Alabama
PART II *(To be completed by NRCS)*	Date Request Received By NRCS

Does the site contain prime, unique, statewide or local important farmland? Yes ☐ No ☐ *(If no, the FPPA does not apply -- do not complete additional parts of this form).*		Acres Irrigated	Average Farm Size
Major Crop*(s)*	Farmable Land In Govt. Jurisdiction Acres: %	Amount Of Farmland As Defined in FPPA Acres: %	
Name Of Land Evaluation System Used	Name Of Local Site Assessment System	Date Land Evaluation Returned By NRCS	

PART III *(To be completed by Federal Agency)*	Alternative Site Rating Site A	Site B	Site C	Site D
A. Total Acres To Be Converted Directly	11.0			
B. Total Acres To Be Converted Indirectly	132.0			
C. Total Acres In Site	143.0	0.0	0.0	0.0
PART IV *(To be completed by NRCS)* Land Evaluation Information				
A. Total Acres Prime And Unique Farmland				
B. Total Acres Statewide And Local Important Farmland				
C. Percentage Of Farmland In County Or Local Govt. Unit To Be Converted				
D. Percentage Of Farmland In Govt. Jurisdiction With Same Or Higher Relative Value				
PART V *(To be completed by NRCS)* Land Evaluation Criterion Relative Value Of Farmland To Be Converted *(Scale of 0 to 100 Points)*				

PART VI *(To be completed by Federal Agency)* Site Assessment Criteria *(These criteria are explained in 7 CFR 658.5(b)*	Maximum Points				
1. Area In Nonurban Use	15	9			
2. Perimeter In Nonurban Use	10	10			
3. Percent Of Site Being Farmed	20	16			
4. Protection Provided By State And Local Government	20	0			
5. Distance From Urban Builtup Area	15	10			
6. Distance To Urban Support Services	15	0			
7. Size Of Present Farm Unit Compared To Average	10	10			
8. Creation Of Nonfarmable Farmland	10	10			
9. Availability Of Farm Support Services	5	0			
10. On-Farm Investments	20	0			
11. Effects Of Conversion On Farm Support Services	10	0			
12. Compatibility With Existing Agricultural Use	10	1			
TOTAL SITE ASSESSMENT POINTS	160				
PART VII *(To be completed by Federal Agency)*					
Relative Value Of Farmland *(From Part V)*	100				
Total Site Assessment *(From Part VI above or a local site assessment)*	160				
TOTAL POINTS *(Total of above 2 lines)*	260	66	0	0	0

Site Selected:	Date Of Selection	Was A Local Site Assessment Used? Yes ☐ No ☐

Reason For Selection:

(See Instructions on reverse side)

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Clear Form

Form AD-1006 (10-83)

STEPS IN THE PROCESSING THE FARMLAND AND CONVERSION IMPACT RATING FORM

Step 1 – Federal agencies involved in proposed projects that may convert farmland, as defined in the Farmland Protection Policy Act (FPPA) to nonagricultural uses, will initially complete Parts I and III of the form.

Step 2 – Originator will send copies A, B and C together with maps indicating locations of site(s), to the Natural Resources Conservation Service (NRCS) local field office and retain copy D for their files. (Note: NRCS has a field office in most counties in the U.S. The field office is usually located in the county seat. A list of field office locations are available from the NRCS State Conservationist in each state).

Step 3 – NRCS will, within 45 calendar days after receipt of form, make a determination as to whether the site(s) of the proposed project contains prime, unique, statewide or local important farmland.

Step '4 – In cases where farmland covered by the FPPA will be converted by the proposed project, NRCS field offices will complete Parts II, IV and V of the form.

Step 5 – NRCS will return copy A and B of the form to the Federal agency involved in the project. (Copy C will be retained for NRCS records).

Step 6 – The Federal agency involved in the proposed project will complete Parts VI and VII of the form.

Step 7 – The Federal agency involved in the proposed project will make a determination as to whether the proposed conversion is consistent with the FPPA and the agency's internal policies.

INSTRUCTIONS FOR COMPLETING THE FARMLAND CONVERSION IMPACT RATING FORM

Part I: In completing the "County And State" questions list all the local governments that are responsible for local land controls where site(s) are to be evaluated.

Part III: In completing item B (Total Acres To Be Converted Indirectly), include the following:

1. Acres not being directly converted but that would no longer be capable of being farmed after the conversion, because the conversion would restrict access to them.

2. Acres planned to receive services from an infrastructure project as indicated in the project justification (e.g. highways, utilities) that will cause a direct conversion.

Part VI: Do not complete Part VI if a local site assessment is used.

Assign the maximum points for each site assessment criterion as shown in § 658.5 (b) of CFR. In cases of corridor-type projects such as transportation, powerline and flood control, criteria #5 and #6 will not apply and will, be weighed zero, however, criterion #8 will be weighed a maximum of 25 points, and criterion #11 a maximum of 25 points.

Individual Federal agencies at the national level, may assign relative weights among the 12 site assessment criteria other than those shown in the FPPA rule. In all cases where other weights are assigned relative adjustments must be made to maintain the maximum total weight points at l60.

In rating alternative sites, Federal agencies shall consider each of the criteria and assign points within the limits established in the FPPA rule. Sites most suitable for protection under these criteria will receive the highest total scores, and sites least suitable, the lowest scores.

Part VII: In computing the "Total Site Assessment Points" where a State or local site assessment is used and the total maximum number of points is other than 160, adjust the site assessment points to a base of 160. Example: if the Site Assessment maximum is 200 points, and alternative Site "A" is rated 180 points:

$$\frac{\text{Total points assigned Site A}}{\text{Maximum points possible}} = \frac{180}{200} \times 160 = 144 \text{ points for Site "A."}$$

Site Assessment Scoring for the Twelve Factors Used in FPPA

The Site Assessment criteria used in the Farmland Protection Policy Act (FPPA) rule are designed to assess important factors other than the agricultural value of the land when determining which alternative sites should receive the highest level of protection from conversion to non agricultural uses.

Twelve factors are used for Site Assessment and ten factors for corridor-type sites. Each factor is listed in an outline form, without detailed definitions or guidelines to follow in the rating process. The purpose of this document is to expand the definitions of use of each of the twelve Site Assessment factors so that all persons can have a clear understanding as to what each factor is intended to evaluate and how points are assigned for given conditions.

In each of the 12 factors a number rating system is used to determine which sites deserve the most protection from conversion to non-farm uses. The higher the number value given to a proposed site, the more protection it will receive. The maximum scores are 10, 15 and 20 points, depending upon the relative importance of each particular question. If a question significantly relates to why a parcel of land should not be converted, the question has a maximum possible protection value of 20, whereas a question which does not have such a significant impact upon whether a site would be converted, would have fewer maximum points possible, for example 10.

The following guidelines should be used in rating the twelve Site Assessment criteria:

1. How much land is in non-urban use within a radius of 1.0 mile from where the project is intended?

More than 90 percent:	15 points
90-20 percent:	14 to 1 points
Less than 20 percent:	0 points

This factor is designed to evaluate the extent to which the area within one mile of the proposed site is non-urban area. For purposes of this rule, "non-urban" should include:

- Agricultural land (crop-fruit trees, nuts, oilseed)
- Range land
- Forest land
- Golf Courses
- Non paved parks and recreational areas
- Mining sites
- Farm Storage
- Lakes, ponds and other water bodies
- Rural roads, and through roads without houses or buildings
- Open space
- Wetlands
- Fish production
- Pasture or hayland

Urban uses include:

- Houses (other than farm houses)
- Apartment buildings
- Commercial buildings
- Industrial buildings
- Paved recreational areas (i.e. tennis courts)
- Streets in areas with 30 structures per 40 acres
- Gas stations

- Equipment, supply stores
- Off-farm storage
- Processing plants
- Shopping malls
- Utilities/Services
- Medical buildings

In rating this factor, an area one-mile from the outer edge of the proposed site should be outlined on a current photo; the areas that are urban should be outlined. For rural houses and other buildings with unknown sizes, use 1 and 1/3 acres per structure. For roads with houses on only one side, use one half of road for urban and one half for non-urban.

The purpose of this rating process is to insure that the most valuable and viable farmlands are protected from development projects sponsored by the Federal Government. With this goal in mind, factor S1 suggests that the more agricultural lands surrounding the parcel boundary in question, the more protection from development this site should receive. Accordingly, a site with a large quantity of non-urban land surrounding it will receive a greater
number of points for protection from development. Thus, where more than 90 percent of the area around the proposed site (do not include the proposed site in this assessment) is non-urban, assign 15 points. Where 20 percent or less is
non-urban, assign 0 points. Where the area lies between 20 and 90 percent non-urban, assign appropriate points from 14 to 1, as noted below.

Percent Non-Urban Land within 1 mile	**Points**
90 percent or greater	15
85 to 89 percent	14
80 to 84 percent	13
75 to 79 percent	12
70 to 74 percent	11
65 to 69 percent	10
60 to 64 percent	9
55 to 59 percent	8
50 to 54 percent	7
45 to 49 percent	6
40 to 44 percent	5
35 to 39 percent	4
30 to 24 percent	3
25 to 29 percent	2
21 to 24 percent	1
20 percent or less	0

2. How much of the perimeter of the site borders on land in non-urban use?

More than 90 percent:	l0 points
90 to 20 percent:	9 to 1 point(s)
Less than 20 percent:	0 points

This factor is designed to evaluate the extent to which the land adjacent to the proposed site is non-urban use. Where factor #1 evaluates the general location of the proposed site, this factor evaluates the immediate perimeter of the site. The definition of urban and non-urban uses in factor #1 should be used for this factor.

In rating the second factor, measure the perimeter of the site that is in non-urban and urban use. Where more than 90 percent of the perimeter is in non-urban use, score this factor 10 points. Where less than 20 percent, assign 0 points. If a road is next to the perimeter, class the area according to the

use on the other side of the road for that area. Use 1 and 1/3 acre per structure if not otherwise known. Where 20 to 90 percent of the perimeter is non-urban, assign points as noted below:

Percentage of Perimeter Bordering Land	Points
90 percent or greater	10
82 to 89 percent	9
74 to 81 percent	8
65 to 73 percent	7
58 to 65 percent	6
50 to 57 percent	5
42 to 49 percent	4
34 to 41 percent	3
27 to 33 percent	2
21 to 26 percent	1
20 percent or Less	0

3. How much of the site has been farmed (managed for a scheduled harvest or timber activity) more than five of the last ten years?

More than 90 percent:	20 points
90 to 20 percent:	19 to 1 point(s)
Less than 20 percent:	0 points

This factor is designed to evaluate the extent to which the proposed conversion site has been used or managed for agricultural purposes in the past 10 years.

Land is being farmed when it is used or managed for food or fiber, to include timber products, fruit, nuts, grapes, grain, forage, oil seed, fish and meat, poultry and dairy products.

Land that has been left to grow up to native vegetation without management or harvest will be considered as abandoned and therefore not farmed. The proposed conversion site should be evaluated and rated according to the percent, of the site farmed.

If more than 90 percent of the site has been farmed 5 of the last 10 years score the site as follows:

Percentage of Site Farmed	Points
90 percent or greater	20
86 to 89 percent	19
82 to 85 percent	18
78 to 81 percent	17
74 to 77 percent	16
70 to 73 percent	15
66 to 69 percent	14
62 to 65 percent	13
58 to 61 percent	12
54 to 57 percent	11
50 to 53 percent	10
46 to 49 percent	9
42 to 45 percent	8
38 to 41 percent	7
35 to 37 percent	6
32 to 34 percent	5
29 to 31 percent	4
26 to 28 percent	3

23 to 25 percent	2
20 to 22 percent percent or Less	1
Less than 20 percent	0

4. Is the site subject to state or unit of local government policies or programs to protect farmland or covered by private programs to protect farmland?

Site is protected:	20 points
Site is not protected:	0 points

This factor is designed to evaluate the extent to which state and local government and private programs have made efforts to protect this site from conversion.

State and local policies and programs to protect farmland include:

State Policies and Programs to Protect Farmland

1. Tax Relief:

A. Differential Assessment: Agricultural lands are taxed on their agricultural use value, rather than at market value. As a result, farmers pay fewer taxes on their land, which helps keep them in business, and therefore helps to insure that the farmland will not be converted to nonagricultural uses.

1. Preferential Assessment for Property Tax: Landowners with parcels of land used for agriculture are given the privilege of differential assessment.

2. Deferred Taxation for Property Tax: Landowners are deterred from converting their land to nonfarm uses, because if they do so, they must pay back taxes at market value.

3. Restrictive Agreement for Property Tax: Landowners who want to receive Differential Assessment must agree to keep their land in - eligible use.

B. Income Tax Credits

Circuit Breaker Tax Credits: Authorize an eligible owner of farmland to apply some or all of the property taxes on his or her farmland and farm structures as a tax credit against the owner's state income tax.

C. Estate and Inheritance Tax Benefits

Farm Use Valuation for Death Tax: Exemption of state tax liability to eligible farm estates.

2. "Right to farm" laws:

Prohibits local governments from enacting laws which will place restrictions upon normally accepted farming practices, for example, the generation of noise, odor or dust.

3. Agricultural Districting:

Wherein farmers voluntarily organize districts of agricultural land to be legally recognized geographic areas. These farmers receive benefits, such as protection from annexation, in exchange for keeping land within the district for a given number of years.

4. Land Use Controls: Agricultural Zoning.

Types of Agricultural Zoning Ordinances include:

A. Exclusive: In which the agricultural zone is restricted to only farm-related dwellings, with, for example, a minimum of 40 acres per dwelling unit.

B. Non-Exclusive: In which non-farm dwellings are allowed, but the density remains low, such as 20 acres per dwelling unit.

Additional Zoning techniques include:

A. Slidinq Scale: This method looks at zoning according to the total size of the parcel owned. For example, the number of dwelling units per a given number of acres may change from county to county according to the existing land acreage to dwelling unit ratio of surrounding parcels of land within the specific area.

B. Point System or Numerical Approach: Approaches land use permits on a case by case basis.

LESA: The LESA system (Land Evaluation-Site Assessment) is used as a tool to help assess options for land use on an evaluation of productivity weighed against commitment to urban development.

C. Conditional Use: Based upon the evaluation on a case by case basis by the Board of Zoning Adjustment. Also may include the method of using special land use permits.

5. Development Rights:

A. Purchase of Development Rights (PDR): Where development rights are purchased by Government action.

Buffer Zoning Districts: Buffer Zoning Districts are an example of land purchased by Government action. This land is included in zoning ordinances in order to preserve and protect agricultural lands from non-farm land uses encroaching upon them.

B. Transfer of Development Rights (TDR): Development rights are transferable for use in other locations designated as receiving areas. TDR is considered a locally based action (not state), because it requires a voluntary decision on the part of the individual landowners.

6. Governor's Executive Order: Policy made by the Governor, stating the importance of agriculture, and the preservation of agricultural lands. The Governor orders the state agencies to avoid the unnecessary conversion of important farmland to nonagricultural uses.

7. Voluntary State Programs:

A. California's Program of Restrictive Agreements and Differential Assessments: The California Land Conservation Act of 1965, commonly known as the Williamson Act, allows cities, counties and individual landowners to form agricultural preserves and enter into contracts for 10 or more years to insure that these parcels of land remain strictly for agricultural use. Since 1972 the Act has extended eligibility to recreational and open space lands such as scenic highway corridors, salt ponds and wildlife preserves. These contractually restricted lands may be taxed differentially for their real value. One hundred-acre districts constitute the minimum land size eligible.

Suggestion: An improved version of the Act would state that if the land is converted after the contract expires, the landowner must pay the difference in the taxes between market value for the land and the agricultural tax value which he or she had been

paying under the Act. This measure would help to insure that farmland would not be converted after the 10 year period ends.

B. Maryland Agricultural Land Preservation Program: Agricultural landowners within agricultural districts have the opportunity to sell their development rights to the Maryland Land Preservation Foundation under the agreement that these landowners will not subdivide or develop their land for an initial period of five years. After five years the landowner may terminate the agreement with one year notice.

As is stated above under the California Williamson Act, the landowner should pay the back taxes on the property if he or she decides to convert the land after the contract expires, in order to discourage such conversions.

C. Wisconsin Income Tax Incentive Program: The Wisconsin Farmland Preservation Program of December 1977 encourages local jurisdictions in Wisconsin to adopt agricultural preservation plans or exclusive agricultural district zoning ordinances in exchange for credit against state income tax and exemption from special utility assessment. Eligible candidates include local governments and landowners with at least 35 acres of land per dwelling unit in agricultural use and gross farm profits of at least $6.000 per year, or $18,000 over three years.

8. Mandatory State Programs:

A. The Environmental Control Act in the state of Vermont was adopted in 1970 by the Vermont State Legislature. The Act established an environmental board with 9 members (appointed by the Governor) to implement a planning process and a permit system to screen most subdivisions and development proposals according to specific criteria stated in the law. The planning process consists of an interim and a final Land Capability and Development Plan, the latter of which acts as a policy plan to control development. The policies are written in order to:

- prevent air and water pollution;
- protect scenic or natural beauty, historic sites and rare and irreplaceable natural areas; and
- consider the impacts of growth and reduction of development on areas of primary agricultural soils.

B. The California State Coastal Commission: In 1976 the Coastal Act was passed to establish a permanent Coastal Commission with permit and planning authority The purpose of the Coastal Commission was and is to protect the sensitive coastal zone environment and its resources, while accommodating the social and economic needs of the state. The Commission has the power to regulate development in the coastal zones by issuing permits on a case by case basis until local agencies can develop their own coastal plans, which must be certified by the Coastal Commission.

C. Hawaii's Program of State Zoning: In 1961, the Hawaii State Legislature established Act 187, the Land Use Law, to protect the farmland and the welfare of the local people of Hawaii by planning to avoid “unnecessary urbanization”. The Law made all state lands into four districts: agricultural, conservation, rural and urban. The Governor appointed members to a State Land Use Commission, whose duties were to uphold the Law and form the boundaries of the four districts. In addition to state zoning, the Land Use Law introduced a program of Differential Assessment, wherein agricultural landowners paid taxes on their land for its agricultural use value, rather than its market value.

D. The Oregon Land Use Act of 1973: This act established the Land Conservation and Development Commission (LCDC) to provide statewide planning goals and guidelines.

Under this Act, Oregon cities and counties are each required to draw up a comprehensive plan, consistent with statewide planning goals. Agricultural land preservation is high on the list of state goals to be followed locally.

If the proposed site is subject to or has used one or more of the above farmland protection programs or policies, score the site 20 points. If none of the above policies or programs apply to this site, score 0 points.

5. How close is the site to an urban built-up area?

The site is 2 miles or more from an urban built-up area	15 points
The site is more than 1 mile but less than 2 miles from an urban built-up area	10 points
The site is less than 1 mile from, but is not adjacent to an urban built-up area	5 points
The site is adjacent to an urban built-up area	0 points

This factor is designed to evaluate the extent to which the proposed site is located next to an existing urban area. The urban built-up area must be 2500 population. The measurement from the built-up area should be made from the point at which the density is 30 structures per 40 acres and with no open or non-urban land existing between the major built-up areas and this point. Suburbs adjacent to cities or urban built-up areas should be considered as part of that urban area.

For greater accuracy, use the following chart to determine how much protection the site should receive according to its distance from an urban area. See chart below:

Distance From Perimeter of Site to Urban Area	Points
More than 10,560 feet	15
9,860 to 10,559 feet	14
9,160 to 9,859 feet	13
8,460 to 9,159 feet	12
7,760 to 8,459 feet	11
7,060 to 7,759 feet	10
6,360 to 7,059 feet	9
5,660 to 6,359 feet	8
4,960 to 5,659 feet	7
4,260 to 4,959 feet	6
3,560 to 4,259 feet	5
2,860 to 3,559 feet	4
2,160 to 2,859 feet	3
1,460 to 2,159 feet	2
760 to 1,459 feet	1
Less than 760 feet (adjacent)	0

6. How close is the site to water lines, sewer lines and/or other local facilities and services whose capacities and design would promote nonagricultural use?

None of the services exist nearer than 3 miles from the site	15 points
Some of the services exist more than one but less than 3 miles from the site	10 points
All of the services exist within 1/2 mile of the site	0 points

This question determines how much infrastructure (water, sewer, etc.) is in place which could facilitate nonagricultural development. The fewer facilities in place, the more difficult it is to develop an area. Thus, if a proposed site is further away from these services (more than 3 miles distance away), the site should be awarded the highest number of points (15). As the distance of the parcel of land to services decreases, the number of points awarded declines as well. So, when the site is equal to or further than 1 mile but less than 3 miles away from services, it should be given 10 points. Accordingly, if this distance is 1/2 mile to less than 1 mile, award 5 points; and if the distance from land to services is less than 1/2 mile, award 0 points.

Distance to public facilities should be measured from the perimeter of the parcel in question to the nearest site(s) where necessary facilities are located. If there is more than one distance (i.e. from site to water and from site to sewer), use the average distance (add all distances and then divide by the number of different distances to get the average).

Facilities which could promote nonagricultural use include:

- Water lines
- Sewer lines
- Power lines
- Gas lines
- Circulation (roads)
- Fire and police protection
- Schools

7. Is the farm unit(s) containing the site (before the project) as large as the average-size farming unit in the county? (Average farm sizes in each county are available from the NRCS field offices in each state. Data are from the latest available Census of Agriculture, Acreage of Farm Units in Operation with $1,000 or more in sales.)

As large or larger:	10 points
Below average: Deduct 1 point for each 5 percent below the average, down to 0 points if 50 percent or more is below average	9 to 0 points

This factor is designed to determine how much protection the site should receive, according to its size in relation to the average size of farming units within the county. The larger the parcel of land, the more agricultural use value the land possesses, and vice versa. Thus, if the farm unit is as large or larger than the county average, it receives the maximum number of points (10). The smaller the parcel of land compared to the county average, the fewer number of points given. Please see below:

Parcel Size in Relation to Average County Size	Points
Same size or larger than average (l00 percent)	10
95 percent of average	9
90 percent of average	8
85 percent of average	7
80 percent of average	6
75 percent of average	5
70 percent of average	4
65 percent of average	3
60 percent of average	2
55 percent of average	1
50 percent or below county average	0

State and local Natural Resources Conservation Service offices will have the average farm size information, provided by the latest available Census of Agriculture data

8. If this site is chosen for the project, how much of the remaining land on the farm will become non-farmable because of interference with land patterns?

Acreage equal to more than 25 percent of acres directly converted by the project	10 points
Acreage equal to between 25 and 5 percent of the acres directly converted by the project	9 to 1 point(s)
Acreage equal to less than 5 percent of the acres directly converted by the project	0 points

This factor tackles the question of how the proposed development will affect the rest of the land on the farm The site which deserves the most protection from conversion will receive the greatest number of points, and vice versa. For example, if the project is small, such as an extension on a house, the rest of the agricultural land would remain farmable, and thus a lower number of points is given to the site. Whereas if a large-scale highway is planned, a greater portion of the land (not including the site) will become non-farmable, since access to the farmland will be blocked; and thus, the site should receive the highest number of points (10) as protection from conversion

Conversion uses of the Site Which Would Make the Rest of the Land Non-Farmable by Interfering with Land Patterns

Conversions which make the rest of the property nonfarmable include any development which blocks accessibility to the rest of the site Examples are highways, railroads, dams or development along the front of a site restricting access to the rest of the property.

The point scoring is as follows:

Amount of Land Not Including the Site Which Will Become Non-Farmable	Points
25 percent or greater	10
23 - 24 percent	9
21 - 22 percent	8
19 - 20 percent	7
17 - 18 percent	6
15 - 16 percent	5
13 - 14 percent	4
11 - 12 percent	3
9 - 11 percent	2
6 - 8 percent	1
5 percent or less	0

9. Does the site have available adequate supply of farm support services and markets, i.e., farm suppliers, equipment dealers, processing and storage facilities and farmer's markets?

All required services are available	5 points
Some required services are available	4 to 1 point(s)
No required services are available	0 points

This factor is used to assess whether there are adequate support facilities, activities and industry to keep the farming business in business. The more support facilities available to the agricultural

landowner, the more feasible it is for him or her to stay in production. In addition, agricultural support facilities are compatible with farmland. This fact is important, because some land uses are not compatible; for example, development next to farmland cam be dangerous to the welfare of the agricultural land, as a result of pressure from the neighbors who often do not appreciate the noise, smells and dust intrinsic to farmland. Thus, when all required agricultural support services are available, the maximum number of points (5) are awarded. When some services are available, 4 to 1 point(s) are awarded; and consequently, when no services are available, no points are given. See below:

Percent of Services Available	Points
100 percent	5
75 to 99 percent	4
50 to 74 percent	3
25 to 49 percent	2
1 to 24 percent	1
No services	0

10. Does the site have substantial and well-maintained on farm investments such as barns, other storage buildings, fruit trees and vines, field terraces, drainage, irrigation, waterways, or other soil and water conservation measures?

High amount of on-farm investment	20 points
Moderate amount of non-farm investment	19 to 1 point(s)
No on-farm investments	0 points

This factor assesses the quantity of agricultural facilities in place on the proposed site. If a significant agricultural infrastructure exists, the site should continue to be used for farming, and thus the parcel will receive the highest amount of points towards protection from conversion or development. If there is little on farm investment, the site will receive comparatively less protection. See-below:

Amount of On-farm Investment	Points
As much or more than necessary to maintain production (100 percent)	20
95 to 99 percent	19
90 to 94 percent	18
85 to 89 percent	17
80 to 84 percent	16
75 to 79 percent	15
70 to 74 percent	14
65 to 69 percent	13
60 to 64 percent	12
55 to 59 percent	11
50 to 54 percent	10
45 to 49 percent	9
40 to 44 percent	8
35 to 39 percent	7
30 to 34 percent	6
25 to 29 percent	5
20 to 24 percent	4
15 to 19 percent	3
10 to 14 percent	2
5 to 9 percent	1
0 to 4 percent	0

11. Would the project at this site, by converting farmland to nonagricultural use, reduce the support for farm support services so as to jeopardize the continued existence of these support services and thus, the viability of the farms remaining in the area?

Substantial reduction in demand for support services if the site is converted	10 points
Some reduction in demand for support services if the site is converted	9 to 1 point(s)
No significant reduction in demand for support services if the site is converted	0 points

This factor determines whether there are other agriculturally related activities, businesses or jobs dependent upon the working of the pre-converted site in order for the others to remain in production. The more people and farming activities relying upon this land, the more protection it should receive from conversion. Thus, if a substantial reduction in demand for support services were to occur as a result of conversions, the proposed site would receive a high score of 10; some reduction in demand would receive 9 to 1 point(s), and no significant reduction in demand would receive no points.

Specific points are outlined as follows:

Amount of Reduction in Support Services if Site is Converted to Nonagricultural Use	**Points**
Substantial reduction (100 percent)	10
90 to 99 percent	9
80 to 89 percent	8
70 to 79 percent	7
60 to 69 percent	6
50 to 59 percent	5
40 to 49 percent	4
30 to 39 percent	3
20 to 29 percent	2
10 to 19 percent	1
No significant reduction (0 to 9 percent)	0

12. Is the kind and intensity of the proposed use of the site sufficiently incompatible with agriculture that it is likely to contribute to the eventual conversion of the surrounding farmland to nonagricultural use?

Proposed project is incompatible with existing agricultural use of surrounding farmland	10 points
Proposed project is tolerable of existing agricultural use of surrounding farmland	9 to 1 point(s)
Proposed project is fully compatible with existing agricultural use of surrounding farmland	0 points

Factor 12 determines whether conversion of the proposed agricultural site will eventually cause the conversion of neighboring farmland as a result of incompatibility of use of the first with the latter. The more incompatible the proposed conversion is with agriculture, the more protection this site receives from conversion. Therefor-, if the proposed conversion is incompatible with agriculture, the site receives 10 points. If the project is tolerable with agriculture, it receives 9 to 1 points; and if the proposed conversion is compatible with agriculture, it receives 0 points.

CORRIDOR - TYPE SITE ASSESSMENT CRITERIA

The following criteria are to be used for projects that have a linear or corridor - type site configuration connecting two distant points, and crossing several different tracts of land. These include utility lines, highways, railroads, stream improvements, and flood control systems. Federal agencies are to assess the suitability of each corridor-type site or design alternative for protection as farmland along with the land evaluation information.

For Water and Waste Programs, corridor analyses are not applicable for distribution or collection networks. Analyses are applicable for transmission or trunk lines where placement of the lines are flexible.

(1) How much land is in nonurban use within a radius of 1.0 mile form where the project is intended?

(2)	More than 90 percent	(3)	15 points
(4)	90 to 20 percent	(5)	14 to 1 point(s).
(6)	Less than 20 percent	(7)	0 points

(2) How much of the perimeter of the site borders on land in nonurban use?

(3)	More than 90 percent	(4)	10 point(s)
(5)	90 to 20 percent	(6)	9 to 1 points
(7)	less than 20 percent	(8)	0 points

(3) How much of the site has been farmed (managed for a scheduled harvest or timber activity) more than five of the last 10 years?

(4)	More than 90 percent	(5)	20 points
(6)	90 to 20 percent	(7)	19 to 1 point(s)
(8)	Less than 20 percent	(9)	0 points

(4) Is the site subject to state or unit of local government policies or programs to protect farmland or covered by private programs to protect farmland?

Site is protected	20 points
Site is not protected	0 points

(5) Is the farm unit(s) containing the site (before the project) as large as the average - size farming unit in the County? (Average farm sizes in each county are available from the NRCS field offices in each state. Data are from the latest available Census of Agriculture, Acreage of Farm Units in Operation with $1,000 or more in sales.)

As large or larger	10 points
Below average deduct 1 point for each 5 percent below the average, down to 0 points if 50 percent or more below average	9 to 0 points

(6) If the site is chosen for the project, how much of the remaining land on the farm will become non-farmable because of interference with land patterns?

Acreage equal to more than 25 percent of acres directly converted by the project	25 points
Acreage equal to between 25 and 5 percent of the acres directly convened by the project	1 to 24 point(s)
Acreage equal to less than 5 percent of the acres directly converted by the project	0 points

(7) Does the site have available adequate supply of farm support services and markets, i.e., farm suppliers, equipment dealers, processing and storage facilities and farmer's markets?

All required services are available	5 points
Some required services are available	4 to 1 point(s)
No required services are available	0 points

(8) Does the site have substantial and well-maintained on-farm investments such as barns, other storage building, fruit trees and vines, field terraces, drainage, irrigation, waterways, or other soil and water conservation measures?

High amount of on-farm investment	20 points
Moderate amount of on-farm investment	19 to 1 point(s)
No on-farm investment	0 points

(9) Would the project at this site, by converting farmland to nonagricultural use, reduce the demand for farm support services so as to jeopardize the continued existence of these support services and thus, the viability of the farms remaining in the area?

Substantial reduction in demand for support services if the site is convened	25 points
Some reduction in demand for support services if the site is convened	1 to 24 point(s)
No significant reduction in demand for support services if the site is converted	0 points

(10) Is the kind and intensity of the proposed use of the site sufficiently incompatible with agriculture that it is likely to contribute to the eventual conversion of surrounding farmland to nonagricultural use?

Proposed project is incompatible to existing agricultural use of surrounding farmland	10 points
Proposed project is tolerable to existing agricultural use of surrounding farmland	9 to 1 point(s)
Proposed project is fully compatible with existing agricultural use of surrounding farmland	0 points

NRCS Natural Resources Conservation Service
4511 US Highway 31S
Decatur, AL 35603

May 3, 2006

Crate J. Spears
Department of Defense
Missile Defense Agency
7100 Defense Pentagon
Washington, DC 20301-7100

RE: Environmental Assessment for the Proposed Expansion for the Lockheed Martin Courtland Facility
Courtland, Alabama

Dear Crate Spears:

I have enclosed soil survey maps for the locations that you identified in Lawrence County, Alabama. I have color coded the soil map units into 3 sections:

- Prime farmland
- Non-prime farmland
- Wetland/Hydric soils

The areas that are clear are considered "Prime Farmland" as defined in Appendix A of Department Regulation No. DR 9500-3 dated March 22, 1983; and also, meets the criteria set forth by the Prime Farmland Policy Act (FPPA) and Land Evaluation Site Assessment (LESA) of June 22, 1982. The soil map units considered Prime Farmland in the area of interest are:

Cc – Cumberland loam, undulating phase
Ed – Etowah loam, eroded, undulating phase
Ee – Etowah silt loam, undulating phase

In addition, the area of interest does **not** contain hydric soils (blue) that meet the definition for wetland criteria, as required by 180-V-NFSAM Third Edition, Amend 2, November 1996 part 513.11.a.

I have also enclosed the Lawrence County Soil Survey legend, Form AD-1006 (Farmland Conversion Impact Rating, and the legend for the soils that are considered Prime Farmland.

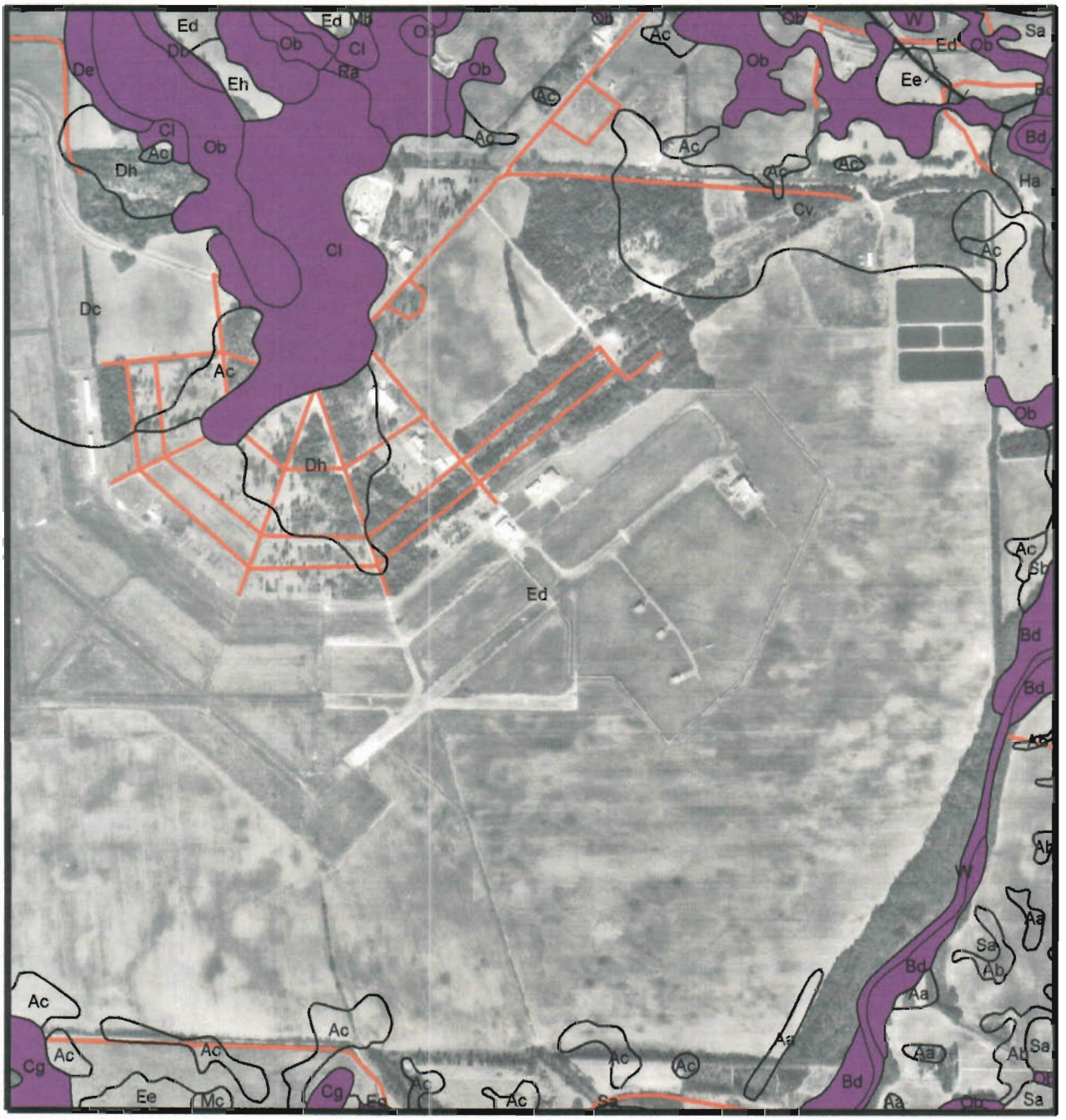
NRCS primary concern with this project is the possible conversion of prime farmland during construction. Erosion and sediment control measures should be implemented and maintained during the construction phase to protect land, water, and related resources.

Plans for construction should include sediment basins or traps and other erosion control practices, including coverage of bare soil as soon as possible by temporary and permanent vegetation and structures.

If you need further assistance, please contact your local NRCS office, or feel free to contact myself, Christopher Ford, Resource Soil Scientist, at (256) 353-6146 ext. 107.

Sincerely,

Christopher Ford
Resource Soil Scientist



Lawrence County, Alabama

Legend

{NAN, <}

- All areas are prime farmland
- Not prime farmland
- Prime farmland if drained
- Not rated or not available

Meters
0 70140 280

N
W E
S

Prime and Other Important Farmlands

Lawrence County, Alabama

Map symbol	Map unit name	Farmland classification
Aa	Abernathy fine sandy loam, level phase	All areas are prime farmland
Ab	Abernathy fine sandy loam, undulating phase	All areas are prime farmland
Ac	Abernathy silt loam, level phase	All areas are prime farmland
Ad	Abernathy silt loam, undulating phase	All areas are prime farmland
Ah	Allen fine sandy loam, eroded, undulating phase	All areas are prime farmland
Cb	Cumberland loam, eroded, undulating phase	All areas are prime farmland
Cc	Cumberland loam, undulating phase	All areas are prime farmland
Ct	Cotaco silt loam	All areas are prime farmland
Cv	Cumberland loam, eroded, undulating phase	All areas are prime farmland
Cw	Cumberland loam, undulating phase	All areas are prime farmland
Da	Decatur and Cumberland silt loams, undulating phases	All areas are prime farmland
Dc	Decatur and Cumberland silty clay loams, eroded, undulating phase	All areas are prime farmland
Dh	Dewey cherty silty clay loam, eroded, undulating phase	All areas are prime farmland
Eb	Enders loam, eroded, undulating phase	All areas are prime farmland
Ed	Etowah loam, eroded, undulating phase	All areas are prime farmland
Ee	Etowah loam, undulating phase	All areas are prime farmland
Ef	Etowah silt loam, undulating phase	All areas are prime farmland
Eh	Etowah silty clay loam, eroded, undulating phase	All areas are prime farmland
Ha	Hamblen fine sandy loam	All areas are prime farmland
Hc	Hartsells fine sandy loam, eroded, undulating phase	All areas are prime farmland
He	Hollywood silty clay	All areas are prime farmland
Hf	Monongahela and Holston fine sandy loams, eroded, undulating phase	All areas are prime farmland
Hg	Monongahela and Holston fine sandy loams, level phases	All areas are prime farmland
Hh	Monongahela and Holston fine sandy loams, undulating phase	All areas are prime farmland
Hk	Huntington silt loam	All areas are prime farmland
Jc	Jefferson fine sandy loam, eroded, undulating phase	All areas are prime farmland
Je	Johnsburg loam	All areas are prime farmland
Lb	Lindside silty clay loam	All areas are prime farmland
Lf	Linker fine sandy loam, eroded, undulating phase	All areas are prime farmland
Mb	Tyler and Monongahela fine sandy loams, eroded, undulating phase	All areas are prime farmland
Mc	Tyler and Monongahela fine sandy loams, level phases	All areas are prime farmland
Md	Tyler and Monongahela fine sandy loams, undulating phase	All areas are prime farmland
Nb	Nolichucky fine sandy loam, eroded, undulating phase	All areas are prime farmland
Pe	Philo fine sandy loam	All areas are prime farmland
Rf	Ruston sandy loam, undulating phase	All areas are prime farmland
Sa	Sequatchie fine sandy loam, eroded, undulating phase	All areas are prime farmland
Sb	Sequatchie fine sandy loam, undulating phase	All areas are prime farmland
Sc	Staser fine sandy loam	All areas are prime farmland
Tb	Talbott loam, eroded, undulating phase	All areas are prime farmland
Tc	Talbott silt loam, undulating phase	All areas are prime farmland
Tf	Talbott silty clay loam, eroded, undulating phase	All areas are prime farmland
Tk	Tilsit silt loam, eroded, undulating phase	All areas are prime farmland
Tm	Tilsit silt loam, undulating phase	All areas are prime farmland
Tp	Tyler fine sandy loam	All areas are prime farmland
Wb	Waynesboro fine sandy loam, eroded, undulating phase	All areas are prime farmland
Ba	Barbourville fine sandy loam	Prime farmland if drained

Map Unit Legend

Lawrence County, Alabama

Map symbol	Map unit name
Aa	Abernathy fine sandy loam, level phase
Ab	Abernathy fine sandy loam, undulating phase
Ac	Abernathy silt loam, level phase
Ad	Abernathy silt loam, undulating phase
Ae	Allen clay loam, severely eroded, rolling phase
Af	Allen fine sandy loam, eroded, hilly phase
Ag	Allen fine sandy loam, eroded, rolling phase
Ah	Allen fine sandy loam, eroded, undulating phase
Ak	Allen fine sandy loam, rolling phase
Al	Atkins silt loam
Ba	Barbourville fine sandy loam
Bb	Baxter cherty silt loam, eroded, rolling phase
Bc	Baxter cherty silt loam, hilly phase
Bd	Bruno loamy fine sand
Ca	Cumberland loam, eroded, rolling phase
Cb	Cumberland loam, eroded, undulating phase
Cc	Cumberland loam, undulating phase
Cd	Colbert cherty silt loam, eroded, undulating phase
Ce	Colbert cherty silt loam, rolling phase
Cf	Colbert loam, eroded, rolling phase
Cg	Colbert loam, eroded, undulating phase
Ch	Colbert loam, hilly phase
Ck	Colbert loam, rolling phase
Cl	Colbert loam, undulating phase
Cm	Colbert silt loam, level phase
Cn	Colbert silt loam, rolling phase
Co	Colbert silt loam, undulating phase
Cp	Colbert silty clay loam, eroded, hilly phase
Cr	Colbert silty clay loam, eroded, rolling phase
Cs	Colbert silty clay loam, eroded, undulating phase
Ct	Cotaco silt loam
Cu	Cumberland loam, eroded, rolling phase
Cv	Cumberland loam, eroded, undulating phase
Cw	Cumberland loam, undulating phase
Da	Decatur and Cumberland silt loams, undulating phases
DAM	Dam
Db	Decatur and Cumberland silty clay loams, eroded, rolling phase
Dc	Decatur and Cumberland silty clay loams, eroded, undulating phase
Dd	Decatur and Cumberland silty clays, gullied phases
De	Decatur and Cumberland silty clays, severely eroded, rolling phase
Df	Decatur and Cumberland silty clays, severely eroded, undulating phase
Dg	Dewey cherty silty clay loam, eroded, rolling phase
Dh	Dewey cherty silty clay loam, eroded, undulating phase
Dk	Dowellton silty clay loam
Dl	Dunning silty clay
Ea	Enders loam, eroded, rolling phase
Eb	Enders loam, eroded, undulating phase
Ec	Enders loam, rolling phase
Ed	Etowah loam, eroded, undulating phase
Ee	Etowah loam, undulating phase

Map Unit Legend

Lawrence County, Alabama

Map symbol	Map unit name
Ef	Etowah silt loam, undulating phase
Eg	Etowah silty clay loam, eroded, rolling phase
Eh	Etowah silty clay loam, eroded, undulating phase
Ga	Gullied land, sandstone material
Ha	Hamblen fine sandy loam
Hb	Hartsells fine sandy loam, eroded, rolling phase
Hc	Hartsells fine sandy loam, eroded, undulating phase
Hd	Hartsells fine sandy loam, rolling phase
He	Hollywood silty clay
Hf	Monongahela and Holston fine sandy loams, eroded, undulating phase
Hg	Monongahela and Holston fine sandy loams, level phases
Hh	Monongahela and Holston fine sandy loams, undulating phase
Hk	Huntington silt loam
Ja	Jefferson fine sandy loam, eroded, hilly phase
Jb	Jefferson fine sandy loam, eroded, rolling phase
Jc	Jefferson fine sandy loam, eroded, undulating phase
Jd	Jefferson fine sandy loam, rolling phase
Je	Johnsburg loam
La	Lickdale silt loam
Lb	Lindside silty clay loam
Lc	Linker clay loam, severely eroded, rolling phase
Ld	Linker fine sandy loam, eroded, hilly phase
Le	Linker fine sandy loam, eroded, rolling phase
Lf	Linker fine sandy loam, eroded, undulating phase
Lg	Linker fine sandy loam, rolling phase
Ma	Melvin silt loam
Mb	Tyler and Monongahela fine sandy loams, eroded, undulating phase
Mc	Tyler and Monongahela fine sandy loams, level phases
Md	Tyler and Monongahela fine sandy loams, undulating phase
Me	Muskingum fine sandy loam, hilly phase
Mf	Muskingum stony fine sandy loam, hilly phase
Mg	Muskingum stony fine sandy loam, steep phase
Na	Nolichucky fine sandy loam, eroded, rolling phase
Nb	Nolichucky fine sandy loam, eroded, undulating phase
Oa	Ooltewah fine sandy loam
Ob	Ooltewah silt loam
Pa	Lawrence and Colbert silty clay loams, eroded, rolling phase
Pb	Lawrence and Colbert silty clay loams, eroded, undulating phase
Pc	Lawrence and Colbert silt loams, rolling phases
Pd	Lawrence and Colbert silt loams, undulating phases
Pe	Philo fine sandy loam
Pf	Pottsville shaly silt loam, hilly phase
Pg	Pottsville shaly silt loam, steep phase
Ph	Prader silt loam
Pt	Pit, gravel
Ra	Robertsville silt loam
Rb	Rockland, limestone, rolling
Rc	Rockland, limestone, steep
Rd	Ruston sandy loam, eroded, rolling phase
Re	Ruston sandy loam, rolling phase

Map Unit Legend

Lawrence County, Alabama

Map symbol	Map unit name
Rf	Ruston sandy loam, undulating phase
Sa	Sequatchie fine sandy loam, eroded, undulating phase
Sb	Sequatchie fine sandy loam, undulating phase
Sc	Staser fine sandy loam
Sd	Stony rolling land, talbott and colbert soil materials
Se	Stony steep land, muskingum soil material
Ta	Talbott loam, eroded, rolling phase
Tb	Talbott loam, eroded, undulating phase
Tc	Talbott silt loam, undulating phase
Td	Talbott silty clay, severely eroded, undulating phase
Te	Talbott silty clay loam, eroded, rolling phase
Tf	Talbott silty clay loam, eroded, undulating phase
Tg	Talbott silty clay, severely eroded, rolling phase
Th	Tilsit silt loam, eroded, rolling phase
Tk	Tilsit silt loam, eroded, undulating phase
Tl	Tilsit silt loam, rolling phase
Tm	Tilsit silt loam, undulating phase
Tn	Tupelo loam
To	Tupelo silt loam
Tp	Tyler fine sandy loam
Ud	Udorthents
W	Water
Wa	Waynesboro clay loam, severely eroded, rolling phase
Wb	Waynesboro fine sandy loam, eroded, undulating phase

U.S. Department of Agriculture

FARMLAND CONVERSION IMPACT RATING

PART I *(To be completed by Federal Agency)*	Date Of Land Evaluation Request 3/7/06
Name Of Project Expansion of Lockheed Martin Courtland Facility	Federal Agency Involved Dept of Defense Missile Defense Agency
Proposed Land Use Building Construction and grassland	County And State Lawrence County, Alabama
PART II *(To be completed by NRCS)*	Date Request Received By NRCS 4/24/2006

Does the site contain prime, unique, statewide or local important farmland? *(If no, the FPPA does not apply -- do not complete additional parts of this form).*	Yes	No	Acres Irrigated	Average Farm Size
	☑	☐		169

Major Crop(s)	Farmable Land In Govt. Jurisdiction	Amount Of Farmland As Defined in FPPA
Corn, cotton, soybeans	Acres: 321274 % 74	Acres: 126544 % 29
Name Of Land Evaluation System Used	**Name Of Local Site Assessment System**	**Date Land Evaluation Returned By NRCS**
LESA	NONE	5/3/2006

PART III *(To be completed by Federal Agency)*	Alternative Site Rating			
	Site A	Site B	Site C	Site D
A. Total Acres To Be Converted Directly	11.0			
B. Total Acres To Be Converted Indirectly	132.0			
C. Total Acres In Site	143.0	0.0	0.0	0.0
PART IV *(To be completed by NRCS)* Land Evaluation Information				
A. Total Acres Prime And Unique Farmland	140			
B. Total Acres Statewide And Local Important Farmland	0			
C. Percentage Of Farmland In County Or Local Govt. Unit To Be Converted	0.04			
D. Percentage Of Farmland In Govt. Jurisdiction With Same Or Higher Relative Value	14			
PART V *(To be completed by NRCS)* Land Evaluation Criterion Relative Value Of Farmland To Be Converted *(Scale of 0 to 100 Points)*	~~0~~ 80	0	0	0

PART VI *(To be completed by Federal Agency)* Site Assessment Criteria *(These criteria are explained in 7 CFR 658.5(b)*	Maximum Points				
1. Area In Nonurban Use	15	9			
2. Perimeter In Nonurban Use	10	10			
3. Percent Of Site Being Farmed	20	16			
4. Protection Provided By State And Local Government	20	0			
5. Distance From Urban Builtup Area	15	10			
6. Distance To Urban Support Services	15	0			
7. Size Of Present Farm Unit Compared To Average	10	10			
8. Creation Of Nonfarmable Farmland	10	10			
9. Availability Of Farm Support Services	5	0			
10. On-Farm Investments	20	0			
11. Effects Of Conversion On Farm Support Services	10	0			
12. Compatibility With Existing Agricultural Use	10	1			
TOTAL SITE ASSESSMENT POINTS	160	66	0	0	0
PART VII *(To be completed by Federal Agency)*					
Relative Value Of Farmland *(From Part V)*	100	0	0	0	0
Total Site Assessment *(From Part VI above or a local site assessment)*	160	66	0	0	0
TOTAL POINTS *(Total of above 2 lines)*	260	66	0	0	0

Site Selected:	Date Of Selection	Was A Local Site Assessment Used? Yes ☐ No ☐

Reason For Selection:

(See Instructions on reverse side)

This form was electronically produced by National Production Services Staff

Form AD-1006 (10-83)

STEPS IN THE PROCESSING THE FARMLAND AND CONVERSION IMPACT RATING FORM

Step 1 – Federal agencies involved in proposed projects that may convert farmland, as defined in the Farmland Protection Policy Act (FPPA) to nonagricultural uses, will initially complete Parts I and III of the form.

Step 2 – Originator will send copies A, B and C together with maps indicating locations of site(s), to the Natural Resources Conservation Service (NRCS) local field office and retain copy D for their files. (Note: NRCS has a field office in most counties in the U.S. The field office is usually located in the county seat. A list of field office locations are available from the NRCS State Conservationist in each state).

Step 3 – NRCS will, within 45 calendar days after receipt of form, make a determination as to whether the site(s) of the proposed project contains prime, unique, statewide or local important farmland.

Step '4 – In cases where farmland covered by the FPPA will be converted by the proposed project, NRCS field offices will complete Parts II, IV and V of the form.

Step 5 – NRCS will return copy A and B of the form to the Federal agency involved in the project. (Copy C will be retained for NRCS records).

Step 6 – The Federal agency involved in the proposed project will complete Parts VI and VII of the form.

Step 7 – The Federal agency involved in the proposed project will make a determination as to whether the proposed conversion is consistent with the FPPA and the agency's internal policies.

INSTRUCTIONS FOR COMPLETING THE FARMLAND CONVERSION IMPACT RATING FORM

Part I: In completing the "County And State" questions list all the local governments that are responsible for local land controls where site(s) are to be evaluated.

Part III: In completing item B (Total Acres To Be Converted Indirectly), include the following:

1. Acres not being directly converted but that would no longer be capable of being farmed after the conversion, because the conversion would restrict access to them.

2. Acres planned to receive services from an infrastructure project as indicated in the project justification (e.g. highways, utilities) that will cause a direct conversion.

Part VI: Do not complete Part VI if a local site assessment is used.

Assign the maximum points for each site assessment criterion as shown in § 658.5 (b) of CFR. In cases of corridor-type projects such as transportation, powerline and flood control, criteria #5 and #6 will not apply and will, be weighed zero, however, criterion #8 will be weighed a maximum of 25 points, and criterion #11 a maximum of 25 points.

Individual Federal agencies at the national level, may assign relative weights among the 12 site assessment criteria other than those shown in the FPPA rule. In all cases where other weights are assigned relative adjustments must be made to maintain the maximum total weight points at l60.

In rating alternative sites, Federal agencies shall consider each of the criteria and assign points within the limits established in the FPPA rule. Sites most suitable for protection under these criteria will receive the highest total scores, and sites least suitable, the lowest scores.

Part VII: In computing the "Total Site Assessment Points" where a State or local site assessment is used and the total maximum number of points is other than 160, adjust the site assessment points to a base of 160. Example: if the Site Assessment maximum is 200 points, and alternative Site "A" is rated 180 points:

$$\frac{\text{Total points assigned Site A}}{\text{Maximum points possible}} = \frac{180}{200} \times 160 = 144 \text{ points for Site "A."}$$

Site Assessment Scoring for the Twelve Factors Used in FPPA

The Site Assessment criteria used in the Farmland Protection Policy Act (FPPA) rule are designed to assess important factors other than the agricultural value of the land when determining which alternative sites should receive the highest level of protection from conversion to non agricultural uses.

Twelve factors are used for Site Assessment and ten factors for corridor-type sites. Each factor is listed in an outline form, without detailed definitions or guidelines to follow in the rating process. The purpose of this document is to expand the definitions of use of each of the twelve Site Assessment factors so that all persons can have a clear understanding as to what each factor is intended to evaluate and how points are assigned for given conditions.

In each of the 12 factors a number rating system is used to determine which sites deserve the most protection from conversion to non-farm uses. The higher the number value given to a proposed site, the more protection it will receive. The maximum scores are 10, 15 and 20 points, depending upon the relative importance of each particular question. If a question significantly relates to why a parcel of land should not be converted, the question has a maximum possible protection value of 20, whereas a question which does not have such a significant impact upon whether a site would be converted, would have fewer maximum points possible, for example 10.

The following guidelines should be used in rating the twelve Site Assessment criteria:

1. How much land is in non-urban use within a radius of 1.0 mile from where the project is intended?

More than 90 percent:	15 points
90-20 percent:	14 to 1 points
Less than 20 percent:	0 points

This factor is designed to evaluate the extent to which the area within one mile of the proposed site is non-urban area. For purposes of this rule, "non-urban" should include:

- Agricultural land (crop-fruit trees, nuts, oilseed)
- Range land
- Forest land
- Golf Courses
- Non paved parks and recreational areas
- Mining sites
- Farm Storage
- Lakes, ponds and other water bodies
- Rural roads, and through roads without houses or buildings
- Open space
- Wetlands
- Fish production
- Pasture or hayland

Urban uses include:

- Houses (other than farm houses)
- Apartment buildings
- Commercial buildings
- Industrial buildings
- Paved recreational areas (i.e. tennis courts)
- Streets in areas with 30 structures per 40 acres
- Gas stations

- Equipment, supply stores
- Off-farm storage
- Processing plants
- Shopping malls
- Utilities/Services
- Medical buildings

In rating this factor, an area one-mile from the outer edge of the proposed site should be outlined on a current photo; the areas that are urban should be outlined. For rural houses and other buildings with unknown sizes, use 1 and 1/3 acres per structure. For roads with houses on only one side, use one half of road for urban and one half for non-urban.

The purpose of this rating process is to insure that the most valuable and viable farmlands are protected from development projects sponsored by the Federal Government. With this goal in mind, factor S1 suggests that the more agricultural lands surrounding the parcel boundary in question, the more protection from development this site should receive. Accordingly, a site with a large quantity of non-urban land surrounding it will receive a greater
number of points for protection from development. Thus, where more than 90 percent of the area around the proposed site (do not include the proposed site in this assessment) is non-urban, assign 15 points. Where 20 percent or less is
non-urban, assign 0 points. Where the area lies between 20 and 90 percent non-urban, assign appropriate points from 14 to 1, as noted below.

Percent Non-Urban Land within 1 mile	**Points**
90 percent or greater	15
85 to 89 percent	14
80 to 84 percent	13
75 to 79 percent	12
70 to 74 percent	11
65 to 69 percent	10
60 to 64 percent	9
55 to 59 percent	8
50 to 54 percent	7
45 to 49 percent	6
40 to 44 percent	5
35 to 39 percent	4
30 to 24 percent	3
25 to 29 percent	2
21 to 24 percent	1
20 percent or less	0

2. How much of the perimeter of the site borders on land in non-urban use?

More than 90 percent:	l0 points
90 to 20 percent:	9 to 1 point(s)
Less than 20 percent:	0 points

This factor is designed to evaluate the extent to which the land adjacent to the proposed site is non-urban use. Where factor #1 evaluates the general location of the proposed site, this factor evaluates the immediate perimeter of the site. The definition of urban and non-urban uses in factor #1 should be used for this factor.

In rating the second factor, measure the perimeter of the site that is in non-urban and urban use. Where more than 90 percent of the perimeter is in non-urban use, score this factor 10 points. Where less than 20 percent, assign 0 points. If a road is next to the perimeter, class the area according to the

use on the other side of the road for that area. Use 1 and 1/3 acre per structure if not otherwise known. Where 20 to 90 percent of the perimeter is non-urban, assign points as noted below:

Percentage of Perimeter Bordering Land	Points
90 percent or greater	10
82 to 89 percent	9
74 to 81 percent	8
65 to 73 percent	7
58 to 65 percent	6
50 to 57 percent	5
42 to 49 percent	4
34 to 41 percent	3
27 to 33 percent	2
21 to 26 percent	1
20 percent or Less	0

3. How much of the site has been farmed (managed for a scheduled harvest or timber activity) more than five of the last ten years?

More than 90 percent:	20 points
90 to 20 percent:	19 to 1 point(s)
Less than 20 percent:	0 points

This factor is designed to evaluate the extent to which the proposed conversion site has been used or managed for agricultural purposes in the past 10 years.

Land is being farmed when it is used or managed for food or fiber, to include timber products, fruit, nuts, grapes, grain, forage, oil seed, fish and meat, poultry and dairy products.

Land that has been left to grow up to native vegetation without management or harvest will be considered as abandoned and therefore not farmed. The proposed conversion site should be evaluated and rated according to the percent, of the site farmed.

If more than 90 percent of the site has been farmed 5 of the last 10 years score the site as follows:

Percentage of Site Farmed	Points
90 percent or greater	20
86 to 89 percent	19
82 to 85 percent	18
78 to 81 percent	17
74 to 77 percent	16
70 to 73 percent	15
66 to 69 percent	14
62 to 65 percent	13
58 to 61 percent	12
54 to 57 percent	11
50 to 53 percent	10
46 to 49 percent	9
42 to 45 percent	8
38 to 41 percent	7
35 to 37 percent	6
32 to 34 percent	5
29 to 31 percent	4
26 to 28 percent	3

23 to 25 percent	2
20 to 22 percent percent or Less	1
Less than 20 percent	0

4. Is the site subject to state or unit of local government policies or programs to protect farmland or covered by private programs to protect farmland?

Site is protected:	20 points
Site is not protected:	0 points

This factor is designed to evaluate the extent to which state and local government and private programs have made efforts to protect this site from conversion.

State and local policies and programs to protect farmland include:

State Policies and Programs to Protect Farmland

1. Tax Relief:

   A. Differential Assessment: Agricultural lands are taxed on their agricultural use value, rather than at market value. As a result, farmers pay fewer taxes on their land, which helps keep them in business, and therefore helps to insure that the farmland will not be converted to nonagricultural uses.

      1. Preferential Assessment for Property Tax: Landowners with parcels of land used for agriculture are given the privilege of differential assessment.

      2. Deferred Taxation for Property Tax: Landowners are deterred from converting their land to nonfarm uses, because if they do so, they must pay back taxes at market value.

      3. Restrictive Agreement for Property Tax: Landowners who want to receive Differential Assessment must agree to keep their land in - eligible use.

   B. Income Tax Credits

   Circuit Breaker Tax Credits: Authorize an eligible owner of farmland to apply some or all of the property taxes on his or her farmland and farm structures as a tax credit against the owner's state income tax.

   C. Estate and Inheritance Tax Benefits

   Farm Use Valuation for Death Tax: Exemption of state tax liability to eligible farm estates.

2. "Right to farm" laws:

   Prohibits local governments from enacting laws which will place restrictions upon normally accepted farming practices, for example, the generation of noise, odor or dust.

3. Agricultural Districting:

   Wherein farmers voluntarily organize districts of agricultural land to be legally recognized geographic areas. These farmers receive benefits, such as protection from annexation, in exchange for keeping land within the district for a given number of years.

4. Land Use Controls: Agricultural Zoning.

Types of Agricultural Zoning Ordinances include:

A. Exclusive: In which the agricultural zone is restricted to only farm-related dwellings, with, for example, a minimum of 40 acres per dwelling unit.

B. Non-Exclusive: In which non-farm dwellings are allowed, but the density remains low, such as 20 acres per dwelling unit.

Additional Zoning techniques include:

A. Slidinq Scale: This method looks at zoning according to the total size of the parcel owned. For example, the number of dwelling units per a given number of acres may change from county to county according to the existing land acreage to dwelling unit ratio of surrounding parcels of land within the specific area.

B. Point System or Numerical Approach: Approaches land use permits on a case by case basis.

LESA: The LESA system (Land Evaluation-Site Assessment) is used as a tool to help assess options for land use on an evaluation of productivity weighed against commitment to urban development.

C. Conditional Use: Based upon the evaluation on a case by case basis by the Board of Zoning Adjustment. Also may include the method of using special land use permits.

5. Development Rights:

A. Purchase of Development Rights (PDR): Where development rights are purchased by Government action.

Buffer Zoning Districts: Buffer Zoning Districts are an example of land purchased by Government action. This land is included in zoning ordinances in order to preserve and protect agricultural lands from non-farm land uses encroaching upon them.

B. Transfer of Development Rights (TDR): Development rights are transferable for use in other locations designated as receiving areas. TDR is considered a locally based action (not state), because it requires a voluntary decision on the part of the individual landowners.

6. Governor's Executive Order: Policy made by the Governor, stating the importance of agriculture, and the preservation of agricultural lands. The Governor orders the state agencies to avoid the unnecessary conversion of important farmland to nonagricultural uses.

7. Voluntary State Programs:

A. California's Program of Restrictive Agreements and Differential Assessments: The California Land Conservation Act of 1965, commonly known as the Williamson Act, allows cities, counties and individual landowners to form agricultural preserves and enter into contracts for 10 or more years to insure that these parcels of land remain strictly for agricultural use. Since 1972 the Act has extended eligibility to recreational and open space lands such as scenic highway corridors, salt ponds and wildlife preserves. These contractually restricted lands may be taxed differentially for their real value. One hundred-acre districts constitute the minimum land size eligible.

Suggestion: An improved version of the Act would state that if the land is converted after the contract expires, the landowner must pay the difference in the taxes between market value for the land and the agricultural tax value which he or she had been

paying under the Act. This measure would help to insure that farmland would not be converted after the 10 year period ends.

B. Maryland Agricultural Land Preservation Program: Agricultural landowners within agricultural districts have the opportunity to sell their development rights to the Maryland Land Preservation Foundation under the agreement that these landowners will not subdivide or develop their land for an initial period of five years. After five years the landowner may terminate the agreement with one year notice.

As is stated above under the California Williamson Act, the landowner should pay the back taxes on the property if he or she decides to convert the land after the contract expires, in order to discourage such conversions.

C. Wisconsin Income Tax Incentive Program: The Wisconsin Farmland Preservation Program of December 1977 encourages local jurisdictions in Wisconsin to adopt agricultural preservation plans or exclusive agricultural district zoning ordinances in exchange for credit against state income tax and exemption from special utility assessment. Eligible candidates include local governments and landowners with at least 35 acres of land per dwelling unit in agricultural use and gross farm profits of at least $6.000 per year, or $18,000 over three years.

8. Mandatory State Programs:

A. The Environmental Control Act in the state of Vermont was adopted in 1970 by the Vermont State Legislature. The Act established an environmental board with 9 members (appointed by the Governor) to implement a planning process and a permit system to screen most subdivisions and development proposals according to specific criteria stated in the law. The planning process consists of an interim and a final Land Capability and Development Plan, the latter of which acts as a policy plan to control development. The policies are written in order to:

- prevent air and water pollution;
- protect scenic or natural beauty, historic sites and rare and irreplaceable natural areas; and
- consider the impacts of growth and reduction of development on areas of primary agricultural soils.

B. The California State Coastal Commission: In 1976 the Coastal Act was passed to establish a permanent Coastal Commission with permit and planning authority The purpose of the Coastal Commission was and is to protect the sensitive coastal zone environment and its resources, while accommodating the social and economic needs of the state. The Commission has the power to regulate development in the coastal zones by issuing permits on a case by case basis until local agencies can develop their own coastal plans, which must be certified by the Coastal Commission.

C. Hawaii's Program of State Zoning: In 1961, the Hawaii State Legislature established Act 187, the Land Use Law, to protect the farmland and the welfare of the local people of Hawaii by planning to avoid “unnecessary urbanization”. The Law made all state lands into four districts: agricultural, conservation, rural and urban. The Governor appointed members to a State Land Use Commission, whose duties were to uphold the Law and form the boundaries of the four districts. In addition to state zoning, the Land Use Law introduced a program of Differential Assessment, wherein agricultural landowners paid taxes on their land for its agricultural use value, rather than its market value.

D. The Oregon Land Use Act of 1973: This act established the Land Conservation and Development Commission (LCDC) to provide statewide planning goals and guidelines.

Under this Act, Oregon cities and counties are each required to draw up a comprehensive plan, consistent with statewide planning goals. Agricultural land preservation is high on the list of state goals to be followed locally.

If the proposed site is subject to or has used one or more of the above farmland protection programs or policies, score the site 20 points. If none of the above policies or programs apply to this site, score 0 points.

5. How close is the site to an urban built-up area?

The site is 2 miles or more from an urban built-up area	15 points
The site is more than 1 mile but less than 2 miles from an urban built-up area	10 points
The site is less than 1 mile from, but is not adjacent to an urban built-up area	5 points
The site is adjacent to an urban built-up area	0 points

This factor is designed to evaluate the extent to which the proposed site is located next to an existing urban area. The urban built-up area must be 2500 population. The measurement from the built-up area should be made from the point at which the density is 30 structures per 40 acres and with no open or non-urban land existing between the major built-up areas and this point. Suburbs adjacent to cities or urban built-up areas should be considered as part of that urban area.

For greater accuracy, use the following chart to determine how much protection the site should receive according to its distance from an urban area. See chart below:

Distance From Perimeter of Site to Urban Area	Points
More than 10,560 feet	15
9,860 to 10,559 feet	14
9,160 to 9,859 feet	13
8,460 to 9,159 feet	12
7,760 to 8,459 feet	11
7,060 to 7,759 feet	10
6,360 to 7,059 feet	9
5,660 to 6,359 feet	8
4,960 to 5,659 feet	7
4,260 to 4,959 feet	6
3,560 to 4,259 feet	5
2,860 to 3,559 feet	4
2,160 to 2,859 feet	3
1,460 to 2,159 feet	2
760 to 1,459 feet	1
Less than 760 feet (adjacent)	0

6. How close is the site to water lines, sewer lines and/or other local facilities and services whose capacities and design would promote nonagricultural use?

None of the services exist nearer than 3 miles from the site	15 points
Some of the services exist more than one but less than 3 miles from the site	10 points
All of the services exist within 1/2 mile of the site	0 points

This question determines how much infrastructure (water, sewer, etc.) is in place which could facilitate nonagricultural development. The fewer facilities in place, the more difficult it is to develop an area. Thus, if a proposed site is further away from these services (more than 3 miles distance away), the site should be awarded the highest number of points (15). As the distance of the parcel of land to services decreases, the number of points awarded declines as well. So, when the site is equal to or further than 1 mile but less than 3 miles away from services, it should be given 10 points. Accordingly, if this distance is 1/2 mile to less than 1 mile, award 5 points; and if the distance from land to services is less than 1/2 mile, award 0 points.

Distance to public facilities should be measured from the perimeter of the parcel in question to the nearest site(s) where necessary facilities are located. If there is more than one distance (i.e. from site to water and from site to sewer), use the average distance (add all distances and then divide by the number of different distances to get the average).

Facilities which could promote nonagricultural use include:

- Water lines
- Sewer lines
- Power lines
- Gas lines
- Circulation (roads)
- Fire and police protection
- Schools

7. Is the farm unit(s) containing the site (before the project) as large as the average-size farming unit in the county? (Average farm sizes in each county are available from the NRCS field offices in each state. Data are from the latest available Census of Agriculture, Acreage of Farm Units in Operation with $1,000 or more in sales.)

As large or larger:	10 points
Below average: Deduct 1 point for each 5 percent below the average, down to 0 points if 50 percent or more is below average	9 to 0 points

This factor is designed to determine how much protection the site should receive, according to its size in relation to the average size of farming units within the county. The larger the parcel of land, the more agricultural use value the land possesses, and vice versa. Thus, if the farm unit is as large or larger than the county average, it receives the maximum number of points (10). The smaller the parcel of land compared to the county average, the fewer number of points given. Please see below:

Parcel Size in Relation to Average County Size	Points
Same size or larger than average (l00 percent)	10
95 percent of average	9
90 percent of average	8
85 percent of average	7
80 percent of average	6
75 percent of average	5
70 percent of average	4
65 percent of average	3
60 percent of average	2
55 percent of average	1
50 percent or below county average	0

State and local Natural Resources Conservation Service offices will have the average farm size information, provided by the latest available Census of Agriculture data

8. If this site is chosen for the project, how much of the remaining land on the farm will become non-farmable because of interference with land patterns?

Acreage equal to more than 25 percent of acres directly converted by the project	10 points
Acreage equal to between 25 and 5 percent of the acres directly converted by the project	9 to 1 point(s)
Acreage equal to less than 5 percent of the acres directly converted by the project	0 points

This factor tackles the question of how the proposed development will affect the rest of the land on the farm The site which deserves the most protection from conversion will receive the greatest number of points, and vice versa. For example, if the project is small, such as an extension on a house, the rest of the agricultural land would remain farmable, and thus a lower number of points is given to the site. Whereas if a large-scale highway is planned, a greater portion of the land (not including the site) will become non-farmable, since access to the farmland will be blocked; and thus, the site should receive the highest number of points (10) as protection from conversion

Conversion uses of the Site Which Would Make the Rest of the Land Non-Farmable by Interfering with Land Patterns

Conversions which make the rest of the property nonfarmable include any development which blocks accessibility to the rest of the site Examples are highways, railroads, dams or development along the front of a site restricting access to the rest of the property.

The point scoring is as follows:

Amount of Land Not Including the Site Which Will Become Non-Farmable	Points
25 percent or greater	10
23 - 24 percent	9
21 - 22 percent	8
19 - 20 percent	7
17 - 18 percent	6
15 - 16 percent	5
13 - 14 percent	4
11 - 12 percent	3
9 - 11 percent	2
6 - 8 percent	1
5 percent or less	0

9. Does the site have available adequate supply of farm support services and markets, i.e., farm suppliers, equipment dealers, processing and storage facilities and farmer's markets?

All required services are available	5 points
Some required services are available	4 to 1 point(s)
No required services are available	0 points

This factor is used to assess whether there are adequate support facilities, activities and industry to keep the farming business in business. The more support facilities available to the agricultural

landowner, the more feasible it is for him or her to stay in production. In addition, agricultural support facilities are compatible with farmland. This fact is important, because some land uses are not compatible; for example, development next to farmland cam be dangerous to the welfare of the agricultural land, as a result of pressure from the neighbors who often do not appreciate the noise, smells and dust intrinsic to farmland. Thus, when all required agricultural support services are available, the maximum number of points (5) are awarded. When some services are available, 4 to 1 point(s) are awarded; and consequently, when no services are available, no points are given. See below:

Percent of Services Available	Points
100 percent	5
75 to 99 percent	4
50 to 74 percent	3
25 to 49 percent	2
1 to 24 percent	1
No services	0

10. Does the site have substantial and well-maintained on farm investments such as barns, other storage buildings, fruit trees and vines, field terraces, drainage, irrigation, waterways, or other soil and water conservation measures?

High amount of on-farm investment	20 points
Moderate amount of non-farm investment	19 to 1 point(s)
No on-farm investments	0 points

This factor assesses the quantity of agricultural facilities in place on the proposed site. If a significant agricultural infrastructure exists, the site should continue to be used for farming, and thus the parcel will receive the highest amount of points towards protection from conversion or development. If there is little on farm investment, the site will receive comparatively less protection. See-below:

Amount of On-farm Investment	Points
As much or more than necessary to maintain production (100 percent)	20
95 to 99 percent	19
90 to 94 percent	18
85 to 89 percent	17
80 to 84 percent	16
75 to 79 percent	15
70 to 74 percent	14
65 to 69 percent	13
60 to 64 percent	12
55 to 59 percent	11
50 to 54 percent	10
45 to 49 percent	9
40 to 44 percent	8
35 to 39 percent	7
30 to 34 percent	6
25 to 29 percent	5
20 to 24 percent	4
15 to 19 percent	3
10 to 14 percent	2
5 to 9 percent	1
0 to 4 percent	0

11. Would the project at this site, by converting farmland to nonagricultural use, reduce the support for farm support services so as to jeopardize the continued existence of these support services and thus, the viability of the farms remaining in the area?

Substantial reduction in demand for support services if the site is converted	10 points
Some reduction in demand for support services if the site is converted	9 to 1 point(s)
No significant reduction in demand for support services if the site is converted	0 points

This factor determines whether there are other agriculturally related activities, businesses or jobs dependent upon the working of the pre-converted site in order for the others to remain in production. The more people and farming activities relying upon this land, the more protection it should receive from conversion. Thus, if a substantial reduction in demand for support services were to occur as a result of conversions, the proposed site would receive a high score of 10; some reduction in demand would receive 9 to 1 point(s), and no significant reduction in demand would receive no points.

Specific points are outlined as follows:

Amount of Reduction in Support Services if Site is Converted to Nonagricultural Use	**Points**
Substantial reduction (100 percent)	10
90 to 99 percent	9
80 to 89 percent	8
70 to 79 percent	7
60 to 69 percent	6
50 to 59 percent	5
40 to 49 percent	4
30 to 39 percent	3
20 to 29 percent	2
10 to 19 percent	1
No significant reduction (0 to 9 percent)	0

12. Is the kind and intensity of the proposed use of the site sufficiently incompatible with agriculture that it is likely to contribute to the eventual conversion of the surrounding farmland to nonagricultural use?

Proposed project is incompatible with existing agricultural use of surrounding farmland	10 points
Proposed project is tolerable of existing agricultural use of surrounding farmland	9 to 1 point(s)
Proposed project is fully compatible with existing agricultural use of surrounding farmland	0 points

Factor 12 determines whether conversion of the proposed agricultural site will eventually cause the conversion of neighboring farmland as a result of incompatibility of use of the first with the latter. The more incompatible the proposed conversion is with agriculture, the more protection this site receives from conversion. Therefor-, if the proposed conversion is incompatible with agriculture, the site receives 10 points. If the project is tolerable with agriculture, it receives 9 to 1 points; and if the proposed conversion is compatible with agriculture, it receives 0 points.

CORRIDOR - TYPE SITE ASSESSMENT CRITERIA

The following criteria are to be used for projects that have a linear or corridor - type site configuration connecting two distant points, and crossing several different tracts of land. These include utility lines, highways, railroads, stream improvements, and flood control systems. Federal agencies are to assess the suitability of each corridor-type site or design alternative for protection as farmland along with the land evaluation information.

For Water and Waste Programs, corridor analyses are not applicable for distribution or collection networks. Analyses are applicable for transmission or trunk lines where placement of the lines are flexible.

(1) How much land is in nonurban use within a radius of 1.0 mile form where the project is intended?

(2)	More than 90 percent	(3)	15 points
(4)	90 to 20 percent	(5)	14 to 1 point(s).
(6)	Less than 20 percent	(7)	0 points

(2) How much of the perimeter of the site borders on land in nonurban use?

(3)	More than 90 percent	(4)	10 point(s)
(5)	90 to 20 percent	(6)	9 to 1 points
(7)	less than 20 percent	(8)	0 points

(3) How much of the site has been farmed (managed for a scheduled harvest or timber activity) more than five of the last 10 years?

(4)	More than 90 percent	(5)	20 points
(6)	90 to 20 percent	(7)	19 to 1 point(s)
(8)	Less than 20 percent	(9)	0 points

(4) Is the site subject to state or unit of local government policies or programs to protect farmland or covered by private programs to protect farmland?

Site is protected	20 points
Site is not protected	0 points

(5) Is the farm unit(s) containing the site (before the project) as large as the average - size farming unit in the County? (Average farm sizes in each county are available from the NRCS field offices in each state. Data are from the latest available Census of Agriculture, Acreage of Farm Units in Operation with $1,000 or more in sales.)

As large or larger	10 points
Below average deduct 1 point for each 5 percent below the average, down to 0 points if 50 percent or more below average	9 to 0 points

(6) If the site is chosen for the project, how much of the remaining land on the farm will become non-farmable because of interference with land patterns?

Acreage equal to more than 25 percent of acres directly converted by the project	25 points
Acreage equal to between 25 and 5 percent of the acres directly convened by the project	1 to 24 point(s)
Acreage equal to less than 5 percent of the acres directly converted by the project	0 points

(7) Does the site have available adequate supply of farm support services and markets, i.e., farm suppliers, equipment dealers, processing and storage facilities and farmer's markets?

All required services are available	5 points
Some required services are available	4 to 1 point(s)
No required services are available	0 points

(8) Does the site have substantial and well-maintained on-farm investments such as barns, other storage building, fruit trees and vines, field terraces, drainage, irrigation, waterways, or other soil and water conservation measures?

High amount of on-farm investment	20 points
Moderate amount of on-farm investment	19 to 1 point(s)
No on-farm investment	0 points

(9) Would the project at this site, by converting farmland to nonagricultural use, reduce the demand for farm support services so as to jeopardize the continued existence of these support services and thus, the viability of the farms remaining in the area?

Substantial reduction in demand for support services if the site is convened	25 points
Some reduction in demand for support services if the site is convened	1 to 24 point(s)
No significant reduction in demand for support services if the site is converted	0 points

(10) Is the kind and intensity of the proposed use of the site sufficiently incompatible with agriculture that it is likely to contribute to the eventual conversion of surrounding farmland to nonagricultural use?

Proposed project is incompatible to existing agricultural use of surrounding farmland	10 points
Proposed project is tolerable to existing agricultural use of surrounding farmland	9 to 1 point(s)
Proposed project is fully compatible with existing agricultural use of surrounding farmland	0 points

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Appendix B Air Quality Modeling

Based on the construction and support vehicle calculations in Section 4.1, the total NO_X emissions were found to be above the *de minimis* annual emission levels for NAAQS non-attainment zones (Exhibit 4-5)

The total NO_X emissions were modeled to estimate the maximum possible impact of these emissions on ambient air quality. The most conservative case was based on all construction-related NO_X emissions occurring at the same time. The maximum downwind annual average concentration was calculated using EPA's SCREEN3 model, a conservative screening model that estimates the maximum downwind concentration of a pollutant assuming worst-case meteorological conditions. The most conservative scenario was to consider, for a 10- hour workday, the cumulative effects of maximum construction operations at all sites simultaneously, full vehicular and equipment use, and off-road travel. For modeling purposes, the NO_X emissions were considered an area source. The parameters used for the SCREEN3 simulations are as follows:

- Type of Source (Point/Area/Volume) = Area
- Length of Smaller Side = 212 meters
- Length of Larger Side = 212 meters
- Emission Rate = 4.72E-05 g/s-m2 (assumes annual emissions of 66.8 metric tons emitted at a constant rate over an area of 4.5 hectares)
- Source Height = 0.0 meters
- Receptor Height = 1.5 meters (a person)
- Urban/Rural Area = Rural
- Search on all directions to find maximum downwind concentration (Y/N) = Yes
- Atmospheric Stability Class (a-f) = c (moderate stability)

Based on these inputs, a maximum annual average downwind concentration of 110 $\mu g/m^3$ was estimated 155 meters downwind from the site, which is slightly higher (by 10 $\mu g/m^3$) than the NAAQS for NO_2. Given that NO_X emissions include constituents in addition to NO_2 and that these NO_X concentrations were estimated with very conservative assumptions (all construction vehicles assumed to operate 10 hours per day for the entire construction period, all commuting emissions occur at the site, and concentrations were estimated with a conservative, screening-level model), this comparison indicates that it is unlikely that these emissions will result in adverse air quality impacts near the site.